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<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>284</b>	Diagnosis Procedure .....	305	K
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<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>285</b>	Diagnosis Procedure .....	306	L
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<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>287</b>	Diagnosis Procedure .....	309	
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Diagnosis Procedure .....	289	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>312</b>	
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Diagnosis Procedure .....	291	Diagnosis Procedure .....	314	
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>292</b>	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>315</b>	
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<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>318</b>	Diagnosis Procedure .....	340
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Diagnosis Procedure .....	321	Diagnosis Procedure .....	343
<b>DLC BRANCH LINE CIRCUIT</b> .....	<b>323</b>	<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>344</b>
Diagnosis Procedure .....	323	Diagnosis Procedure .....	344
<b>EPS BRANCH LINE CIRCUIT</b> .....	<b>324</b>	<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>345</b>
Diagnosis Procedure .....	324	Diagnosis Procedure .....	345
<b>I-KEY BRANCH LINE CIRCUIT</b> .....	<b>325</b>	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>346</b>
Diagnosis Procedure .....	325	Diagnosis Procedure .....	346
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>326</b>	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>347</b>
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<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>327</b>	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>348</b>
Diagnosis Procedure .....	327	Diagnosis Procedure .....	348
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>328</b>	<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>349</b>
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<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>330</b>	<b>MAIN LINE BETWEEN DLC AND ABS CIR- CUIT</b> .....	<b>351</b>
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Diagnosis Procedure .....	331	Diagnosis Procedure .....	352
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<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>361</b>	Diagnosis Procedure .....	383	A
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<b>BCM BRANCH LINE CIRCUIT</b> .....	462	<b>ECM BRANCH LINE CIRCUIT</b> .....	483	
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Diagnosis Procedure .....	506	<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>529</b>
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Diagnosis Procedure .....	539	Diagnosis Procedure .....	562	
<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>541</b>	<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>563</b>	<b>B</b>
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<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>542</b>	<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>564</b>	<b>C</b>
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<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>544</b>	<b>CAN SYSTEM (TYPE 101)</b>		
Diagnosis Procedure .....	544	<b>COMPONENT DIAGNOSIS .....</b>	<b>567</b>	<b>E</b>
<b>STRG BRANCH LINE CIRCUIT .....</b>	<b>545</b>	<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		
Diagnosis Procedure .....	545	<b>CUIT .....</b>	<b>567</b>	<b>F</b>
<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>546</b>	Diagnosis Procedure .....	567	
Diagnosis Procedure .....	546	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>568</b>	<b>G</b>
<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>547</b>	Diagnosis Procedure .....	568	
Diagnosis Procedure .....	547	<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>570</b>	<b>H</b>
<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>548</b>	Diagnosis Procedure .....	570	
Diagnosis Procedure .....	548	<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>571</b>	<b>I</b>
<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>549</b>	Diagnosis Procedure .....	571	
Diagnosis Procedure .....	549	<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>572</b>	<b>J</b>
<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>550</b>	Diagnosis Procedure .....	572	
Diagnosis Procedure .....	550	<b>4WD BRANCH LINE CIRCUIT .....</b>	<b>573</b>	<b>K</b>
<b>CAN SYSTEM (TYPE 100)</b>		Diagnosis Procedure .....	573	
<b>COMPONENT DIAGNOSIS .....</b>	<b>552</b>	<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>574</b>	<b>L</b>
<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		Diagnosis Procedure .....	574	
<b>CUIT .....</b>	<b>552</b>	<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>575</b>	
Diagnosis Procedure .....	552	Diagnosis Procedure .....	575	
<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>553</b>	<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>576</b>	<b>LNR</b>
Diagnosis Procedure .....	553	Diagnosis Procedure .....	576	
<b>AV BRANCH LINE CIRCUIT .....</b>	<b>555</b>	<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>577</b>	<b>N</b>
Diagnosis Procedure .....	555	Diagnosis Procedure .....	577	
<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>556</b>	<b>CAN SYSTEM (TYPE 102)</b>		
Diagnosis Procedure .....	556	<b>COMPONENT DIAGNOSIS .....</b>	<b>579</b>	<b>O</b>
<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>557</b>	<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		
Diagnosis Procedure .....	557	<b>CUIT .....</b>	<b>579</b>	<b>P</b>
<b>I-KEY BRANCH LINE CIRCUIT .....</b>	<b>558</b>	Diagnosis Procedure .....	579	
Diagnosis Procedure .....	558	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>580</b>	
<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>559</b>	Diagnosis Procedure .....	580	
Diagnosis Procedure .....	559	<b>AV BRANCH LINE CIRCUIT .....</b>	<b>582</b>	
<b>STRG BRANCH LINE CIRCUIT .....</b>	<b>560</b>	Diagnosis Procedure .....	582	
Diagnosis Procedure .....	560	<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>583</b>	
<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>561</b>	Diagnosis Procedure .....	583	

<b>EPS BRANCH LINE CIRCUIT</b> .....	<b>584</b>	Diagnosis Procedure .....	605
Diagnosis Procedure .....	584		
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>585</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>606</b>
Diagnosis Procedure .....	585	Diagnosis Procedure .....	606
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>586</b>	<b>AV BRANCH LINE CIRCUIT</b> .....	<b>608</b>
Diagnosis Procedure .....	586	Diagnosis Procedure .....	608
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>587</b>	<b>DLC BRANCH LINE CIRCUIT</b> .....	<b>609</b>
Diagnosis Procedure .....	587	Diagnosis Procedure .....	609
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>588</b>	<b>EPS BRANCH LINE CIRCUIT</b> .....	<b>610</b>
Diagnosis Procedure .....	588	Diagnosis Procedure .....	610
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>589</b>	<b>I-KEY BRANCH LINE CIRCUIT</b> .....	<b>611</b>
Diagnosis Procedure .....	589	Diagnosis Procedure .....	611
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>590</b>	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>612</b>
Diagnosis Procedure .....	590	Diagnosis Procedure .....	612
<b>CAN SYSTEM (TYPE 103)</b>			
<b>COMPONENT DIAGNOSIS</b> .....	<b>592</b>	<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>613</b>
		Diagnosis Procedure .....	613
<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>614</b>
<b>CUIT</b> .....	<b>592</b>	Diagnosis Procedure .....	614
Diagnosis Procedure .....	592	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>615</b>
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>593</b>	Diagnosis Procedure .....	615
Diagnosis Procedure .....	593	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>616</b>
<b>DLC BRANCH LINE CIRCUIT</b> .....	<b>595</b>	Diagnosis Procedure .....	616
Diagnosis Procedure .....	595	<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>617</b>
<b>EPS BRANCH LINE CIRCUIT</b> .....	<b>596</b>	Diagnosis Procedure .....	617
Diagnosis Procedure .....	596	<b>CAN SYSTEM (TYPE 105)</b>	
<b>I-KEY BRANCH LINE CIRCUIT</b> .....	<b>597</b>	<b>COMPONENT DIAGNOSIS</b> .....	<b>619</b>
Diagnosis Procedure .....	597		
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>598</b>	<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>	
Diagnosis Procedure .....	598	<b>CUIT</b> .....	<b>619</b>
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>599</b>	Diagnosis Procedure .....	619
Diagnosis Procedure .....	599	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>620</b>
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>600</b>	Diagnosis Procedure .....	620
Diagnosis Procedure .....	600	<b>DLC BRANCH LINE CIRCUIT</b> .....	<b>622</b>
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>601</b>	Diagnosis Procedure .....	622
Diagnosis Procedure .....	601	<b>EPS BRANCH LINE CIRCUIT</b> .....	<b>623</b>
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>602</b>	Diagnosis Procedure .....	623
Diagnosis Procedure .....	602	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>624</b>
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>603</b>	Diagnosis Procedure .....	624
Diagnosis Procedure .....	603	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>625</b>
<b>CAN SYSTEM (TYPE 104)</b>			
<b>COMPONENT DIAGNOSIS</b> .....	<b>605</b>	Diagnosis Procedure .....	625
		<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>626</b>
<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		Diagnosis Procedure .....	626
<b>CUIT</b> .....	<b>605</b>	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>627</b>
		Diagnosis Procedure .....	627
		<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>628</b>

