

GROUP 54C

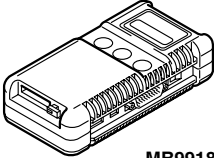
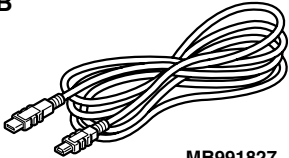
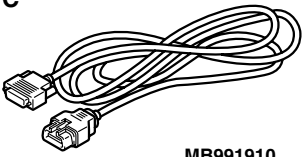
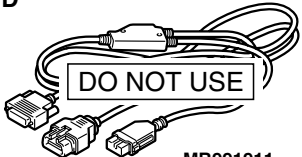
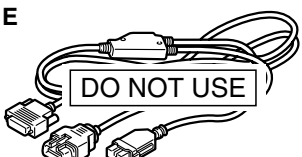
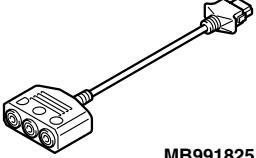
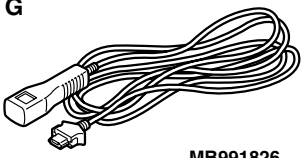
CONTROLLER AREA NETWORK (CAN)

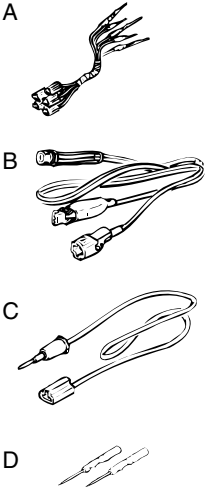
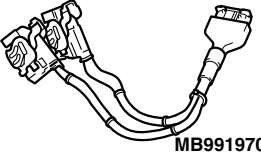
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SPECIAL TOOL


M1548304200057

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
<p>A</p>  <p>MB991824</p> <p>B</p>  <p>MB991827</p> <p>C</p>  <p>MB991910</p> <p>D</p>  <p>MB991911</p> <p>E</p>  <p>MB991914</p> <p>F</p>  <p>MB991825</p> <p>G</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991914 F: MB991825 G: MB991826</p> <p>MUT-III sub assembly</p> <p>A: Vehicle communication interface (V.C.I.)</p> <p>B: MUT-III USB cable</p> <p>C: MUT-III main harness A (Vehicles with CAN communication system)</p> <p>D: MUT-III main harness B (Vehicles without CAN communication system)</p> <p>E: MUT-III main harness C (for Daimler Chrysler models only)</p> <p>F: MUT-III measurement adapter</p> <p>G: MUT-III trigger harness</p>	<p>MB991824-KIT</p>	<p>CAN bus diagnostics</p> <p>⚠ CAUTION</p> <p>For vehicles with CAN communication, use MUT-III main harness A to send simulated vehicle speed. If you connect MUT-III main harness B instead, the CAN communication does not function correctly.</p> <p><i>NOTE: G: MB991826 MUT-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 <p align="center">MB991223AD</p>	<p>MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222</p> <p>Harness set A: Test harness B: LED harness C: LED harness adaptor D: Probe</p>	<p>General service tools</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p> <p>A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection</p>
 <p align="center">MB991970</p>	<p>MB991970 ABS check harness</p>	<p align="center">-</p>	<p>Measure the voltage and resistance at the ABS-ECU</p>

TEST EQUIPMENT

M1548304300054

TEST EQUIPMENT	NAME	USE
 <p align="center">AC000019</p>	<p>Digital multimeter</p>	<p>Checking CAN bus circuit (for resistance and voltage measurements)</p>

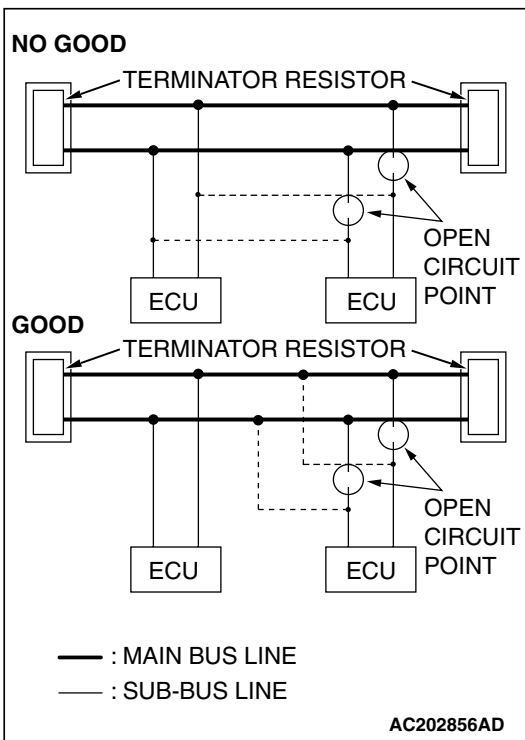
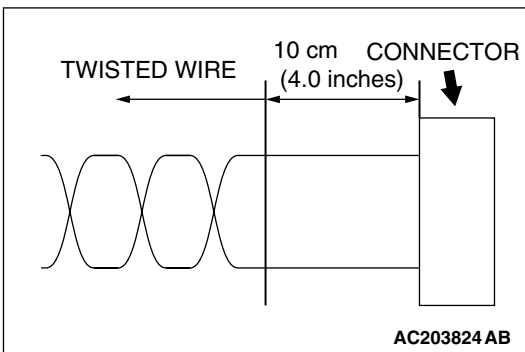
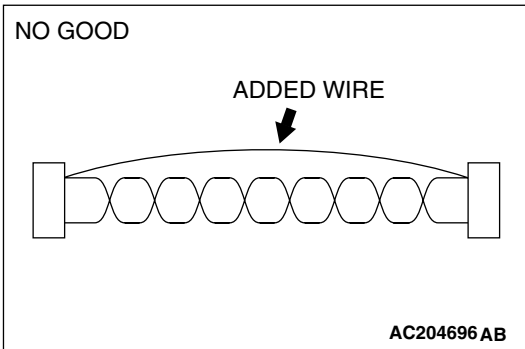
SERVICE PRECAUTIONS

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WARNINGS IN DIAGNOSIS SECTION	DETAILS REGARDING WARNINGS
<p>When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.</p>	<p>–</p>
<p>⚠ CAUTION A digital multimeter should be used.</p>	<p>When measuring resistance value or voltage in CAN bus lines, use a digital multimeter. If not using a digital multimeter, the equipment connected through the CAN communication lines, may be damaged.</p>
<p>⚠ CAUTION Disconnect the negative battery terminal.</p>	<p>Disconnect the negative battery terminal when measuring the resistance value in the CAN bus line. If you fail to do so, a component connected through the CAN communication lines may be damaged.</p>
<p>⚠ CAUTION The test wiring harness should be used.</p>	<p>Always use the test harness when measuring the voltage or resistance value at the female connector. If you fail to do so, connectors may be damaged.</p>
<p>⚠ CAUTION The strand end of the twisted wire should be within 10 cm (4 inches) from the connector.</p>	<div data-bbox="818 957 1341 1297" data-label="Diagram"> <p>The diagram illustrates the correct placement of a twisted wire relative to a connector. A horizontal line represents the wire, with a double-headed arrow indicating a length of 10 cm (4.0 inches) from the end of the twisted section to the connector. The connector is shown as a vertical rectangle on the right. The wire is labeled 'TWISTED WIRE' and the connector is labeled 'CONNECTOR'. The diagram is identified as 'AC203824 AB'.</p> </div> <p>If you repair the wire due to a defective connector or its terminal or harness wire, you should cut the wire so that the strand end of the twisted wire should be within 10 cm (4 inches) from the connector as shown. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4 inches), a communication error may be caused.</p>
<p>⚠ CAUTION Strictly observe the specified wiring harness repair procedure.</p>	<p>When you repair a CAN bus line, observe the precautions on how to repair the CAN bus line strictly (Refer to P.54C-5). If a new wire is added or a splice point is modified for the CAN_L or CAN_H line, an error in the CAN communication may be caused.</p>

PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES

Precautions on how to repair the CAN bus lines



- If the CAN_L or CAN_H line on the main bus line or sub-bus line is repaired, replace all the twisted wires between the end connectors. If the wiring harness is partially repaired, or only CAN_L or CAN_H line is repaired, noise suppression is deteriorated, causing a communication error.
- If the connector or wire on the main bus line or the sub-bus wire is replaced, the strand end of the twisted wire should be within 10 cm (4 inches) from the connector. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4 inches), noise suppression is deteriorated, causing a communication error.
- If a sub-bus line is repaired, splice a new wire directly into the main bus line. If a new wire is spliced into the sub-bus line, which is connected to another device, the CAN communication will be disabled.

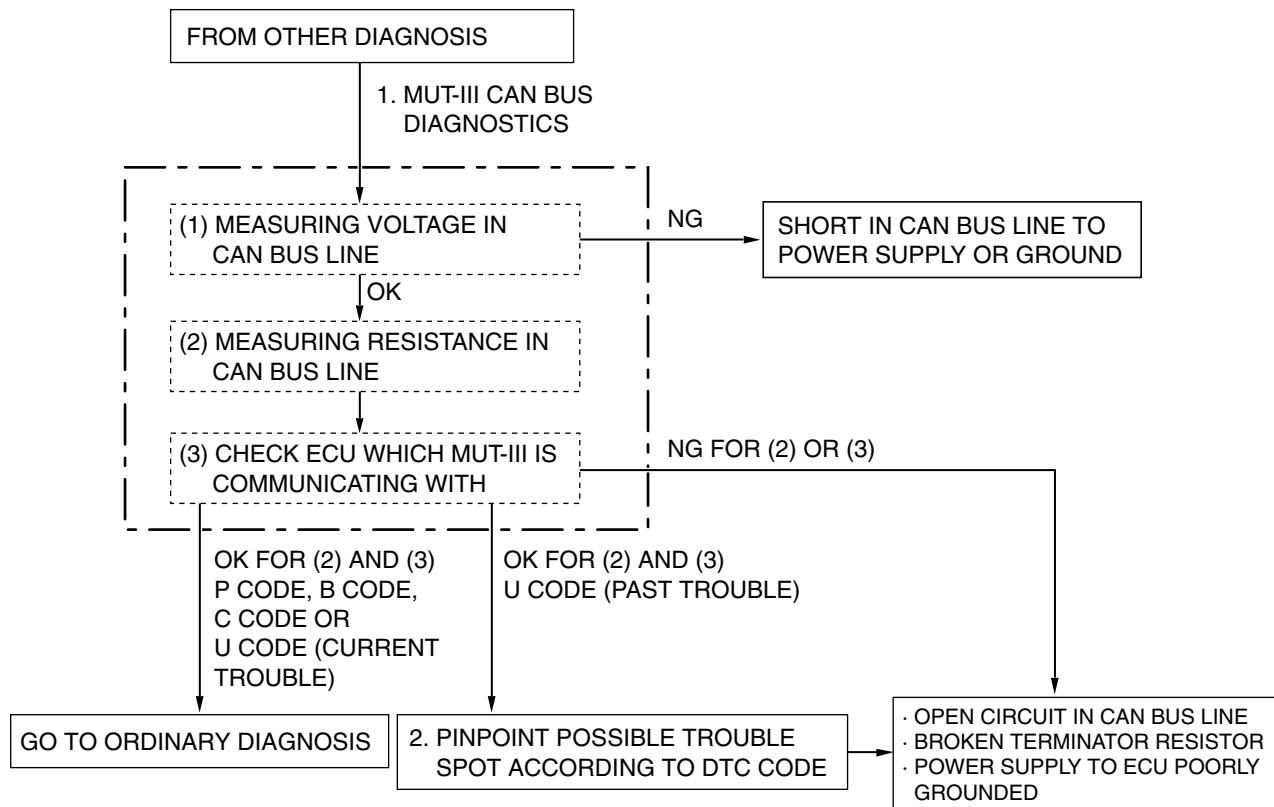
Precautions on how to repair the terminator resistor

If one-side of the terminator resistors is broken, the CAN communication will continue, although noise suppression is deteriorated. In this case, no DTC may be set. Check the system regardless of whether a DTC is set or not. If damage is found, replace the terminator resistor.

EXPLANATION ABOUT THE SCAN TOOL (MUT-III) CAN BUS DIAGNOSTICS

M1548300100058

The MUT-III CAN bus diagnostics carries out the three checks below automatically, and then displays the current condition of the CAN bus lines according to the check results.



AC204700AE

1. MUT-III CAN bus diagnostics

The MUT-III diagnoses CAN bus lines in accordance with the following strategy.

(1) Measuring voltage in CAN bus line

Diagnoses the power supply (such as wires of higher voltage than CAN communication line) and grounding (such as wires of lower voltage than CAN communication line) of CAN bus lines for short circuit by measuring the voltages between the CAN_L line or H line and body ground.

MEASURE THE VOLTAGE	NORMAL VALUE	MEASUREMENT VALUE	TROUBLE WHEN THE MEASUREMENT VALUE DOES NOT MEET THE NORMAL VALUE	NOTE
Between the CAN_L line and body ground	1.0 V or more and 4.0 V or less	Less than 1.0 V	Short to ground of the CAN_L line	If the CAN_L or H line is shorted to ground or power supply, a DTC may not be set.
		More than 4.0 V	A short to the power supply of the CAN_L line	
Between the CAN_H line and body ground	1.0 V or more and 4.0 V or less	Less than 1.0 V	Short to ground of the CAN_H line	
		More than 4.0 V	A short to the power supply of the CAN_H line	

(2) Measuring resistance in CAN bus line

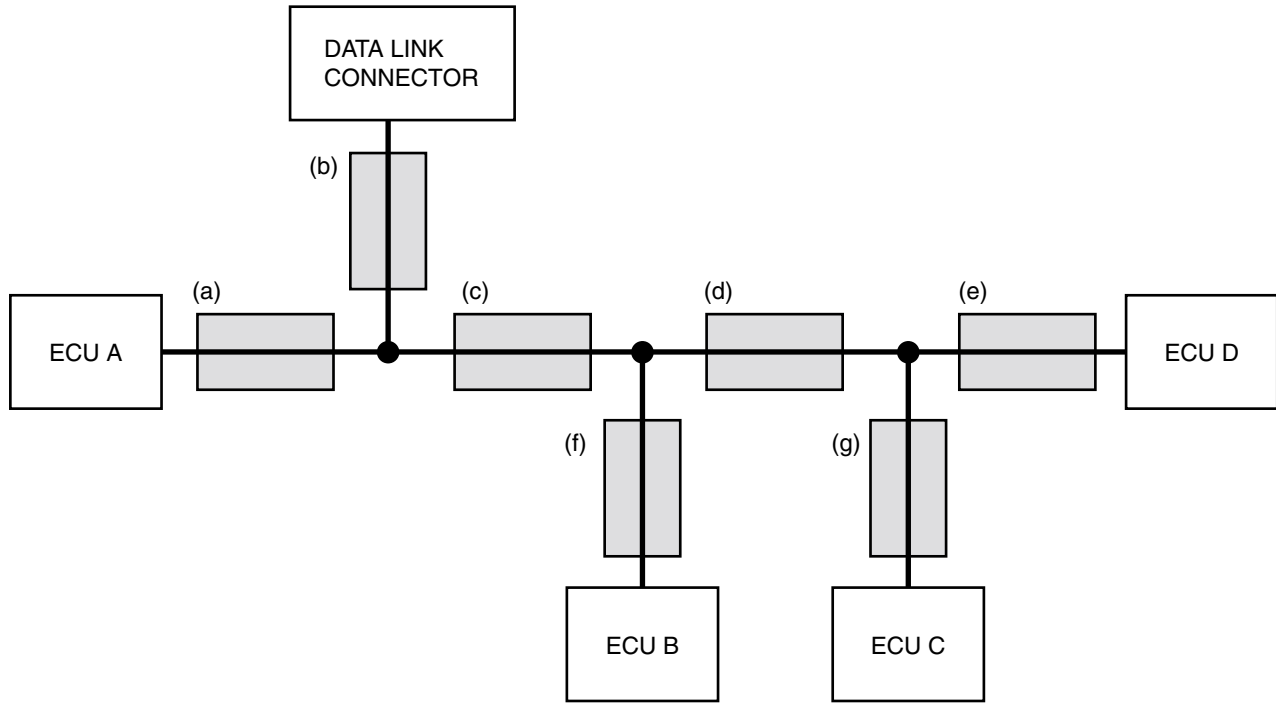
Checks the terminator resistors (incorporated in the combination meter or the powertrain control module), which are connected to each end of a CAN bus line, for breakage and a CAN bus main line for open circuit by measuring the resistance value between a CAN_L line and H line.

NORMAL VALUE	MEASUREMENT VALUE	TROUBLE WHEN THE MEASUREMENT VALUE DOES NOT MEET THE NORMAL VALUE	NOTE
60 ± 10 Ω	120 ± 20 Ω	Trouble in a CAN main bus line or terminator resistor	If only one terminator resistor is broken at either side, the CAN communication will continue although noise suppression is deteriorated. If a CAN main bus line is open circuit, the CAN communication is suspended at that open circuit point.
	No continuity	Trouble in CAN main bus line or between the data link connector and main bus line	–
	2 ohms or less	CAN bus line (between CAN_L and H lines) is shorted	If a CAN bus line is shorted, all ECUs cease communicating each other (This fail-safe function is called "Bus off").
	Other than above	Poorly engaged connector	–

(3) Checking the communication condition of ECUs

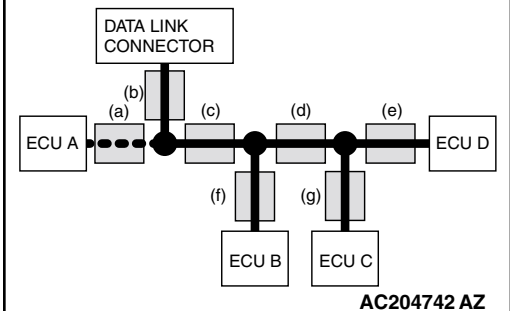
The MUT-III narrows down troubles in circuit by itself. Its strategy is as follows:

REFERENCE CIRCUIT

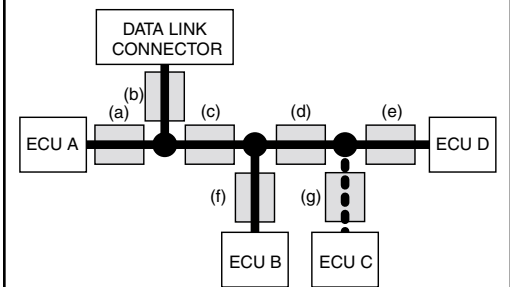


AC204741 AC

ECU WHICH CAN NOT COMMUNICATE WITH THE MUT-III	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING DOWN TROUBLE SPOT
ECU A	CAN bus line (a) and power supply system to ECU A	ECU A communicates with the MUT-III via CAN bus lines (a) and (b). The MUT-III judges that CAN bus line (b) is normal, because it can communicate with other ECUs. Possible trouble may be present in CAN bus line (a) or the power supply system to ECU A.
ECU C	CAN bus line (g) and power supply system to ECU C	ECU C communicates with the MUT-III via CAN bus lines (b), (c), (d) and (g). The MUT-III judges that CAN bus lines (b), (c) and (d) are normal, because it can communicate with ECUs B and D. Possible trouble may be present in CAN bus line (g) or the power supply system to ECU C.

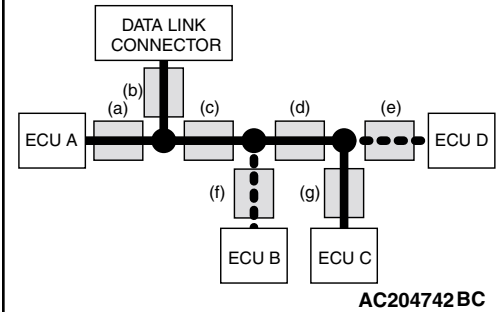
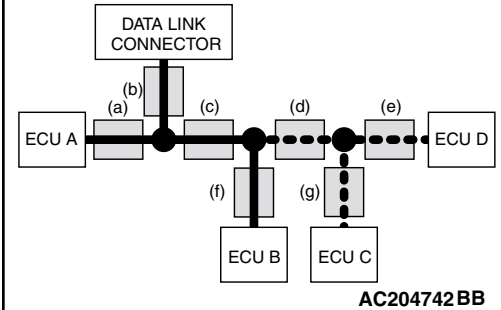


AC204742 AZ



AC204742 BA

ECU WHICH CAN NOT COMMUNICATE WITH THE MUT-III	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING DOWN TROUBLE SPOT
ECU C and ECU D	Trouble in CAN bus line (d)	<p>ECUs C and D communicate with the MUT-III via CAN bus lines (b), (c), (d), (e) and (g). The MUT-III judges that CAN bus lines (b) and (c) are normal, because it can communicate with ECU B.</p> <p>Possible trouble may be present in CAN bus line (d), (e) or (g) or the power supply system to ECU D. CAN bus line (d) is shared by ECUs C and D when they communicate with the MUT-III, so CAN bus line (d) is suspected as ultimate cause. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.</p>
ECU B and ECU D	CAN bus line (e) or (f) or power supply system to ECU B or D	<p>ECUs C and D communicate with the MUT-III via CAN bus lines (b), (c), (d), (e) and (g). The MUT-III judges that CAN bus lines (b), (c) and (d) are normal, because it can communicate with ECU C.</p> <p>Possible trouble may be present in CAN bus line (f) or (e) or the power supply system to ECU B or D.</p>

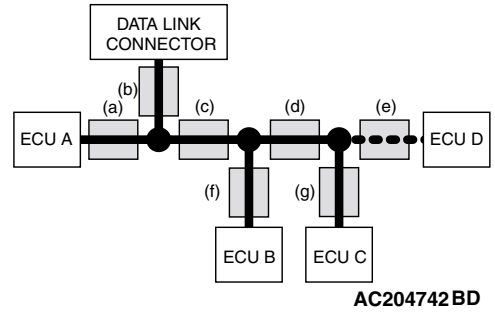


2. If DTC code related to CAN communication is set as past trouble, isolate opens as described below.

NOTE: If you pinpoint trouble spot according to DTC code, you should use time-out DTC code. DTC code related to failure information is set when the data to be set contains an error, so CAN bus line itself is probably normal.

NOTE: Time-out DTC codes are stored in each ECU memory individually. Therefore, it is possible that these DTC codes have not been set simultaneously. If the trouble spot cannot be found when you diagnose by judging from multiple DTC codes, check the communication lines between each ECU.

DTC CODE TO BE SET	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING TROUBLE SPOT
Time-out DTC code associated with ECU D is stored in ECU A, ECU B and ECU C	Trouble in CAN bus line (e) and power supply system to ECU D	When time-out DTC code associated with ECU D is stored in ECU A, B and C, or time-out DTC code associated with ECUs A, B and C is stored in ECU D, or "bus off" DTC code is stored in ECU D, CAN bus line (e) is suspected. When DTC code is not stored in ECU D, the power supply to ECU D is suspected.
Time-out DTC code associated with ECUs A, B and C is stored in ECU D		
"Bus off" DTC code is stored in ECU D		



DTC CODE TO BE SET	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING TROUBLE SPOT	
Time-out DTC code associated with ECU A is stored in ECUs B, C and D	Trouble in CAN bus line (a) and power supply system to ECU A	When time-out DTC code associated with ECU A is stored in ECUs B, C and D, or time-out DTC code associated with ECUs B, C and D is stored in ECU A, or "bus off" DTC code is stored in ECU A, CAN bus line (a) or (c) is suspected. When DTC code is not stored in ECU A, the power supply to ECU A is suspected.	<p align="right">AC204742 BE</p>
Time-out DTC code associated with ECUs B, C and D is stored in ECU A			<p align="right">AC204742 BF</p>
"Bus off" DTC code is stored in ECU A			<p align="right">AC204742 BG</p>
Time-out DTC codes associated with ECUs C and D are stored in ECU A and ECU B	Trouble in CAN bus line (d)	If time-out DTC codes associated with ECUs C and D are stored in ECUs A and B, or time-out codes associated with ECUs A and B are stored in ECUs C and D, CAN bus line (d) is suspected. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.	<p align="right">AC204742 BG</p>
Time-out DTC codes associated with ECUs A and B are stored in ECU C and ECU D			

DIAGNOSTIC TROUBLE CODE DIAGNOSIS

M1548304500025

ON-BOARD DIAGNOSTICS

The CAN is a communication method which the ECUs use in order to communicate each other. The CAN-related diagnostic trouble codes will be stored in the following ECUs, which use the CAN communication.

- Powertrain control module

- ABS-ECU
- ETACS-ECU
- A/C-ECU
- SRS-ECU
- Combination meter
- Multi-center display (middle-grade type)

HOW TO CONNECT THE SCAN TOOL (MUT-III)

Required Special Tools:

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

CAUTION

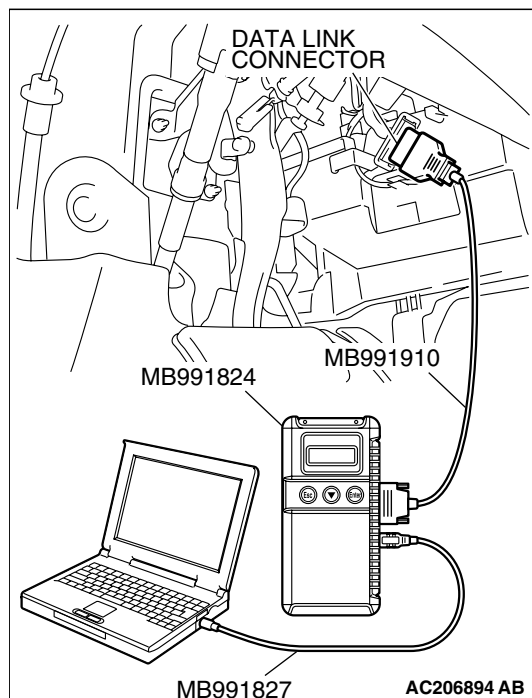
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.

7. Start the MUT-III system on the personal computer.

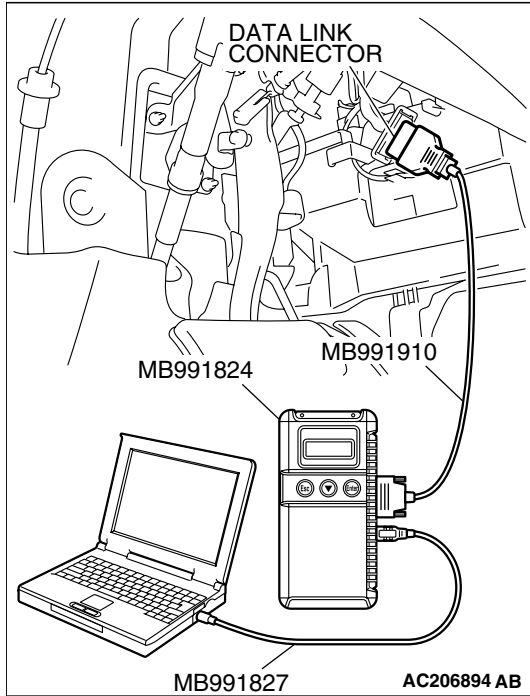
NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.



HOW TO DIAGNOSE THE CAN BUS LINE

Required Special Tools:

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle whose CAN bus lines will be diagnosed.
 - If they match, go to step 8.
 - If not, go to step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle whose CAN bus lines will be diagnosed.
 - If they match, go to step 8.
 - If not, go to step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

DIAGNOSIS

CAN BUS DIAGNOSTICS TABLE

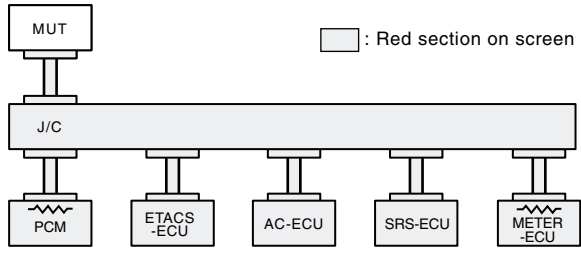
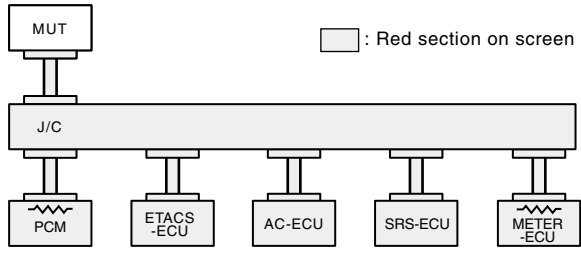
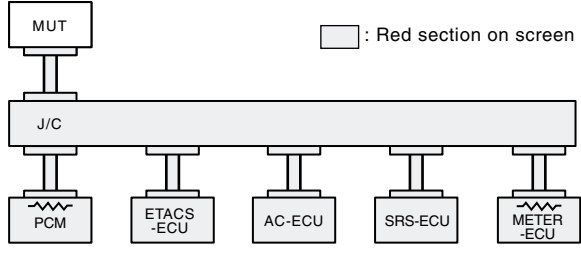
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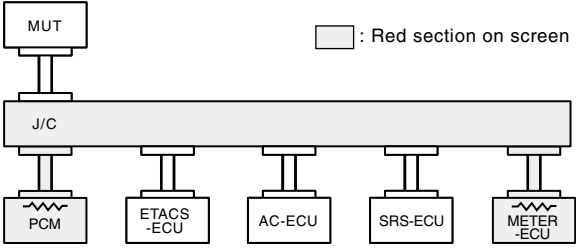
This diagnosis applies only to the CAN bus lines. If a different system is defective, proceed to the applicable diagnosis section for each system. Observe the diagnosis procedure below only when the CAN bus line is defective.

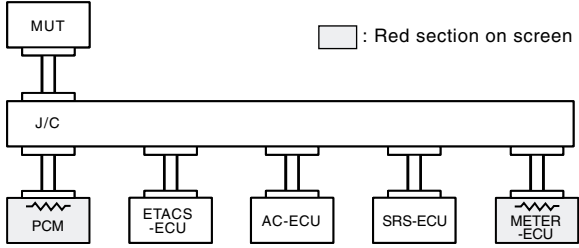
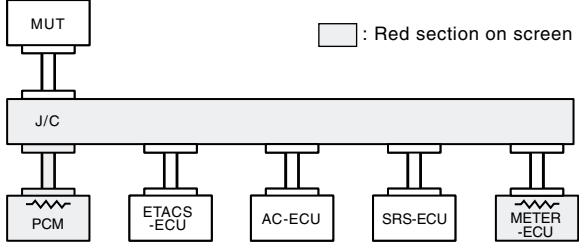
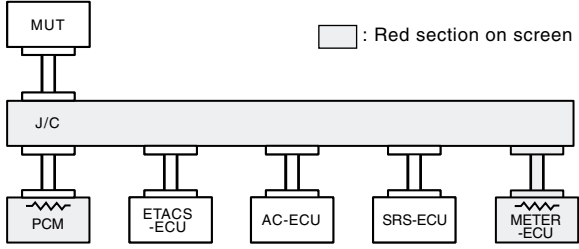
⚠ CAUTION

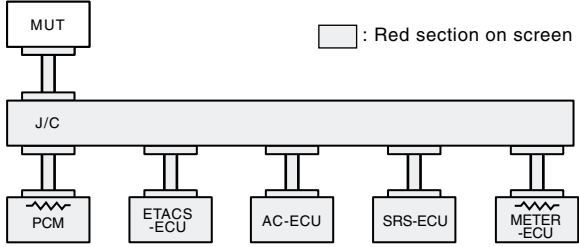
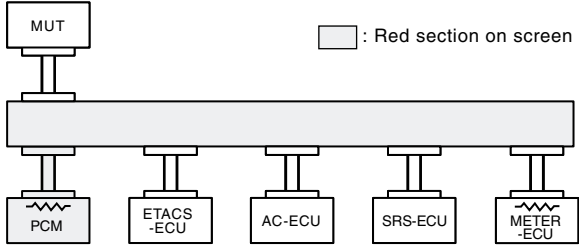
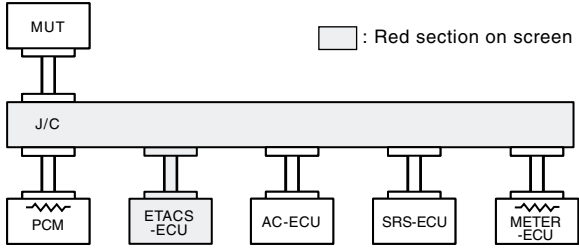
During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. After completing the repair, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

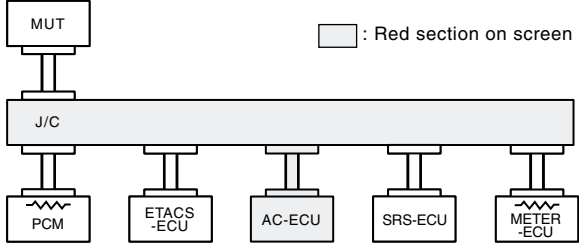
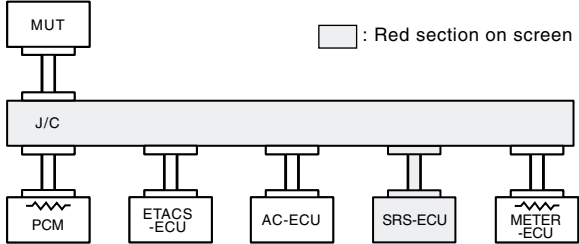
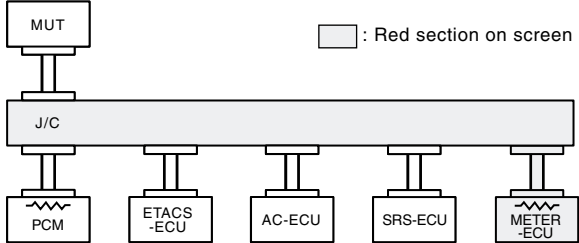
Vehicles without ABS and vehicles without multi-center display (middle-grade type)

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Short circuit to battery in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AB</p>	<p>Diagnostic Item 1 Diagnose shorts in the power supply to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-31</p>
<p><Comment> Grounding in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AB</p>	<p>Diagnostic Item 4 Diagnose shorts in the ground to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-167</p>
<p><Comment> Short circuit between CAN_H and CAN_L in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AB</p>	<p>Diagnostic Item 7 Diagnose shorts between CAN_L and H lines <Vehicles without ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-304</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Disconnection in red displayed area is estimated.</p>  <p align="center">AC305790AC</p>	<p>Diagnostic Item 10 Diagnose terminator resistors at both ends <Vehicles without ABS></p>	<p>P.54C-390</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Malfunction of terminating resistance is estimated.</p>  <p style="text-align: center;">AC305790AD</p>	<p>Diagnostic Item 12 Diagnose a terminator resistor at either end <Vehicles without ABS></p>	<p>P.54C-429</p>
<p><Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AE</p>		
<p><Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AF</p>		

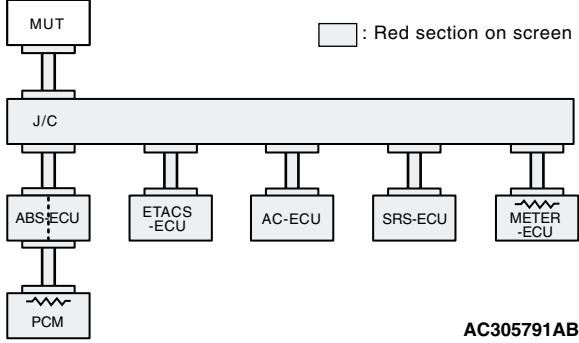
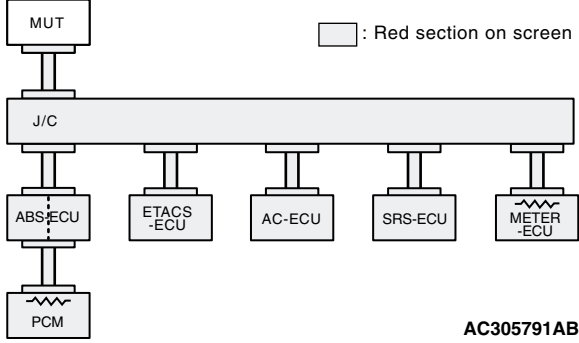
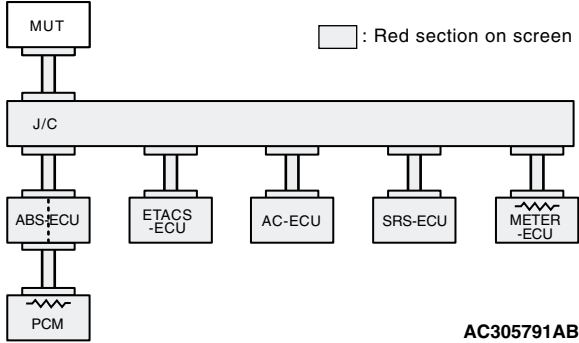
MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Malfunction in red displayed area is estimated. Please refer to service manual and inspect with 'CAN Detail Diagnosis'.</p>  <p align="center">AC305790AB</p>	<p>Diagnostic Item 14 Diagnose CAN bus lines thoroughly <Vehicles without ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-456</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p align="center">AC305790AG</p>	<p>Diagnostic Item 17 Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles without ABS></p>	<p>P.54C-555</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p align="center">AC305790AH</p>	<p>Diagnostic Item 20 Diagnose the lines between CAN main bus line and the ETACS-ECU.</p>	<p>P.54C-576</p>

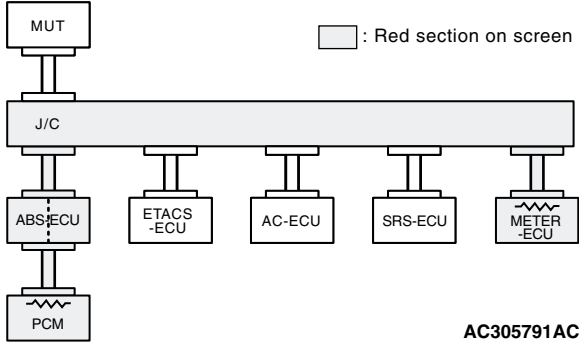
MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AI</p>	<p>Diagnostic Item 22 Diagnose the lines between CAN main bus line and the A/C-ECU.</p>	<p>P.54C-587</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AJ</p>	<p>Diagnostic Item 23 Diagnose the lines between CAN main bus line and the SRS-ECU.</p>	<p>P.54C-594</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: center;">AC305790AK</p>	<p>Diagnostic Item 24 Diagnose the lines between CAN main bus line and the combination meter.</p>	<p>P.54C-602</p>

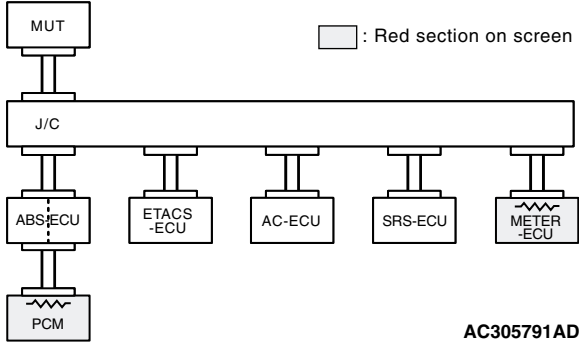
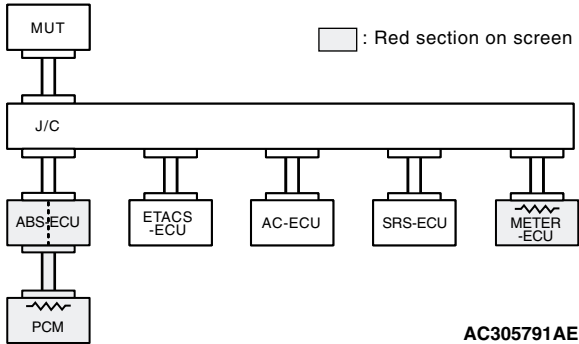
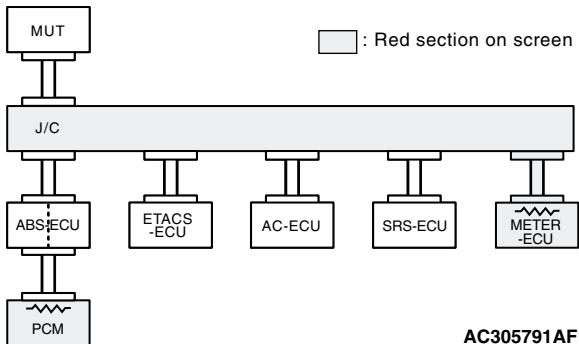
NOTE: If the screen other than above is displayed, problems are present at two or more spots. In this case, diagnose CAN bus lines by referring to the trouble spot pinpoint procedures.