Diagnosis Procedure .....	628	<b>STRG BRANCH LINE CIRCUIT .....</b>	<b>651</b>	
<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>629</b>	Diagnosis Procedure .....	651	A
Diagnosis Procedure .....	629	<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>652</b>	
<b>CAN SYSTEM (TYPE 106)</b>		Diagnosis Procedure .....	652	B
<b>COMPONENT DIAGNOSIS .....</b>	<b>631</b>	<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>653</b>	
<b>MAIN LINE BETWEEN DLC AND ABS CIR- CUIT .....</b>	<b>631</b>	Diagnosis Procedure .....	653	C
Diagnosis Procedure .....	631	<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>654</b>	
<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>632</b>	Diagnosis Procedure .....	654	D
Diagnosis Procedure .....	632	<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>655</b>	
<b>AV BRANCH LINE CIRCUIT .....</b>	<b>634</b>	Diagnosis Procedure .....	655	E
Diagnosis Procedure .....	634	<b>CAN SYSTEM (TYPE 108)</b>		
<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>635</b>	<b>COMPONENT DIAGNOSIS .....</b>	<b>657</b>	
Diagnosis Procedure .....	635	<b>MAIN LINE BETWEEN DLC AND ABS CIR- CUIT .....</b>	<b>657</b>	F
<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>636</b>	Diagnosis Procedure .....	657	
Diagnosis Procedure .....	636	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>658</b>	G
<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>637</b>	Diagnosis Procedure .....	658	
Diagnosis Procedure .....	637	<b>AV BRANCH LINE CIRCUIT .....</b>	<b>660</b>	H
<b>STRG BRANCH LINE CIRCUIT .....</b>	<b>638</b>	Diagnosis Procedure .....	660	
Diagnosis Procedure .....	638	<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>661</b>	I
<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>639</b>	Diagnosis Procedure .....	661	
Diagnosis Procedure .....	639	<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>662</b>	J
<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>640</b>	Diagnosis Procedure .....	662	
Diagnosis Procedure .....	640	<b>I-KEY BRANCH LINE CIRCUIT .....</b>	<b>663</b>	K
<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>641</b>	Diagnosis Procedure .....	663	
Diagnosis Procedure .....	641	<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>664</b>	L
<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>642</b>	Diagnosis Procedure .....	664	
Diagnosis Procedure .....	642	<b>STRG BRANCH LINE CIRCUIT .....</b>	<b>665</b>	
<b>CAN SYSTEM (TYPE 107)</b>		Diagnosis Procedure .....	665	
<b>COMPONENT DIAGNOSIS .....</b>	<b>644</b>	<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>666</b>	LNR
<b>MAIN LINE BETWEEN DLC AND ABS CIR- CUIT .....</b>	<b>644</b>	Diagnosis Procedure .....	666	
Diagnosis Procedure .....	644	<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>667</b>	N
<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>645</b>	Diagnosis Procedure .....	667	
Diagnosis Procedure .....	645	<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>668</b>	O
<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>647</b>	Diagnosis Procedure .....	668	
Diagnosis Procedure .....	647	<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>669</b>	P
<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>648</b>	Diagnosis Procedure .....	669	
Diagnosis Procedure .....	648	<b>CAN SYSTEM (TYPE 109)</b>		
<b>I-KEY BRANCH LINE CIRCUIT .....</b>	<b>649</b>	<b>COMPONENT DIAGNOSIS .....</b>	<b>671</b>	
Diagnosis Procedure .....	649	<b>MAIN LINE BETWEEN DLC AND ABS CIR- CUIT .....</b>	<b>671</b>	
<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>650</b>	Diagnosis Procedure .....	671	
Diagnosis Procedure .....	650	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>672</b>	

Diagnosis Procedure .....	672	Diagnosis Procedure .....	695
<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>674</b>	<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>696</b>
Diagnosis Procedure .....	674	Diagnosis Procedure .....	696
<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>675</b>	<b>CAN SYSTEM (TYPE 111)</b>	
Diagnosis Procedure .....	675	<b>COMPONENT DIAGNOSIS .....</b>	<b>698</b>
<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>676</b>	<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>	
Diagnosis Procedure .....	676	<b>CUIT .....</b>	<b>698</b>
<b>4WD BRANCH LINE CIRCUIT .....</b>	<b>677</b>	Diagnosis Procedure .....	698
Diagnosis Procedure .....	677	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>699</b>
<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>678</b>	Diagnosis Procedure .....	699
Diagnosis Procedure .....	678	<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>701</b>
<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>679</b>	Diagnosis Procedure .....	701
Diagnosis Procedure .....	679	<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>702</b>
<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>680</b>	Diagnosis Procedure .....	702
Diagnosis Procedure .....	680	<b>I-KEY BRANCH LINE CIRCUIT .....</b>	<b>703</b>
<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>681</b>	Diagnosis Procedure .....	703
Diagnosis Procedure .....	681	<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>704</b>
<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>682</b>	Diagnosis Procedure .....	704
Diagnosis Procedure .....	682	<b>4WD BRANCH LINE CIRCUIT .....</b>	<b>705</b>
<b>CAN SYSTEM (TYPE 110)</b>		Diagnosis Procedure .....	705
<b>COMPONENT DIAGNOSIS .....</b>	<b>684</b>	<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>706</b>
<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		Diagnosis Procedure .....	706
<b>CUIT .....</b>	<b>684</b>	<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>707</b>
Diagnosis Procedure .....	684	Diagnosis Procedure .....	707
<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>685</b>	<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>708</b>
Diagnosis Procedure .....	685	Diagnosis Procedure .....	708
<b>AV BRANCH LINE CIRCUIT .....</b>	<b>687</b>	<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>709</b>
Diagnosis Procedure .....	687	Diagnosis Procedure .....	709
<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>688</b>	<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>710</b>
Diagnosis Procedure .....	688	Diagnosis Procedure .....	710
<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>689</b>	<b>CAN SYSTEM (TYPE 112)</b>	
Diagnosis Procedure .....	689	<b>COMPONENT DIAGNOSIS .....</b>	<b>712</b>
<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>690</b>	<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>	
Diagnosis Procedure .....	690	<b>CUIT .....</b>	<b>712</b>
<b>4WD BRANCH LINE CIRCUIT .....</b>	<b>691</b>	Diagnosis Procedure .....	712
Diagnosis Procedure .....	691	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>713</b>
<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>692</b>	Diagnosis Procedure .....	713
Diagnosis Procedure .....	692	<b>AV BRANCH LINE CIRCUIT .....</b>	<b>715</b>
<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>693</b>	Diagnosis Procedure .....	715
Diagnosis Procedure .....	693	<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>716</b>
<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>694</b>	Diagnosis Procedure .....	716
Diagnosis Procedure .....	694	<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>717</b>
<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>695</b>	Diagnosis Procedure .....	717