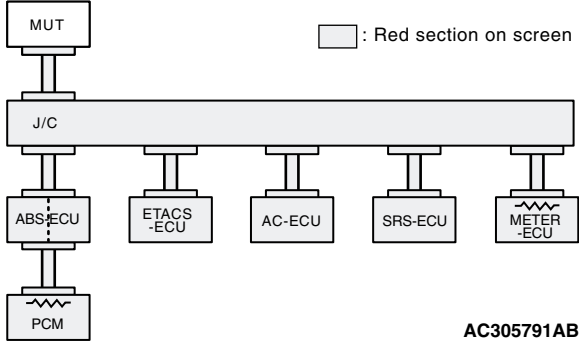
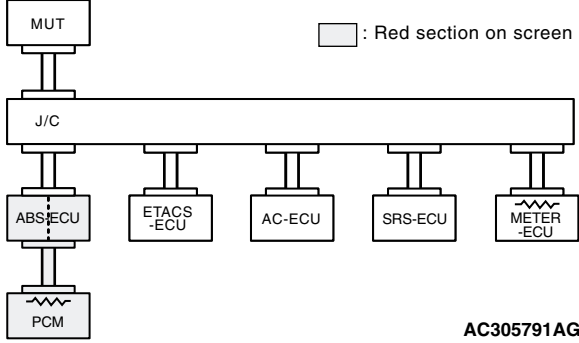
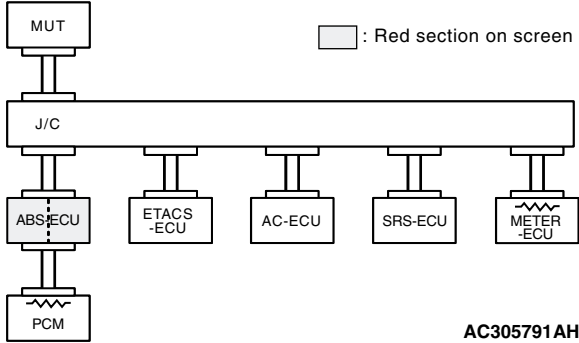
NOTE: If trouble cannot be solved after performing the diagnosis other than item 14, diagnose CAN bus line thoroughly.

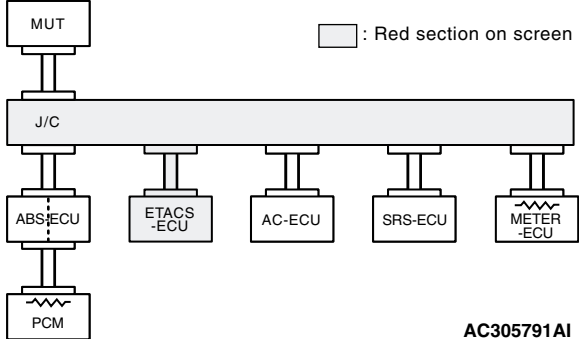
Vehicles with ABS and vehicles without multi-center display (middle-grade type)

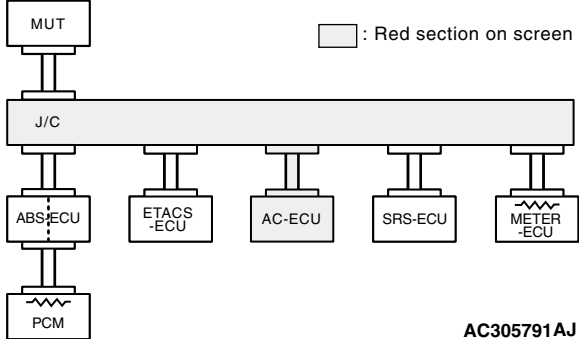
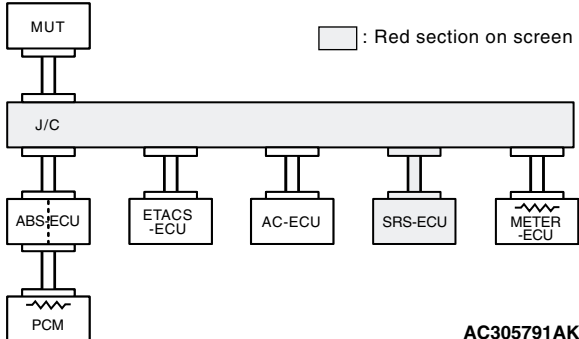
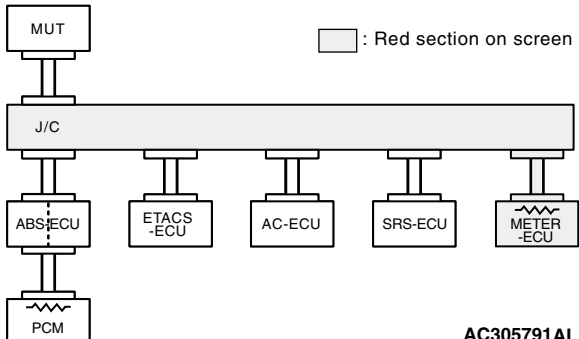
MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Short circuit to battery in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AB</p>	<p>Diagnostic Item 2 Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-72</p>
<p><Comment> Grounding in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AB</p>	<p>Diagnostic Item 5 Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-208</p>
<p><Comment> Short circuit between CAN_H and CAN_L in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AB</p>	<p>Diagnostic Item 8 Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-331</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p data-bbox="120 233 282 262"><Comment></p> <p data-bbox="120 264 613 331">Disconnection in red displayed area is estimated.</p>  <p data-bbox="444 375 699 401">: Red section on screen</p> <p data-bbox="587 669 706 693">AC305791AC</p>	<p data-bbox="789 233 1027 262">Diagnostic Item 11</p> <p data-bbox="789 264 1268 331">Diagnose terminator resistors at both ends <Vehicles with ABS></p>	<p data-bbox="1325 233 1466 262">P.54C-407</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE		
<p><Comment> Malfunction of terminating resistance is estimated.</p>  <p style="text-align: right;">AC305791AD</p>	<p>Diagnostic Item 13 Diagnose a terminator resistor at either end <Vehicles with ABS></p>	<p>P.54C-441</p>		
<p><Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AE</p>				
<p><Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AF</p>				

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Malfunction in red displayed area is estimated. Please refer to service manual and inspect with 'CAN Detail Diagnosis'.</p>  <p style="text-align: right;">AC305791AB</p>	<p>Diagnostic Item 15 Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles without multi-center display (middle-grade type)></p>	<p>P.54C-486</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AG</p>	<p>Diagnostic Item 18 Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles with ABS></p>	<p>P.54C-562</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AH</p>	<p>Diagnostic Item 19 Diagnose the lines between CAN main bus line and the ABS-ECU.</p>	<p>P.54C-568</p>

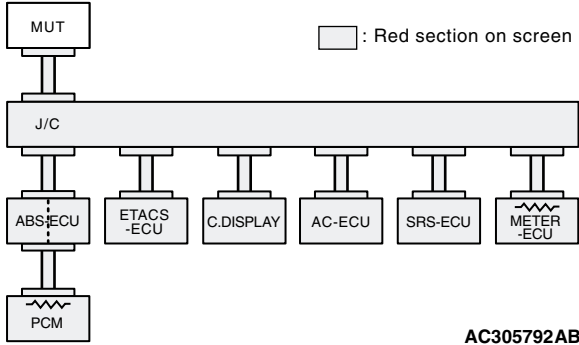
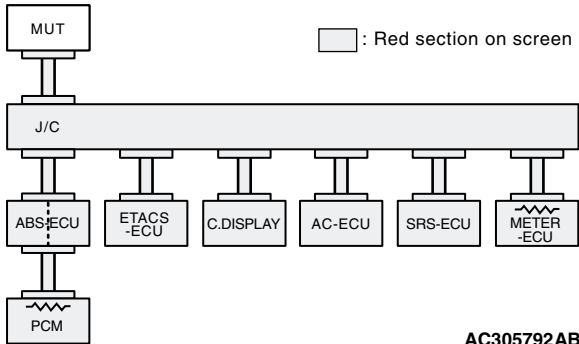
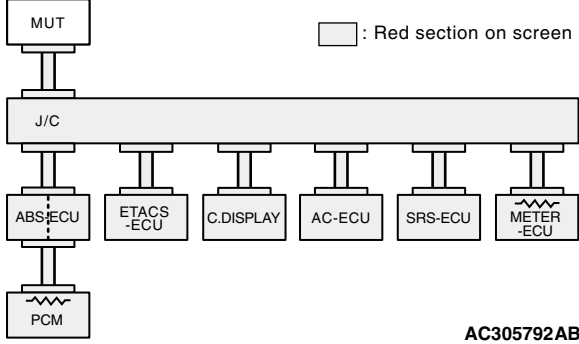
MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p data-bbox="115 231 777 367"><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p data-bbox="584 703 706 724">AC305791A1</p>	<p data-bbox="781 231 1312 325">Diagnostic Item 20 Diagnose the lines between CAN main bus line and the ETACS-ECU.</p>	<p data-bbox="1315 231 1523 262">P.54C-576</p>

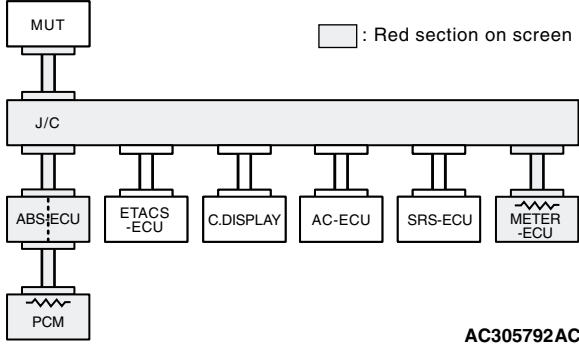
MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AJ</p>	<p>Diagnostic Item 22 Diagnose the lines between CAN main bus line and the A/C-ECU.</p>	<p>P.54C-587</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AK</p>	<p>Diagnostic Item 23 Diagnose the lines between CAN main bus line and the SRS-ECU.</p>	<p>P.54C-594</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305791AL</p>	<p>Diagnostic Item 24 Diagnose the lines between CAN main bus line and the combination meter.</p>	<p>P.54C-602</p>

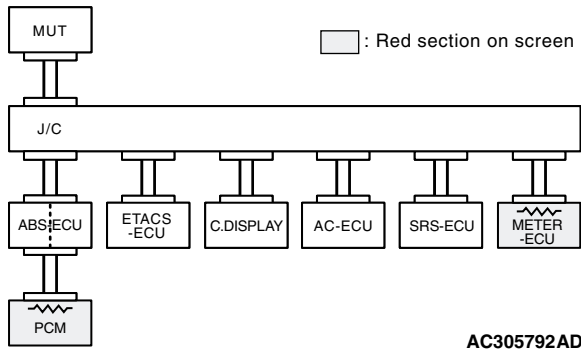
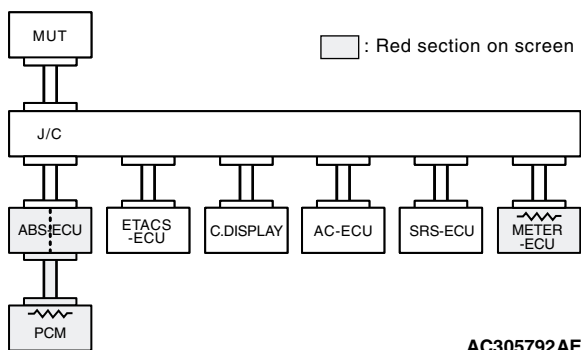
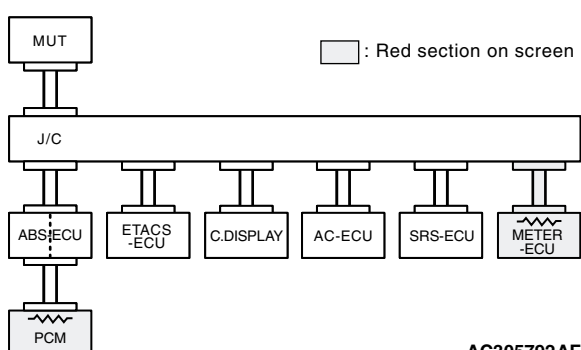
NOTE: If the screen other than above is displayed, troubles are present at two or more spots. In this case, diagnose CAN bus lines by referring to the trouble spot pinpoint procedures.

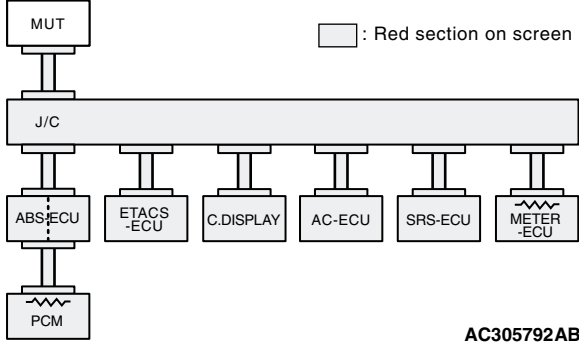
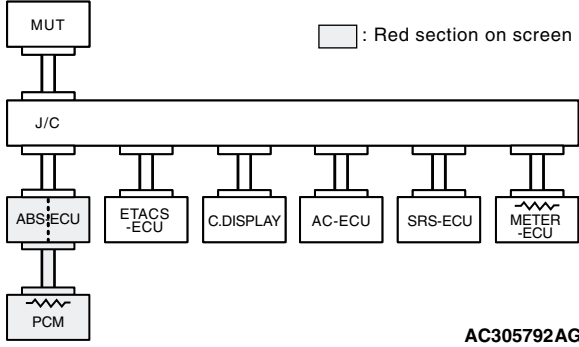
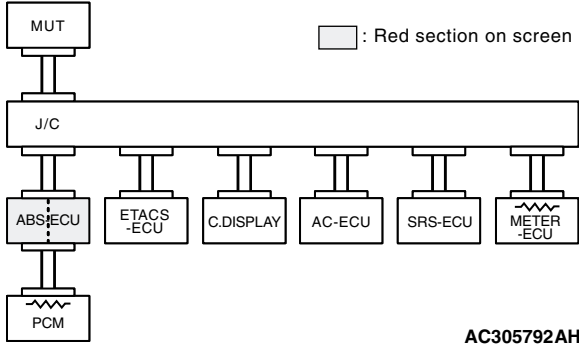
NOTE: If a trouble cannot be solved after performing the diagnosis other than item 15, diagnose CAN bus line thoroughly.

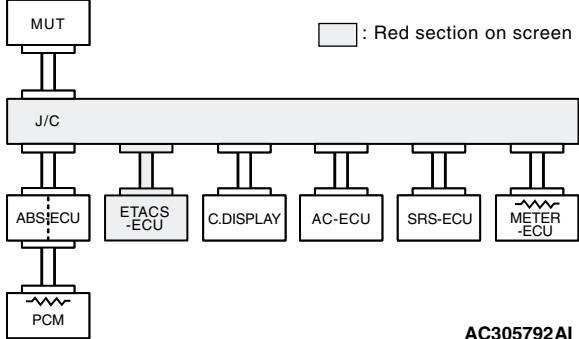
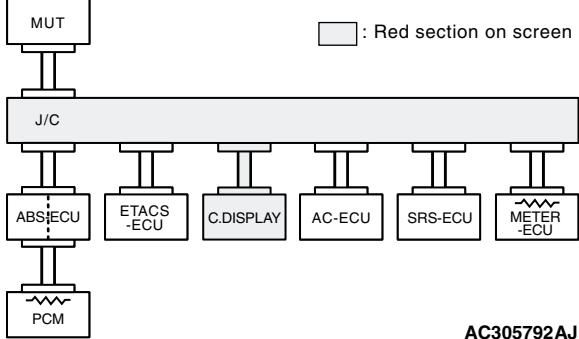
Vehicles with ABS and vehicles with multi-center display (middle-grade type)

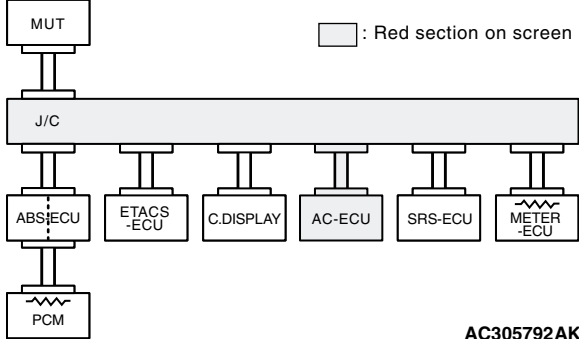
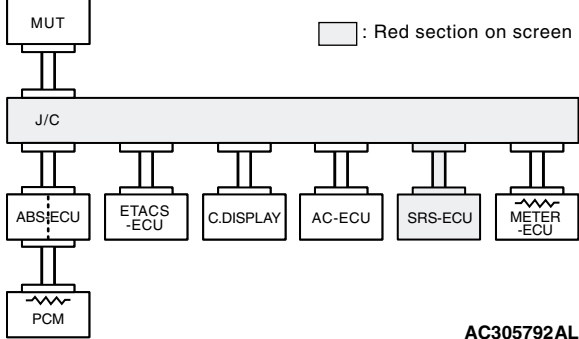
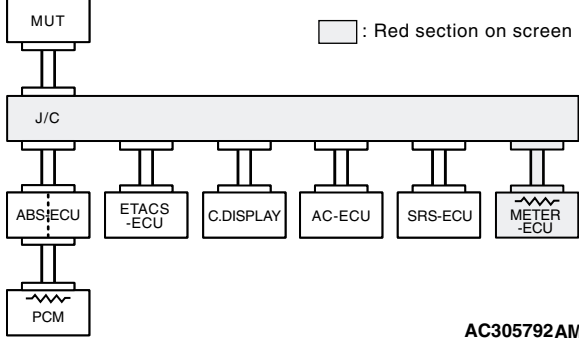
MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Short circuit to battery in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AB</p>	<p>Diagnostic Item 3 Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type)></p>	<p>P.54C-119</p>
<p><Comment> Grounding in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AB</p>	<p>Diagnostic Item 6 Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type)></p>	<p>P.54C-255</p>
<p><Comment> Short circuit between CAN_H and CAN_L in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AB</p>	<p>Diagnostic Item 9 Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles with multi-center display (middle-grade type)></p>	<p>P.54C-360</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p data-bbox="118 233 282 262"><Comment></p> <p data-bbox="118 264 613 331">Disconnection in red displayed area is estimated.</p>  <p data-bbox="444 373 699 401">: Red section on screen</p> <p data-bbox="589 674 708 695">AC305792AC</p>	<p data-bbox="789 233 1027 262">Diagnostic Item 11</p> <p data-bbox="789 264 1268 331">Diagnose terminator resistors at both ends <Vehicles with ABS></p>	<p data-bbox="1323 233 1466 262">P.54C-407</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Malfunction of terminating resistance is estimated.</p>  <p style="text-align: right;">AC305792AD</p>	<p>Diagnostic Item 13 Diagnose a terminator resistor at either end <Vehicles with ABS></p>	<p>P.54C-441</p>
<p><Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AE</p>		
<p><Comment> Disconnection, loose connection or terminating resistance in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AF</p>		

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Malfunction in red displayed area is estimated. Please refer to service manual and inspect with 'CAN Detail Diagnosis'.</p>  <p style="text-align: right;">AC305792AB</p>	<p>Diagnostic Item 16 Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles with multi-center display (middle-grade type)></p>	<p>P.54C-520</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AG</p>	<p>Diagnostic Item 18 Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles with ABS></p>	<p>P.54C-562</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AH</p>	<p>Diagnostic Item 19 Diagnose the lines between CAN main bus line and the ABS-ECU.</p>	<p>P.54C-568</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AI</p>	<p>Diagnostic Item 20 Diagnose the lines between CAN main bus line and the ETACS-ECU.</p>	<p>P.54C-576</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AJ</p>	<p>Diagnostic Item 21 Diagnose the lines between CAN main bus line and the multi-center display (middle-grade type)</p>	<p>P.54C-581</p>

MUT-III SCREEN	DIAGNOSIS DETAILS	REFERENCE PAGE
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AK</p>	<p>Diagnostic Item 22 Diagnose the lines between CAN main bus line and the A/C-ECU.</p>	<p>P.54C-587</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AL</p>	<p>Diagnostic Item 23 Diagnose the lines between CAN main bus line and the SRS-ECU.</p>	<p>P.54C-594</p>
<p><Comment> Harness disconnection or loose connection in red displayed area is estimated.</p>  <p style="text-align: right;">AC305792AM</p>	<p>Diagnostic Item 24 Diagnose the lines between CAN main bus line and the combination meter.</p>	<p>P.54C-602</p>

NOTE: If the screen other than above is displayed, troubles are present at two or more spots. In this case, diagnose CAN bus lines by referring to the trouble spot pinpoint procedures.

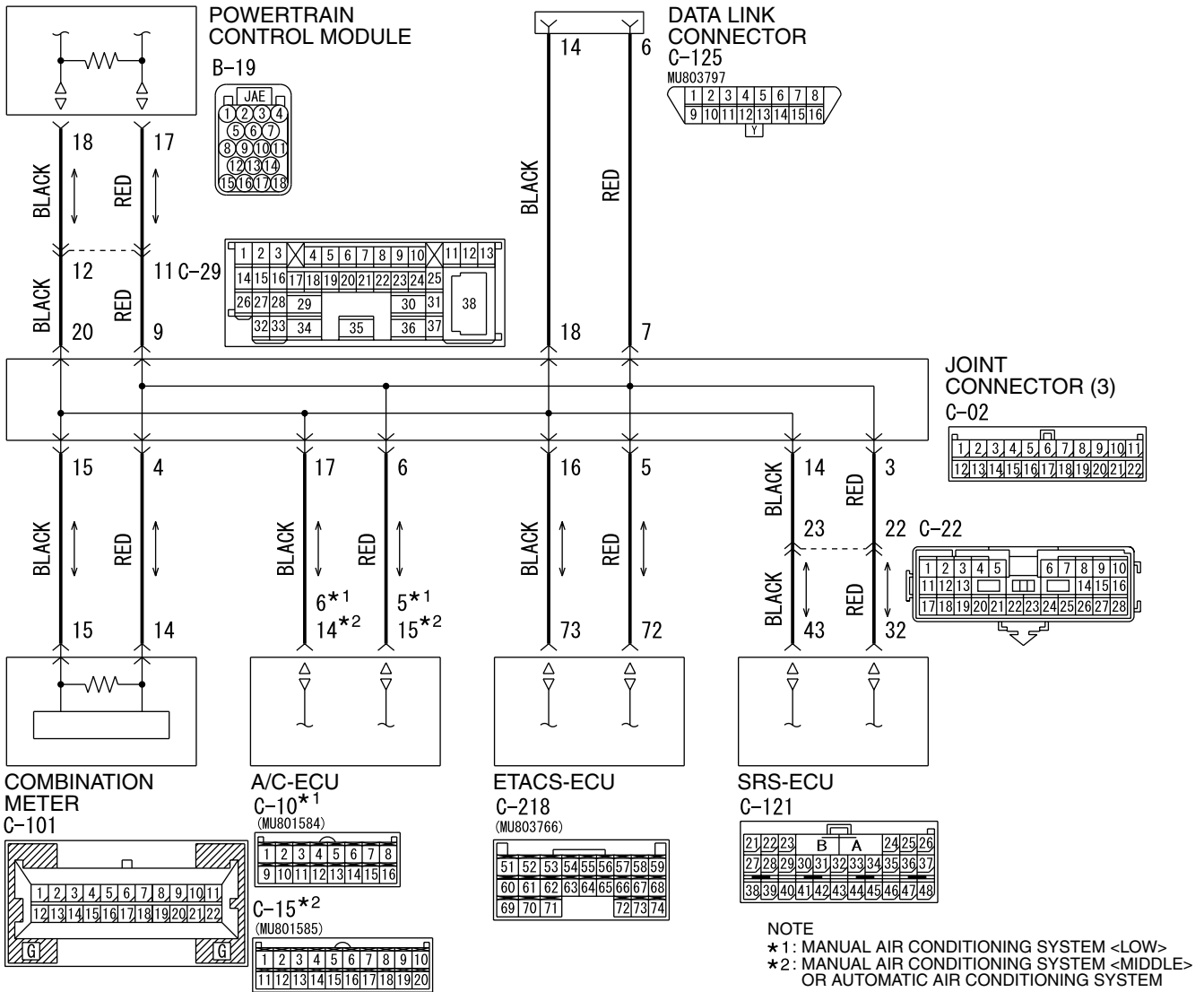
NOTE: If a trouble cannot be solved after performing the diagnosis other than item 16, diagnose CAN bus line thoroughly.

CAN BUS DIAGNOSTICS

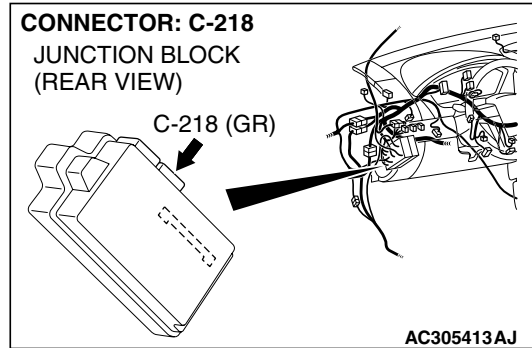
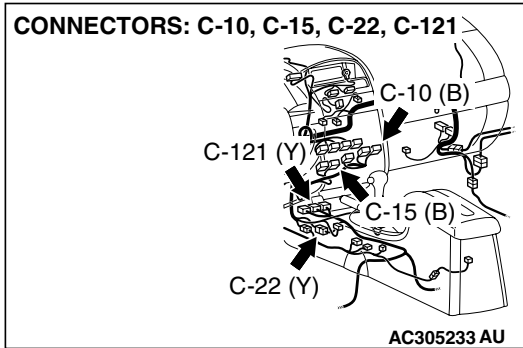
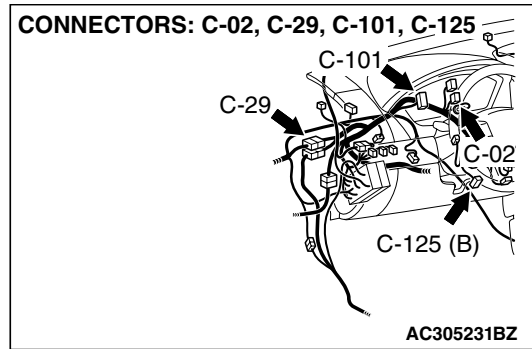
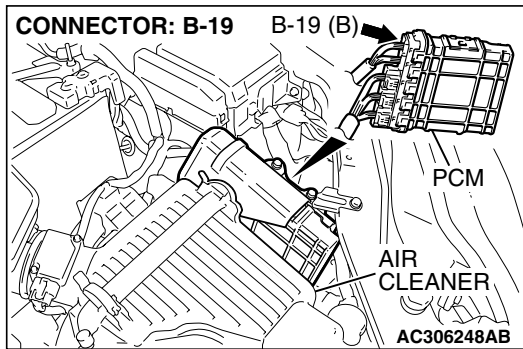
DIAGNOSTIC ITEM 1: Diagnose shorts in the power supply to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>

CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do this, a component connected to the CAN bus line may be damaged.



W4P54M96AA



TROUBLE JUDGMENT

A short to the power supply may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is more than 4.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or an ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

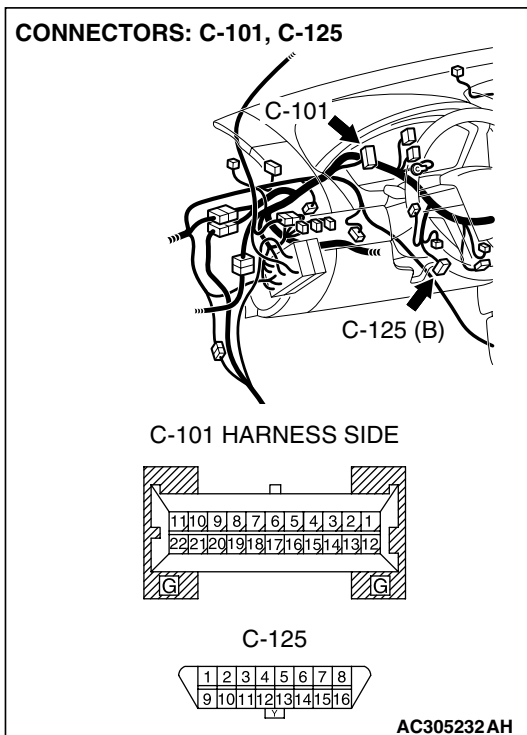
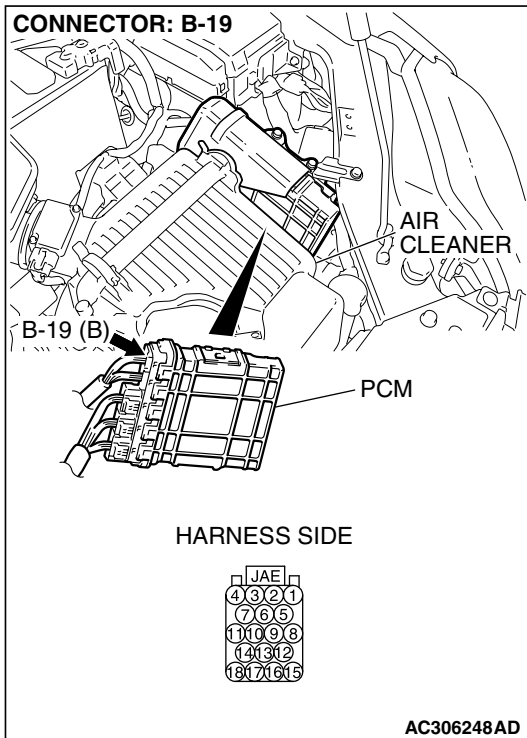
CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for a short to the power supply. Measure the voltage at data link connector C-125.

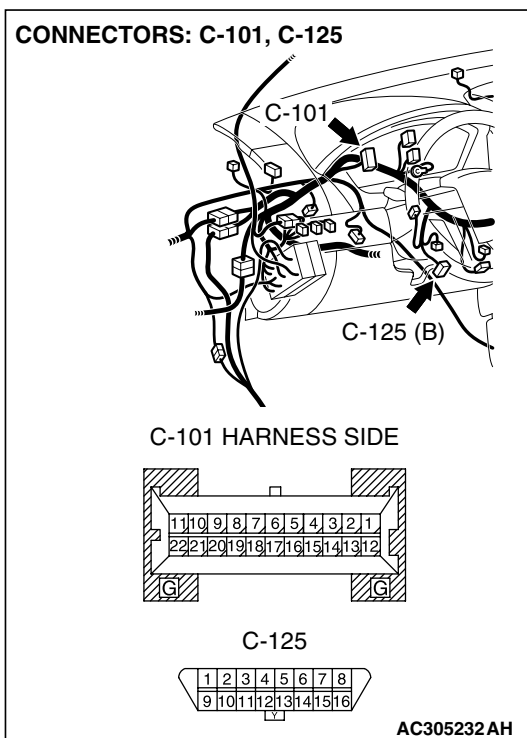
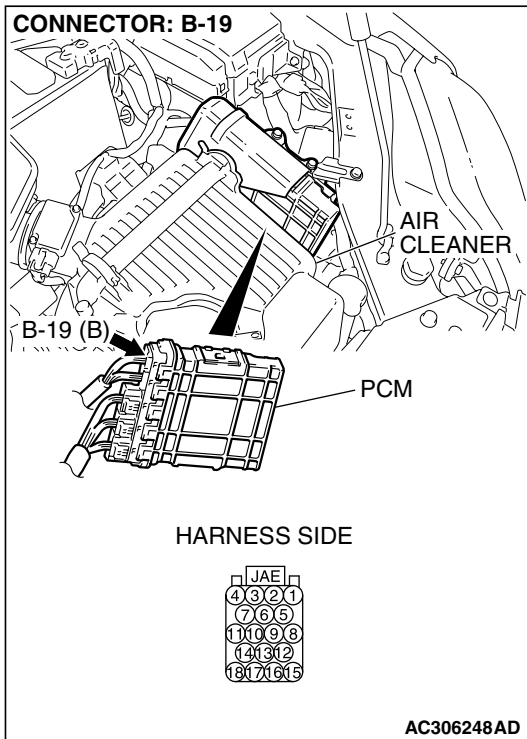
⚠ CAUTION

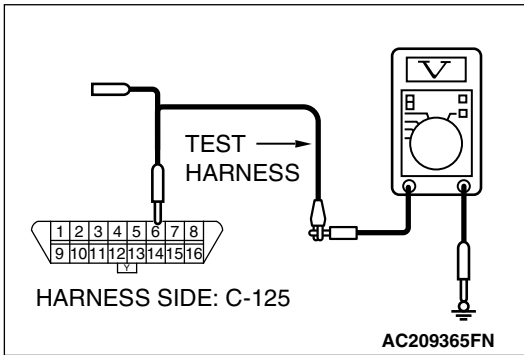
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between data link connector terminal 6 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 3.

NO : If the voltage measures more than 4.0 V, go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for a short to the power supply. Measure the voltage at data link connector C-125.

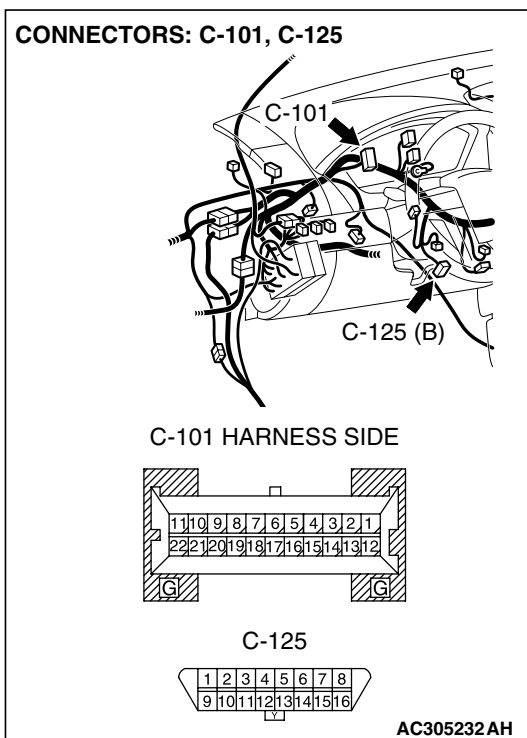
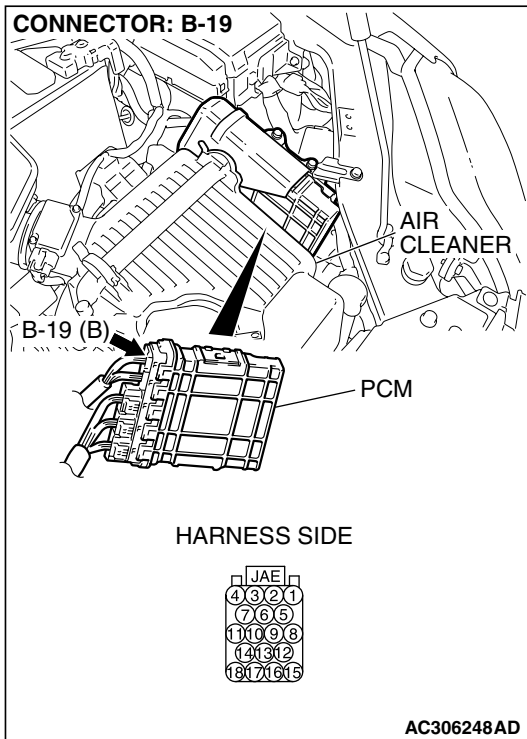
⚠ CAUTION

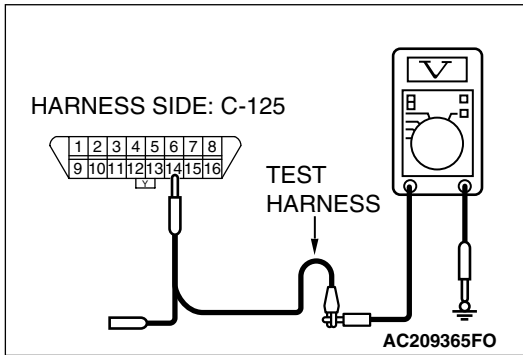
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "ON" position.





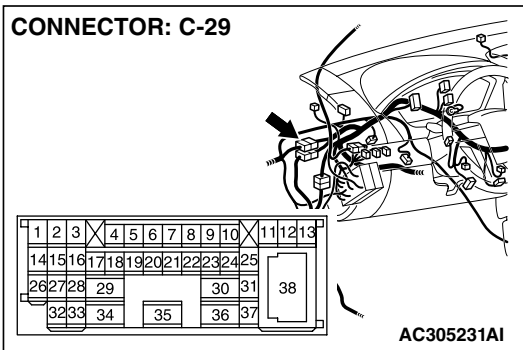
(3) Measure the voltage between data link connector terminal 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 4.0 V, go to Step 24.



STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

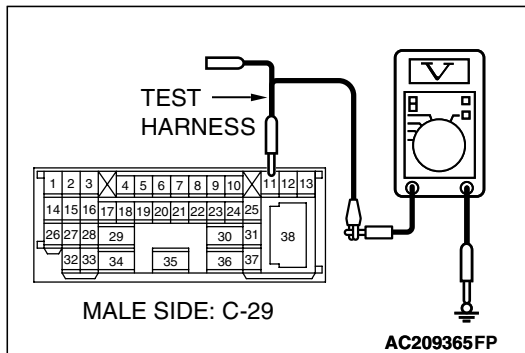
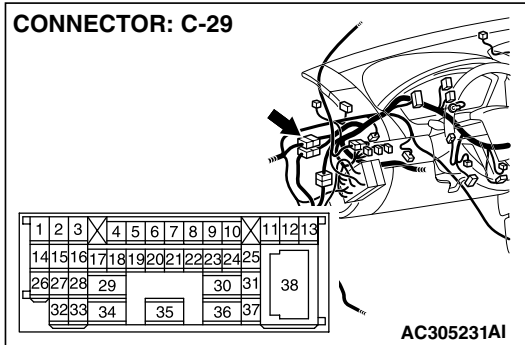
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 4.0 V or less

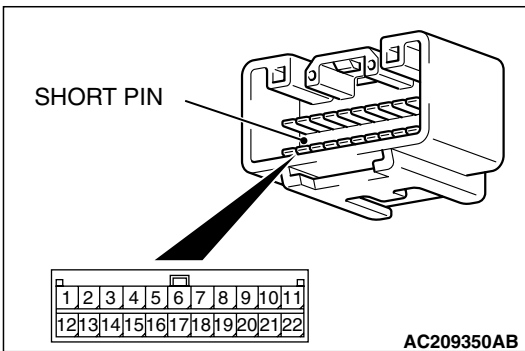
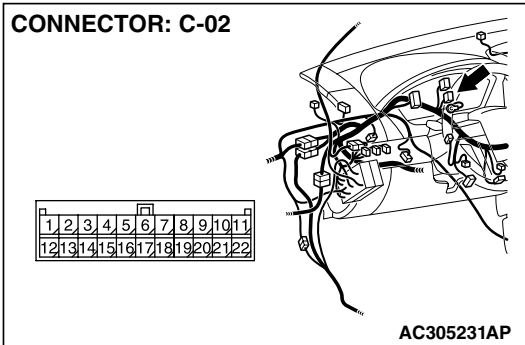
Q: Does the voltage measure 4.0 V or less ?