<b>I-KEY BRANCH LINE CIRCUIT</b> .....	718	<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		
Diagnosis Procedure .....	718	<b>CUIT</b> .....	740	A
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	719	Diagnosis Procedure .....	740	
Diagnosis Procedure .....	719	<b>ECM BRANCH LINE CIRCUIT</b> .....	741	B
<b>4WD BRANCH LINE CIRCUIT</b> .....	720	Diagnosis Procedure .....	741	
Diagnosis Procedure .....	720	<b>AV BRANCH LINE CIRCUIT</b> .....	743	C
<b>BCM BRANCH LINE CIRCUIT</b> .....	721	Diagnosis Procedure .....	743	
Diagnosis Procedure .....	721	<b>DLC BRANCH LINE CIRCUIT</b> .....	744	D
<b>ABS BRANCH LINE CIRCUIT</b> .....	722	Diagnosis Procedure .....	744	
Diagnosis Procedure .....	722	<b>EPS BRANCH LINE CIRCUIT</b> .....	745	E
<b>TCM BRANCH LINE CIRCUIT</b> .....	723	Diagnosis Procedure .....	745	
Diagnosis Procedure .....	723	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	746	F
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	724	Diagnosis Procedure .....	746	
Diagnosis Procedure .....	724	<b>STRG BRANCH LINE CIRCUIT</b> .....	747	G
<b>CAN COMMUNICATION CIRCUIT</b> .....	725	Diagnosis Procedure .....	747	
Diagnosis Procedure .....	725	<b>BCM BRANCH LINE CIRCUIT</b> .....	748	H
<b>CAN SYSTEM (TYPE 113)</b>		Diagnosis Procedure .....	748	
<b>COMPONENT DIAGNOSIS</b> .....	727	<b>ABS BRANCH LINE CIRCUIT</b> .....	749	I
<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		Diagnosis Procedure .....	749	
<b>CUIT</b> .....	727	<b>TCM BRANCH LINE CIRCUIT</b> .....	750	J
Diagnosis Procedure .....	727	Diagnosis Procedure .....	750	
<b>ECM BRANCH LINE CIRCUIT</b> .....	728	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	751	K
Diagnosis Procedure .....	728	Diagnosis Procedure .....	751	
<b>DLC BRANCH LINE CIRCUIT</b> .....	730	<b>CAN COMMUNICATION CIRCUIT</b> .....	752	L
Diagnosis Procedure .....	730	Diagnosis Procedure .....	752	
<b>EPS BRANCH LINE CIRCUIT</b> .....	731	<b>CAN SYSTEM (TYPE 115)</b>		
Diagnosis Procedure .....	731	<b>COMPONENT DIAGNOSIS</b> .....	754	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	732	<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		
Diagnosis Procedure .....	732	<b>CUIT</b> .....	754	
<b>STRG BRANCH LINE CIRCUIT</b> .....	733	Diagnosis Procedure .....	754	
Diagnosis Procedure .....	733	<b>ECM BRANCH LINE CIRCUIT</b> .....	755	LNR
<b>BCM BRANCH LINE CIRCUIT</b> .....	734	Diagnosis Procedure .....	755	
Diagnosis Procedure .....	734	<b>DLC BRANCH LINE CIRCUIT</b> .....	757	N
<b>ABS BRANCH LINE CIRCUIT</b> .....	735	Diagnosis Procedure .....	757	
Diagnosis Procedure .....	735	<b>EPS BRANCH LINE CIRCUIT</b> .....	758	O
<b>TCM BRANCH LINE CIRCUIT</b> .....	736	Diagnosis Procedure .....	758	
Diagnosis Procedure .....	736	<b>I-KEY BRANCH LINE CIRCUIT</b> .....	759	P
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	737	Diagnosis Procedure .....	759	
Diagnosis Procedure .....	737	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	760	
<b>CAN COMMUNICATION CIRCUIT</b> .....	738	Diagnosis Procedure .....	760	
Diagnosis Procedure .....	738	<b>STRG BRANCH LINE CIRCUIT</b> .....	761	
<b>CAN SYSTEM (TYPE 114)</b>		Diagnosis Procedure .....	761	
<b>COMPONENT DIAGNOSIS</b> .....	740	<b>BCM BRANCH LINE CIRCUIT</b> .....	762	

Diagnosis Procedure .....	762	Diagnosis Procedure .....	772
<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>763</b>	<b>EPS BRANCH LINE CIRCUIT .....</b>	<b>773</b>
Diagnosis Procedure .....	763	Diagnosis Procedure .....	773
<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>764</b>	<b>I-KEY BRANCH LINE CIRCUIT .....</b>	<b>774</b>
Diagnosis Procedure .....	764	Diagnosis Procedure .....	774
<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>765</b>	<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>775</b>
Diagnosis Procedure .....	765	Diagnosis Procedure .....	775
<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>766</b>	<b>STRG BRANCH LINE CIRCUIT .....</b>	<b>776</b>
Diagnosis Procedure .....	766	Diagnosis Procedure .....	776
<b>CAN SYSTEM (TYPE 116)</b>			
<b>COMPONENT DIAGNOSIS .....</b>	<b>768</b>	<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>777</b>
		Diagnosis Procedure .....	777
<b>MAIN LINE BETWEEN DLC AND ABS CIR-</b>		<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>778</b>
<b>CUIT .....</b>	<b>768</b>	Diagnosis Procedure .....	778
Diagnosis Procedure .....	768		
<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>769</b>	<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>779</b>
Diagnosis Procedure .....	769	Diagnosis Procedure .....	779
<b>AV BRANCH LINE CIRCUIT .....</b>	<b>771</b>	<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>780</b>
Diagnosis Procedure .....	771	Diagnosis Procedure .....	780
<b>DLC BRANCH LINE CIRCUIT .....</b>	<b>772</b>	<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>781</b>
		Diagnosis Procedure .....	781

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320968

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320972

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320974

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320975

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320977

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320980

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320981

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320982

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320984

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320985

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

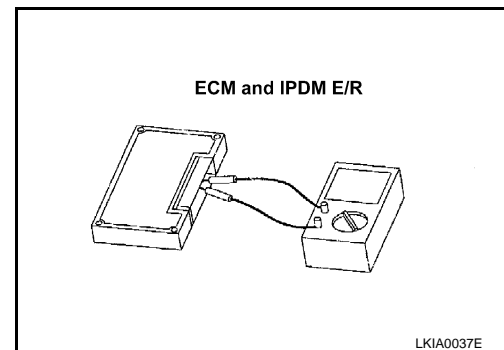
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 61)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320941

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320945

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320946

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320947

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320948

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320950

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320953

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320954

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320955

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320957

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320958

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

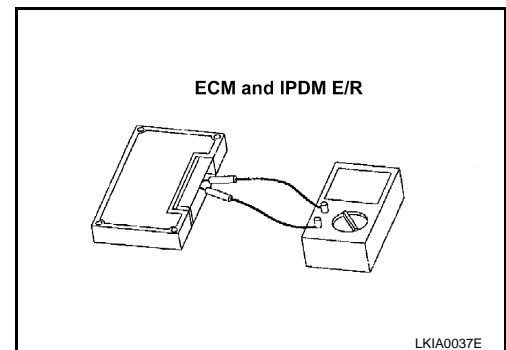
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 62)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320914

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320918

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
  - MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
  - QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
  - QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320920

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320921

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.



# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320922

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320923

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320926

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320927

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320928

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320930

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320931

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

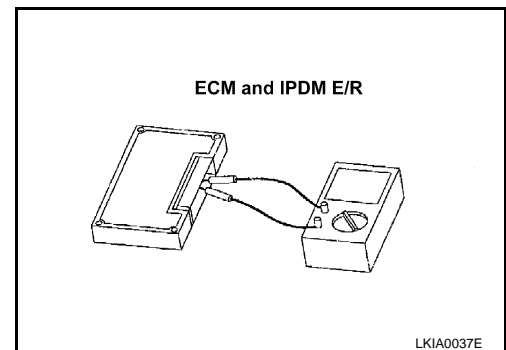
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 63)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320887

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320891

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320892

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320893

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320894

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320895

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320896

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320899

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320900

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320901

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320903

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320904

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

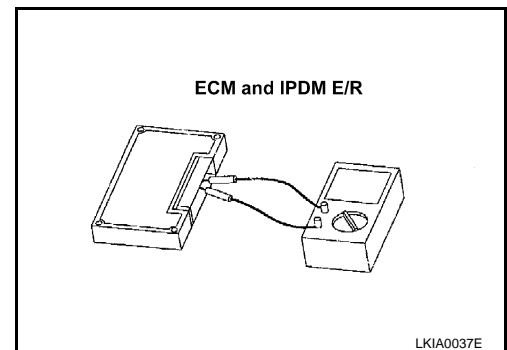
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 64)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320860

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320864

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320866

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320867

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320869

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320872

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320874

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320876

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320877

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

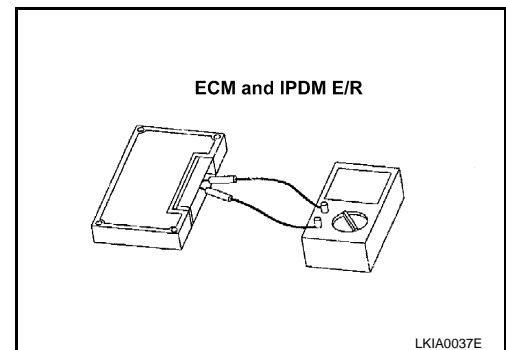
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 65)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320833

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320837

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320838

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320839

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320840

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320842

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320845

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320847

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320849

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320850

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

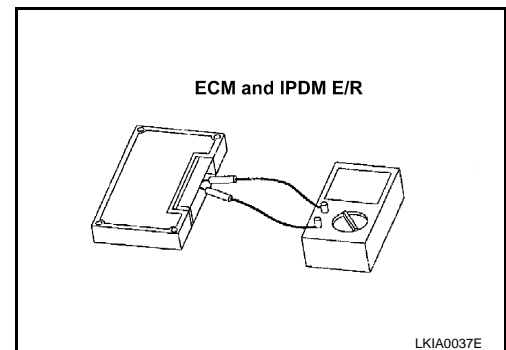
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 66)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320806

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320810

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

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NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320812

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320813

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320814

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320815

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320818

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320820

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320822

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320823

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

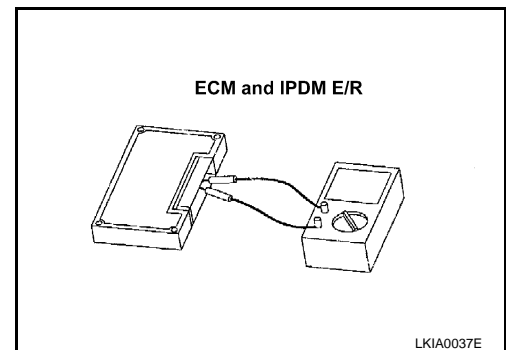
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 67)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320779

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320783

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

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NO >> Repair the power supply and the ground circuit.

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320784

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71                      72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320785

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320786

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320787

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.



## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320788

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320791

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320793

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320795

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320796

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

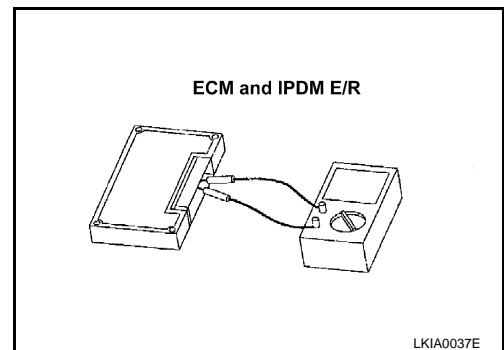
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 68)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320752

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320756

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320758

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320759

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320761

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320763

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320764

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320765

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320766

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320768

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320769

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

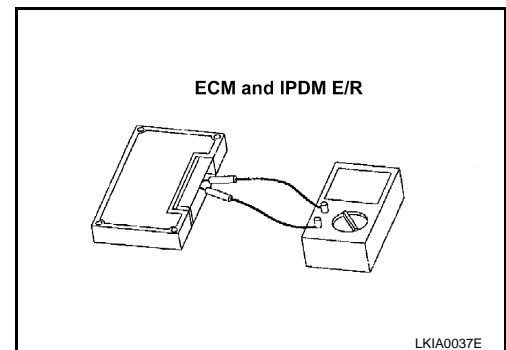
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 69)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320724

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320728

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

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NO >> Repair the power supply and the ground circuit.

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320729

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71                      72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320730

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.



# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320731

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320733

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320735

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320736

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320737

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320738

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320740

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320741

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

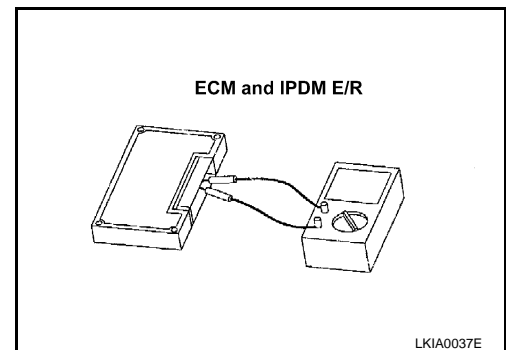
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 70)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320697

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320701

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

---

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320703

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320704

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320705

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320706

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320708

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320709

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320710

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320711

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320713

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320714

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

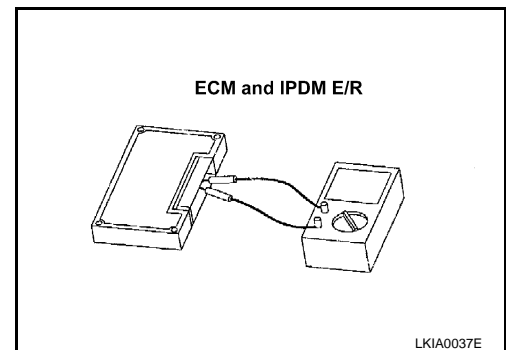
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 71)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320670

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320674

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320675

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320676

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320677

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320678

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320679

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320681

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320682

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320683

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320684

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320686

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320687

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

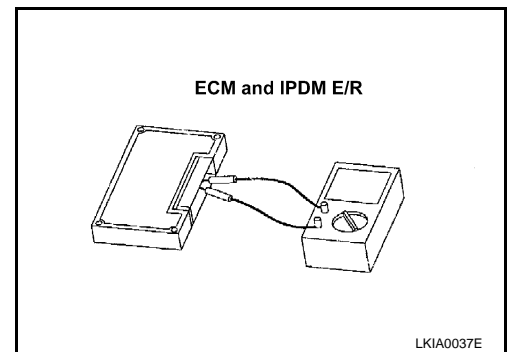
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 72)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320643

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320647

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320649

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320650

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320652

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320653

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320655

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320656

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320657

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320659

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320660

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

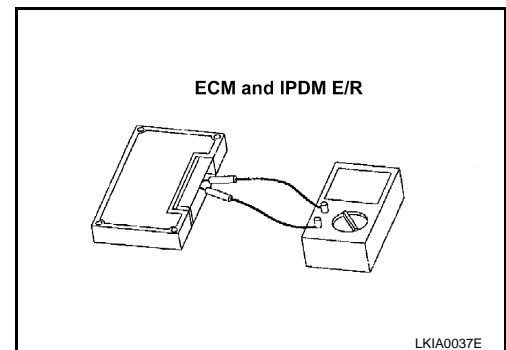
1. Remove the ECM and the IPDM E/R.
  2. Check the resistance between the ECM terminals.
- M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 73)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320616

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320620

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320621

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320622

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.



# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320623

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320625

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320626

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320628

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320629

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320630

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320632

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320633

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

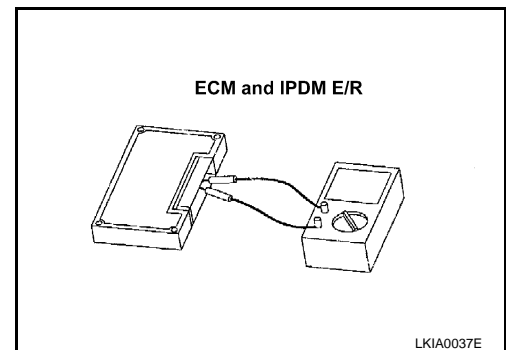
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 74)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320589

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320593

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

---

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320595

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320596

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320597

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320598

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320599

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320601

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320602

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320603

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320605

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320606

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

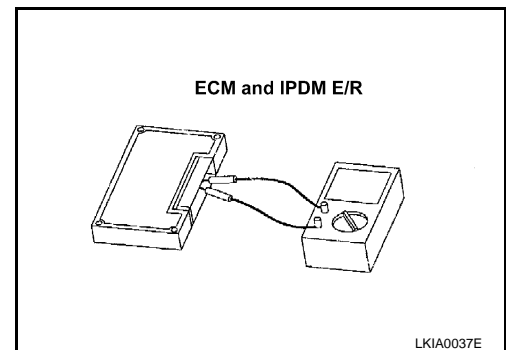
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 75)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320562

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320566

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320567

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320568

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320569

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320570

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320571

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320572

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M30	4                      8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320574

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320575

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320576

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320578

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320579

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

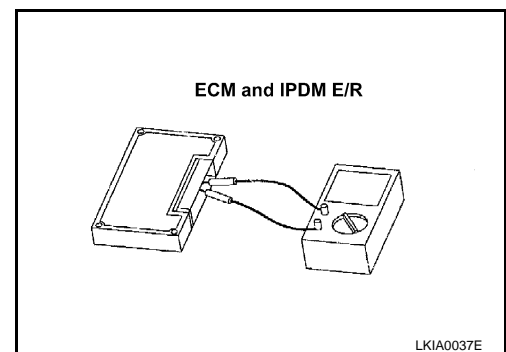
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 76)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320535

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320539

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320541

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320542

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320544

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320546

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the 4WD control unit. Refer to the following.

- LHD models: [DLN-66, "LHD : Exploded View"](#)
- RHD models: [DLN-67, "RHD : Exploded View"](#)

YES (Past error)>>Error was detected in the 4WD control unit branch line.

NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320547

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320548

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320549

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320550

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320551

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320552

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

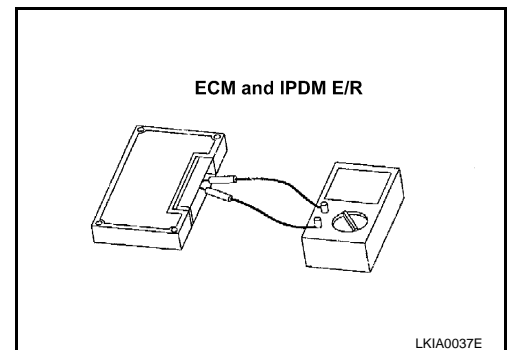
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 77)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320508

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320512

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320513

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320514

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320515

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320517

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320519

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320520

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320521

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320522

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320523

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320524

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320525

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

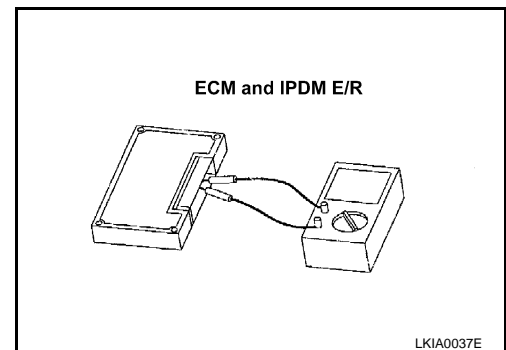
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 78)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320481

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320485

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320487

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320488

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.



# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320489

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320490

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320492

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320493

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320494

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320495

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320496

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320497

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320498

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

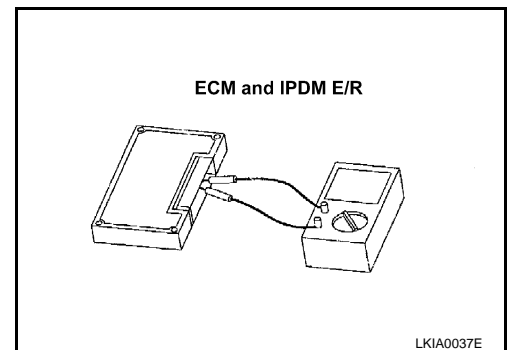
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 79)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319482

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319486

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319487

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319488

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319489

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.



# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319490

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319491

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319493

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the 4WD control unit. Refer to the following.

- LHD models: [DLN-66, "LHD : Exploded View"](#)
- RHD models: [DLN-67, "RHD : Exploded View"](#)

YES (Past error)>>Error was detected in the 4WD control unit branch line.

NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319494

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319495

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319496

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319497

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319498

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319499

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

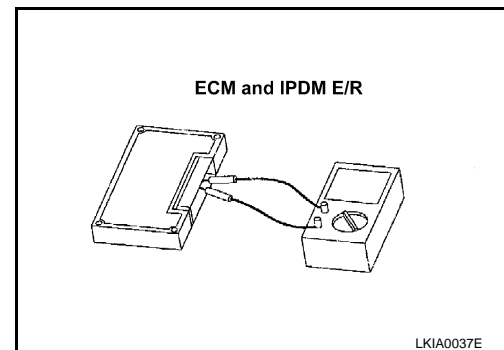
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 80)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320454

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320458

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320460

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320461

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320463

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320464

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320466

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320467

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320468

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320469

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320470

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320471

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

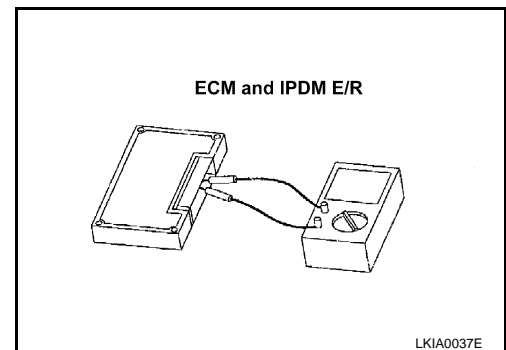
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 81)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320427

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320431

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320432

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320433

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320434

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320436

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320437

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M30	4                      8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-](#)

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320439

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320440

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320441

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320442

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320443

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320444

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

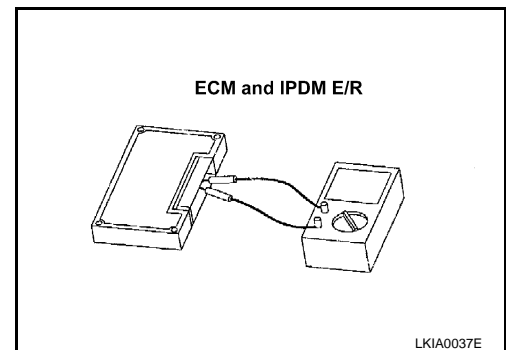
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 82)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320400

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320404

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320406

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320407

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320408

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320409

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320410

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320412

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320413

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320414

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320415

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320416

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320417

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

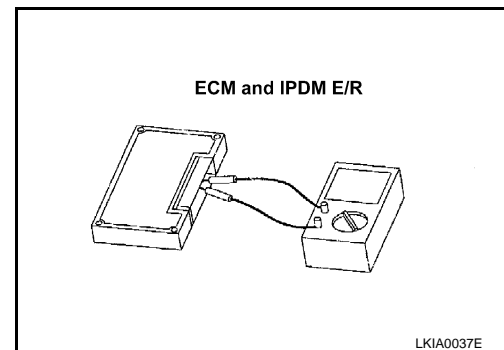
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 83)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320373

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320377

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320378

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320379

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320380

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320381

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320382

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320383

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320385

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320386

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320387

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320388

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320389

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320390

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6	Ground	Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

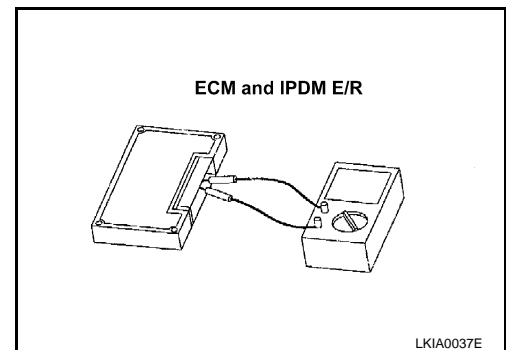
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance ( $\Omega$ )
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance ( $\Omega$ )
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 84)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320346

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320350

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320352

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320353

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320355

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320357

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320358

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320360

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320362

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320363

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

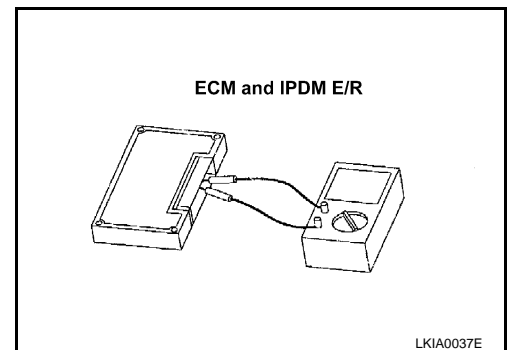
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 85)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320319

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320323

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320324

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320325

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320326

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.



# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320328

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320330

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320331

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320333

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320335

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320336

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

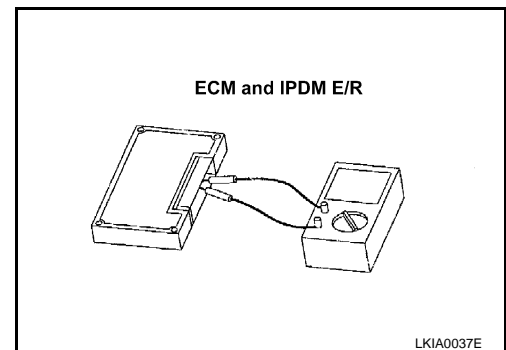
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 86)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320292

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320296

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

---

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320298

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320299

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320300

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320301

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320303

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the 4WD control unit. Refer to the following.

- LHD models: [DLN-66, "LHD : Exploded View"](#)
- RHD models: [DLN-67, "RHD : Exploded View"](#)

YES (Past error)>>Error was detected in the 4WD control unit branch line.

NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320304

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320306

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320308

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320309

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

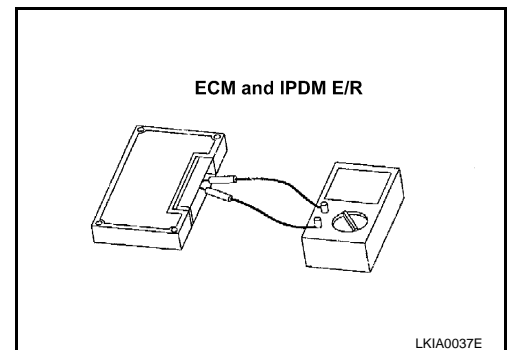
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 87)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320265

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320269

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320270

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320271

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320272

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5                      7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320273

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320274

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320276

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320277

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320279

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320281

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	26
		Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320282

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

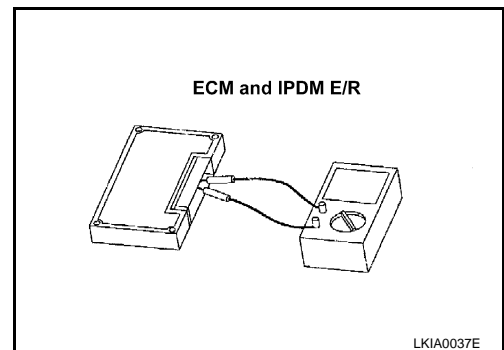
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 88)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320238

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320242

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320244

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320245

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320247

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320248

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320250

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320252

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320254

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320255

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

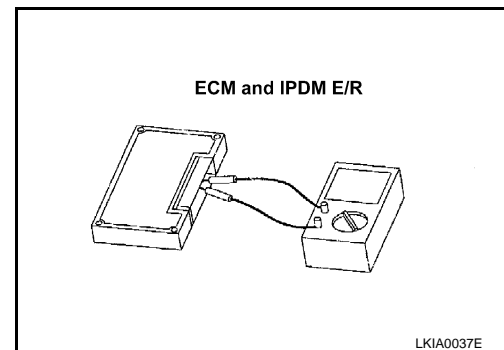
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 89)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320211

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320215

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

NO >> Repair the power supply and the ground circuit.

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## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320216

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the NAVI control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the NAVI control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320217

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320218

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320220

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320221

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M30	4	Approx. 54 – 66
	8	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320223

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320225

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320227

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320228

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

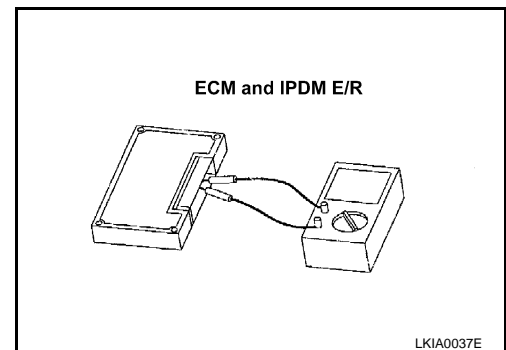
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 90)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320184

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320188

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320190

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320191

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.



# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320192

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320193

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320194

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320196

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320198

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320200

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320201

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

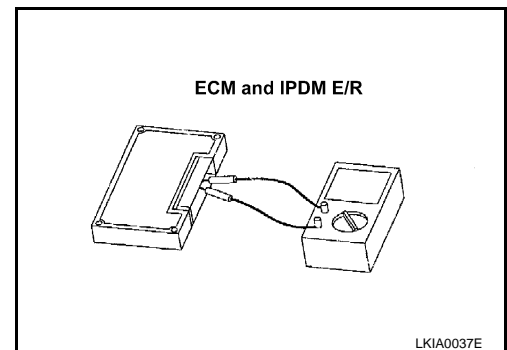
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 91)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320157

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320161

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

NO >> Repair the power supply and the ground circuit.

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# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320162

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320163

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320164

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320165

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320166

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320167

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320169

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320171

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320173

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320174

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

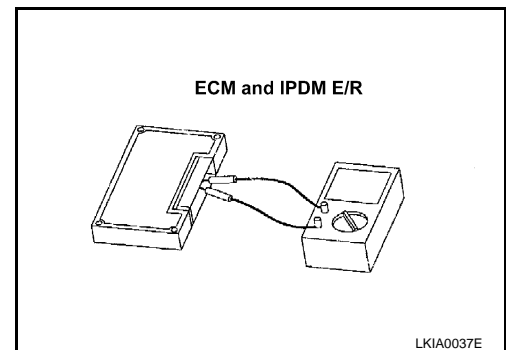
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 92)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320130

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320134

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320136

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320137

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320139

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320141

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the 4WD control unit. Refer to the following.

- LHD models: [DLN-66, "LHD : Exploded View"](#)
- RHD models: [DLN-67, "RHD : Exploded View"](#)

YES (Past error)>>Error was detected in the 4WD control unit branch line.

NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320142

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320144

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320145

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320146

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320147

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

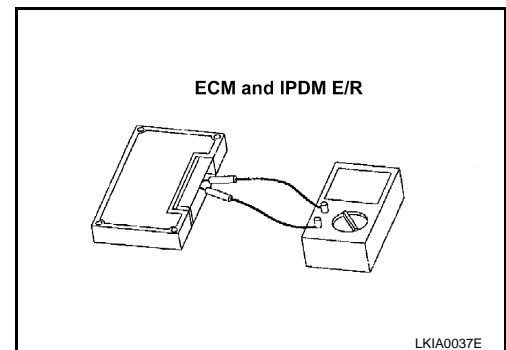
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 93)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320103

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320107

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320108

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320109

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.



## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320110

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the EPS control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the EPS control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320112

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320114

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320115

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320117

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320118

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320119

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320120

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

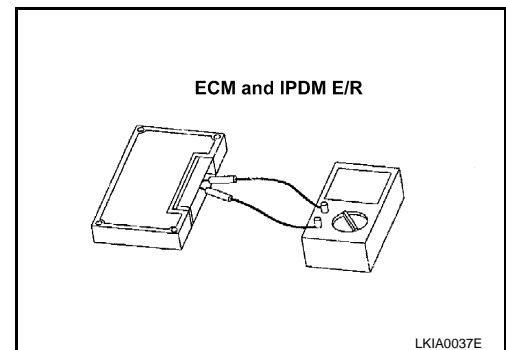
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 94)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320076

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320080

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320082

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320083

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320084

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320085

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320087

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320088

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320090

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320091

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320092

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320093

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

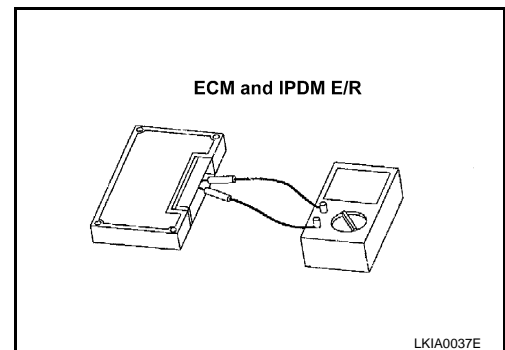
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 95)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320049

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320053

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320054

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320055

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320056

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320057

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320058

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320060

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320061

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320063

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320064

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320065

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320066

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

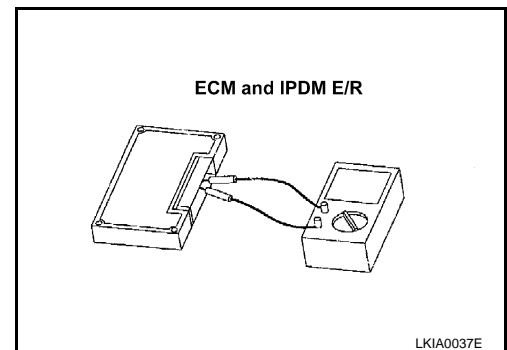
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 96)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001320022

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320026

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320028

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320029

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320031

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320032

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320034

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320036

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320037

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320038

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320039

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

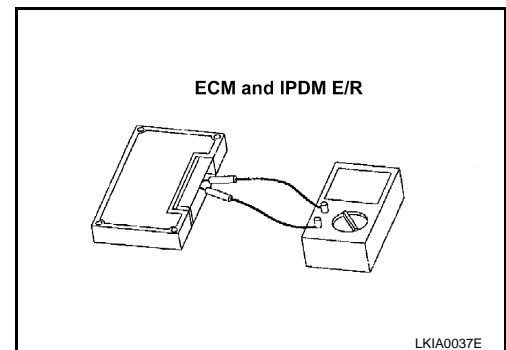
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 97)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319995

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319999

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320000

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320001

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.



# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320002

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320004

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320005

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320007

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320009

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320010

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001320011

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001320012

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

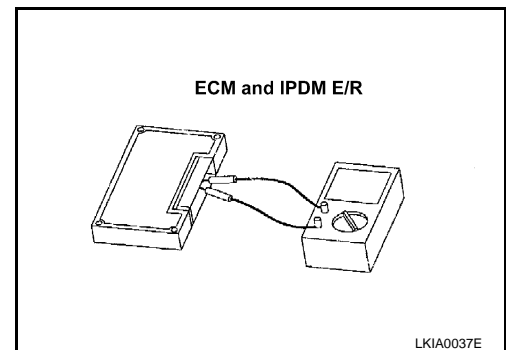
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 98)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319968

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319972

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319974

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319975

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319976

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319977

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21                      22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319978

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319980

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319982

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319983

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319984

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319985

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

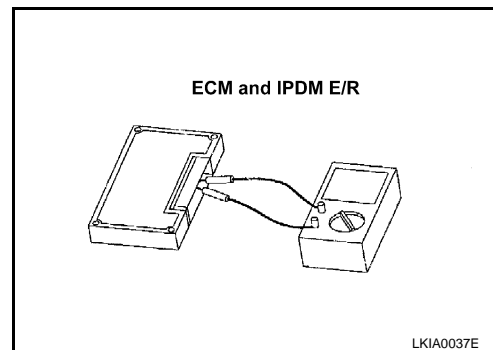
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 99)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319941

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319945

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319946

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319947

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319948

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319949

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319950

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319951

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-](#)

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319953

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319955

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319956

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319957

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319958

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

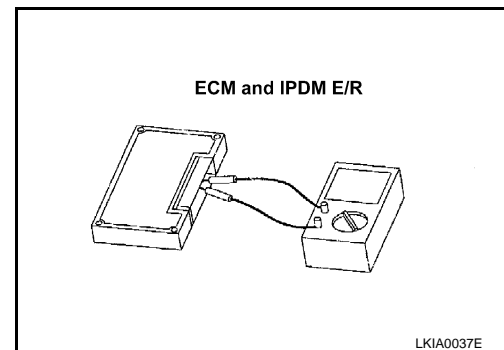
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 100)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319914

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319918

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319920

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319921

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319923

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319925

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319926

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319928

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319930

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319931

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

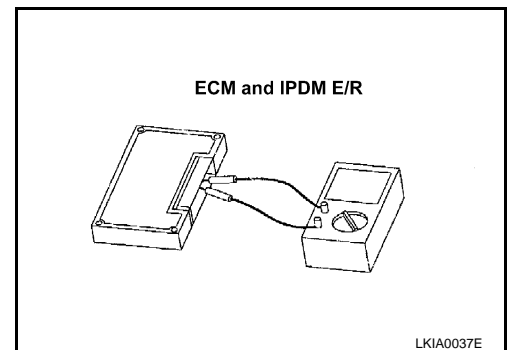
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 101)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319887

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319891

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

NO >> Repair the power supply and the ground circuit.

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# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319892

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319893

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319894

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.



# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319896

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319898

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319899

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319901

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319903

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319904

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

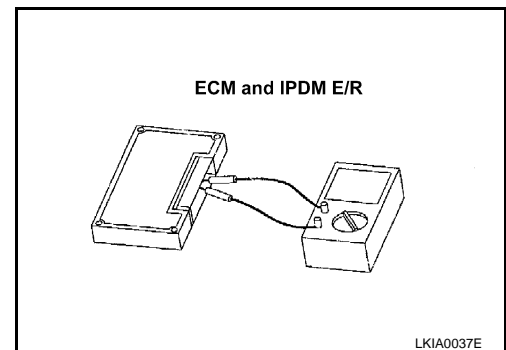
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 102)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319860

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319864

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319866

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319867

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319868

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319869

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319871

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319872

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319874

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319876

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319877

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

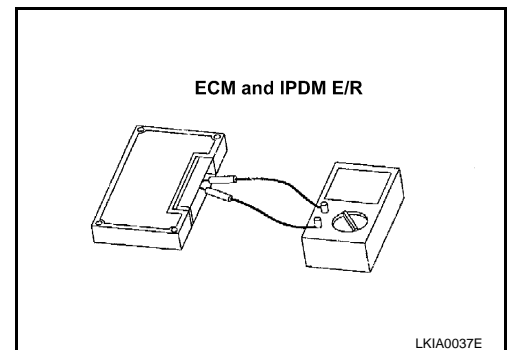
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 103)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319833

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319837

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

NO >> Repair the power supply and the ground circuit.

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# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319838

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319839

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319840

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319841

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319842

#### INSPECTION PROCEDURE

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).  
 YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319844

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319845

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319847

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319849

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27                      26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319850

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

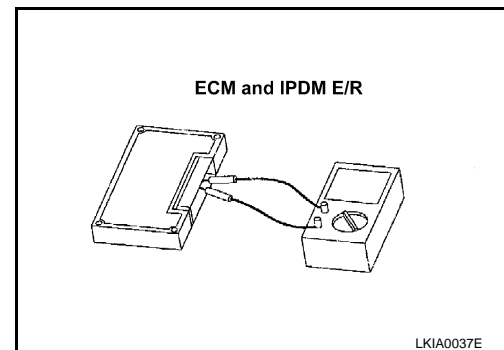
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 104)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319806

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319810

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319812

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319813

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319815

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319816

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319818

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319820

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319822

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319823

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

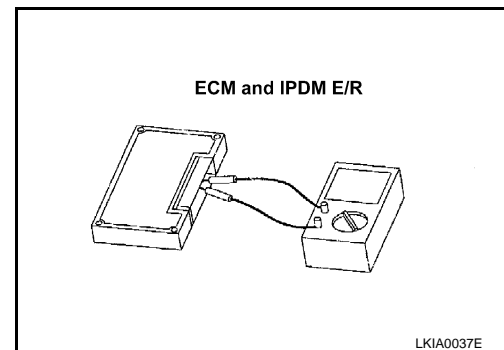
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 105)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319779

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319783

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

NO >> Repair the power supply and the ground circuit.

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# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319784

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319785

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319786

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319788

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319789

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-](#)

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319791

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319793

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319795

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319796

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

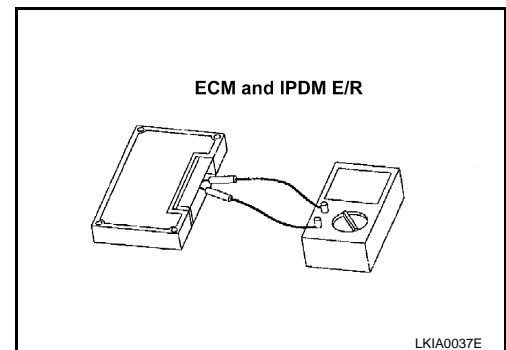
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 106)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319752

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319756

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319758

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319759

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.



# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319760

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319761

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319762

#### INSPECTION PROCEDURE

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319764

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319766

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319768

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319769

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

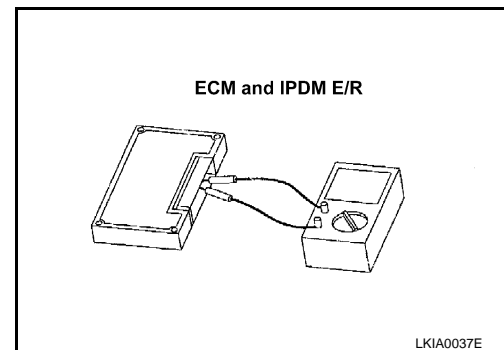
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 107)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319725

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319729

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

NO >> Repair the power supply and the ground circuit.