- YES :** If the voltage measures 4.0 V or less, go to Step 6.
NO : If the voltage measures more than 4.0 V, go to Step 23.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for a short to the power supply. Measure the voltage at joint connector (3) C-02.

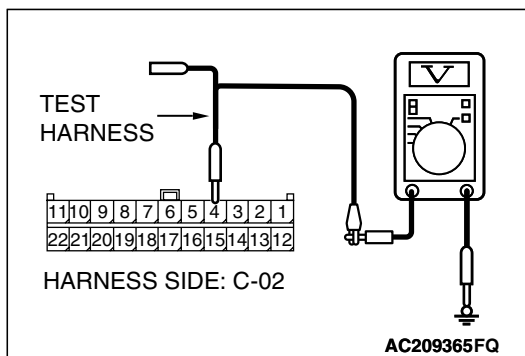
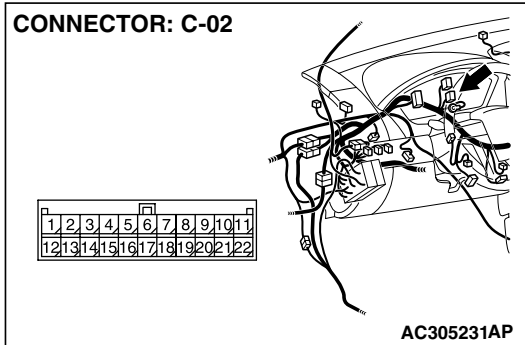
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

YES : If the voltage measures 4.0 V or less, go to Step 9.

NO : If the voltage measures more than 4.0 V, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

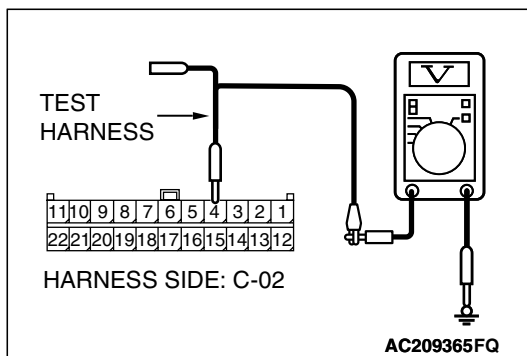
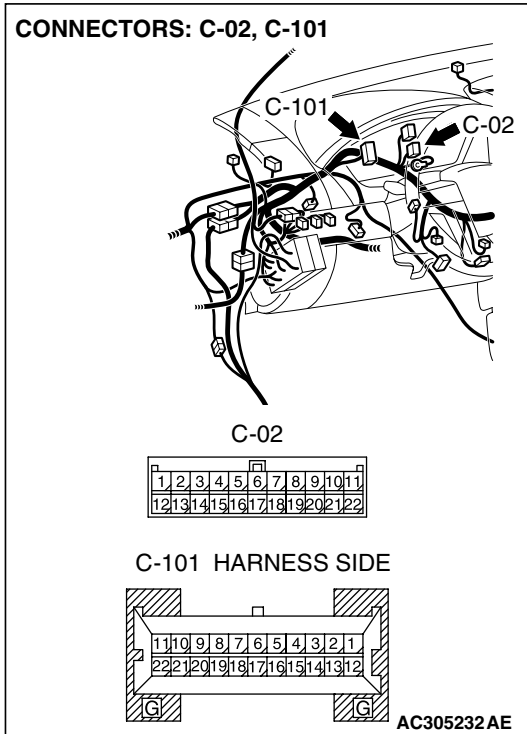
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

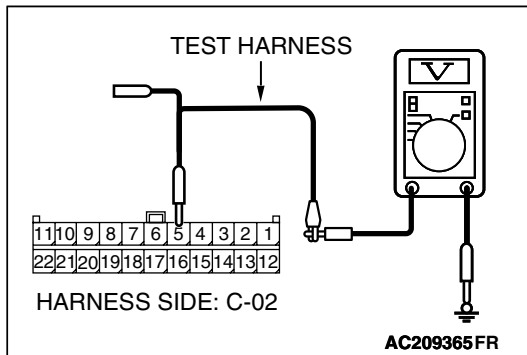
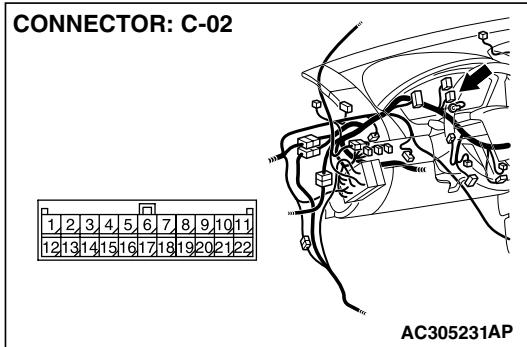
CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 12.
- NO :** If the voltage measures more than 4.0 V, go to Step 10.

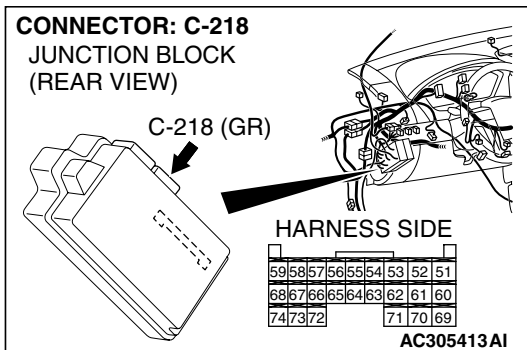
STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

Q: Is ETACS-ECU connector C-218 in good condition?

- YES :** Go to Step 11.
- NO :** Repair the damaged parts.



STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

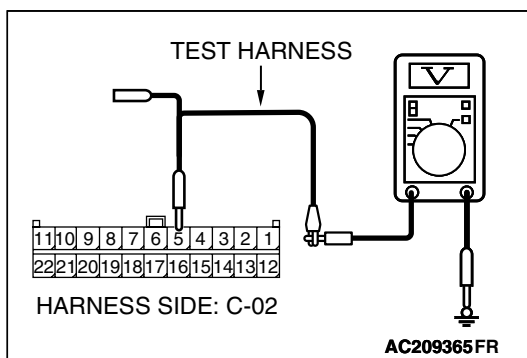
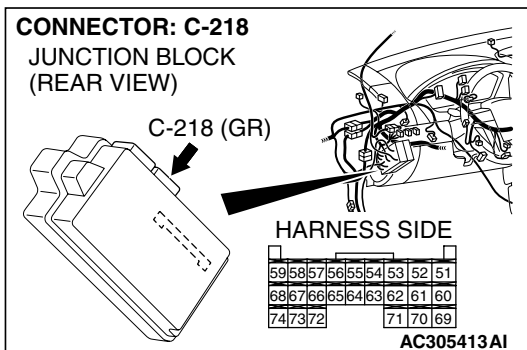
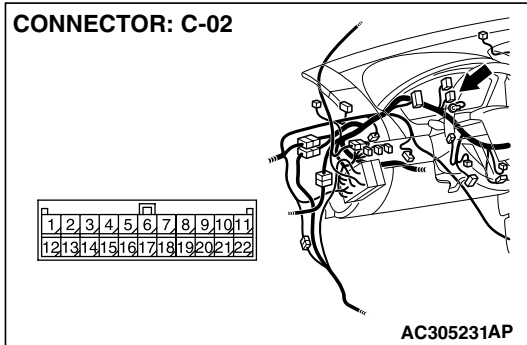
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

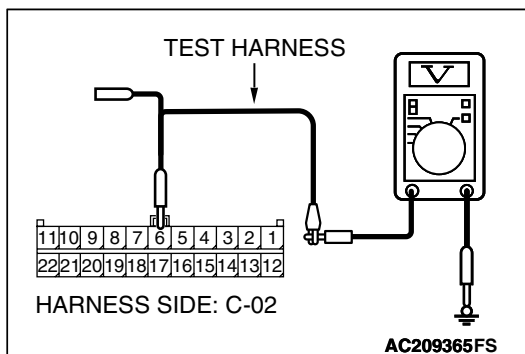
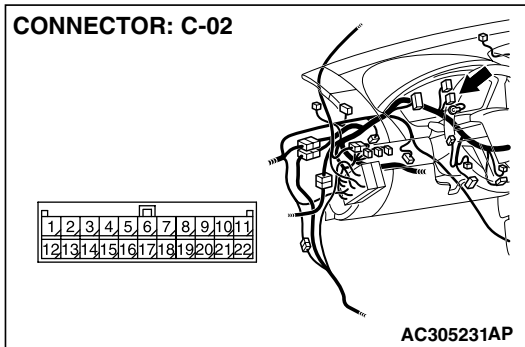
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 15.
NO : If the voltage measures more than 4.0 V, go to Step 13.

STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

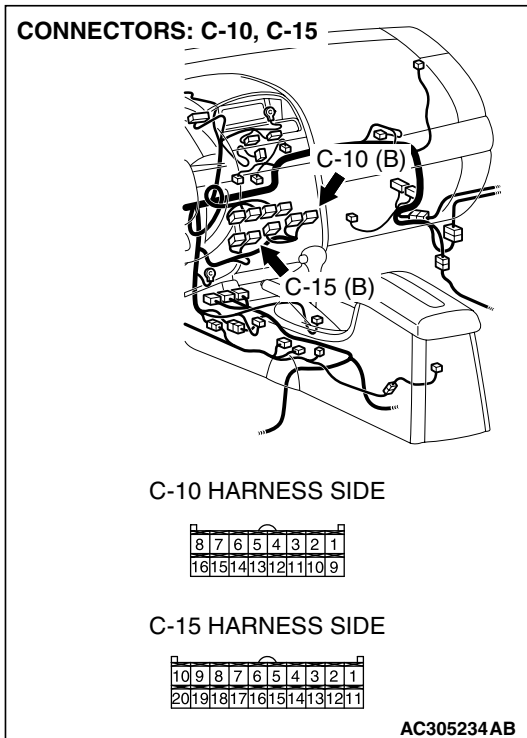
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.

NO : Repair the damaged parts.



STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

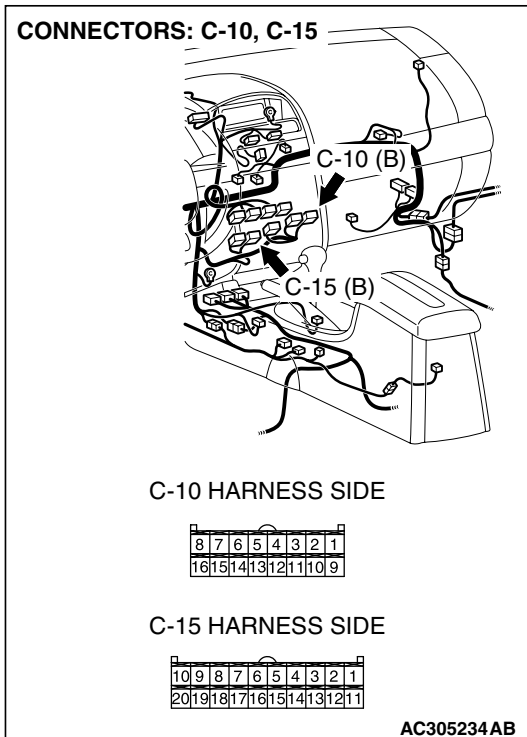
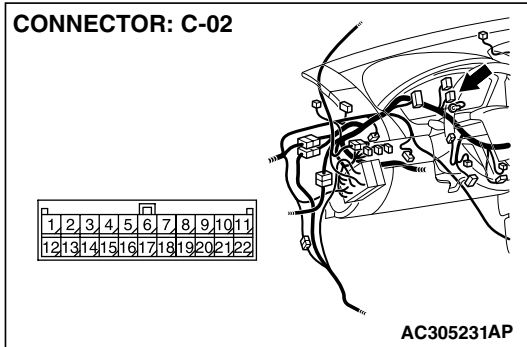
⚠ CAUTION

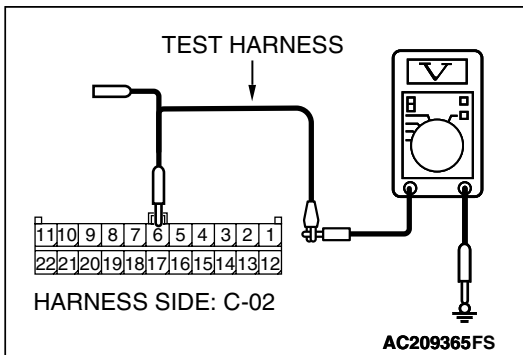
A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

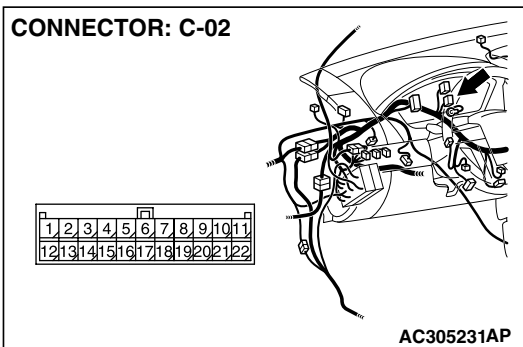
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

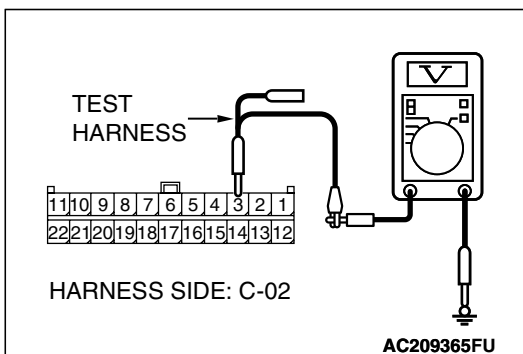
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

- (2) Turn the ignition switch to the "ON" position.



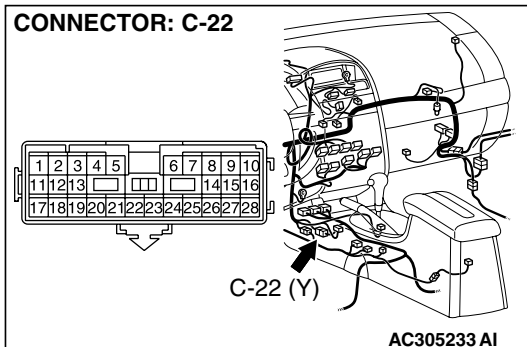
- (3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 21.

NO : If the voltage measures more than 4.0 V, go to Step 16.



STEP 16. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

YES : Go to Step 17.

NO : Repair the damaged parts.

STEP 17. Check the CAN_H-side bus line (communication line including ECUs) of the floor wiring harness for short to the power supply. Measure the voltage at intermediate connector C-22.

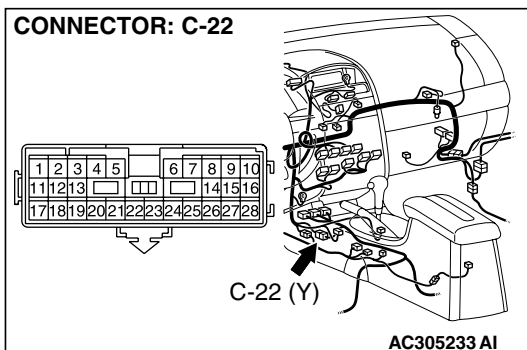
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the voltage at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



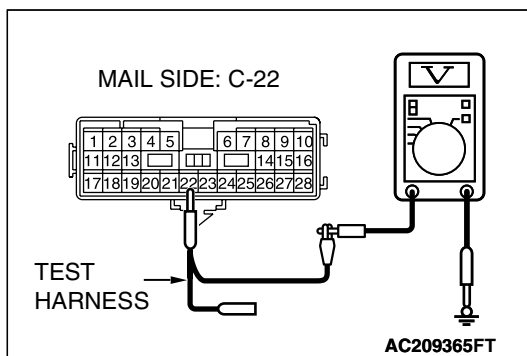
- (3) Measure the voltage between intermediate connector terminal 22 and body ground.

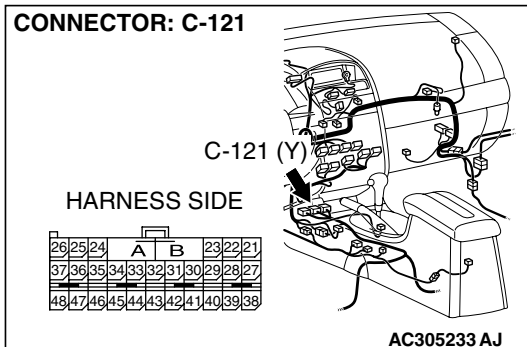
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 20 .

NO : If the voltage measures more than 4.0 V, go to Step 18.





STEP 18. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 19.

NO : Repair the damaged parts.

STEP 19. Check the CAN_H line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the voltage at intermediate connector C-22.

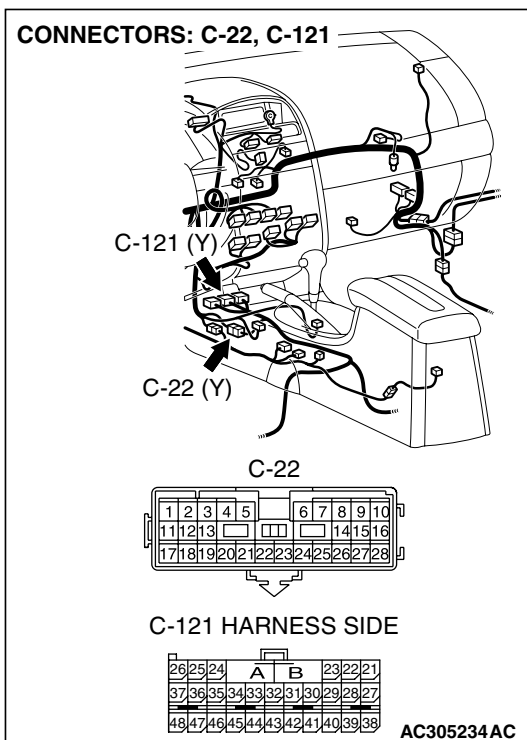
⚠ CAUTION

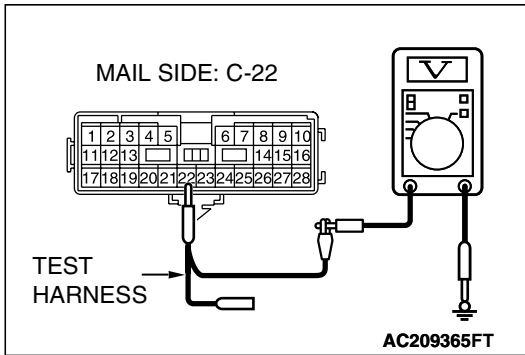
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the voltage at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between intermediate connector terminal 22 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector and SRS-ECU connector.

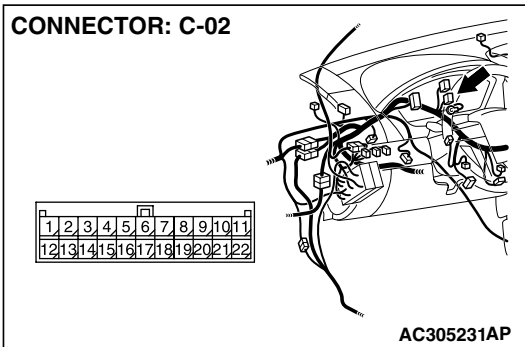
STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the voltage at joint connector (3) C-02.

CAUTION

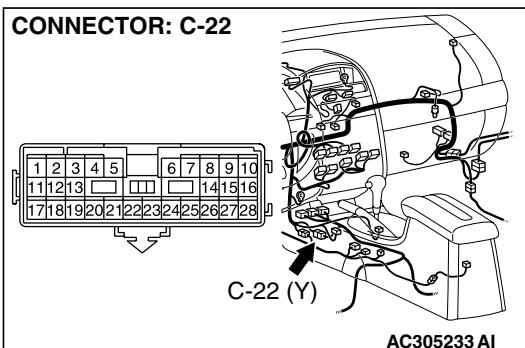
A digital multimeter should be used. For details refer to [P.54C-4](#).

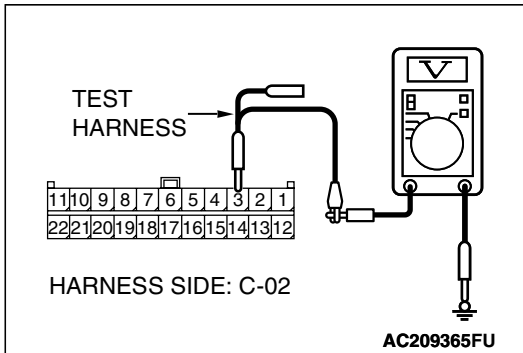
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between joint connector (3) terminals 3 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and joint connector (3).

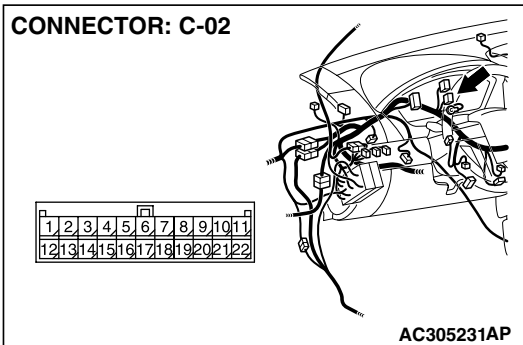
STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

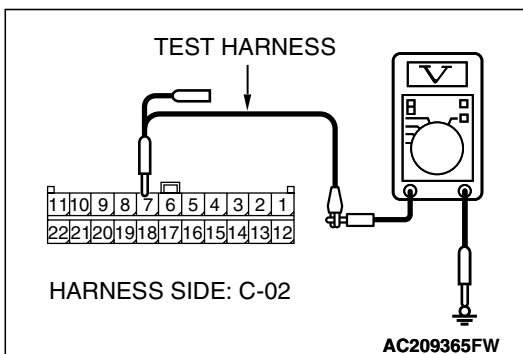
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 7 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 22.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) C-02 for a short to the power supply. Measure the voltage at joint connector (3) C-02.

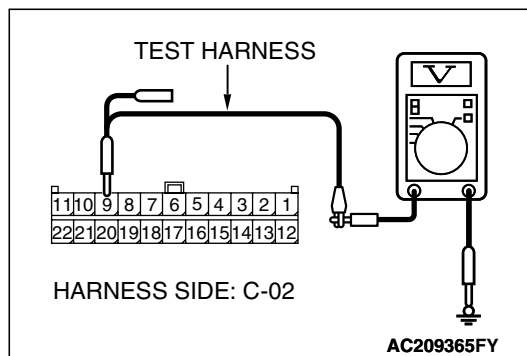
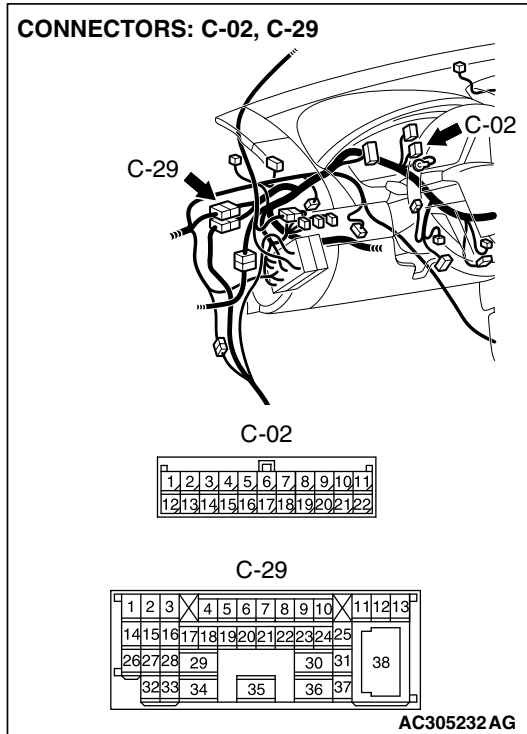
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 9 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector and joint connector (3).

STEP 23. Check the CAN_H line (communication line only) between intermediate connector and the powertrain control module connector for a short circuit. Measure the voltage at intermediate connector C-29.

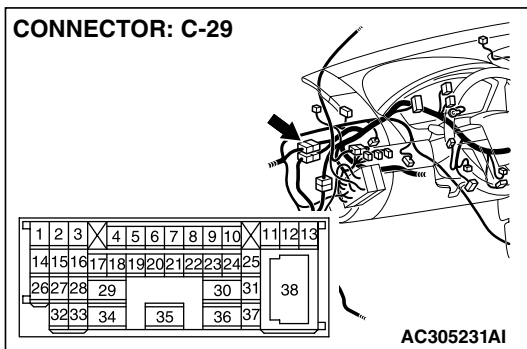
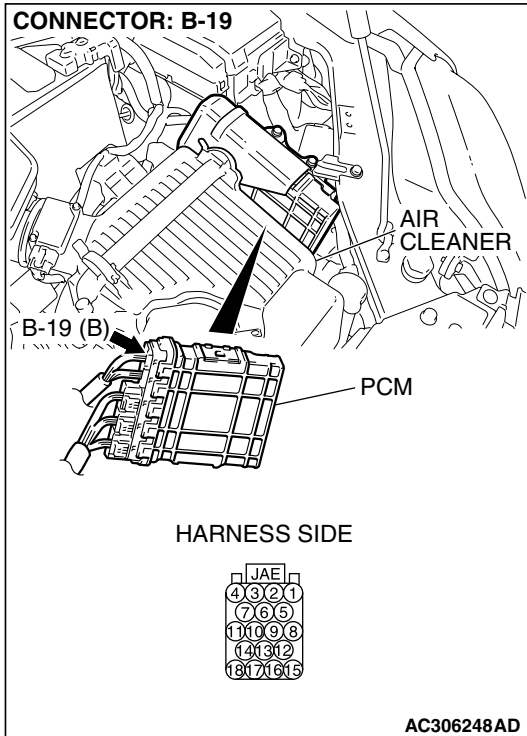
⚠ CAUTION

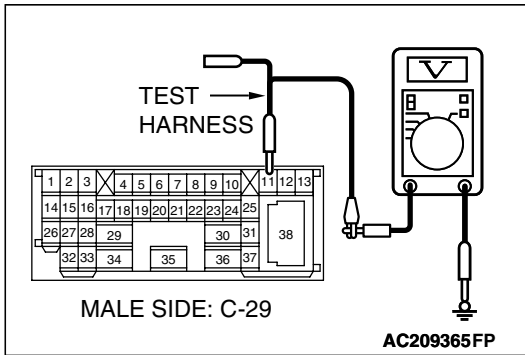
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the voltage at the wiring harness side of intermediate connector C-29.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector and the powertrain control module connector.

STEP 24. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

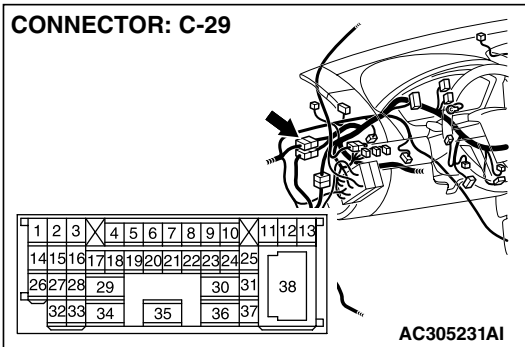
CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 25.

NO : Repair the damaged parts.



STEP 25. Check the CAN_L-side bus line (communication line including) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

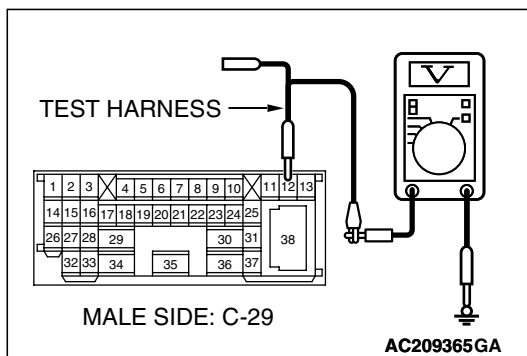
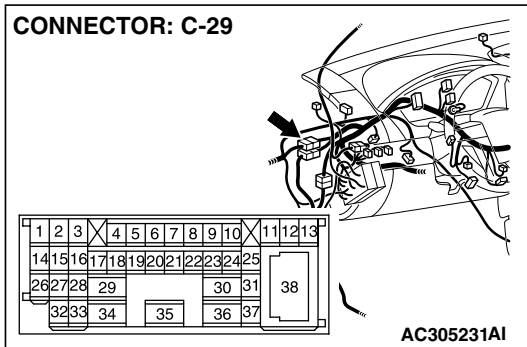
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

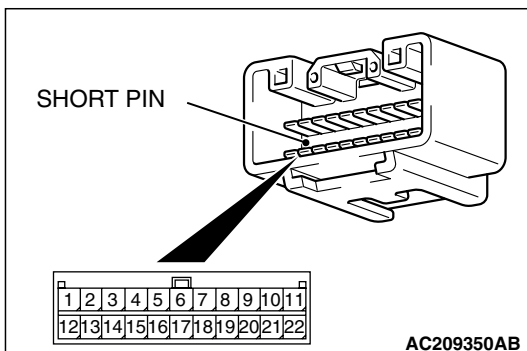
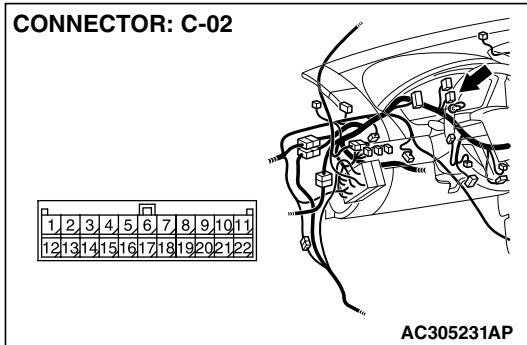
YES : If the voltage measures 4.0 V or less, go to Step 26.

NO : If the voltage measures more than 4.0 V, go to Step 43.

STEP 26. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 27.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 27. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

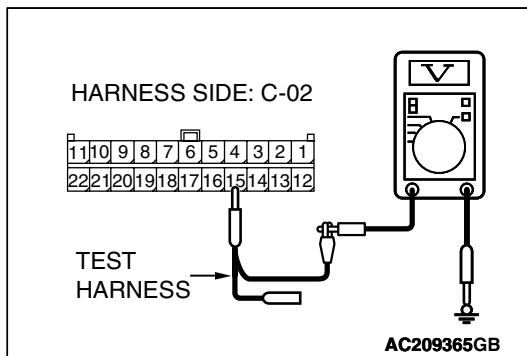
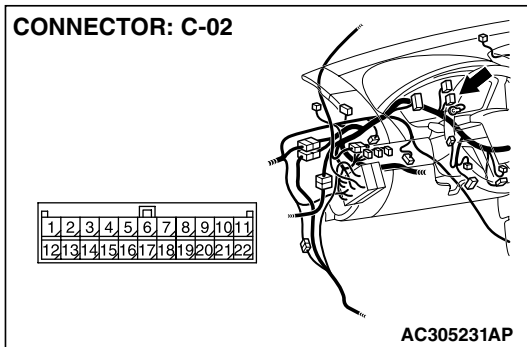
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 29.

NO : If the voltage measures more than 4.0 V, go to Step 28.

STEP 28. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

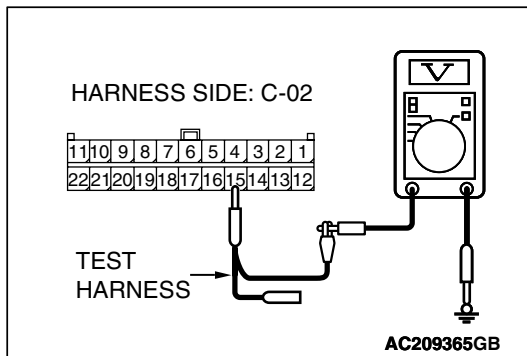
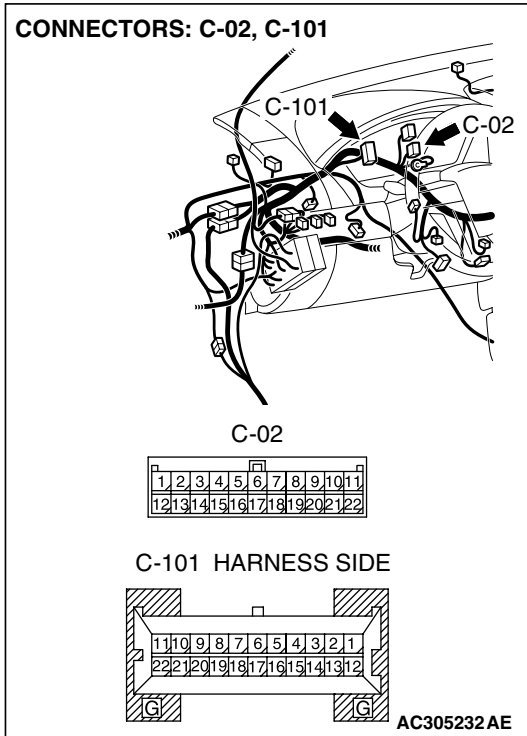
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 29. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

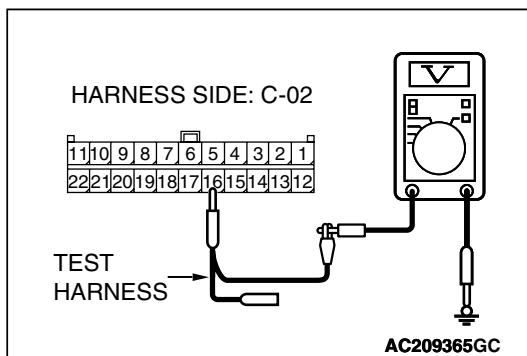
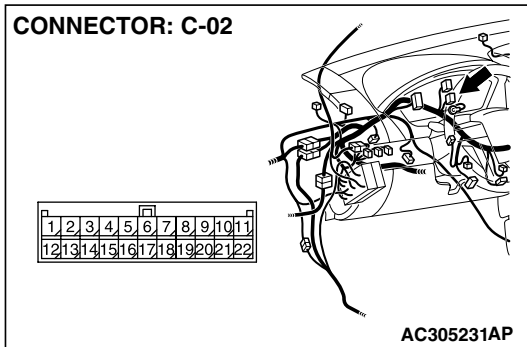
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

- YES :** If the voltage measures 4.0 V or less, go to Step 32.
NO : If the voltage measures more than 4.0 V, go to Step 30.

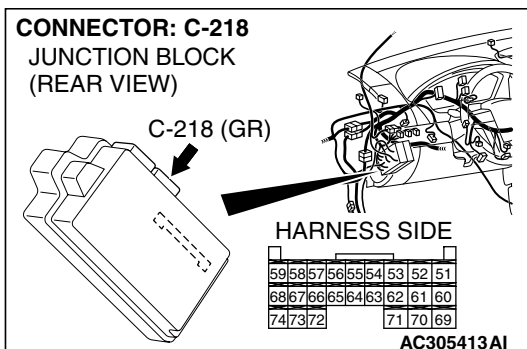
STEP 30. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ETACS-ECU connector C-218 in good condition?

- YES :** Go to Step 31.
NO : Repair the damaged parts.



STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

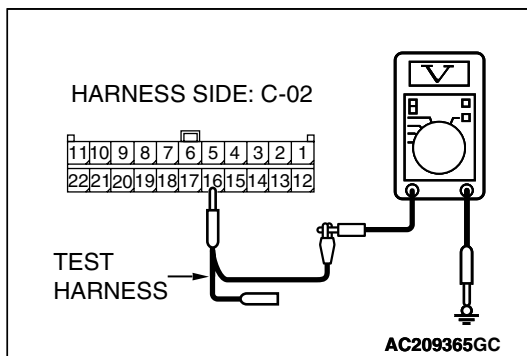
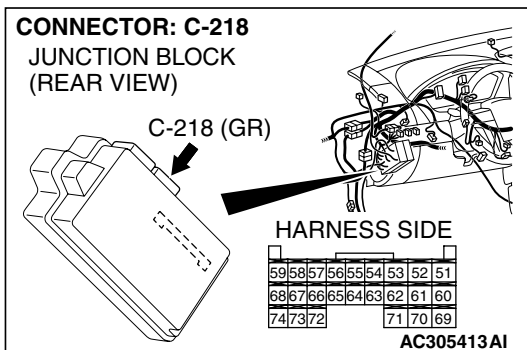
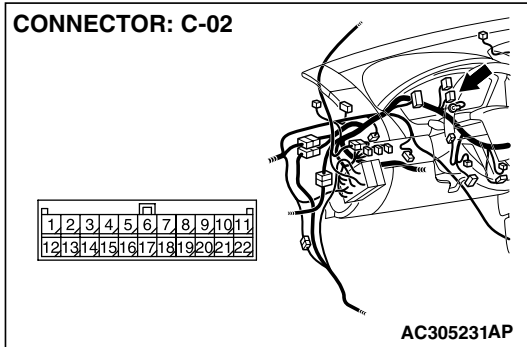
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 32. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

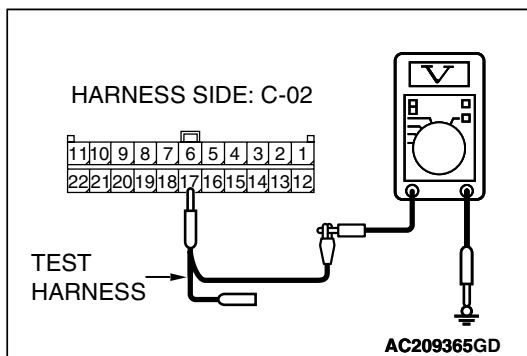
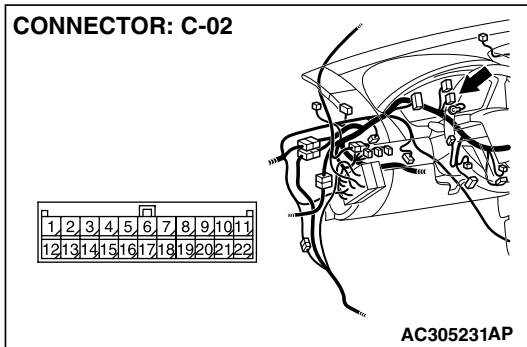
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 35.

NO : If the voltage measures more than 4.0 V, go to Step 33.

STEP 33. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

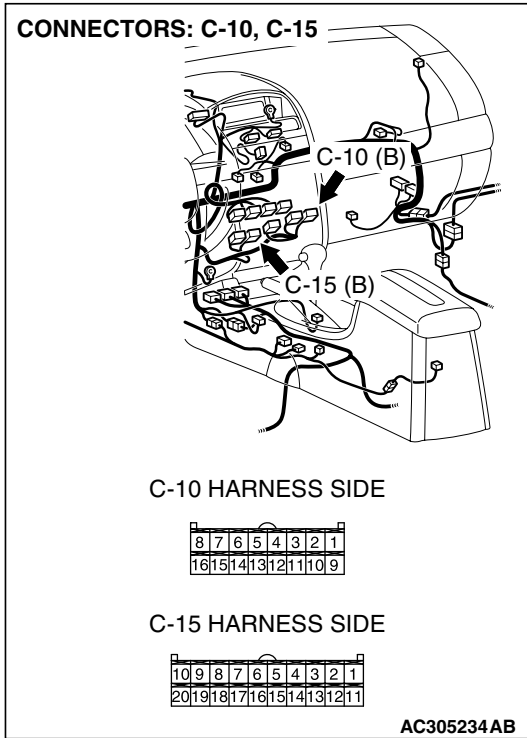
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 34.

NO : Repair the damaged parts.



STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

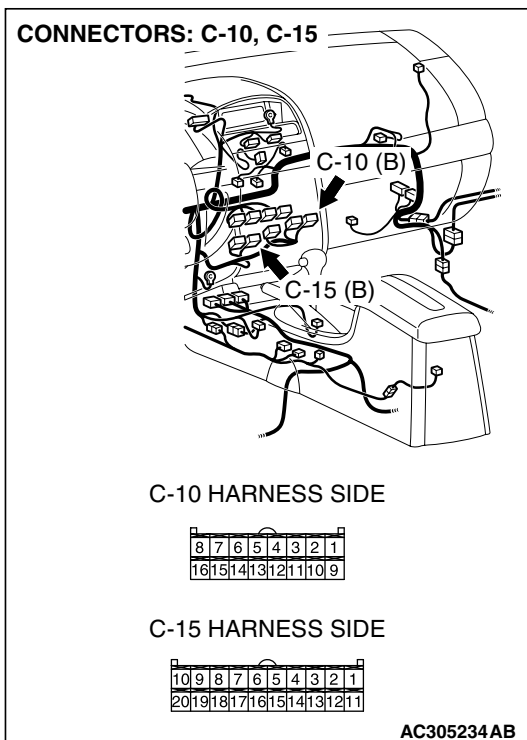
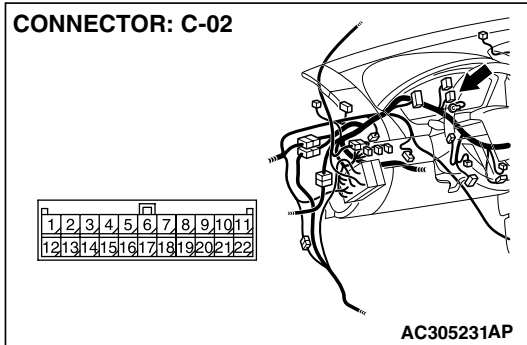
⚠ CAUTION

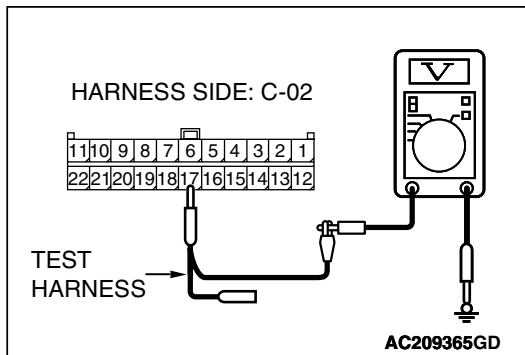
A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

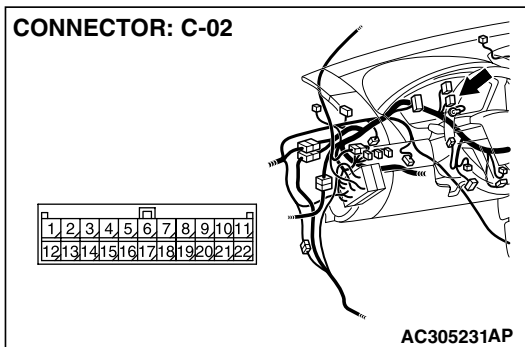
STEP 35. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

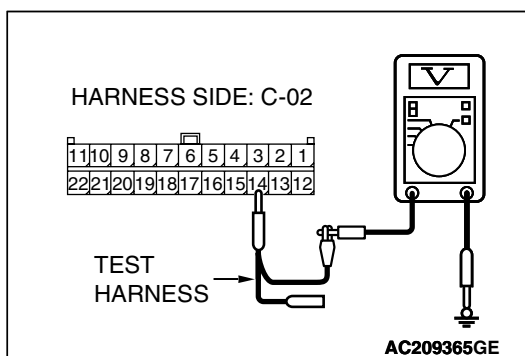
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



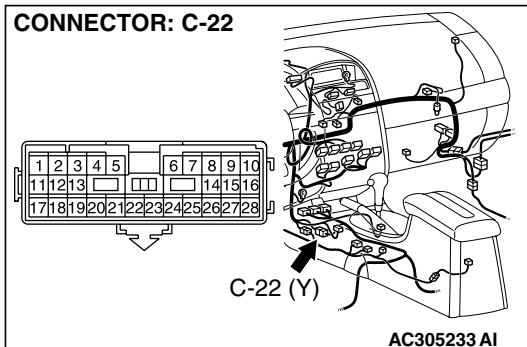
- (3) Measure the voltage between joint connector (3) terminals 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 41.

NO : If the voltage measures more than 4.0 V, go to Step 36.



STEP 36. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

YES : Go to Step 37.

NO : Repair the damaged parts.

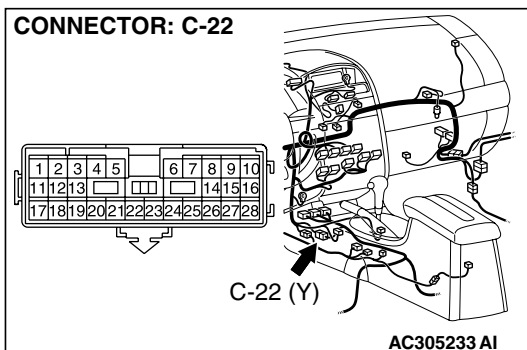
STEP 37. Check the CAN_L-side bus line (communication line including ECUs) of the floor wiring harness for short to the power supply. Measure the voltage at intermediate connector C-22.

CAUTION

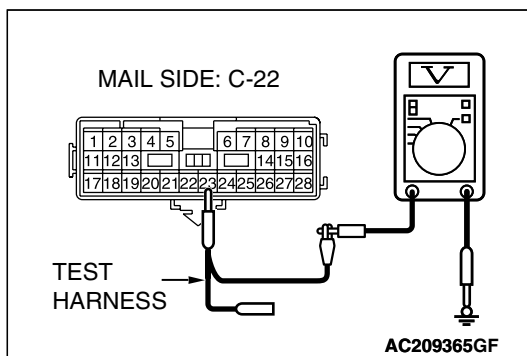
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect intermediate connector C-22, and measure the voltage at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



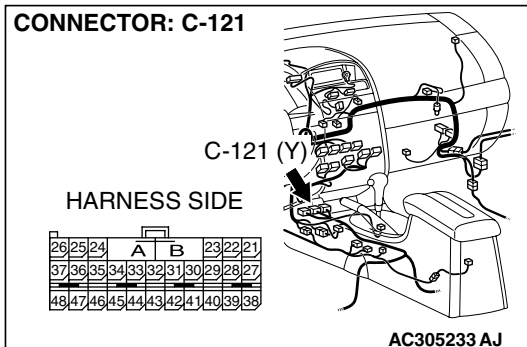
- (3) Measure the voltage between intermediate connector terminal 23 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 40.

NO : If the voltage measures more than 4.0 V, go to Step 38.



STEP 38. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 39.

NO : Repair the damaged parts.

STEP 39. Check the CAN_L line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the voltage at intermediate connector C-22.

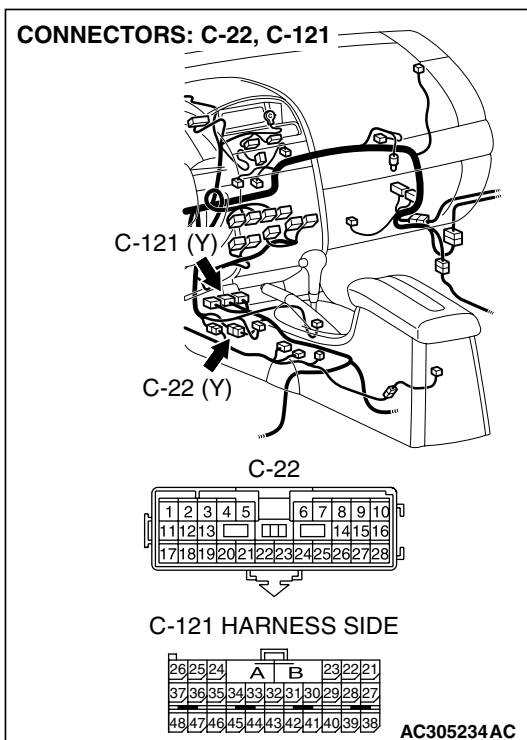
CAUTION

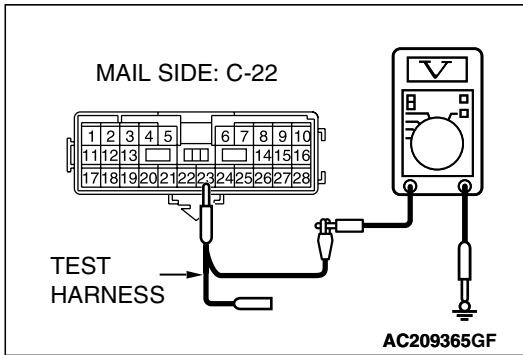
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the voltage at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between intermediate connector terminal 23 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and SRS-ECU connector.

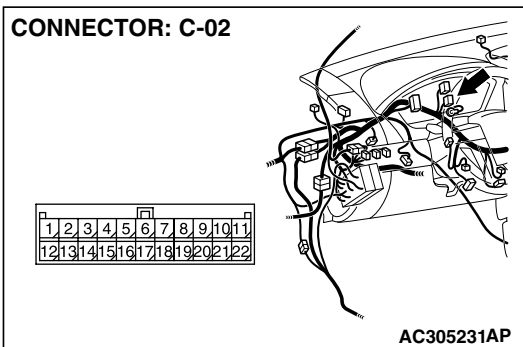
STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the voltage at joint connector (3) C-02.

CAUTION

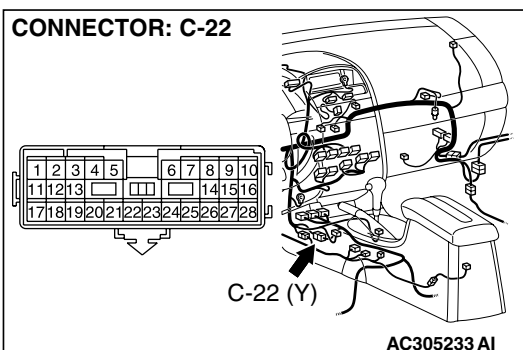
A digital multimeter should be used. For details refer to [P.54C-4](#).

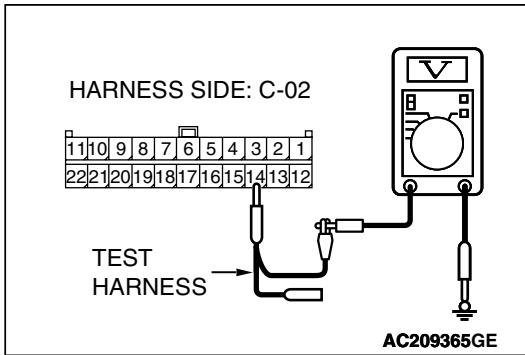
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminals 14 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the voltage measure 1.0 V or more?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-456.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and joint connector (3).

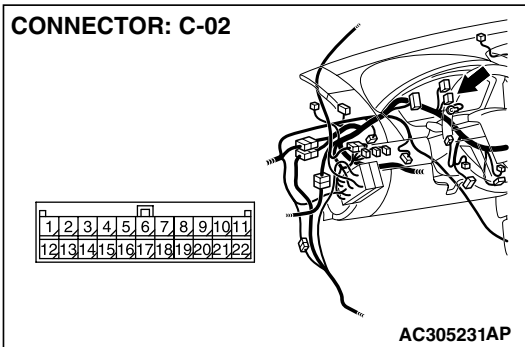
STEP 41. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

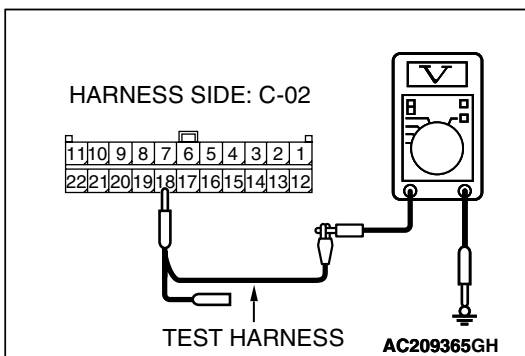
CAUTION

The test wiring harness should be used. For details refer to P.54C-4.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 18 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 42.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 42. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

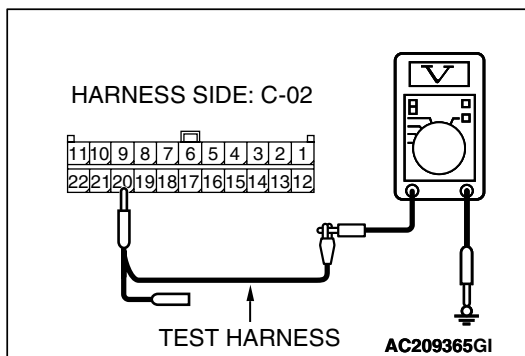
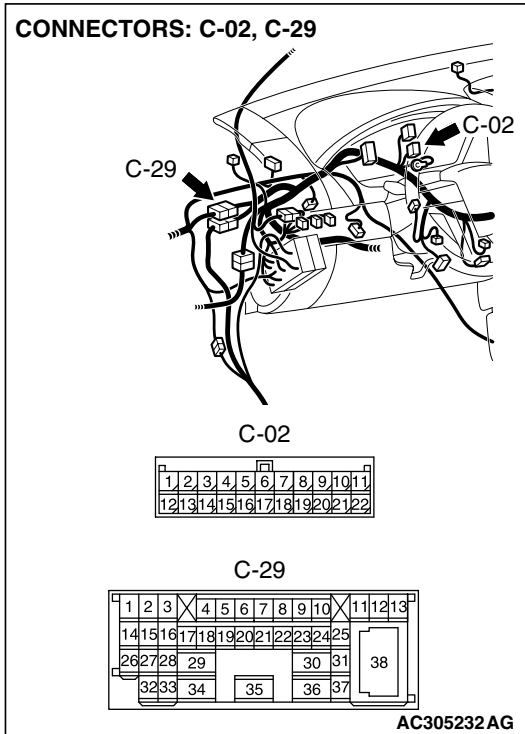
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 20 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).

STEP 43. Check the CAN_L line (communication line only) between intermediate connector and the powertrain control module connector for short to ground. Measure the voltage at intermediate connector C-29.

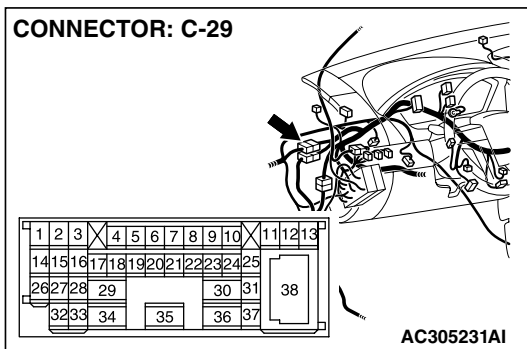
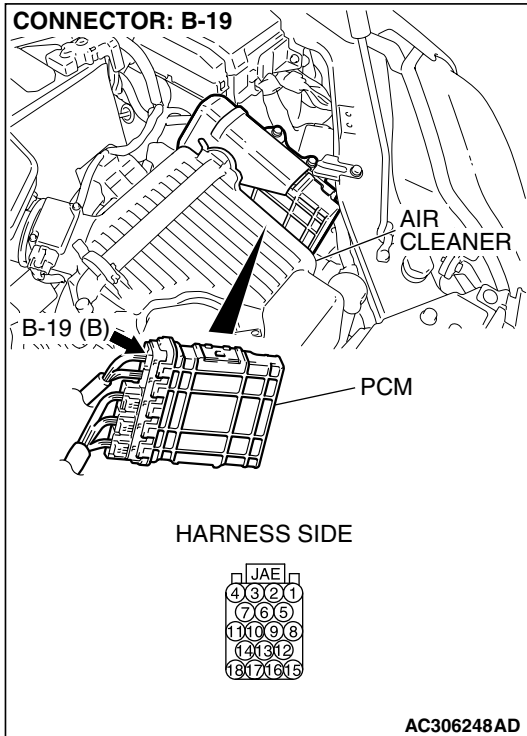
⚠ CAUTION

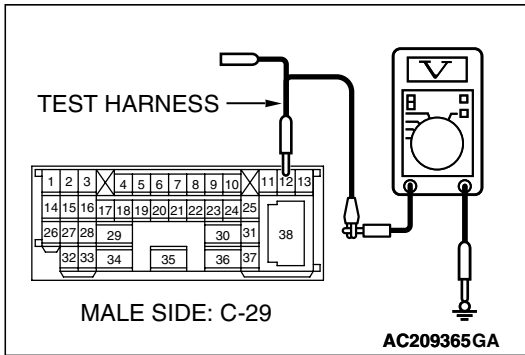
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the voltage at the wiring harness side of intermediate connector C-29.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

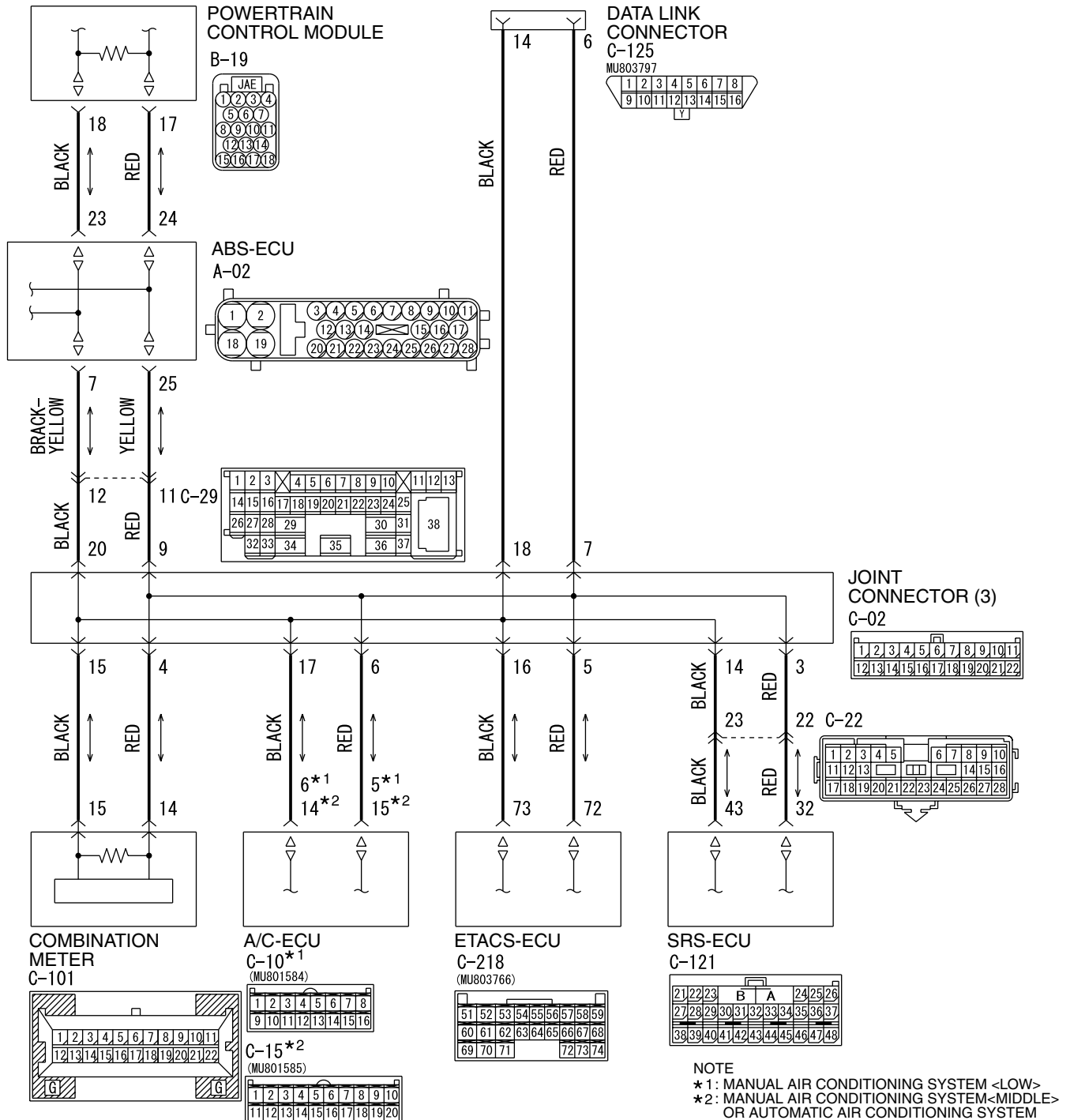
YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

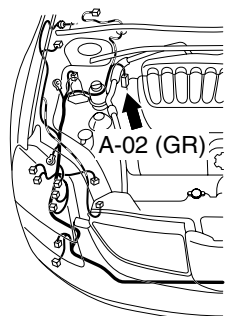
DIAGNOSTIC ITEM 2: Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>

CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



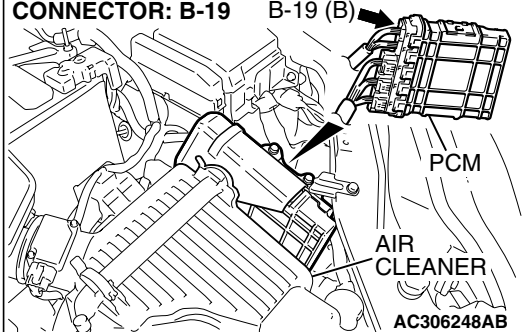
CONNECTOR: A-02



AC305206AR

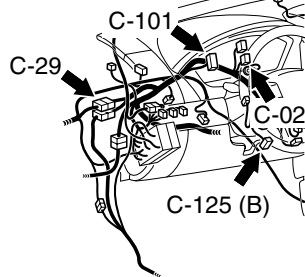
CONNECTOR: B-19

B-19 (B)



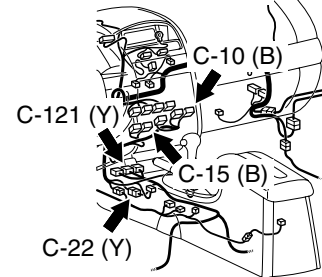
AC306248AB

CONNECTORS: C-02, C-29, C-101, C-125



AC305231BZ

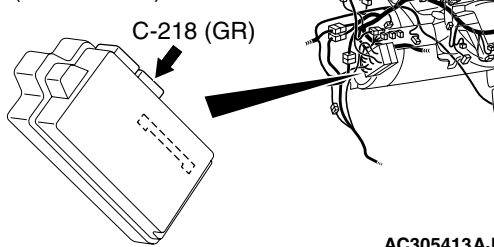
CONNECTORS: C-10, C-15, C-22, C-121



AC305233AU

CONNECTOR: C-218

JUNCTION BLOCK
(REAR VIEW)



AC305413AJ

TROUBLE JUDGMENT

A short to the power supply may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is more than 4.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The ABS-ECU may be defective
- The SRS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

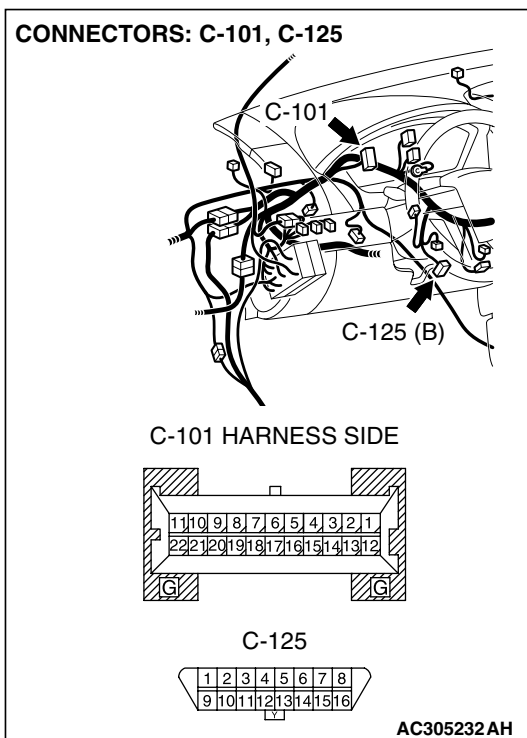
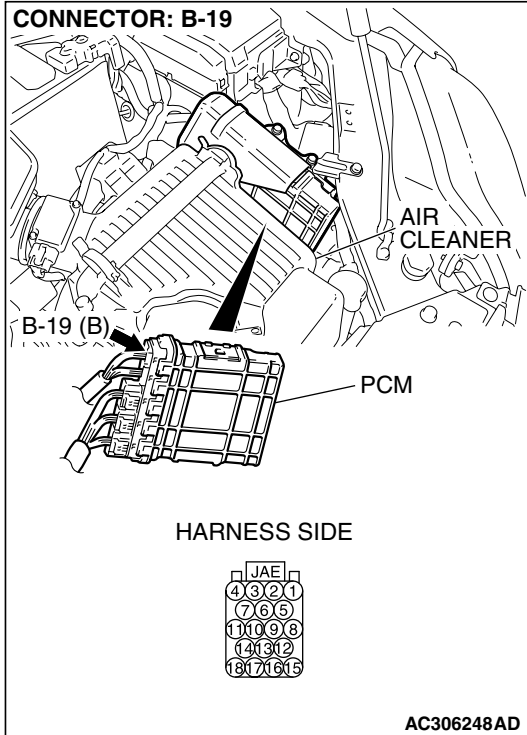
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for a short to the power supply. Measure the voltage at data link connector C-125.

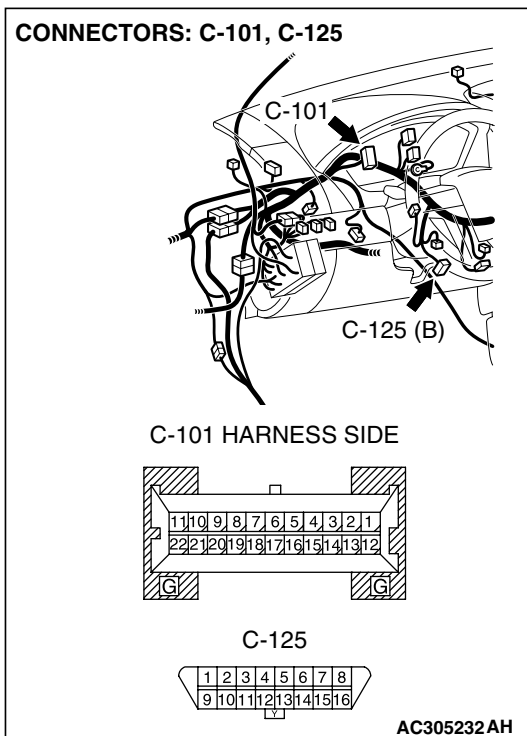
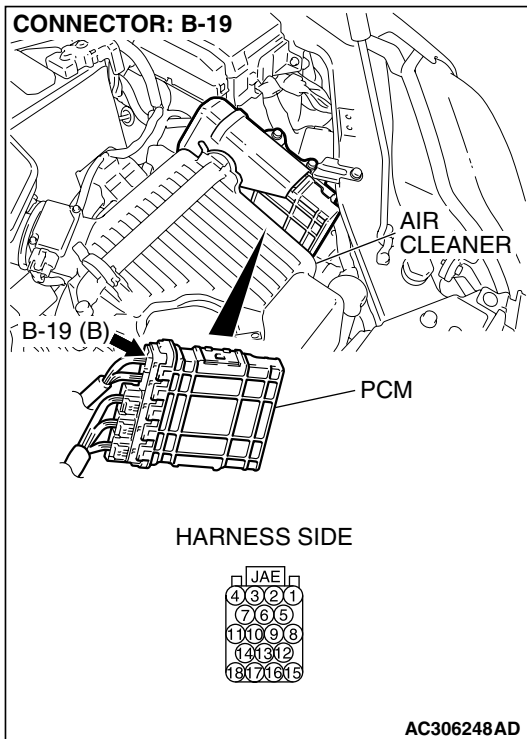
CAUTION

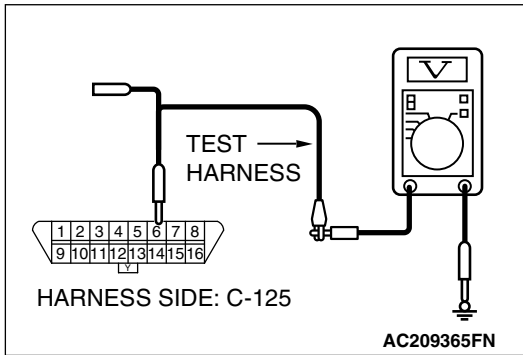
A digital multimeter should be used. For details refer to P.54C-4.

CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between data link connector terminal 6 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 3.

NO : If the voltage measures more than 4.0 V, go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for a short to the power supply. Measure the voltage at data link connector C-125.

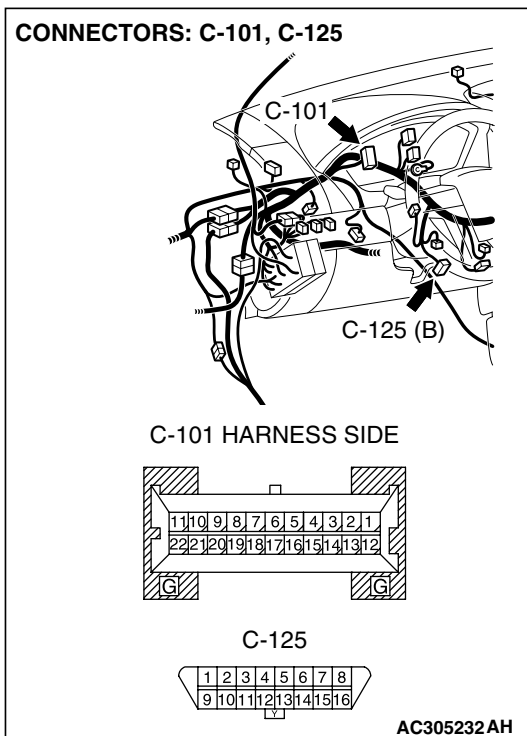
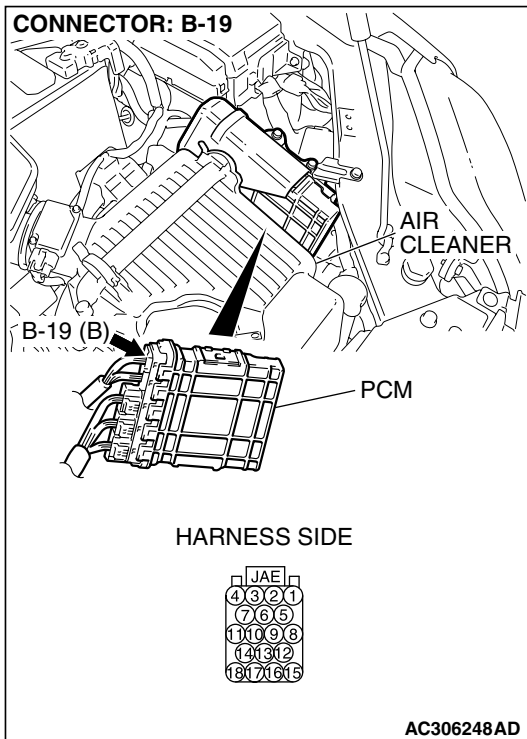
CAUTION

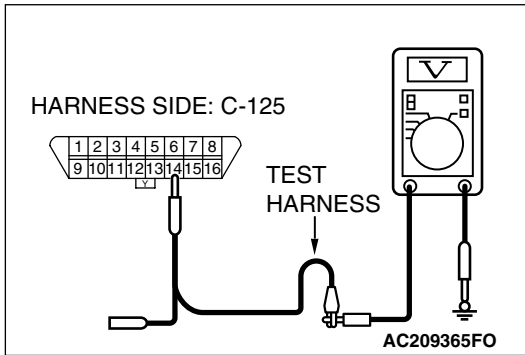
A digital multimeter should be used. For details refer to P.54C-4.

CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "ON" position.





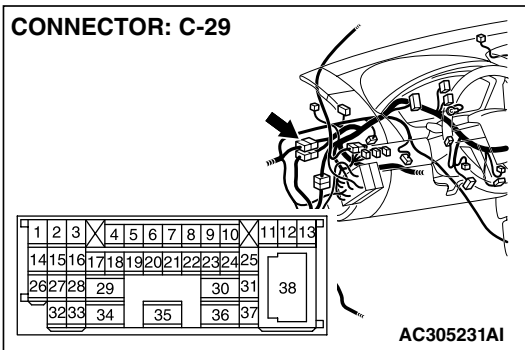
(3) Measure the voltage between data link connector terminal 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 4.0 V, go to Step 27.



STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

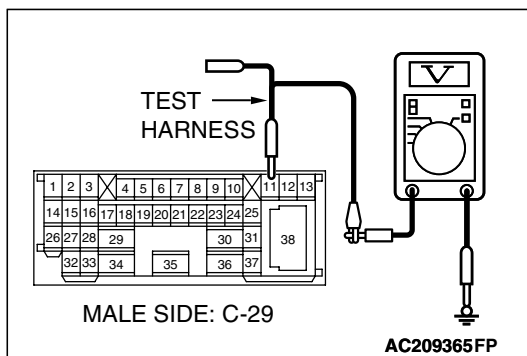
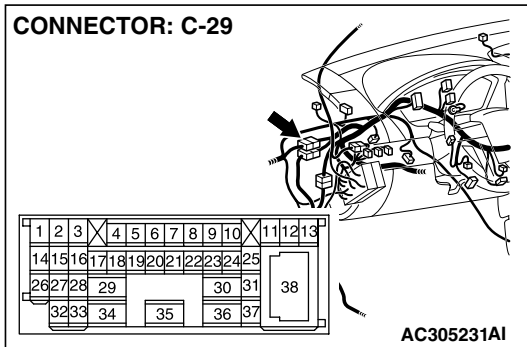
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4**.

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4**.

- (1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

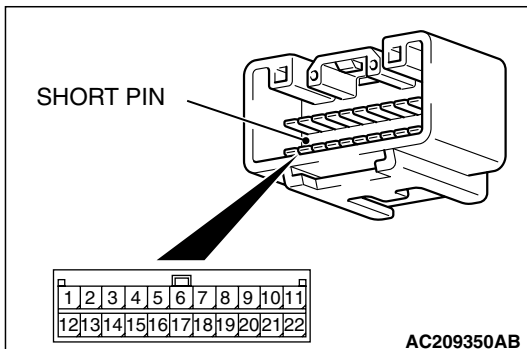
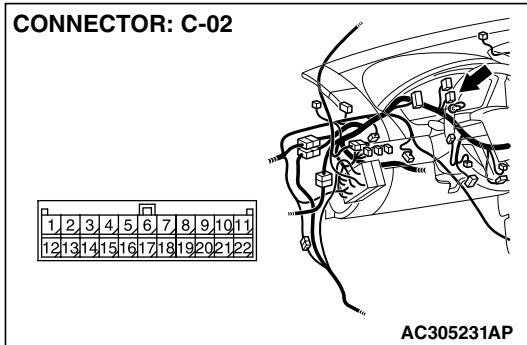
YES : If the voltage measures 4.0 V or less, go to Step 6.

NO : If the voltage measures more than 4.0 V, go to Step 23.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for a short to the power supply. Measure the voltage at joint connector (3) C-02.

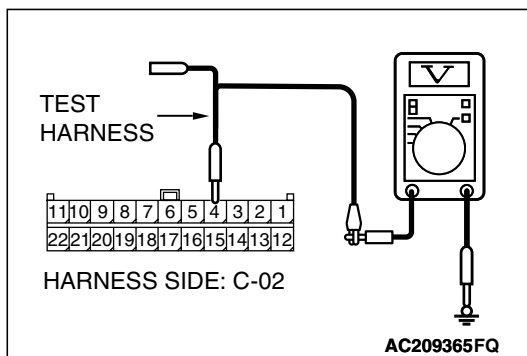
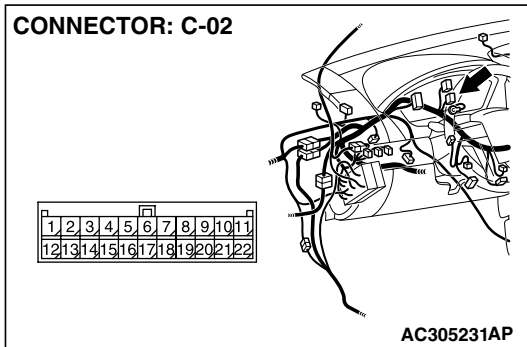
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

YES : If the voltage measures 4.0 V or less, go to Step 9.

NO : If the voltage measures more than 4.0 V, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

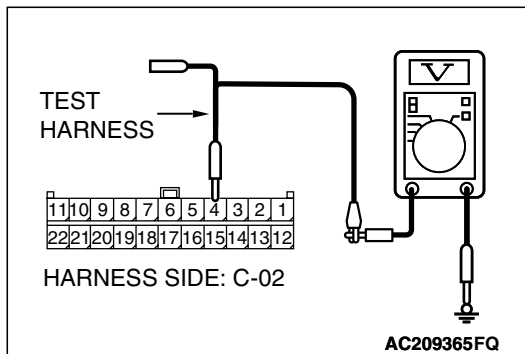
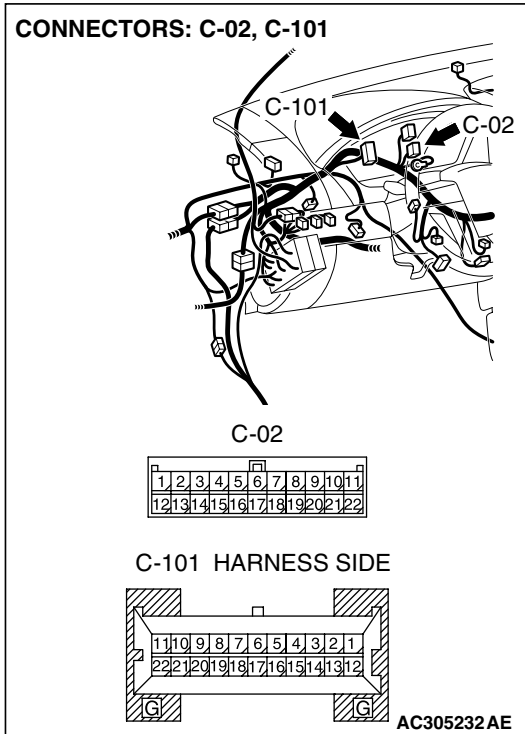
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

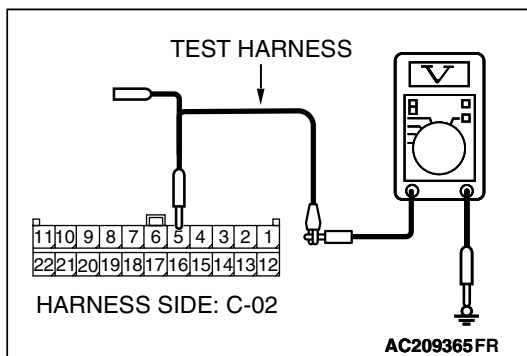
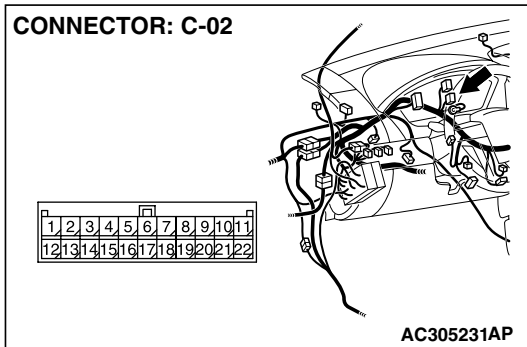
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 12.
NO : If the voltage measures more than 4.0 V, go to Step 10.