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# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319730

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M72	71	72	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319731

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319732

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319733

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319734

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319735

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319737

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319739

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319741

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319742

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

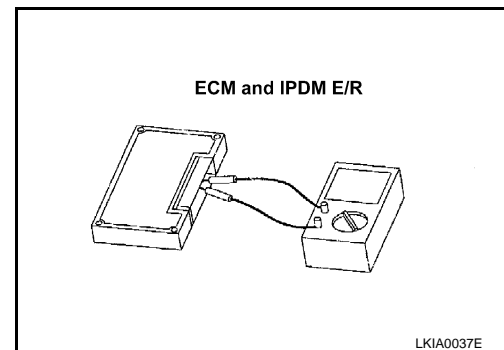
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 108)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319698

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319702

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319704

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319705

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319707

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319709

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319710

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319712

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319713

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319714

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319715

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

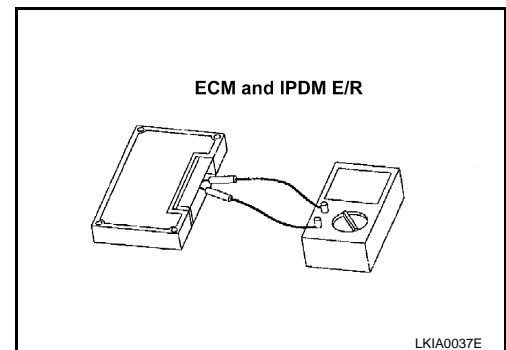
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 109)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319671

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319675

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319676

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319677

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.



# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319678

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319680

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319682

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319683

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319685

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319686

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319687

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319688

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

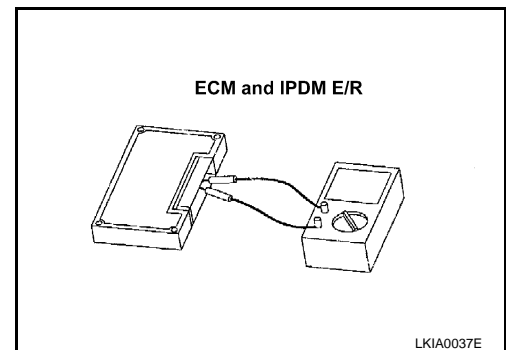
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 110)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319644

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319648

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319650

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319651

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319652

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319653

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.



# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319655

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the 4WD control unit. Refer to the following.

- LHD models: [DLN-66, "LHD : Exploded View"](#)
- RHD models: [DLN-67, "RHD : Exploded View"](#)

YES (Past error)>>Error was detected in the 4WD control unit branch line.

NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319656

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319658

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319659

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319660

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319661

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

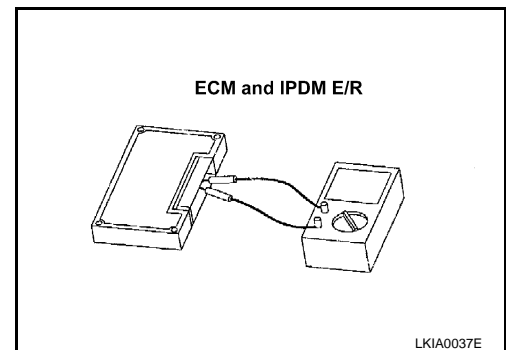
1. Remove the ECM and the IPDM E/R.
  2. Check the resistance between the ECM terminals.
- M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 111)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319617

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319621

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319622

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319623

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319624

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319625

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319626

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319628

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319629

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319631

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319632

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319633

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319634

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

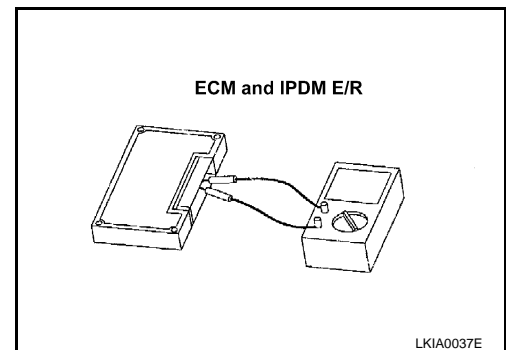
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 112)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319590

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
 YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).  
 NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

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# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319594

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319596

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319597

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319599

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319600

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319602

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319604

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319605

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319606

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319607

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

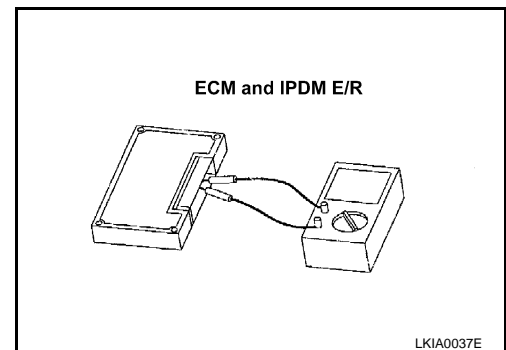
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 113)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319563

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319567

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319568

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319569

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.



# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319570

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319572

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319573

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319575

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319577

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319578

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319579

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319580

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

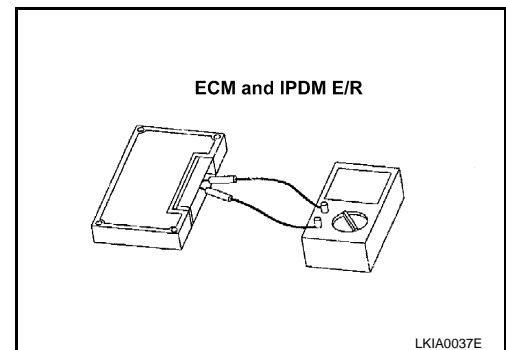
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance ( $\Omega$ )
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance ( $\Omega$ )
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models





# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 114)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319536

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319540

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

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NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319542

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector		Resistance (Ω)
Connector No.	Terminal No.	
M4	6                      14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

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# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319543

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M37	5	Approx. 54 – 66
	7	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319544

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

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# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319545

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.



# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319546

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319548

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319550

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

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# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319551

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the following.

- A/T models: [TM-340, "Exploded View"](#)
- CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
- CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319552

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319553

#### INSPECTION PROCEDURE

##### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6                      14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

##### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

##### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

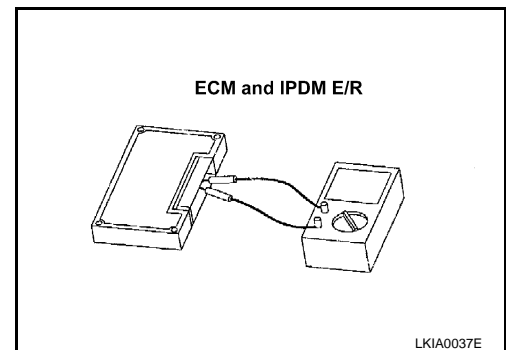
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 115)]

ECM		Resistance (Ω)
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## COMPONENT DIAGNOSIS

### MAIN LINE BETWEEN DLC AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000001319509

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - Harness connector E105

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M77.

##### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.
  - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E105 and the ABS actuator and electric unit (control unit).



# ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319513

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - ECM
  - Harness connector E105
  - Harness connector M77

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

YES (Past error)>>Error was detected in the ECM branch line.

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

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NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319514

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the NAVI control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of NAVI control unit.
2. Check the resistance between the NAVI control unit harness connector terminals.

NAVI control unit harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319515

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check the CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319516

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319517

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the Intelligent Key unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of Intelligent Key unit.
2. Check the resistance between the Intelligent Key unit harness connector terminals.

Intelligent Key unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit branch line.

NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319518

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
M34	21	Approx. 54 – 66
	22	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "Exploded View"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

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# STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319519

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-179, "Wiring Diagram -BRAKE CONTROL SYSTEM-](#)

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319521

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M65	22	21	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-35, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68, "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319523

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
  2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to the following.

- Models with ABS: [BRC-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "Exploded View"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319524

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - TCM
  - Harness connector F123
  - Harness connector E6

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
2. Check the resistance between the TCM harness connector terminals.
  - A/T models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	32	31	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

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LNR

# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001319525

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001319526

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M4	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

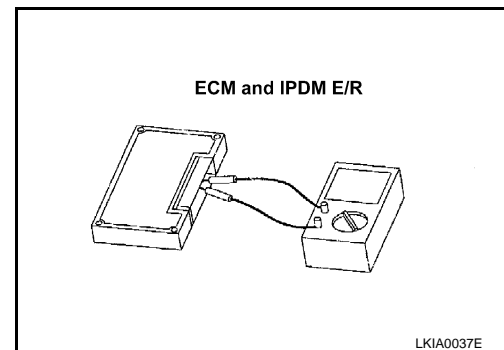
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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LNR

# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 116)]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.