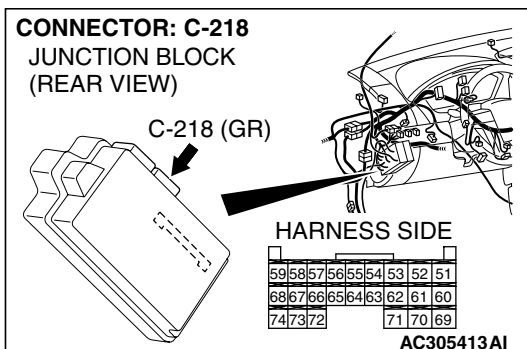
STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ETACS-ECU connector C-218 in good condition?

- YES :** Go to Step 11.
NO : Repair the damaged parts.



STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

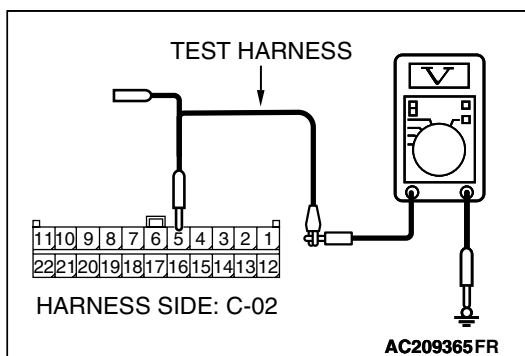
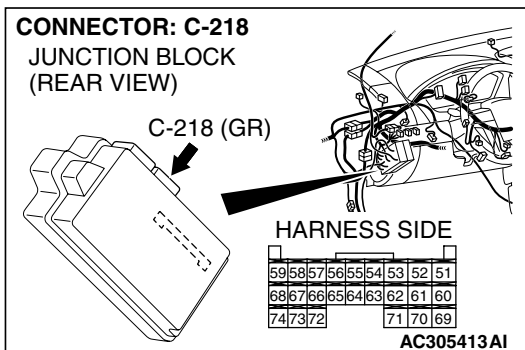
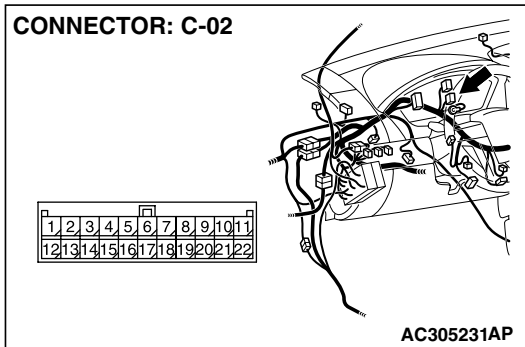
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

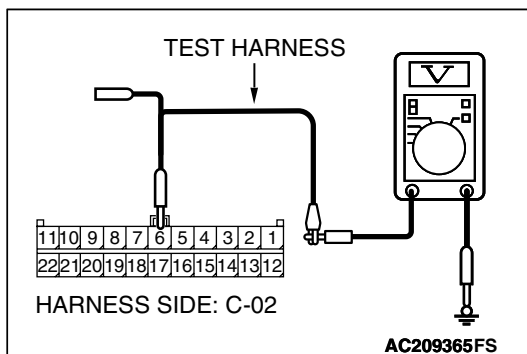
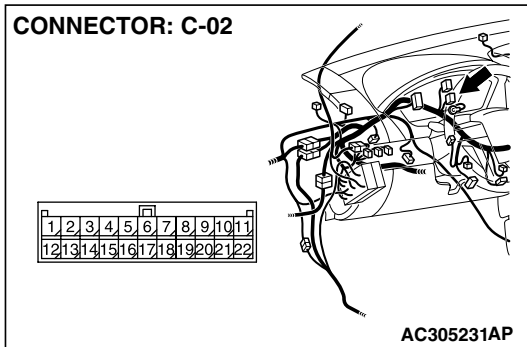
⚠ CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 15.
NO : If the voltage measures more than 4.0 V, go to Step 13.

STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

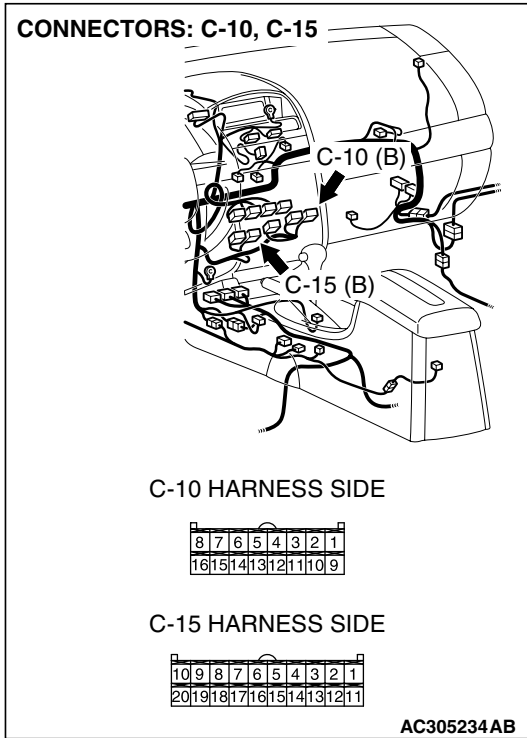
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.

NO : Repair the damaged parts.



STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

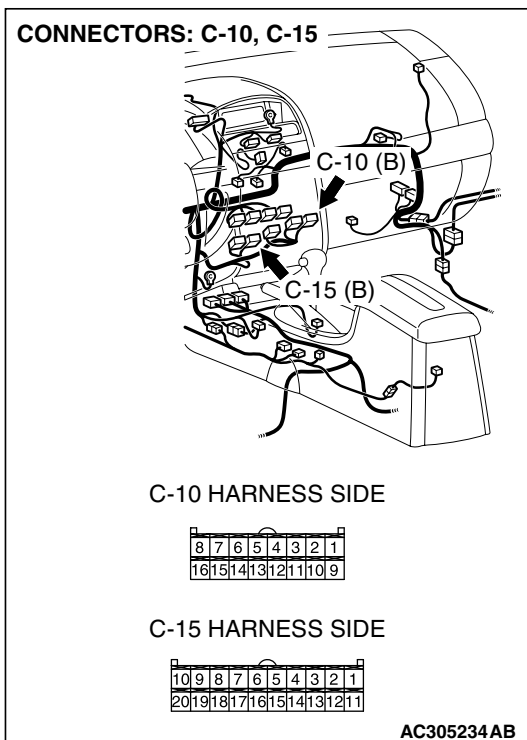
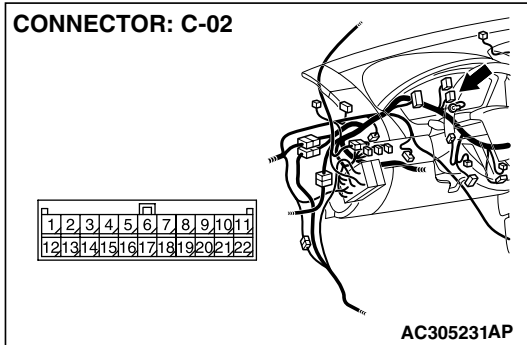
⚠ CAUTION

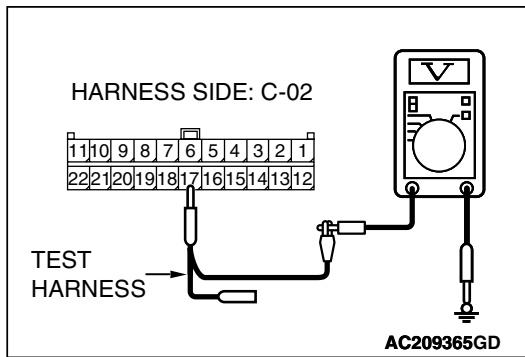
A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

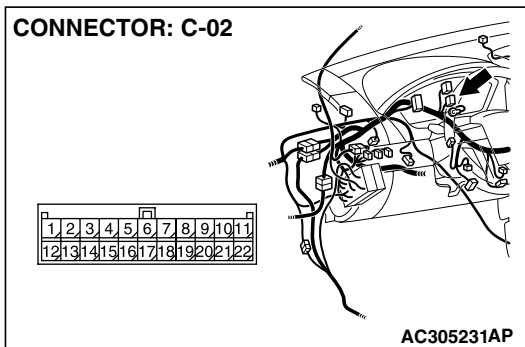
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

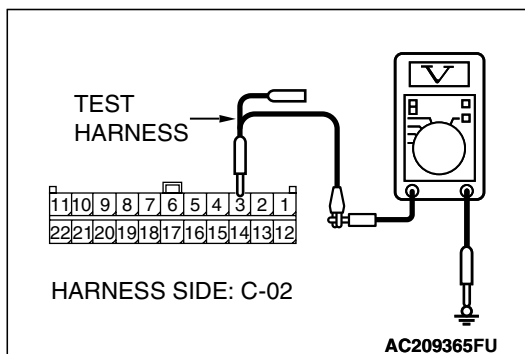
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

- (2) Turn the ignition switch to the "ON" position.



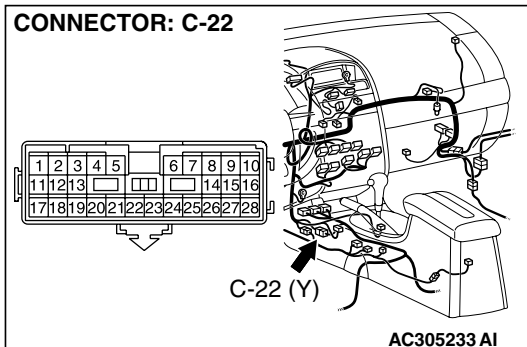
- (3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 21.

NO : If the voltage measures more than 4.0 V, go to Step 16.



STEP 16. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

YES : Go to Step 17.

NO : Repair the damaged parts.

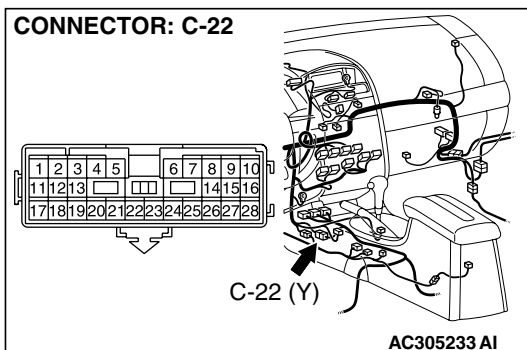
STEP 17. Check the CAN_H-side bus line (communication line including ECUs) of the floor wiring harness for short to the power supply. Measure the voltage at intermediate connector C-22.

⚠ CAUTION

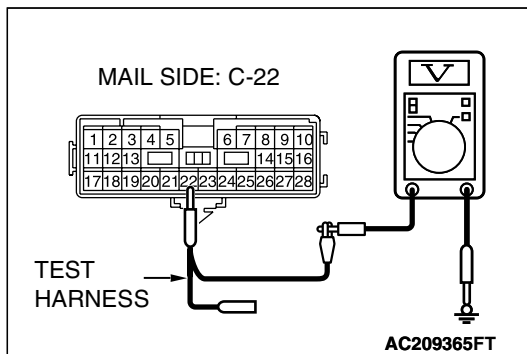
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect intermediate connector C-22, and measure the voltage at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



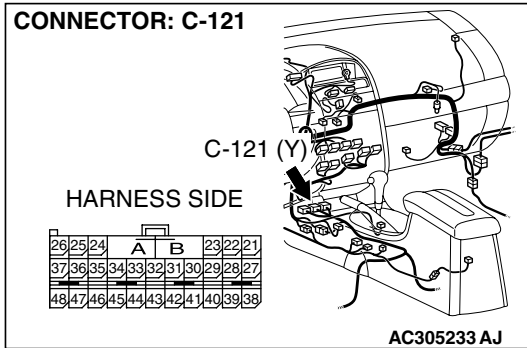
- (3) Measure the voltage between intermediate connector terminal 22 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 20 .

NO : If the voltage measures more than 4.0 V, go to Step 18.



STEP 18. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 19.

NO : Repair the damaged parts.

STEP 19. Check the CAN_ H line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the voltage at intermediate connector C-22.

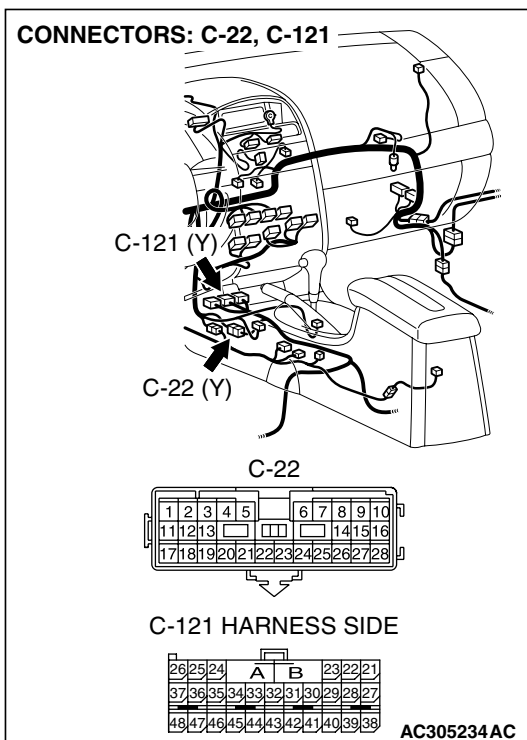
CAUTION

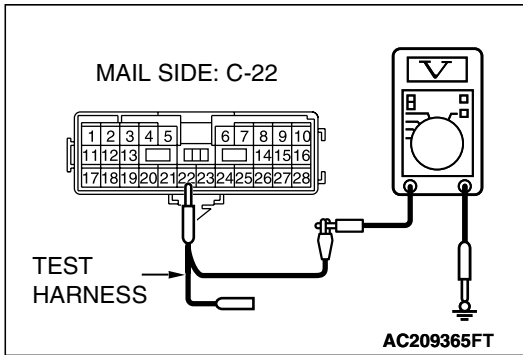
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the voltage at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between intermediate connector terminal 22 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and SRS-ECU connector.

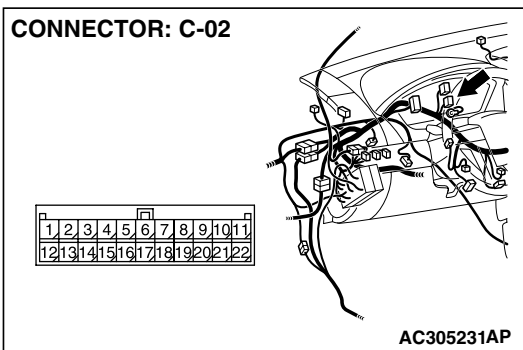
STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the voltage at joint connector (3) C-02.

CAUTION

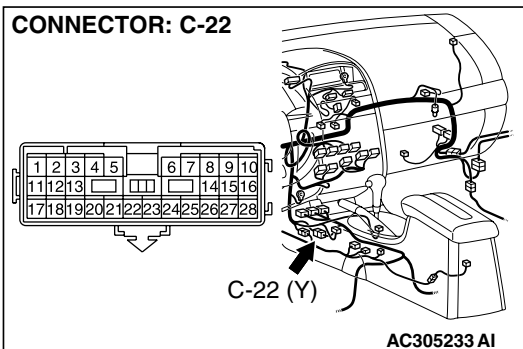
A digital multimeter should be used. For details refer to [P.54C-4](#).

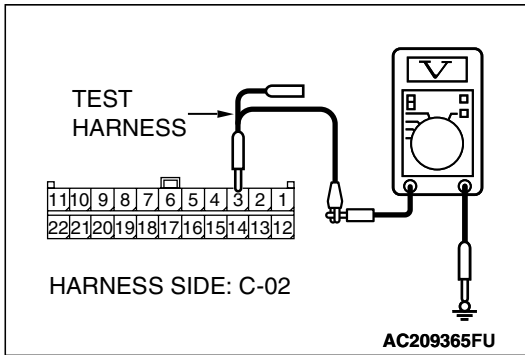
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and joint connector (3).

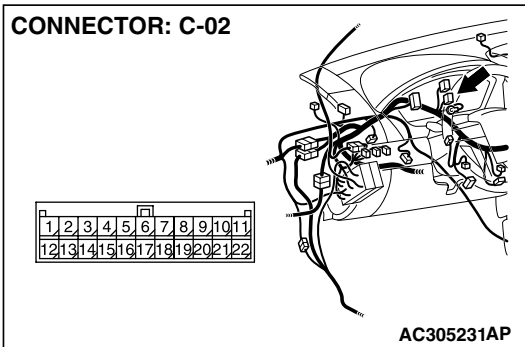
STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

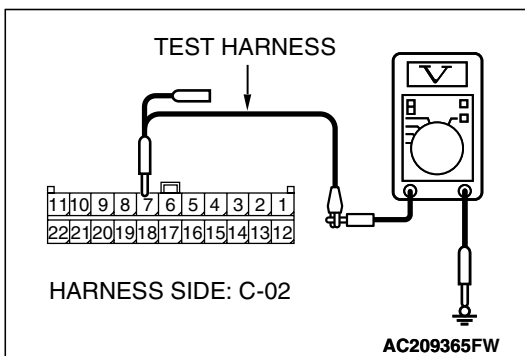
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 7 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 22.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

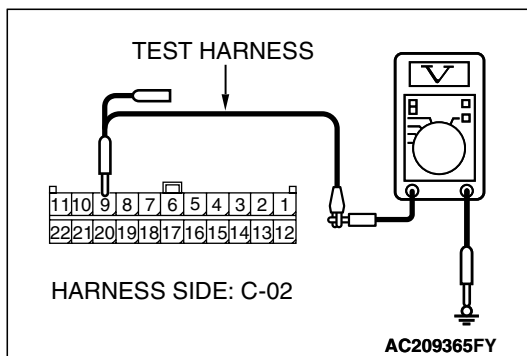
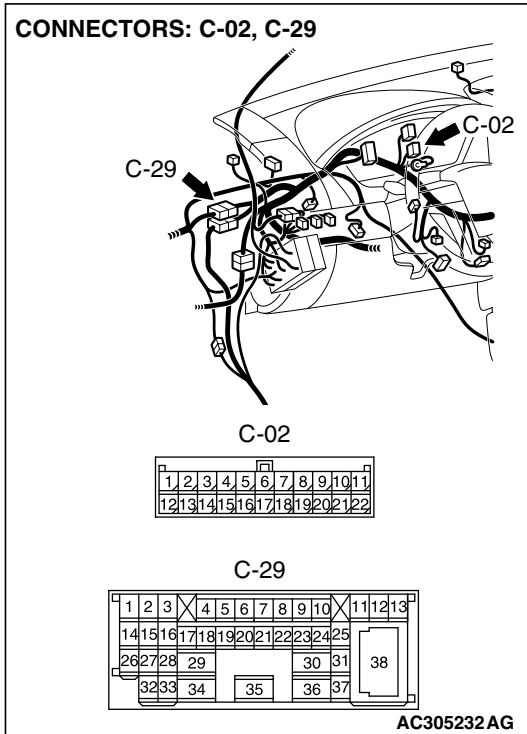
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 9 and body ground.

OK: 1.0 V or less

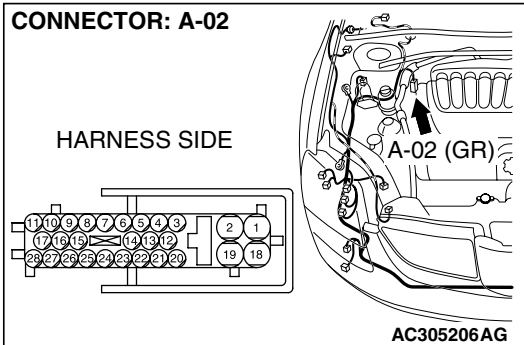
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 23. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 24.

NO : Repair the damaged parts.

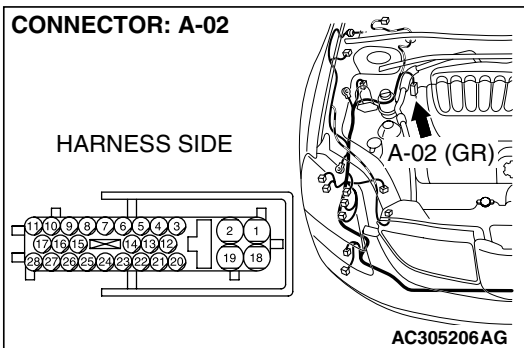
STEP 24. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for a short to the power supply. Measure the voltage at intermediate connector C-29.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

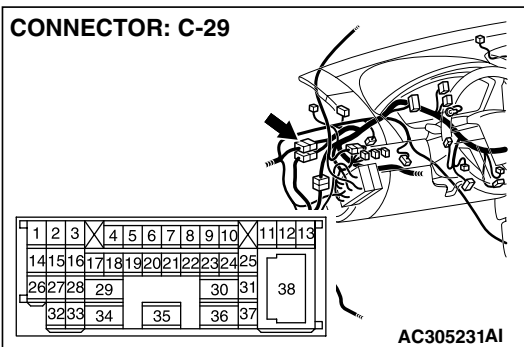
CAUTION

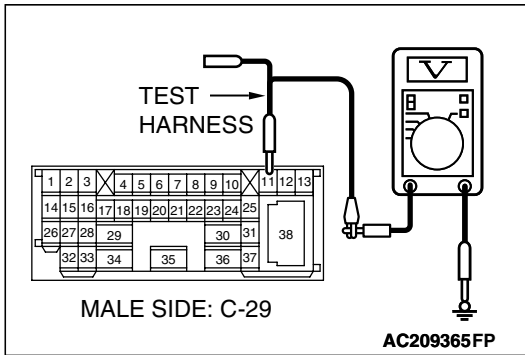
The test wiring harness should be used. For details refer to [P.54C-4](#).



(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 25.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 25. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

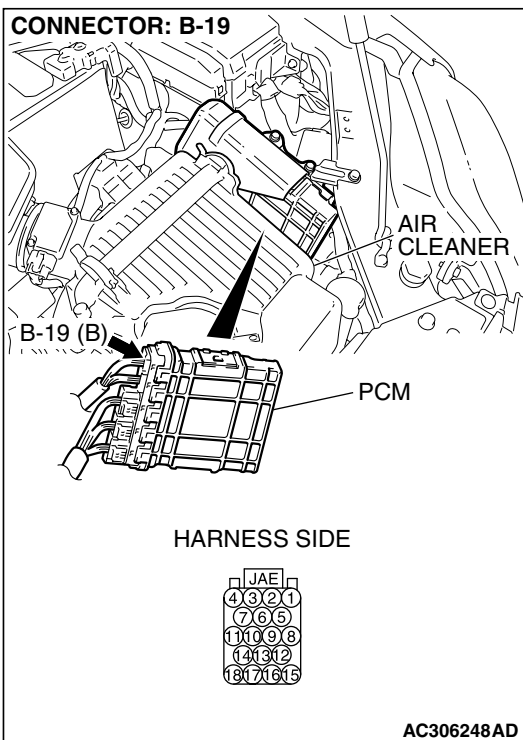
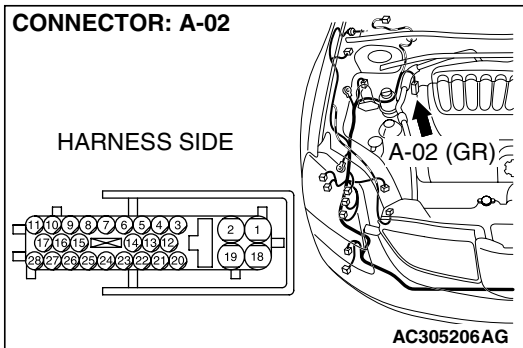
⚠ CAUTION

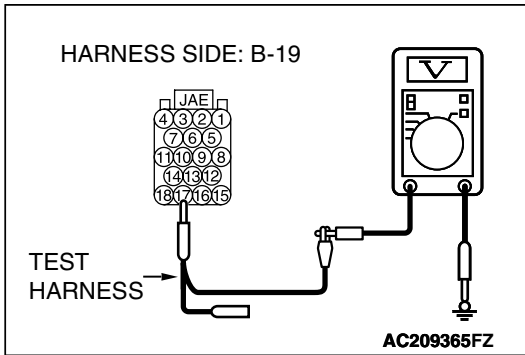
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between powertrain control module connector terminal 17 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 26.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 26. Check the CAN_H line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02.

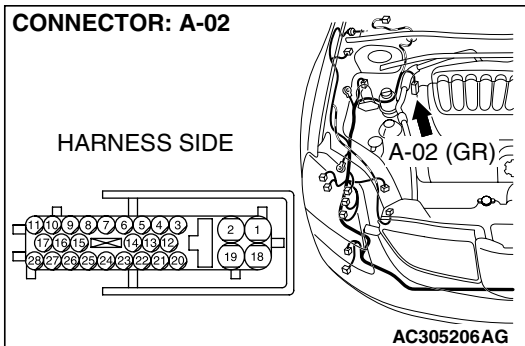
CAUTION

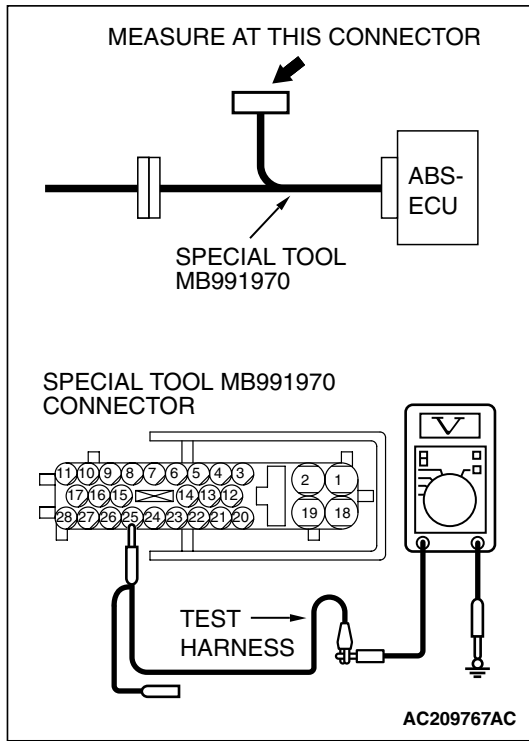
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect ABS-ECU connector A-02.





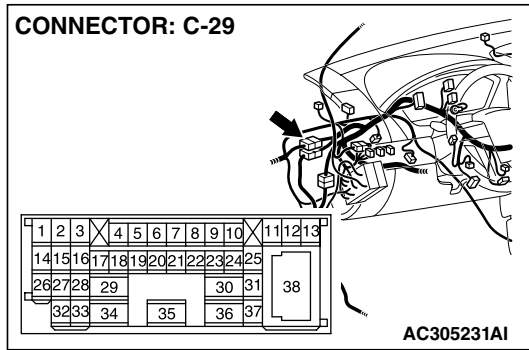
- (2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).
- (3) Turn the ignition switch to the "ON" position.
- (4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.



STEP 27. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 28.

NO : Repair the damaged parts.

STEP 28. Check the CAN_L-side bus line (communication line including) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

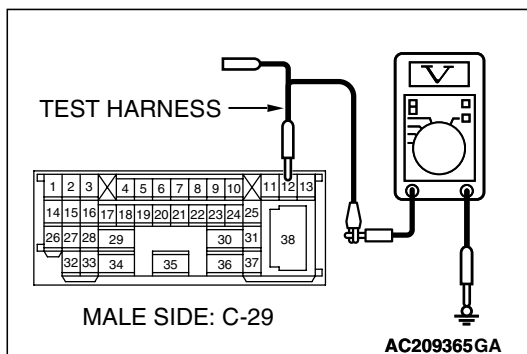
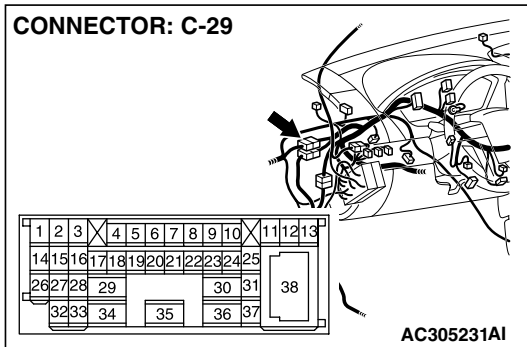
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 4.0 V or less

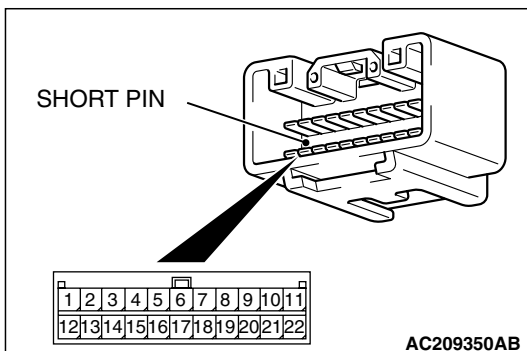
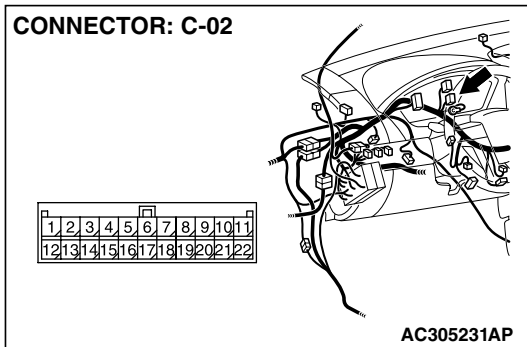
Q: Does the voltage measure 4.0 V or less ?

- YES :** If the voltage measures 4.0 V or less, go to Step 29.
NO : If the voltage measures more than 4.0 V, go to Step 46.

STEP 29. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 30.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 30. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

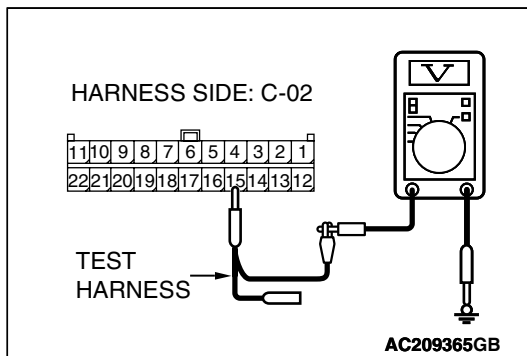
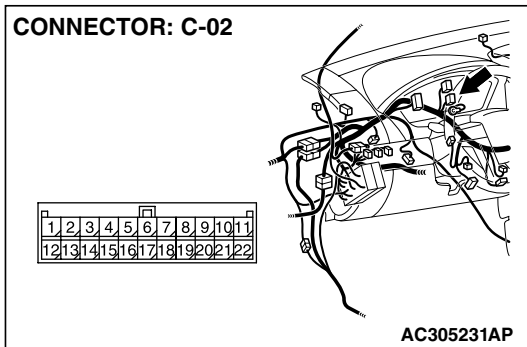
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 32.

NO : If the voltage measures more than 4.0 V, go to Step 31.

STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

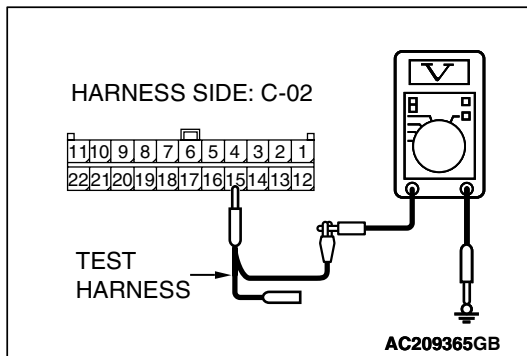
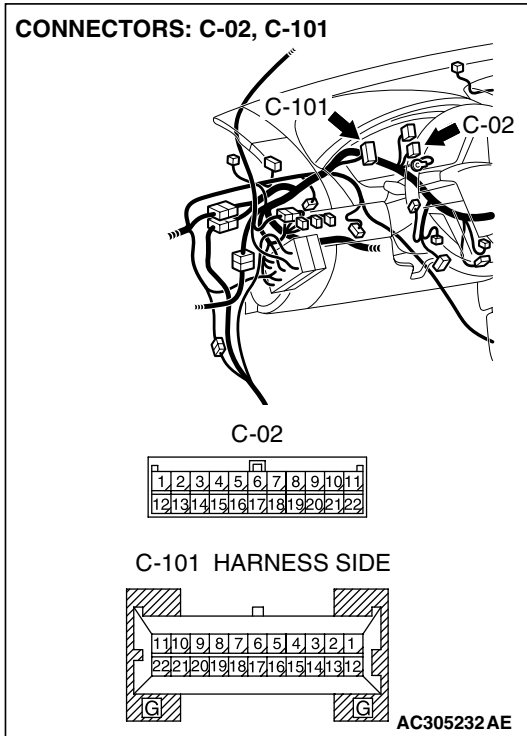
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 32. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

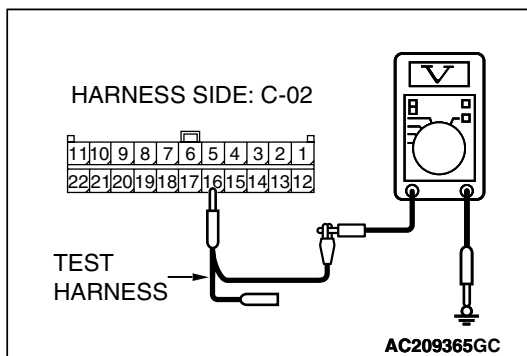
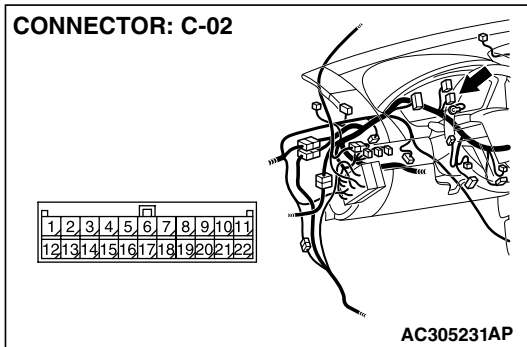
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 35.
NO : If the voltage measures more than 4.0 V, go to Step 33.

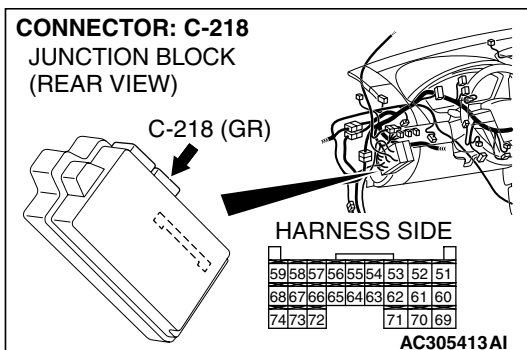
STEP 33. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ETACS-ECU connector C-218 in good condition?

- YES :** Go to Step 34.
NO : Repair the damaged parts.



STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

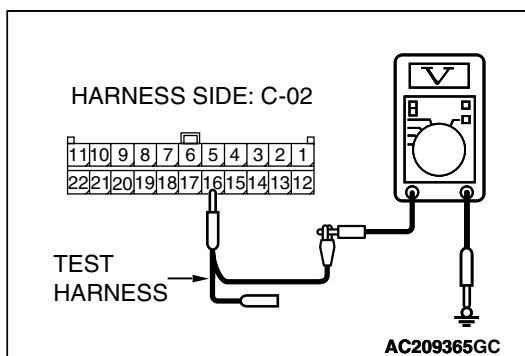
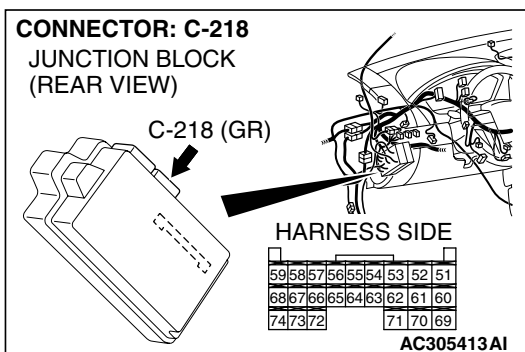
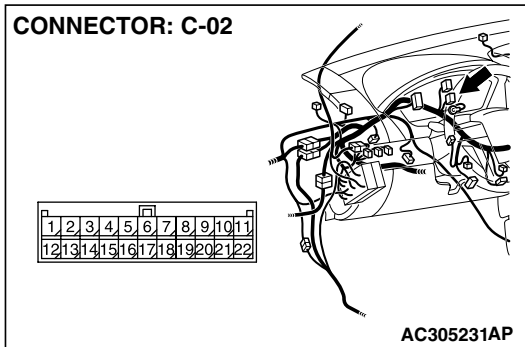
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 35. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

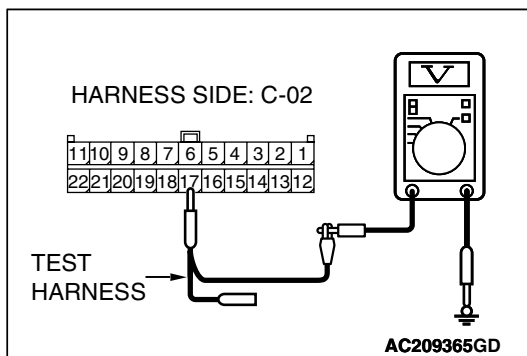
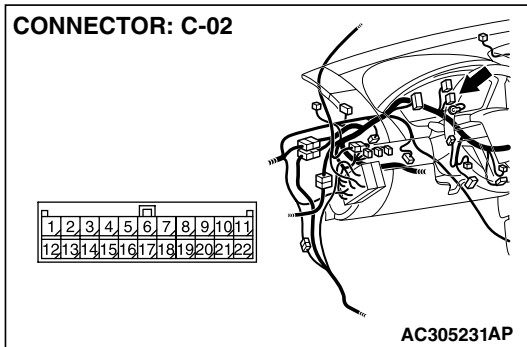
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 38.

NO : If the voltage measures more than 4.0 V, go to Step 36.

STEP 36. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

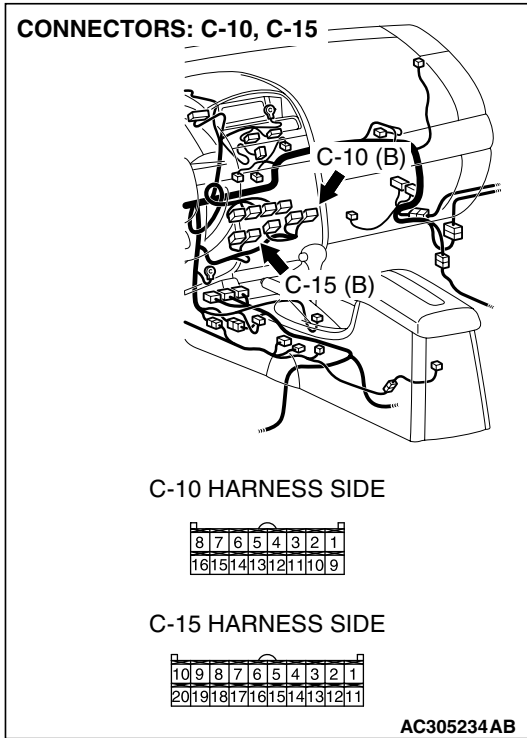
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 37.

NO : Repair the damaged parts.



STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

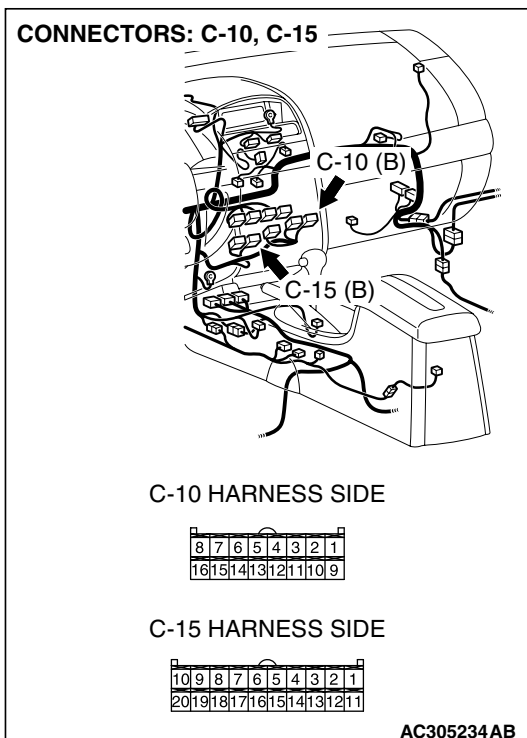
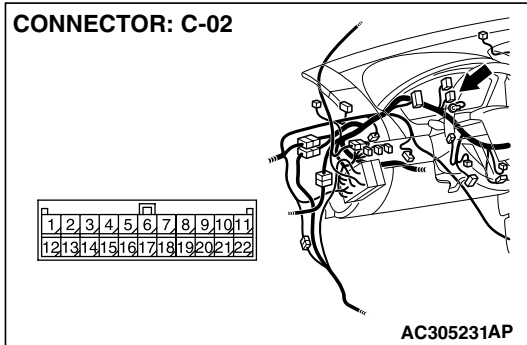
⚠ CAUTION

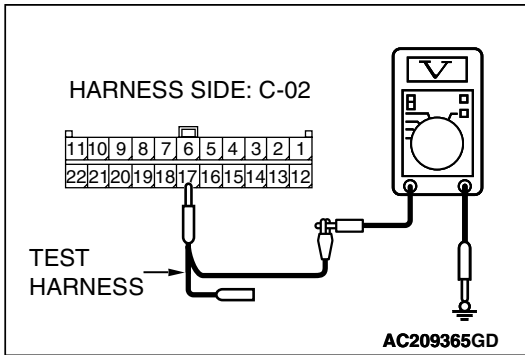
A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-486.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

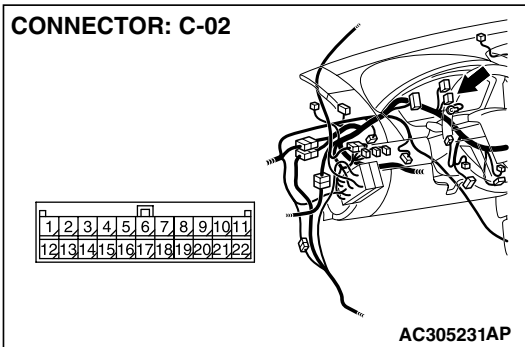
STEP 38. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

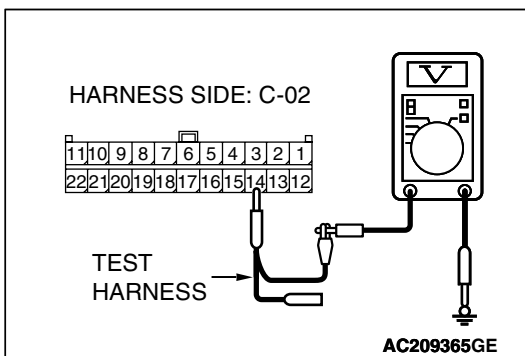
CAUTION

The test wiring harness should be used. For details refer to P.54C-4.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



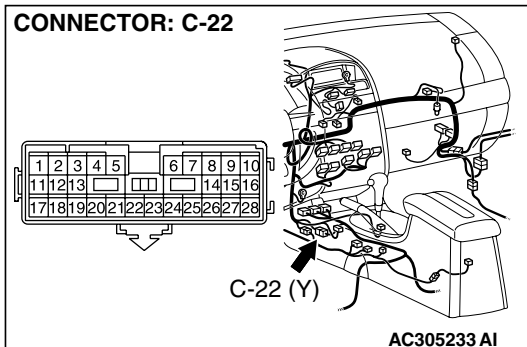
(3) Measure the voltage between joint connector (3) terminal 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 44.

NO : If the voltage measures more than 4.0 V, go to Step 39.



STEP 39. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

YES : Go to Step 40.

NO : Repair the damaged parts.

STEP 40. Check the CAN_L-side bus line (communication line including ECUs) of the floor wiring harness for short to the power supply. Measure the voltage at intermediate connector C-22.

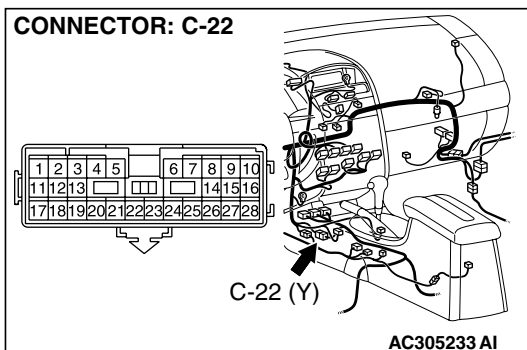
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the voltage at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



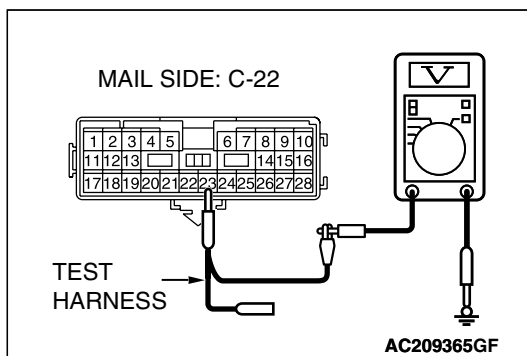
- (3) Measure the voltage between intermediate connector terminal 23 and body ground.

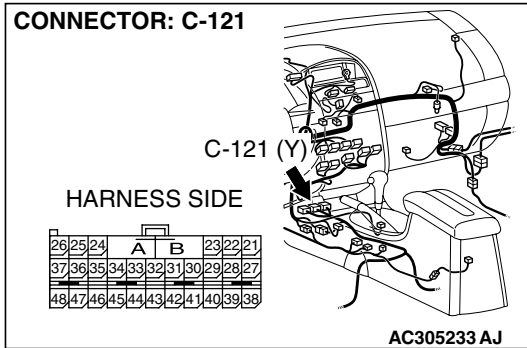
OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 43.

NO : If the voltage measures more than 4.0 V, go to Step 41.





STEP 41. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 42.

NO : Repair the damaged parts.

STEP 42. Check the CAN_L line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the voltage at intermediate connector C-22.

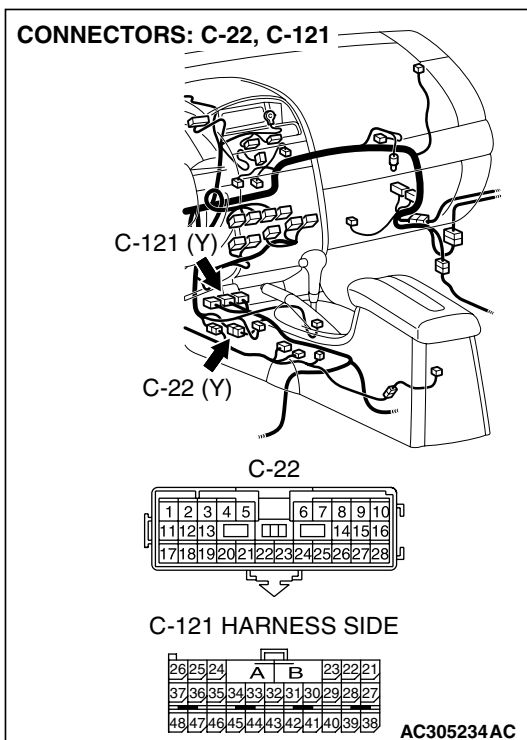
⚠ CAUTION

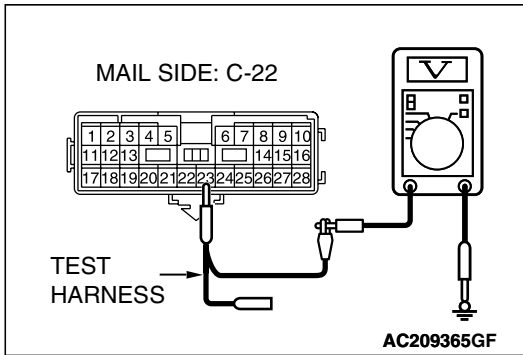
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the voltage at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between intermediate connector terminal 23 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and SRS-ECU connector.

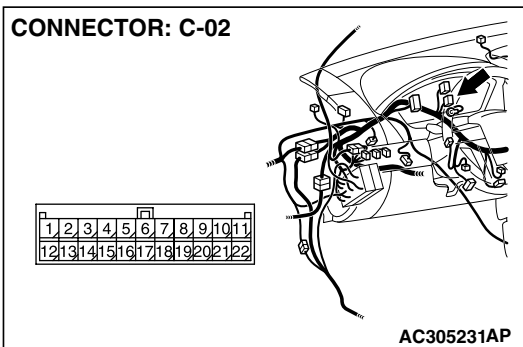
STEP 43. Check the CAN_L line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the voltage at joint connector (3) C-02.

CAUTION

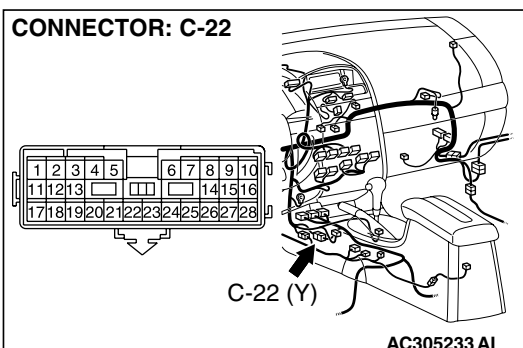
A digital multimeter should be used. For details refer to [P.54C-4](#).

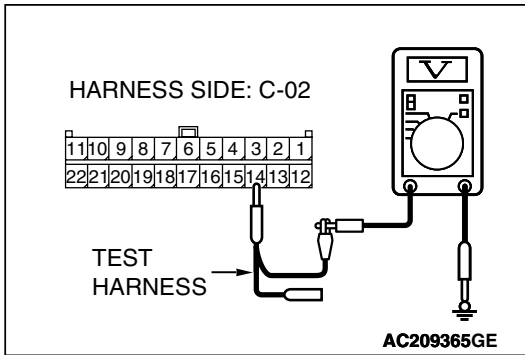
CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between joint connector (3) terminal 14 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the voltage measure 1.0 V or more?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-486.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and joint connector (3).

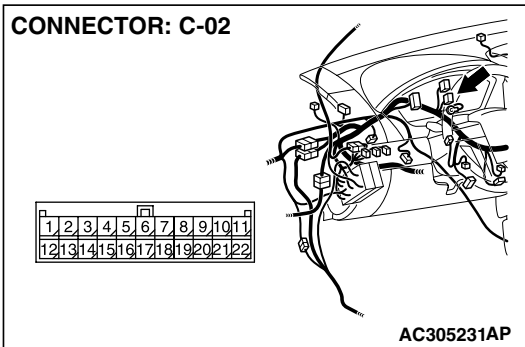
STEP 44. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

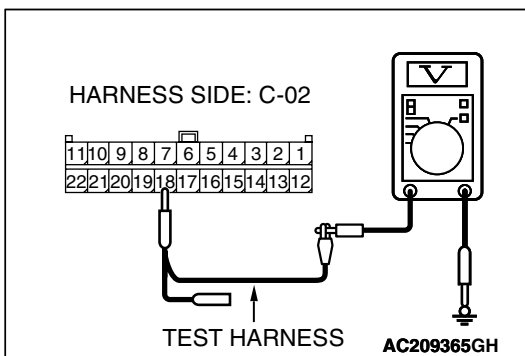
CAUTION

The test wiring harness should be used. For details refer to P.54C-4.



(1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between joint connector (3) terminal 18 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 45.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 45. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

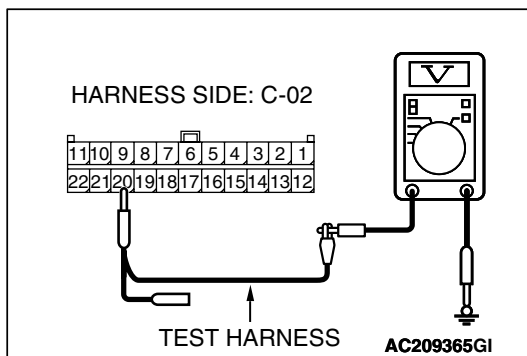
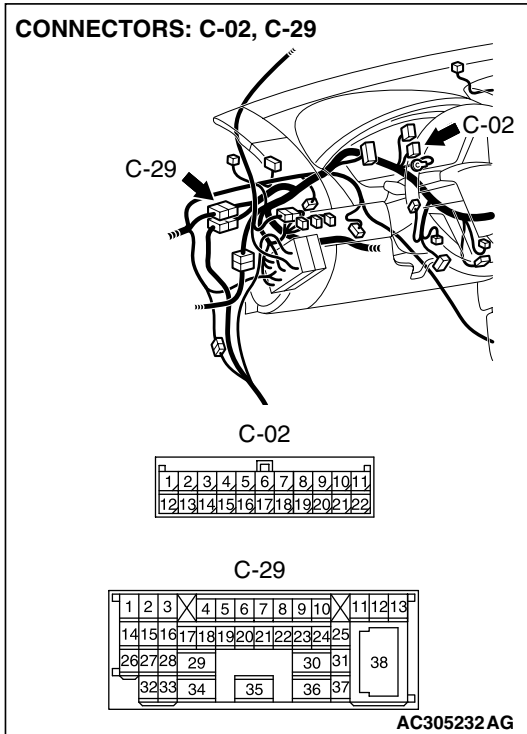
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 20 and body ground.

OK: 1.0 V or less

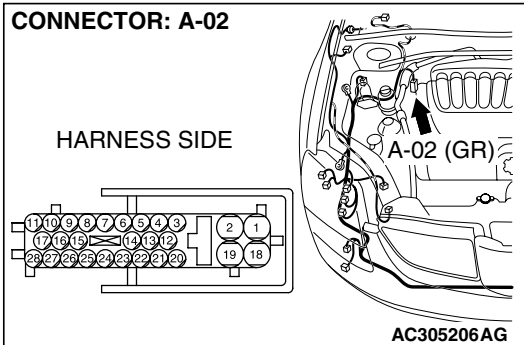
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 46. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 47.

NO : Repair the damaged parts.

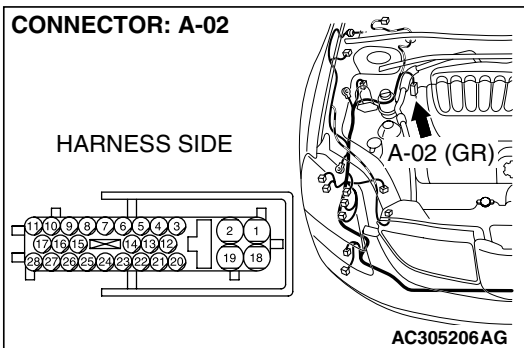
STEP 47. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for a short to the power supply. Measure the voltage at intermediate connector C-29.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

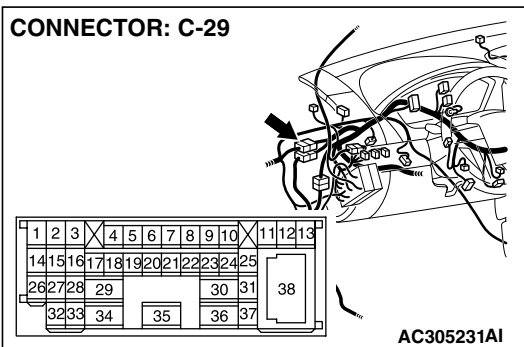
CAUTION

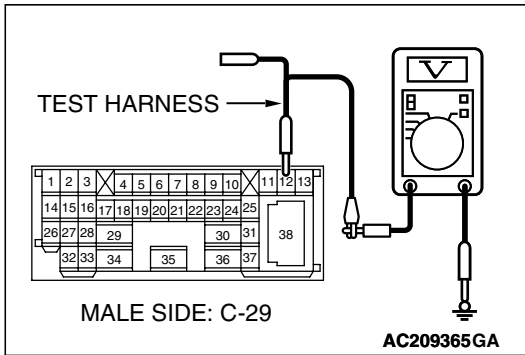
The test wiring harness should be used. For details refer to [P.54C-4](#).



(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).

(2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 48.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 48. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

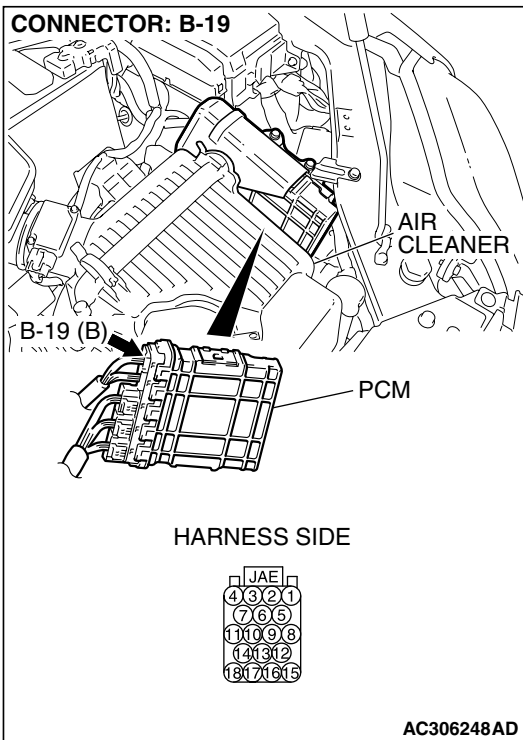
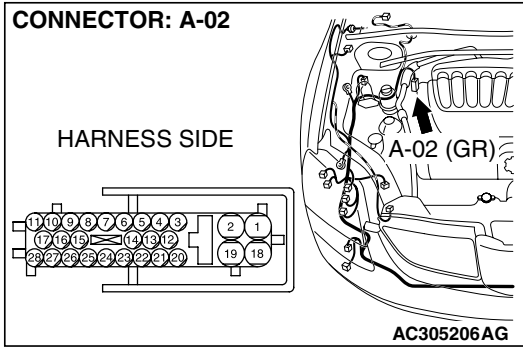
⚠ CAUTION

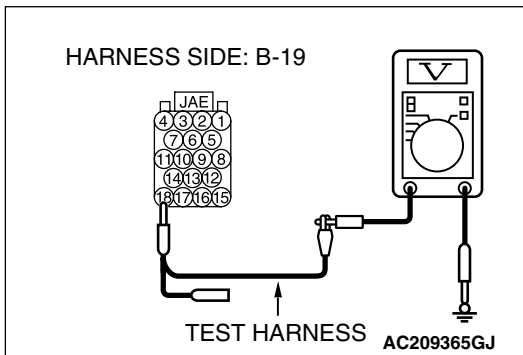
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between powertrain control module connector terminal 18 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 49.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 49. Check the CAN_L line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

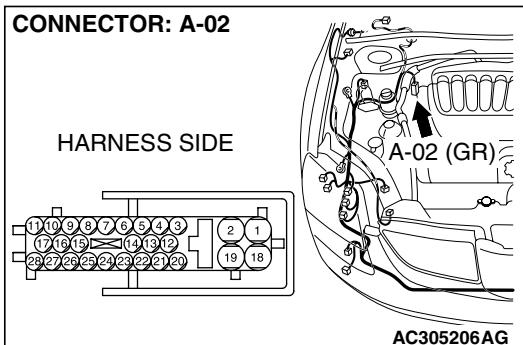
CAUTION

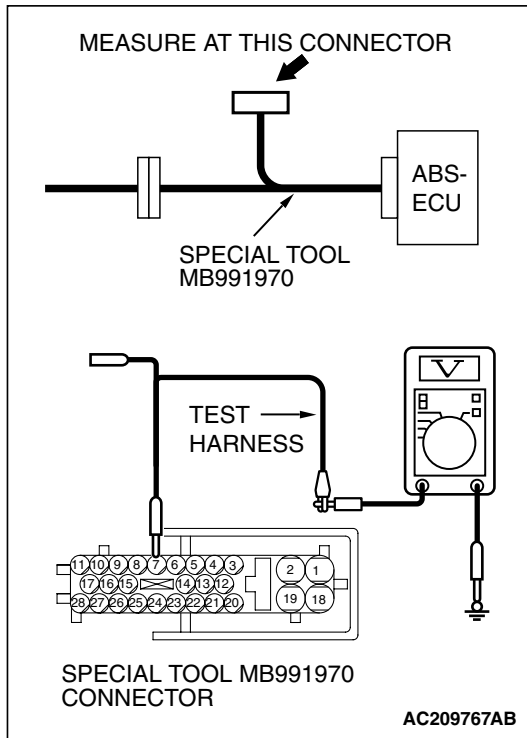
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect ABS-ECU connector A-02.





- (2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).
- (3) Turn the ignition switch to the "ON" position.
- (4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 17 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

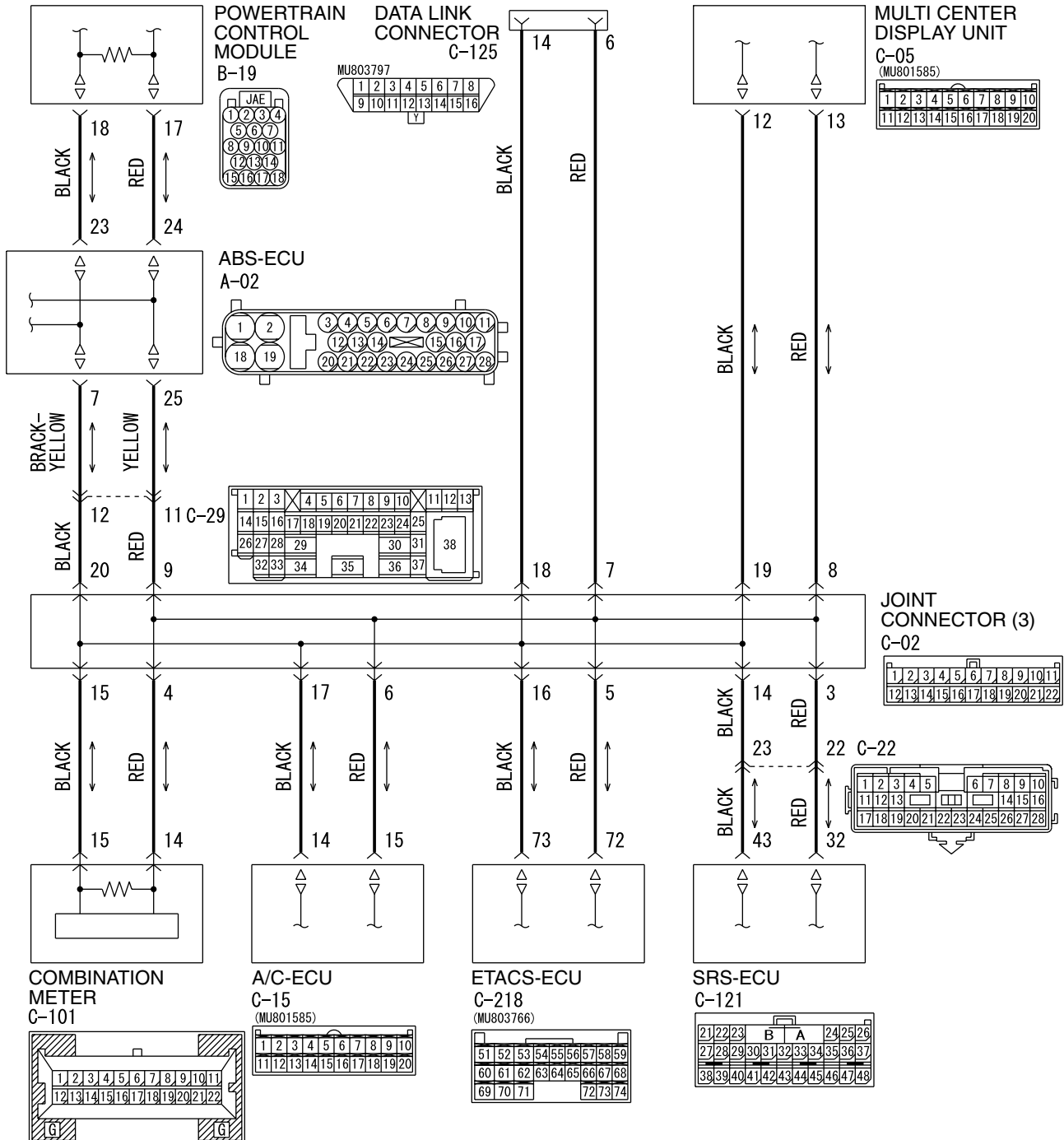
YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

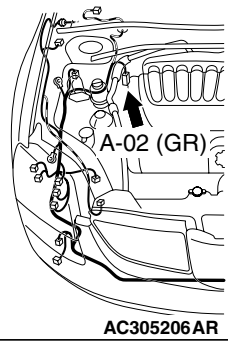
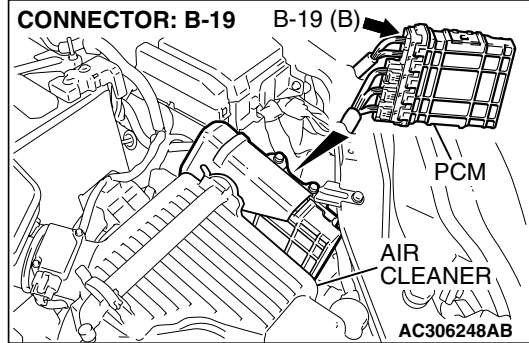
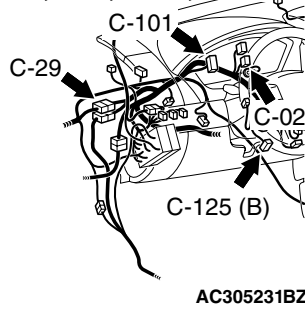
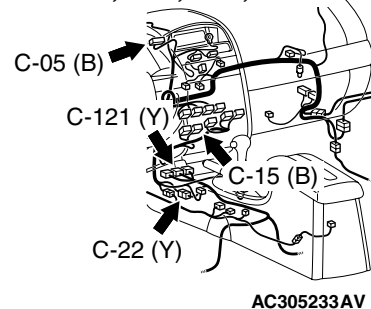
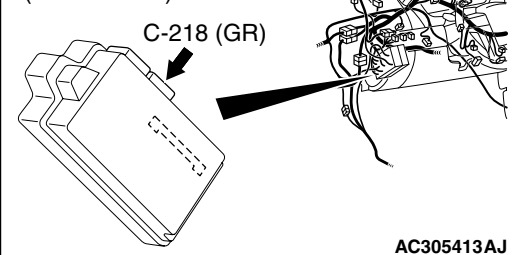
NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.

DIAGNOSTIC ITEM 3: Diagnose shorts in the power supply to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>

CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



CONNECTOR: A-02**CONNECTOR: B-19****CONNECTORS: C-02, C-29, C-101, C-125****CONNECTORS: C-05, C-15, C-22, C-121****CONNECTOR: C-218**
JUNCTION BLOCK
(REAR VIEW)**TROUBLE JUDGMENT**

A short to the power supply may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is more than 4.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The multi-center display unit (middle-grade type) may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

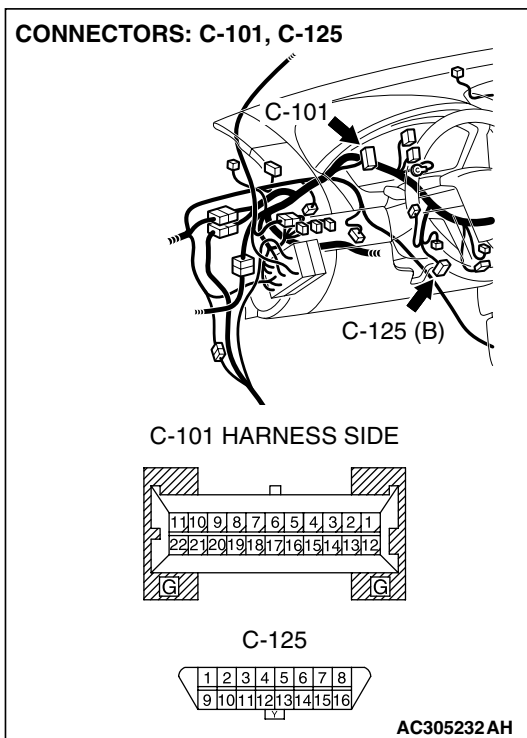
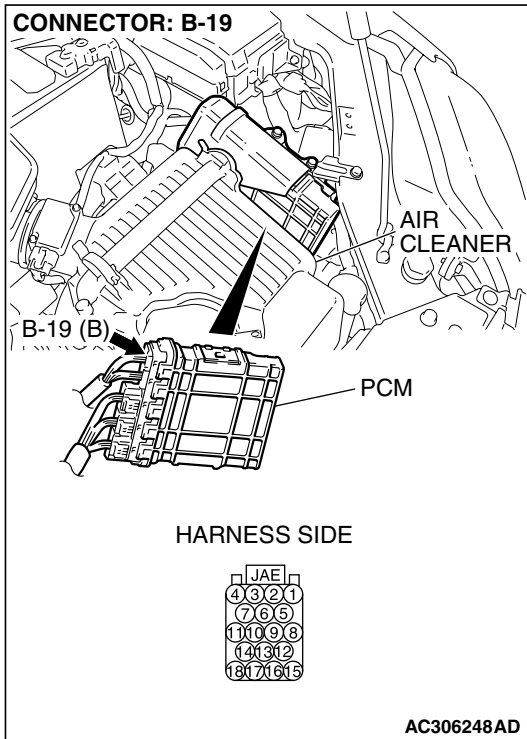
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : . Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for a short to the power supply. Measure the voltage at data link connector C-125.

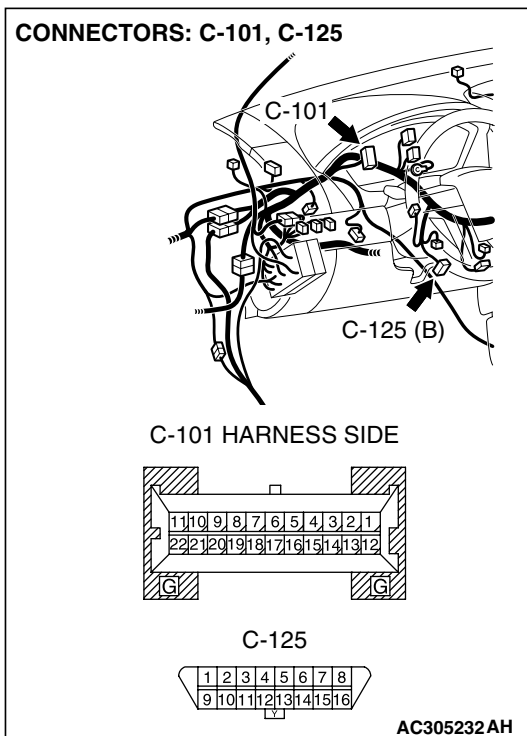
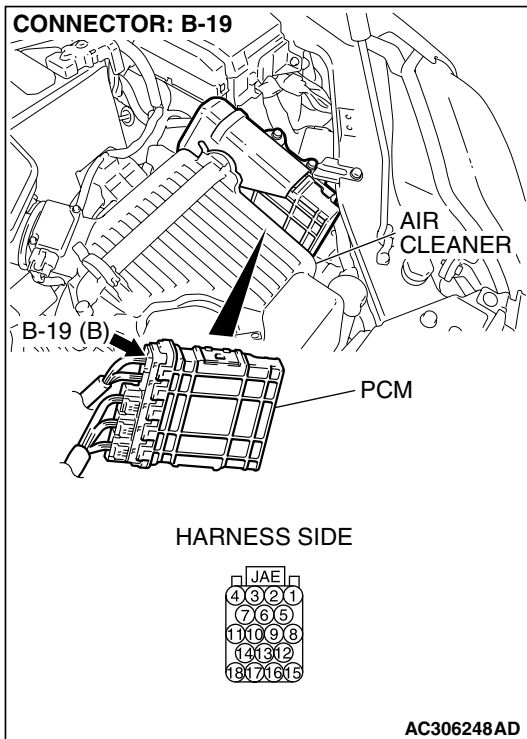
CAUTION

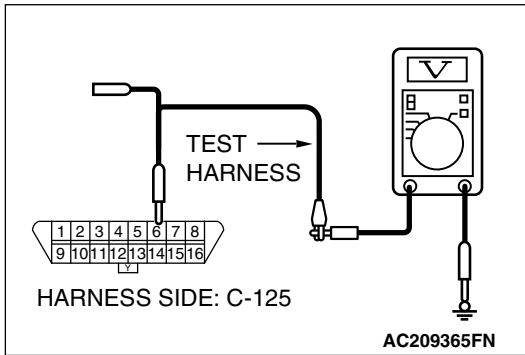
A digital multimeter should be used. For details refer to P.54C-4.

CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between data link connector terminal 6 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 3.

NO : If the voltage measures more than 4.0 V, go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for a short to the power supply. Measure the voltage at data link connector C-125.

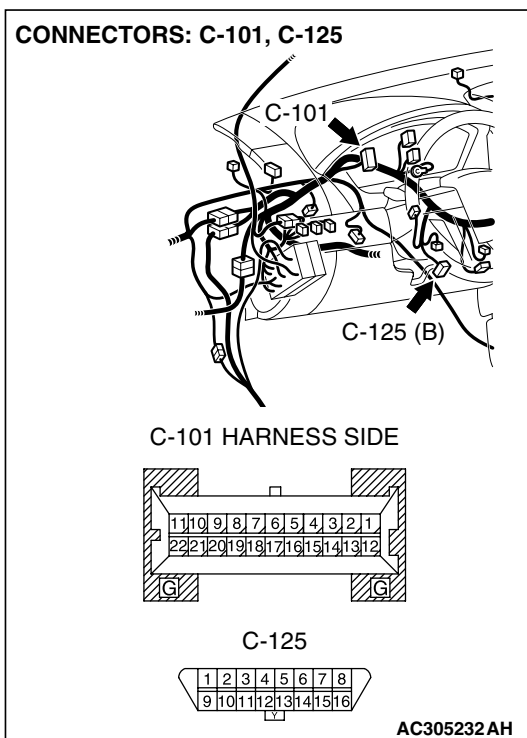
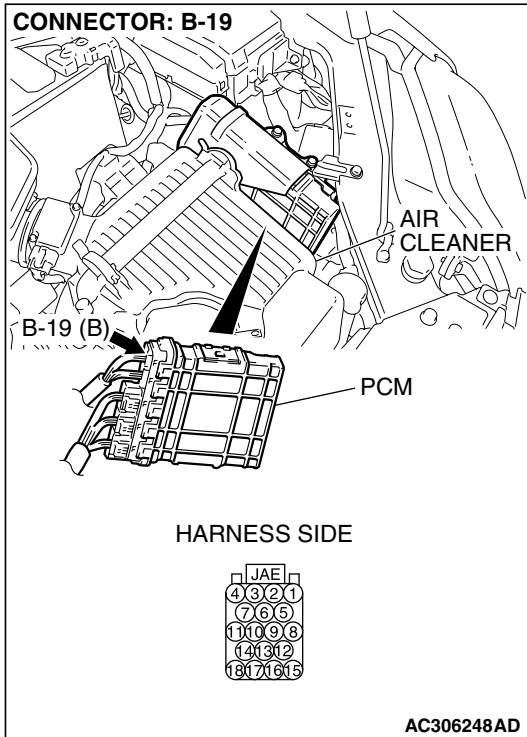
⚠ CAUTION

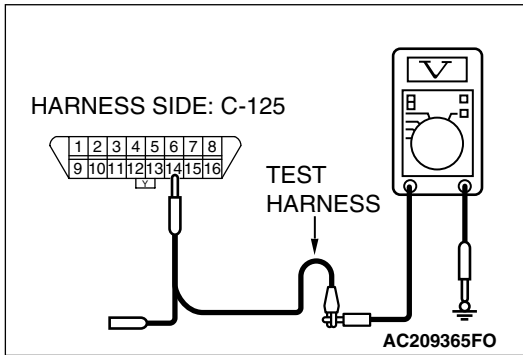
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the voltage at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "ON" position.





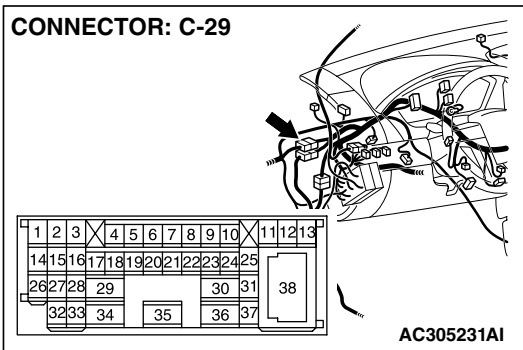
(3) Measure the voltage between data link connector terminal 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 4.0 V, go to Step 30.



STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

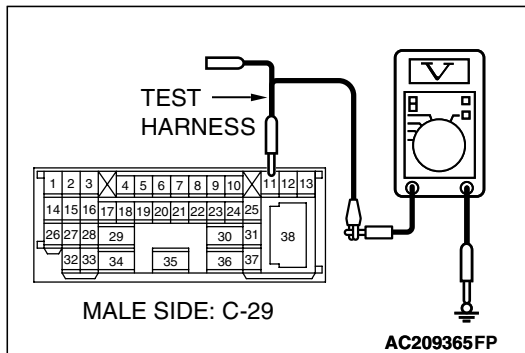
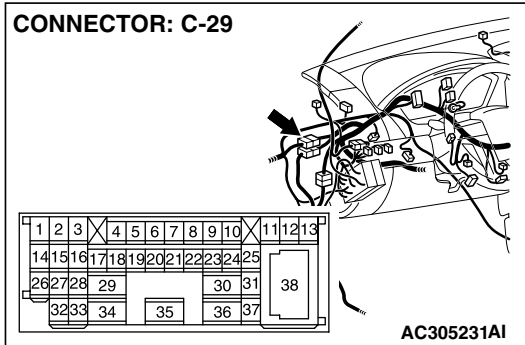
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 4.0 V or less

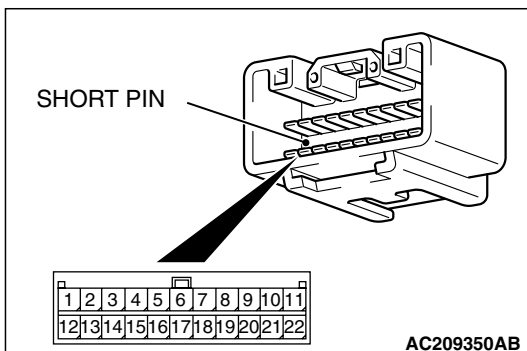
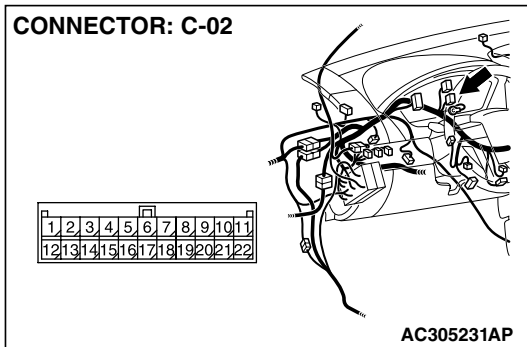
Q: Does the voltage measure 4.0 V or less ?

- YES :** If the voltage measures 4.0 V or less, go to Step 6.
NO : If the voltage measures more than 4.0 V, go to Step 26.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for a short to the power supply. Measure the voltage at joint connector (3) C-02.

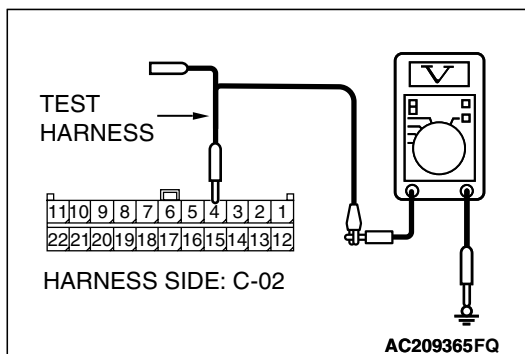
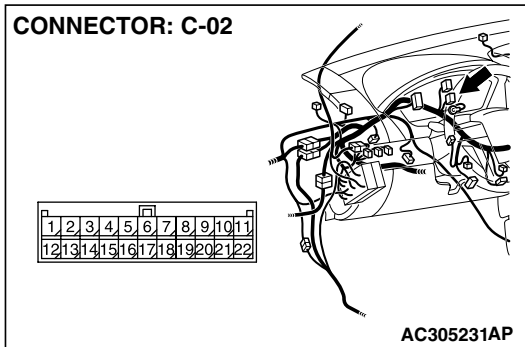
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

YES : If the voltage measures 4.0 V or less, go to Step 9.

NO : If the voltage measures more than 4.0 V, go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

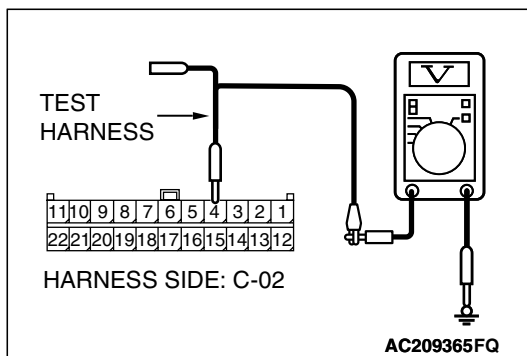
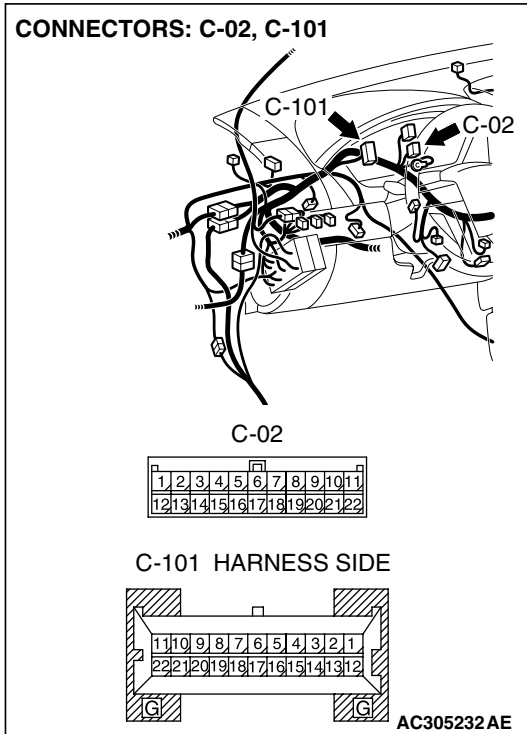
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 4 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

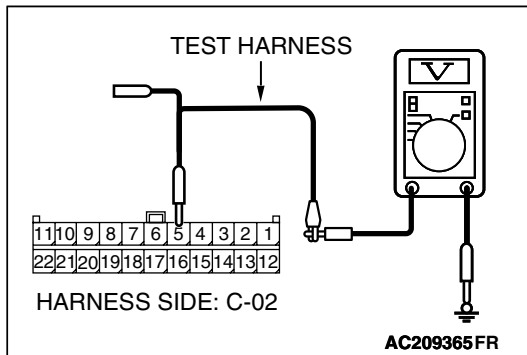
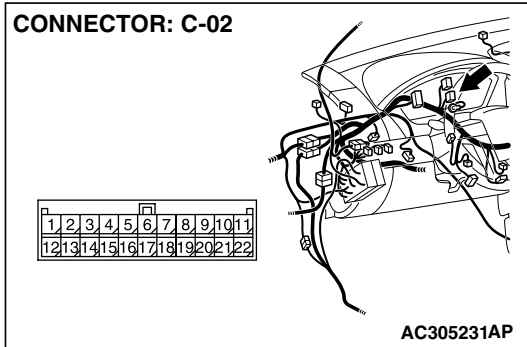
CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 12.
NO : If the voltage measures more than 4.0 V, go to Step 10.

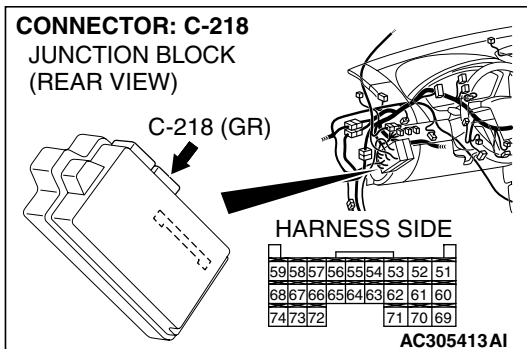
STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ETACS-ECU connector C-218 in good condition?

- YES :** Go to Step 11.
NO : Repair the damaged parts.



STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

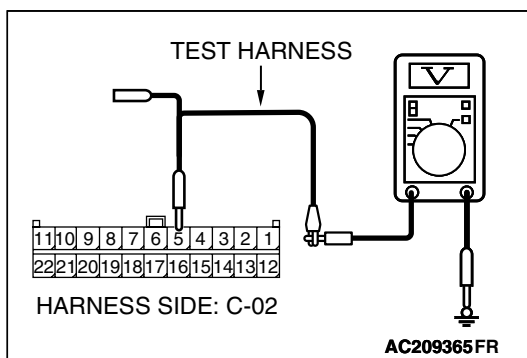
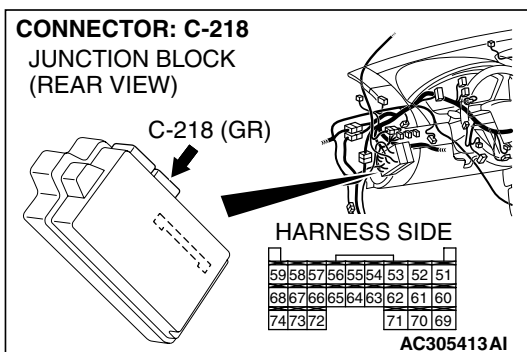
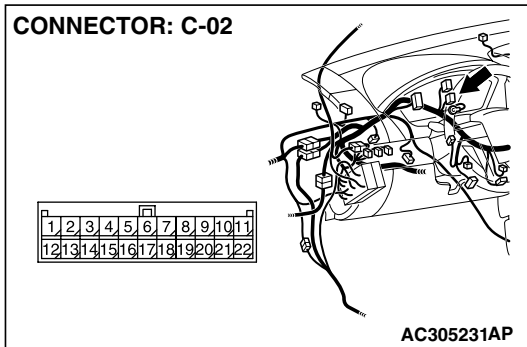
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 5 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

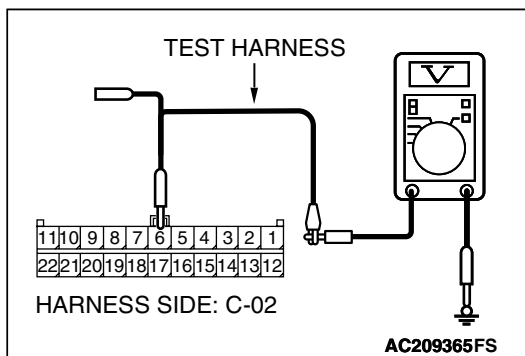
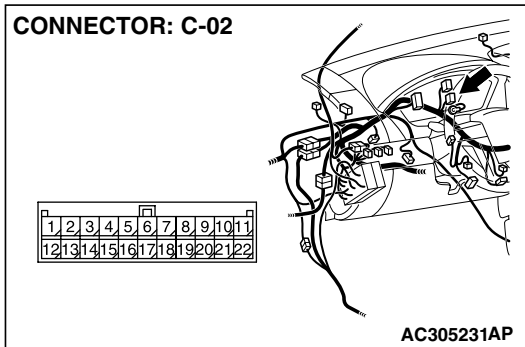
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 15.

NO : If the voltage measures more than 4.0 V, go to Step 13.

STEP 13. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

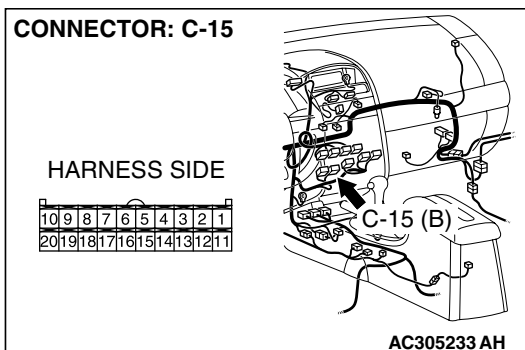
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 14.

NO : Repair the damaged parts.



STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

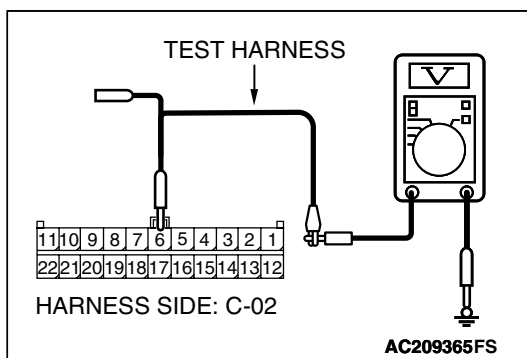
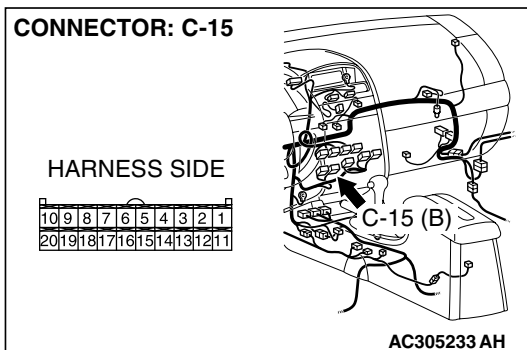
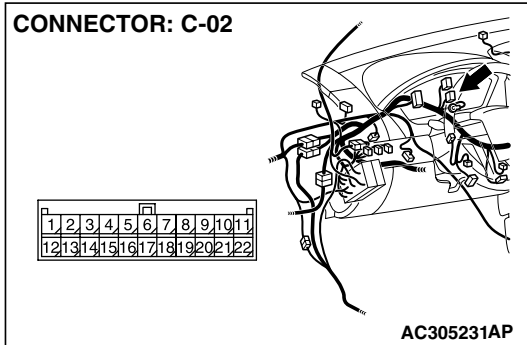
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 6 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

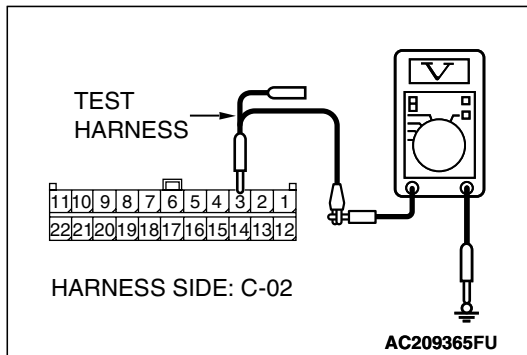
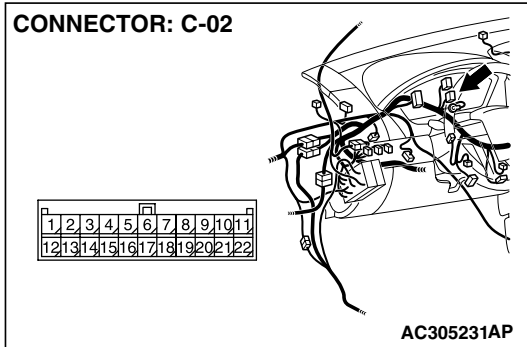
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 3 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 21.
- NO :** If the voltage measures more than 4.0 V, go to Step 16.

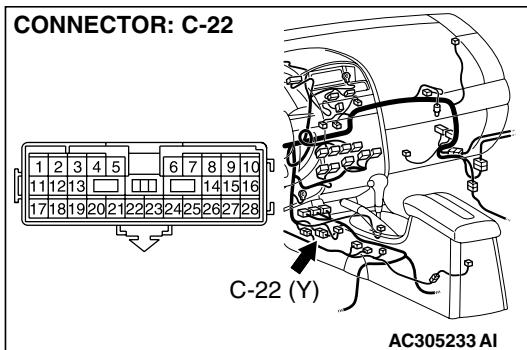
STEP 16. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

- YES :** Go to Step 17.
- NO :** Repair the damaged parts.



STEP 17. Check the CAN_H-side bus line (communication line including ECUs) of the floor wiring harness for short to the power supply. Measure the voltage at intermediate connector C-22.

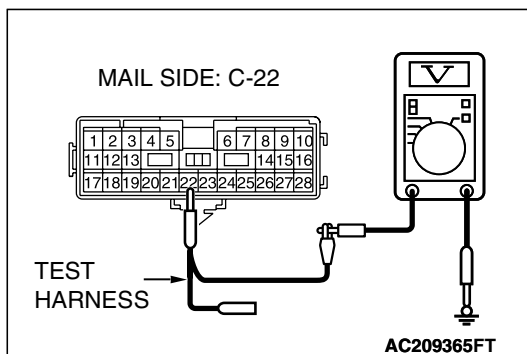
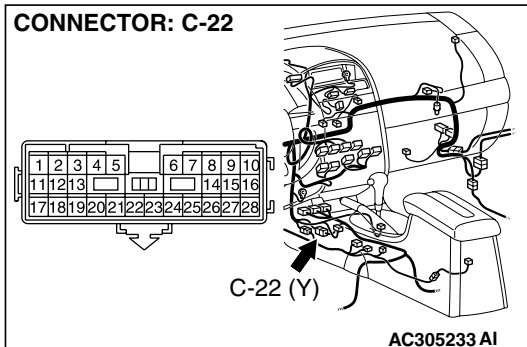
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the voltage at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 22 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 20 .
- NO :** If the voltage measures more than 4.0 V, go to Step 18.

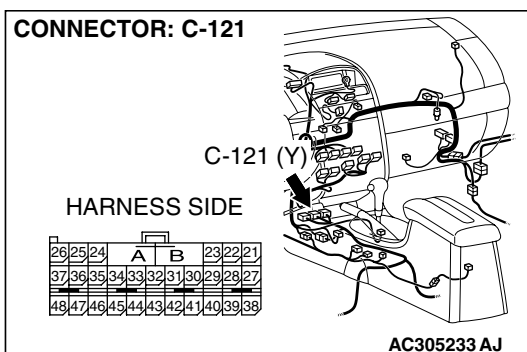
STEP 18. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

- YES :** Go to Step 19.
- NO :** Repair the damaged parts.



STEP 19. Check the CAN_ H line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the voltage at intermediate connector C-22.

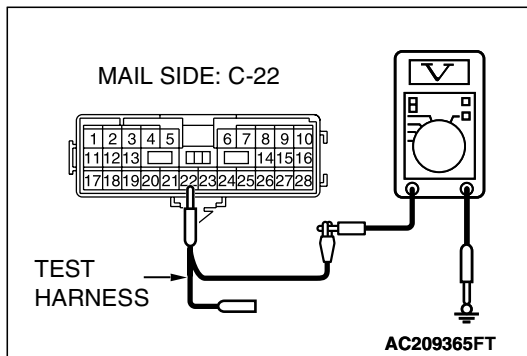
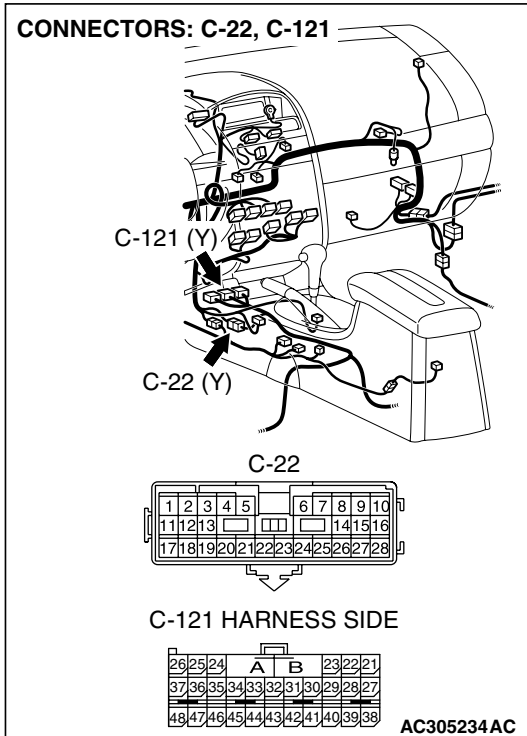
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the voltage at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 22 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and SRS-ECU connector.

STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the voltage at joint connector (3) C-02.

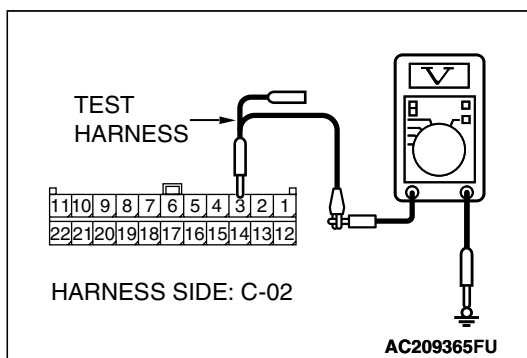
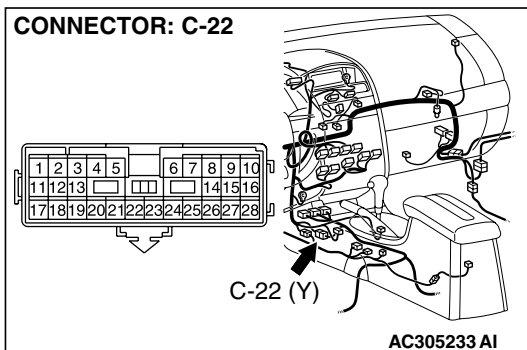
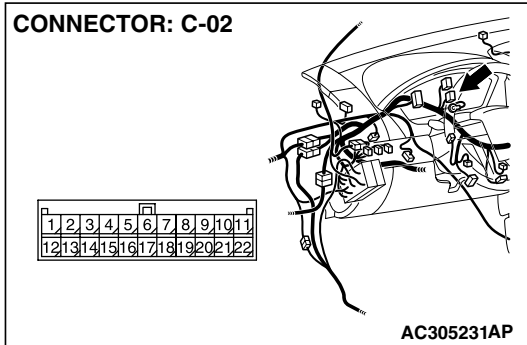
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminals 3 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and joint connector (3).

STEP 21. Check the CAN_H line (communication line including the multi-center display unit (middle-grade type)) between joint connector (3) and middle-grade multi-center display connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

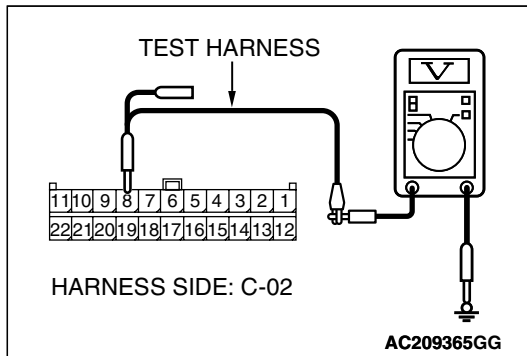
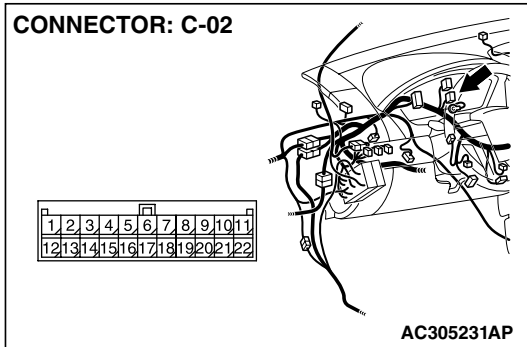
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 8 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

- YES :** If the voltage measures 4.0 V or less, go to Step 24.
- NO :** If the voltage measures more than 4.0 V, go to Step 22.

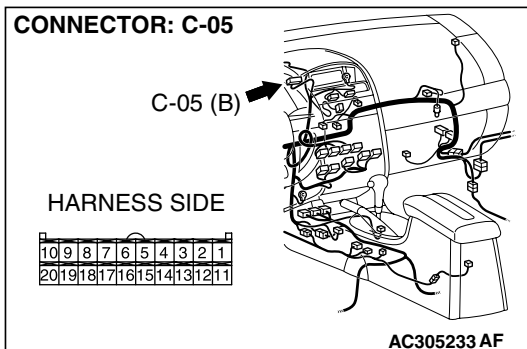
STEP 22. Check multi-center display unit (middle-grade type) connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is multi-center display unit (middle-grade type) connector C-05 in good condition ?

- YES :** Go to Step 23.
- NO :** Repair the damaged parts.



STEP 23. Check the CAN_H line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type) connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

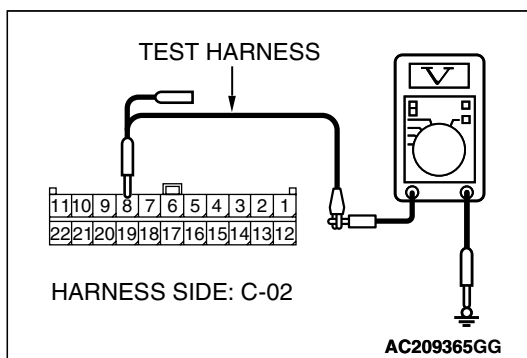
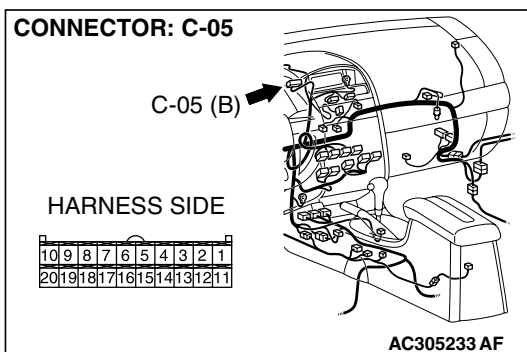
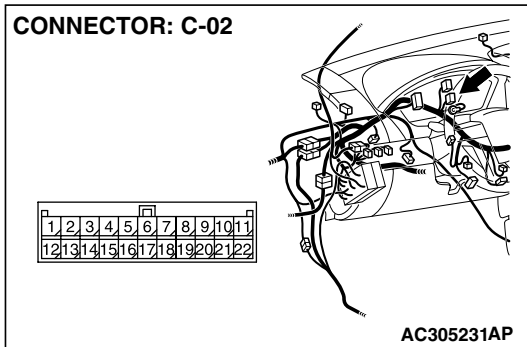
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 8 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type) connector.

STEP 24. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

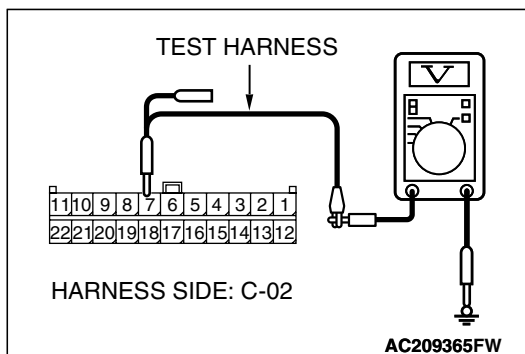
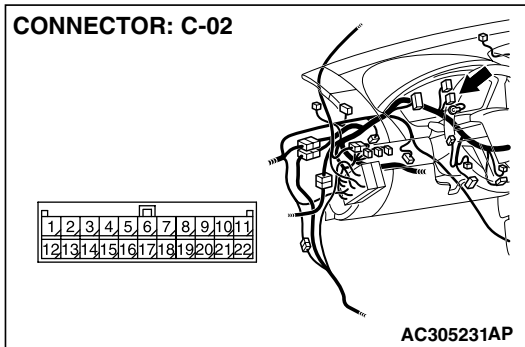
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 7 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 25.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 25. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

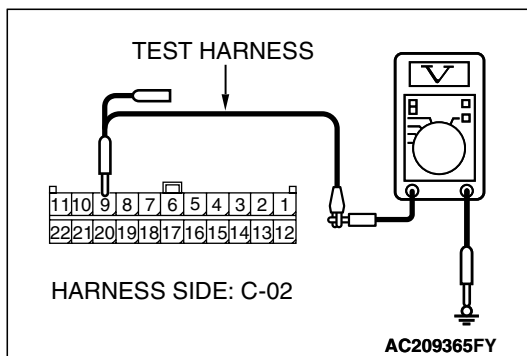
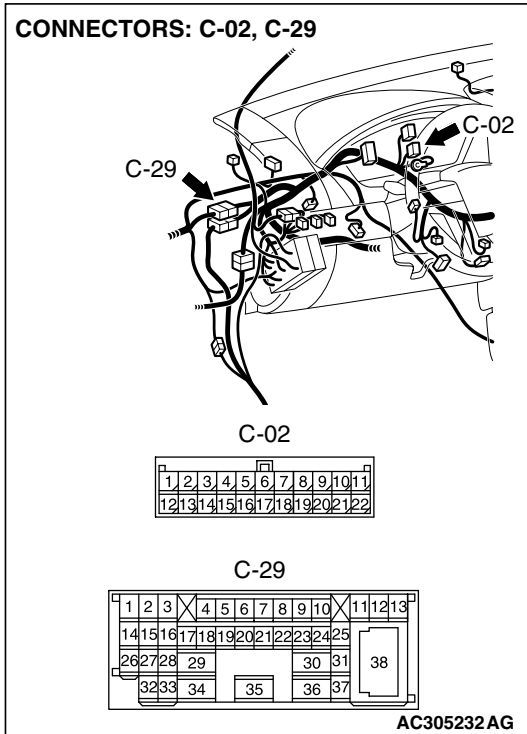
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 9 and body ground.

OK: 1.0 V or less

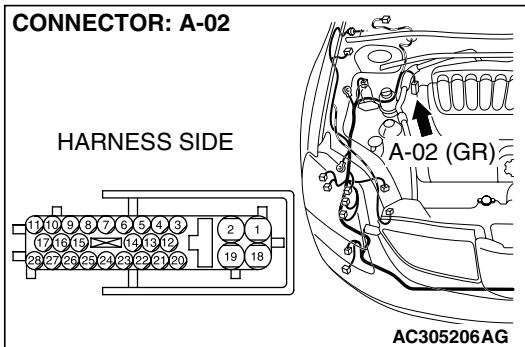
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 26. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 27.

NO : Repair the damaged parts.

STEP 27. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for a short to the power supply. Measure the voltage at intermediate connector C-29.

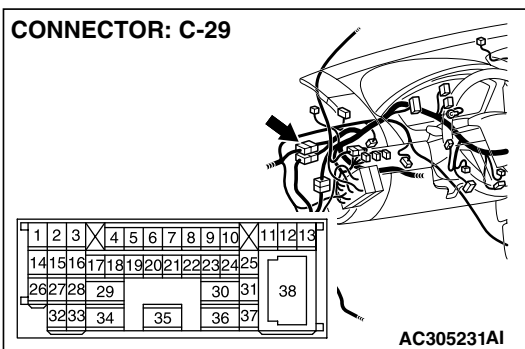
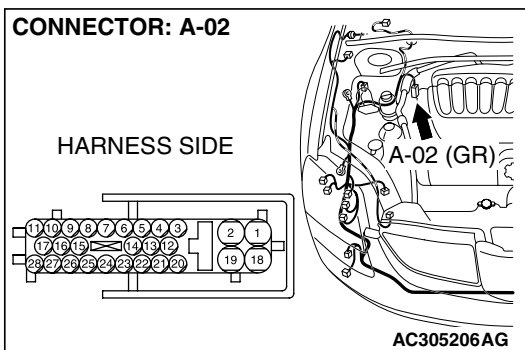
⚠ CAUTION

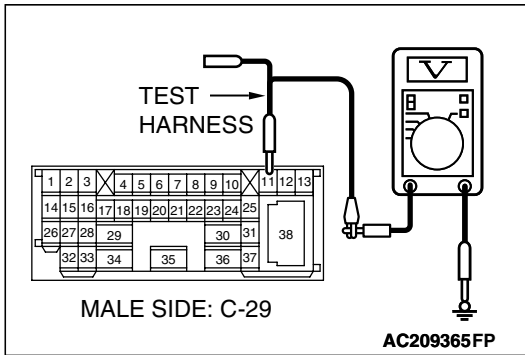
A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.





(3) Measure the voltage between intermediate connector terminal 11 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 28.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 28. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

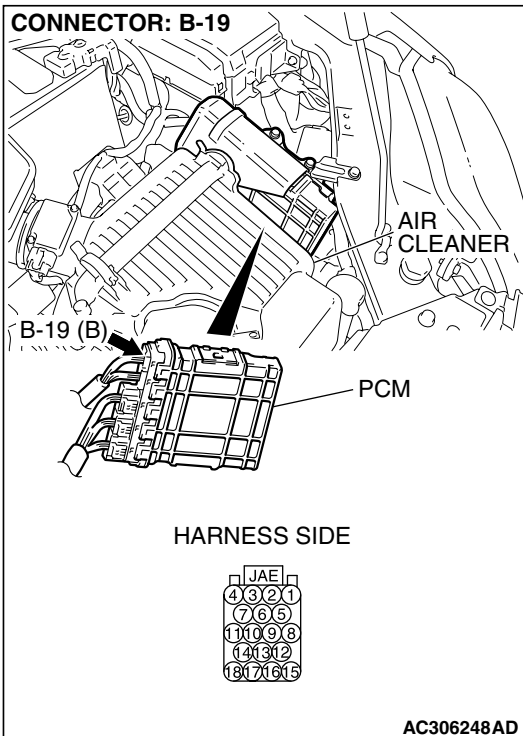
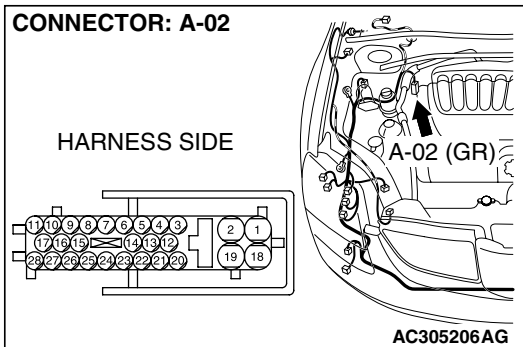
⚠ CAUTION

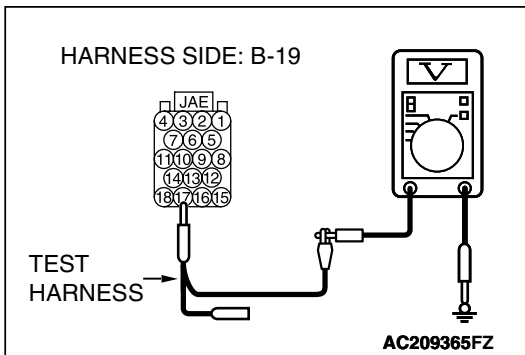
A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
- (2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between powertrain control module connector terminal 17 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 29.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 29. Check the CAN_H line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02.

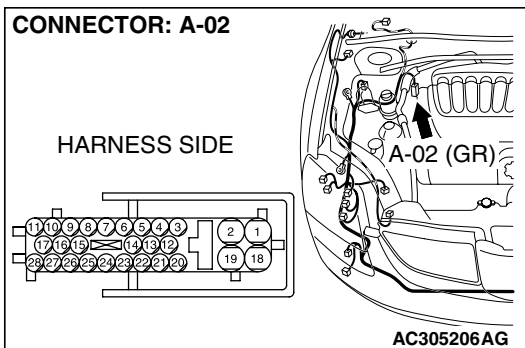
CAUTION

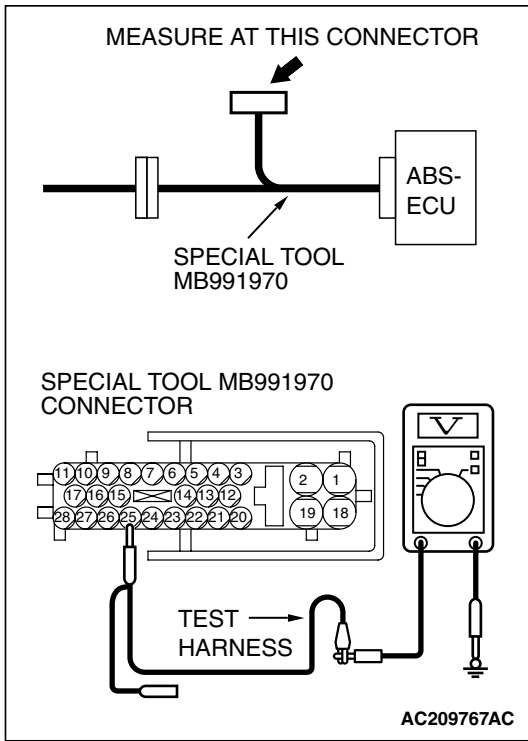
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect ABS-ECU connector A-02.





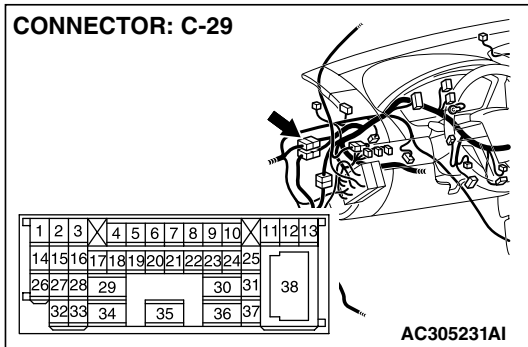
- (2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).
- (3) Turn the ignition switch to the "ON" position.
- (4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.



STEP 30. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 31.

NO : Repair the damaged parts.

STEP 31. Check the CAN_L-side bus line (communication line including) of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-29.

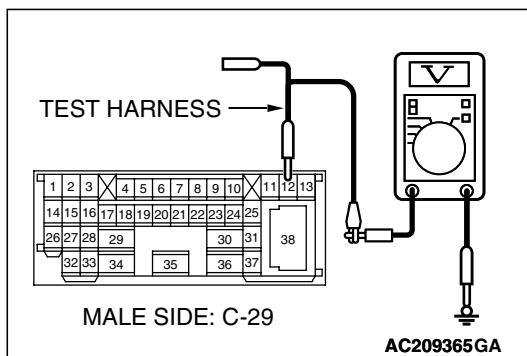
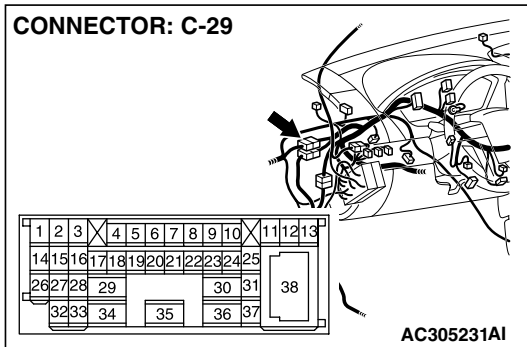
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect intermediate connector C-29, and measure the voltage at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

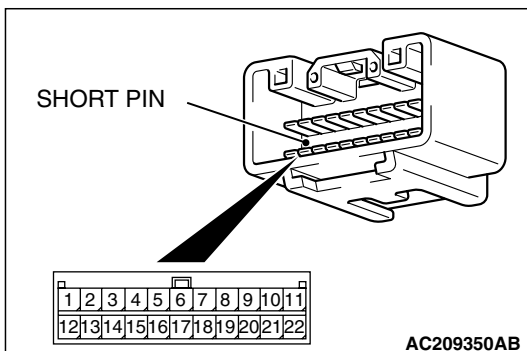
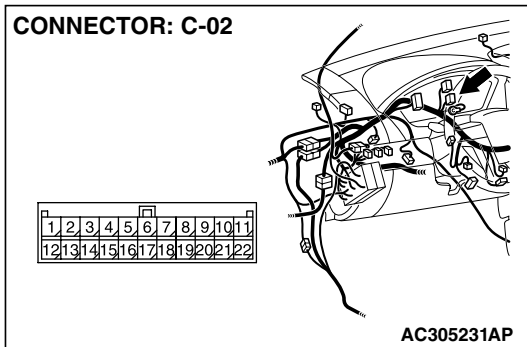
YES : If the voltage measures 4.0 V or less, go to Step 32.

NO : If the voltage measures more than 4.0 V, go to Step 52.

STEP 32. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 33.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 33. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

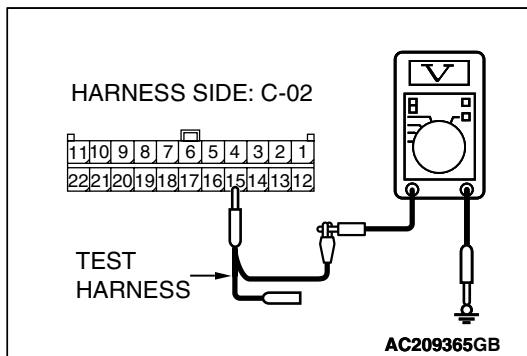
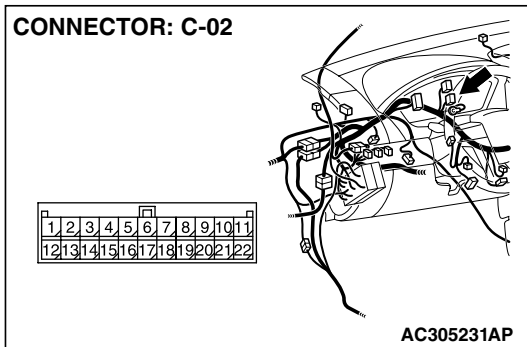
⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4.**

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

YES : If the voltage measures 4.0 V or less, go to Step 35.

NO : If the voltage measures more than 4.0 V, go to Step 34.

STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

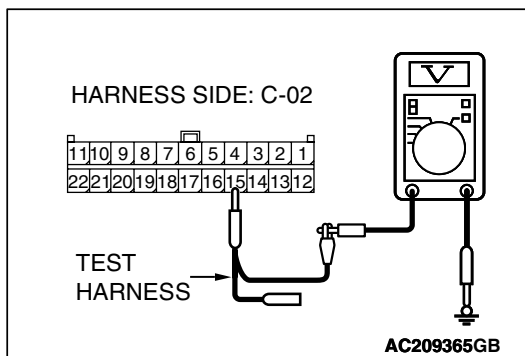
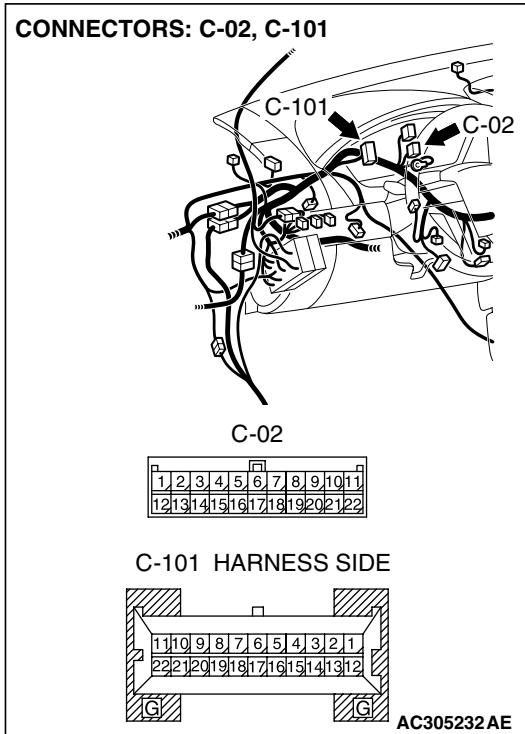
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 15 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 35. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

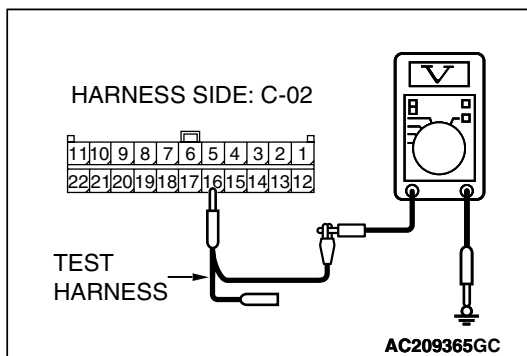
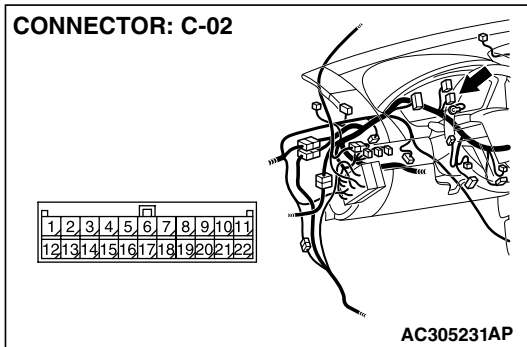
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 38.
- NO :** If the voltage measures more than 4.0 V, go to Step 36.

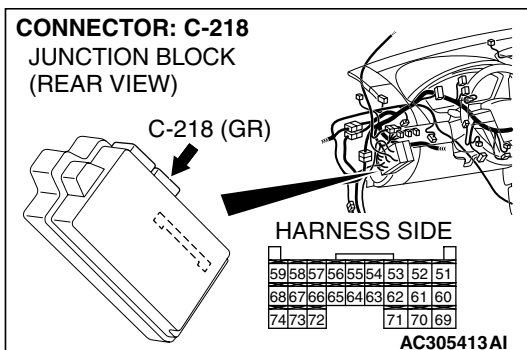
STEP 36. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ETACS-ECU connector C-218 in good condition?

- YES :** Go to Step 37.
- NO :** Repair the damaged parts.



STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

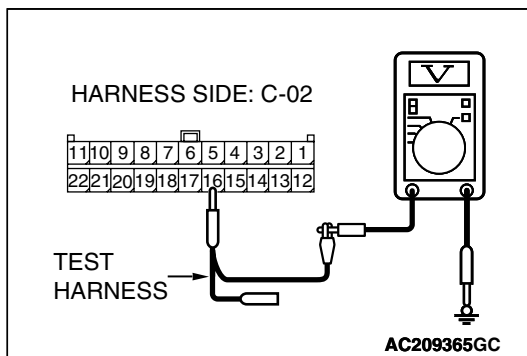
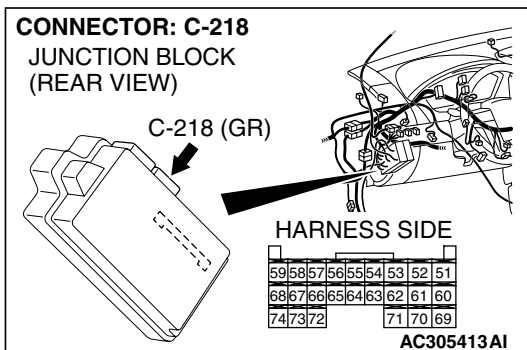
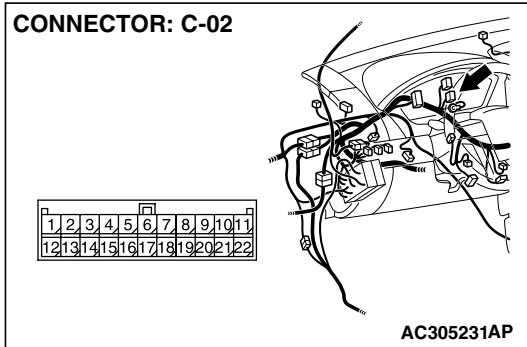
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 16 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 38. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

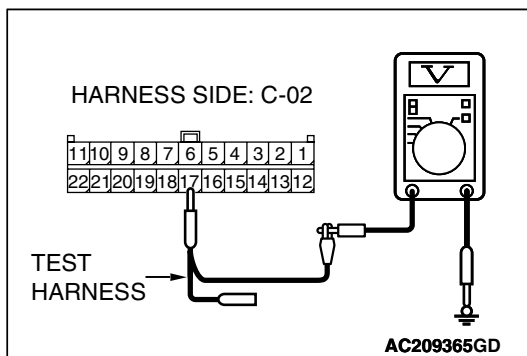
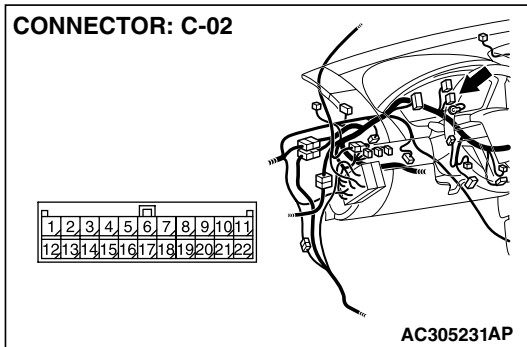
CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 41.
NO : If the voltage measures more than 4.0 V, go to Step 39.

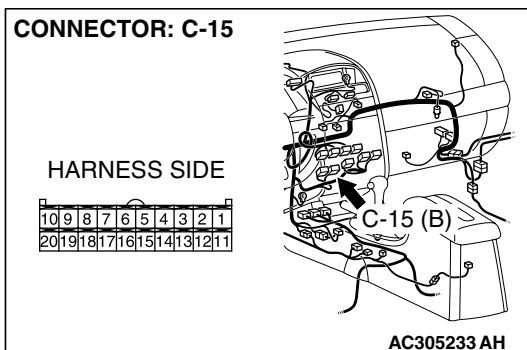
STEP 39. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-15 in good condition?

- YES :** Go to Step 40.
NO : Repair the damaged parts.



STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

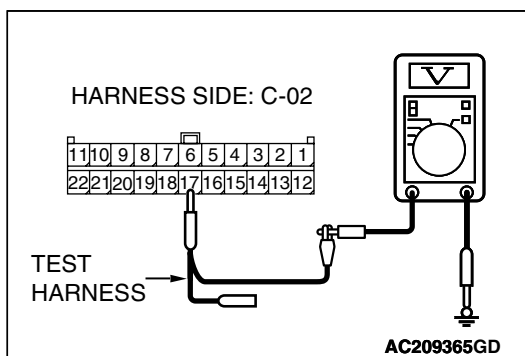
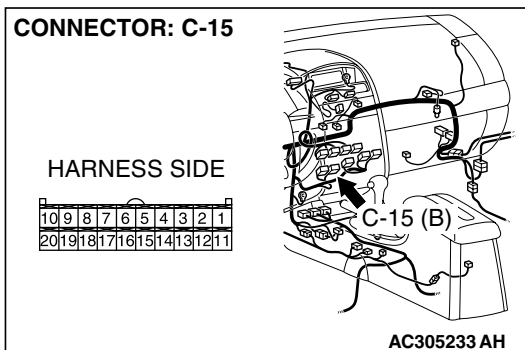
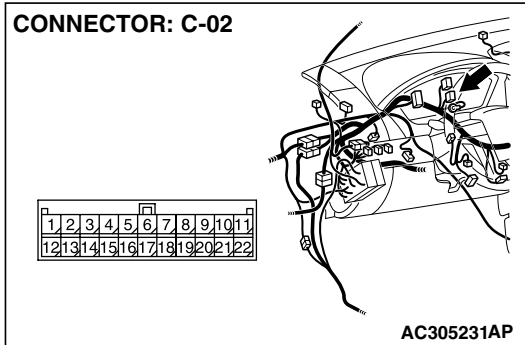
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 17 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 41. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to the power supply. Measure the voltage at joint connector (3) C-02.

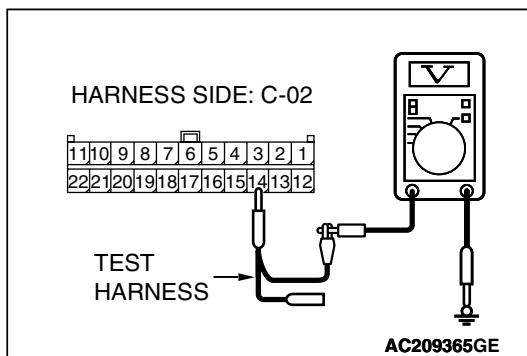
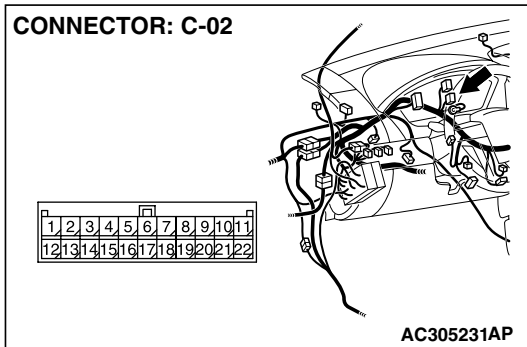
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 14 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

- YES :** If the voltage measures 4.0 V or less, go to Step 47 .
- NO :** If the voltage measures more than 4.0 V, go to Step 42.

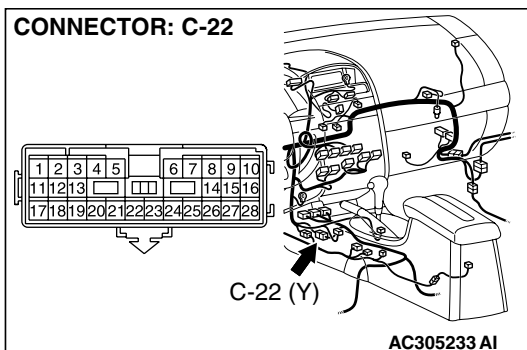
STEP 42. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

- YES :** Go to Step 43.
- NO :** Repair the damaged parts.



STEP 43. Check the CAN_L-side bus line (communication line including ECUs) of the floor wiring harness for short to the power supply. Measure the voltage at intermediate connector C-22.

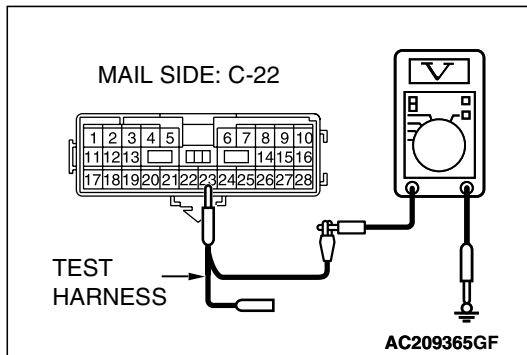
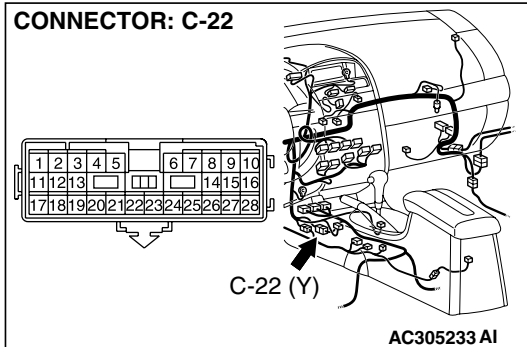
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the voltage at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 23 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

- YES :** If the voltage measures 4.0 V or less, go to Step 46.
- NO :** If the voltage measures more than 4.0 V, go to Step 44.

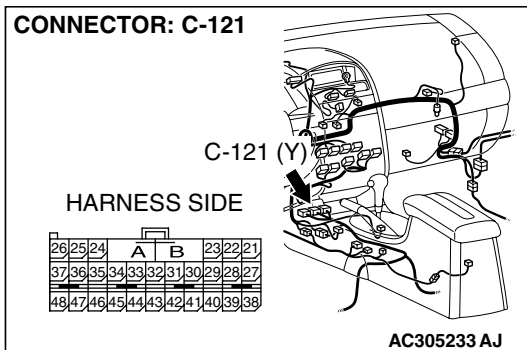
STEP 44. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

- YES :** Go to Step 45.
- NO :** Repair the damaged parts.



STEP 45. Check the CAN_L line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the voltage at intermediate connector C-22.

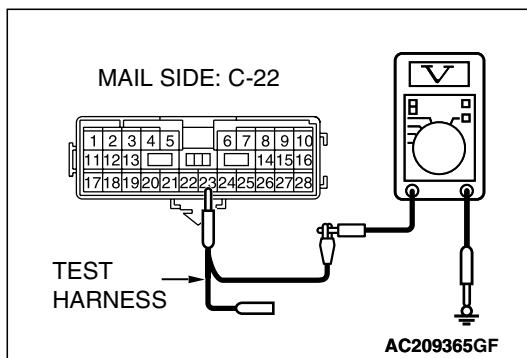
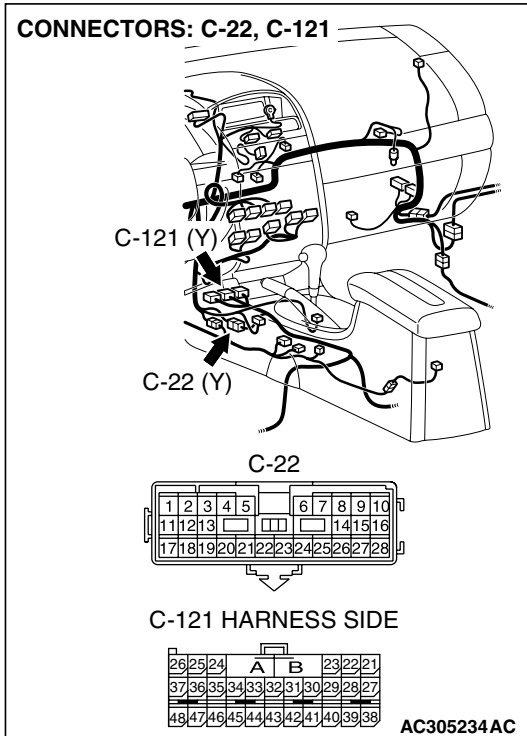
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the voltage at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 23 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and SRS-ECU connector.

STEP 46. Check the CAN_L line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the voltage at joint connector (3) C-02.

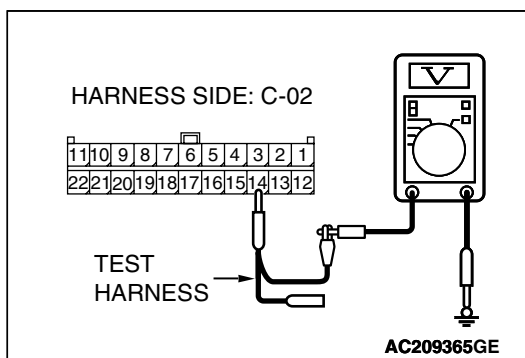
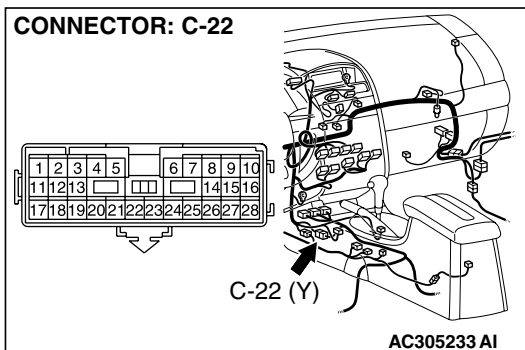
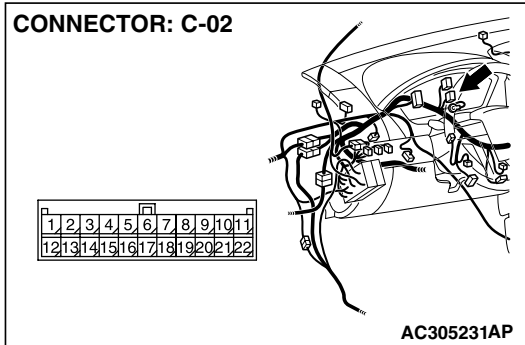
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 14 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or more?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-22 and joint connector (3).

STEP 47. Check the CAN_L line (communication line including the multi-center display unit (middle-grade type)) between joint connector (3) and middle-grade multi-center display connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

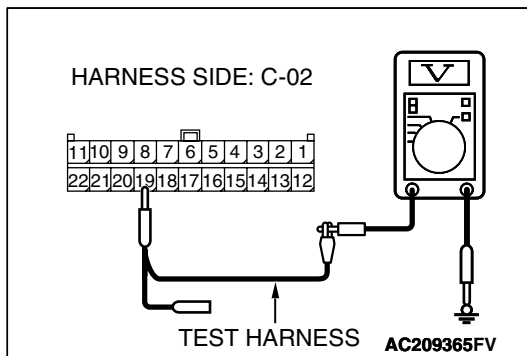
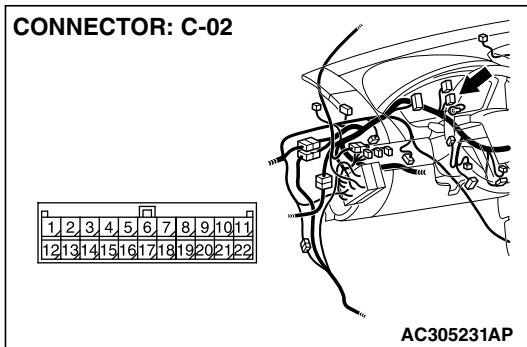
CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 19 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less?

- YES :** If the voltage measures 4.0 V or less, go to Step 50.
NO : If the voltage measures more than 4.0 V, go to Step 48.

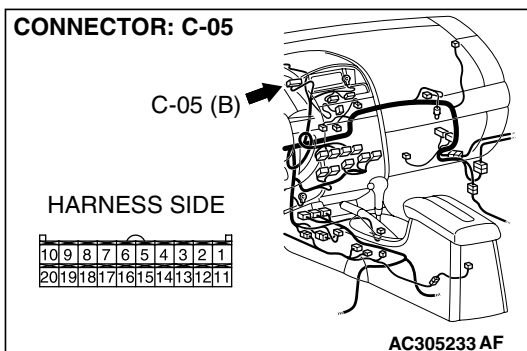
STEP 48. Check multi-center display unit (middle-grade type) connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

Q: Is multi-center display unit (middle-grade type) connector C-05 in good condition?

- YES :** Go to Step 49.
NO : Repair the damaged parts.



STEP 49. Check the CAN_L line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type) connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

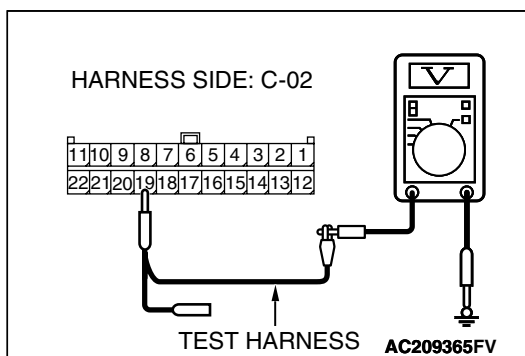
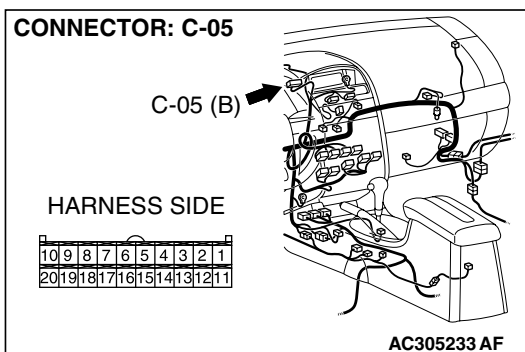
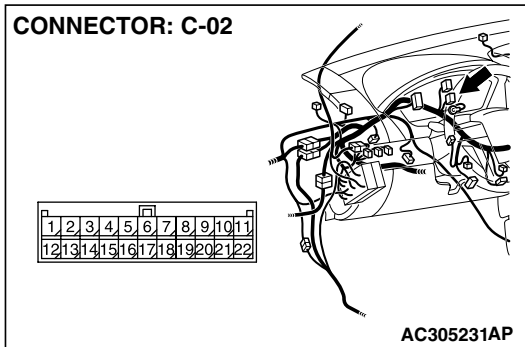
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 19 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type) connector.

STEP 50. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-02.

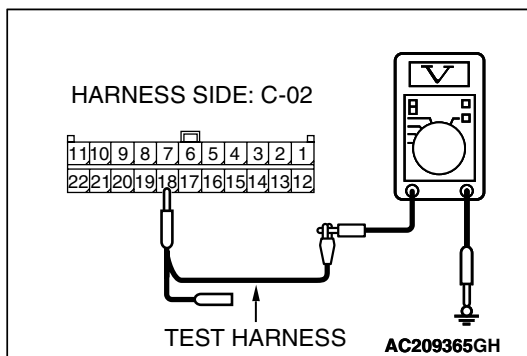
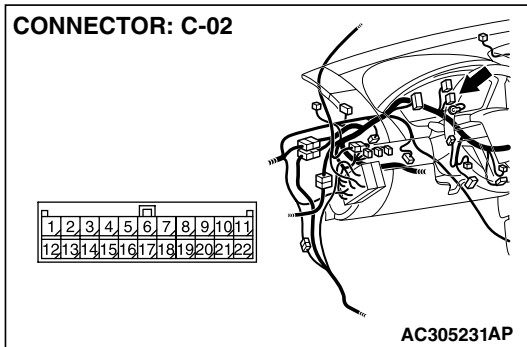
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 18 and body ground.

OK: 1.0 V or less

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 51.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between joint connector (3) and the data link connector.

STEP 51. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for a short to the power supply. Measure the voltage at joint connector (3) C-02.

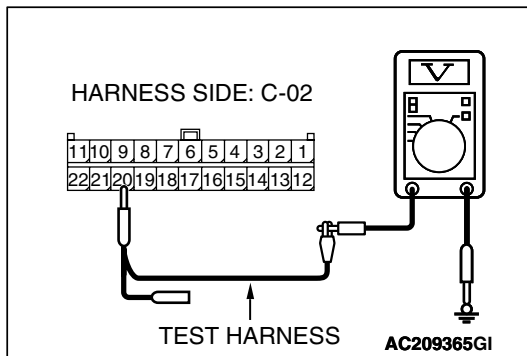
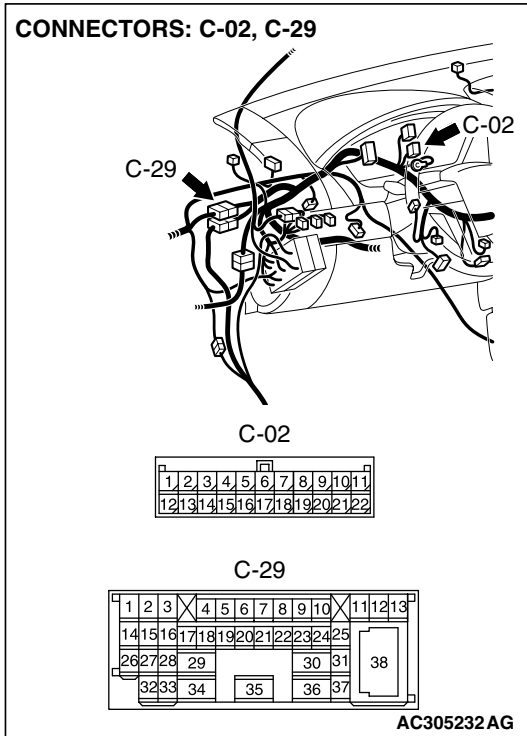
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the voltage at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between joint connector (3) terminal 20 and body ground.

OK: 1.0 V or less

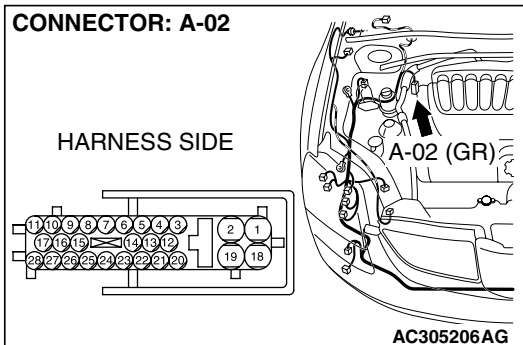
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less ?

YES : If the voltage measures 1.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 52. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 53.

NO : Repair the damaged parts.

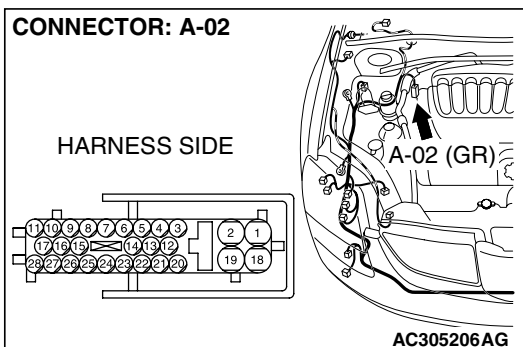
STEP 53. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for a short to the power supply. Measure the voltage at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

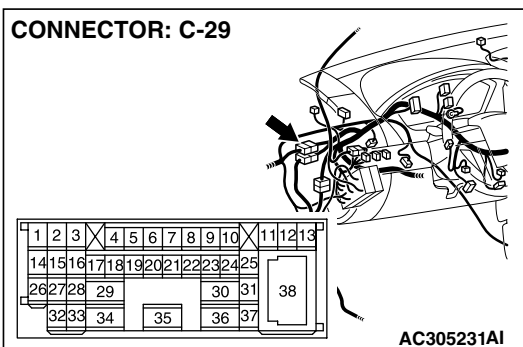
⚠ CAUTION

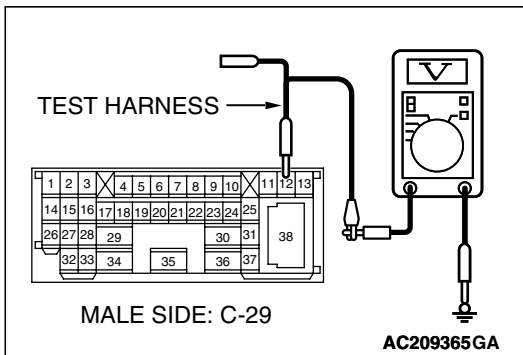
The test wiring harness should be used. For details refer to [P.54C-4](#).



(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the voltage at the male side of intermediate connector C-29 (at front wiring harness side).

(2) Turn the ignition switch to the "ON" position.





- (3) Measure the voltage between intermediate connector terminal 12 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 54.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

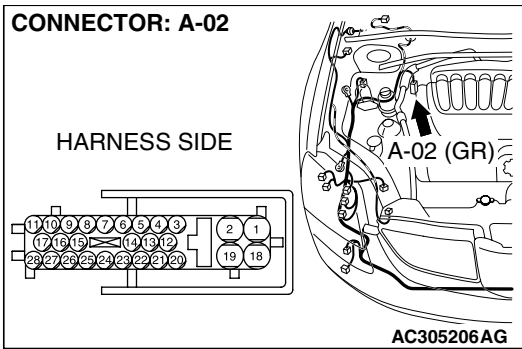
STEP 54. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for a short to the power supply. Measure voltage at powertrain control module connector B-19.

CAUTION

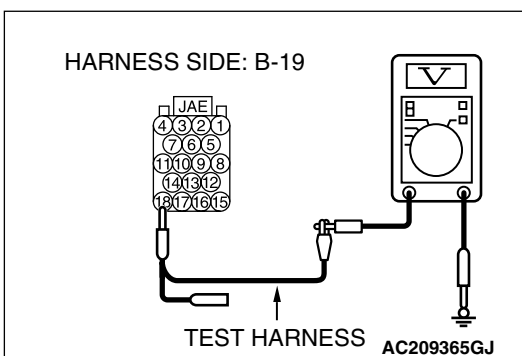
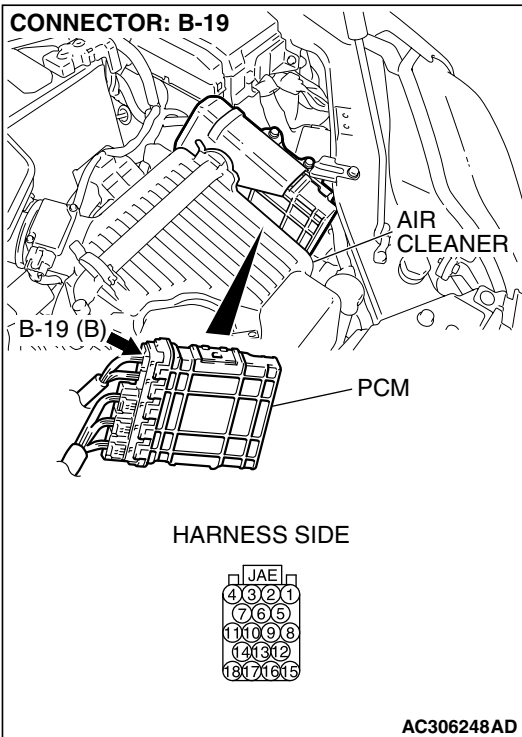
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



- (1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the voltage at the harness side of powertrain control module connector B-19.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between powertrain control module connector terminal 18 and body ground.

OK: 1.0 V or less

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the voltage measure 1.0 V or less?

YES : If the voltage measures 1.0 V or less, go to Step 55.

NO : If the voltage measures more than 1.0 V, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 55. Check the CAN_L line inside the ABS-ECU for a short to the power supply. Measure the voltage at ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

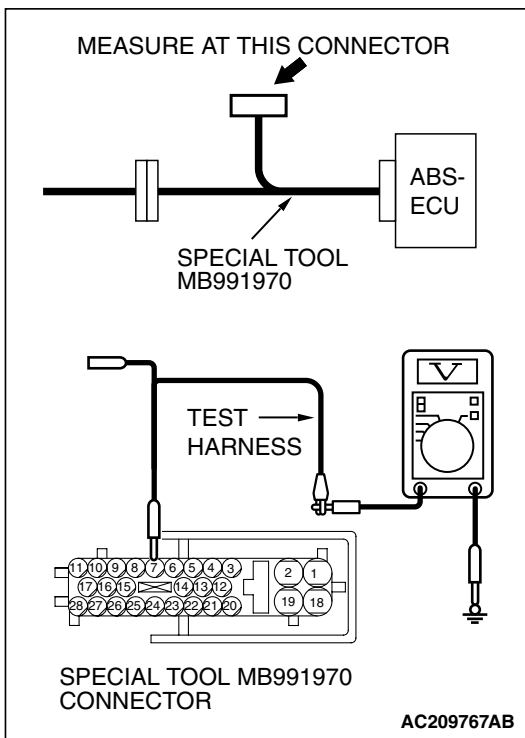
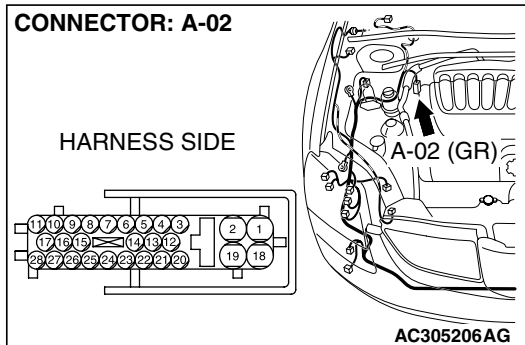
⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

(1) Disconnect ABS-ECU connector A-02.



(2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the voltage at special tool MB991970 (ABS check harness).

(3) Turn the ignition switch to the "ON" position.

(4) Measure the voltage between special tool MB991970 (ABS check harness) connector terminal 7 and body ground.

OK: 4.0 V or less

Q: Does the voltage measure 4.0 V or less ?

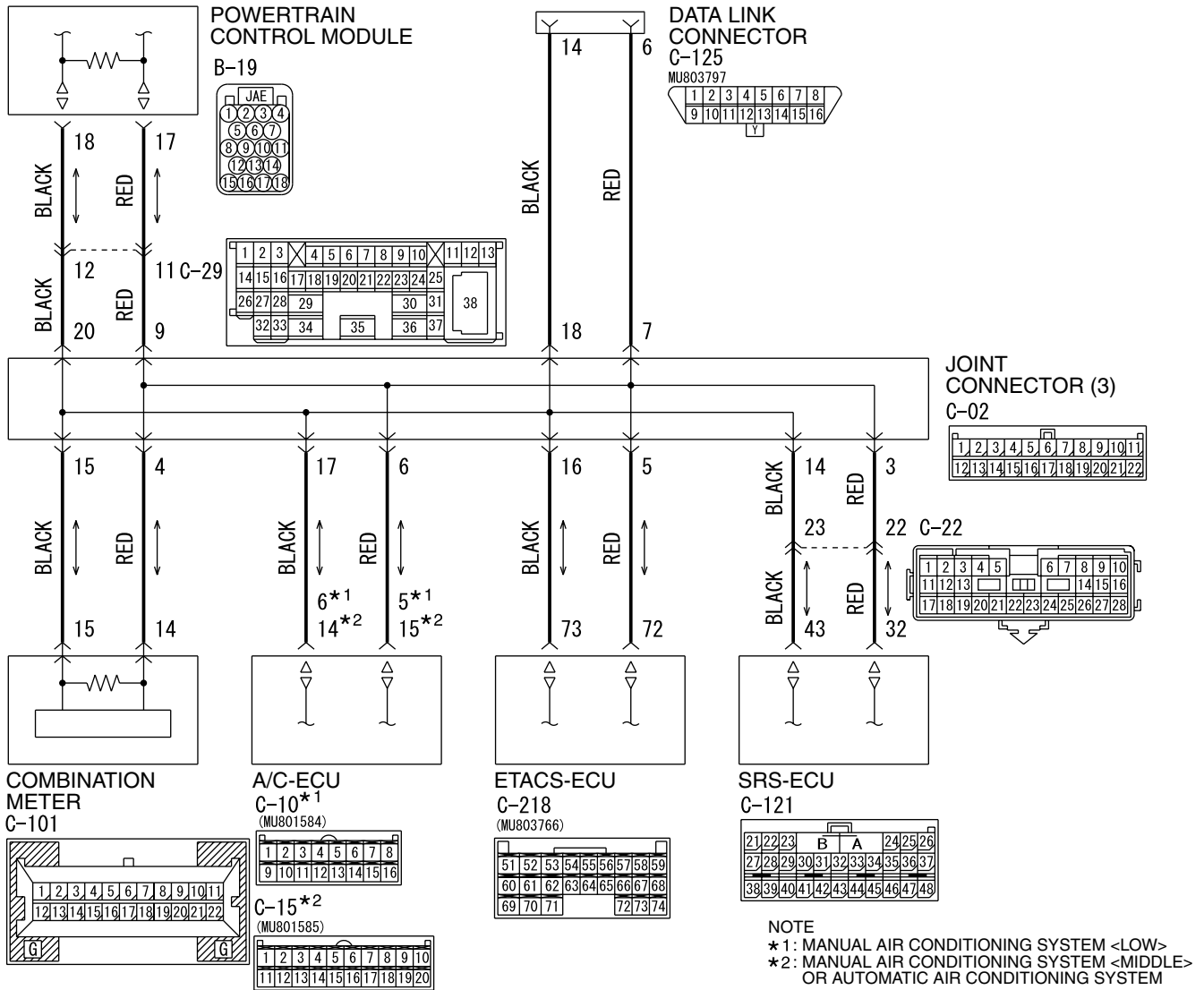
YES : If the voltage measures 4.0 V or less, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the voltage measures more than 4.0 V, replace the ABS-ECU.

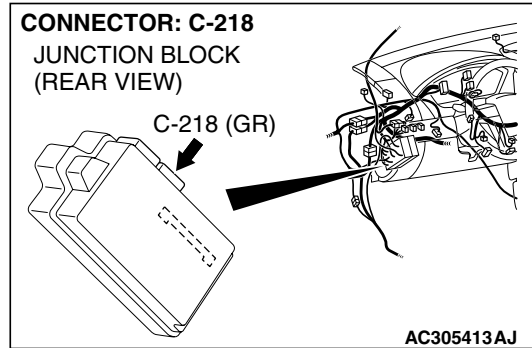
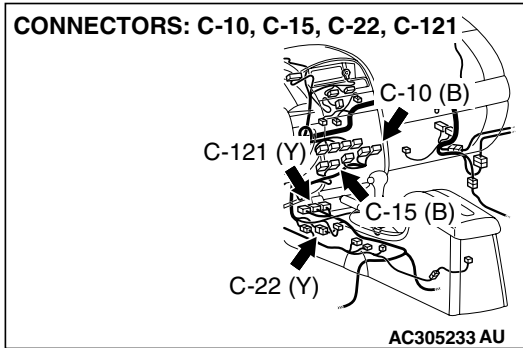
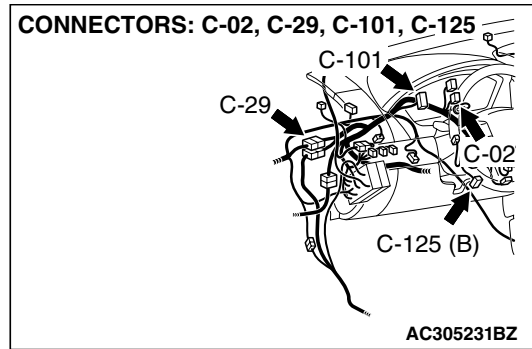
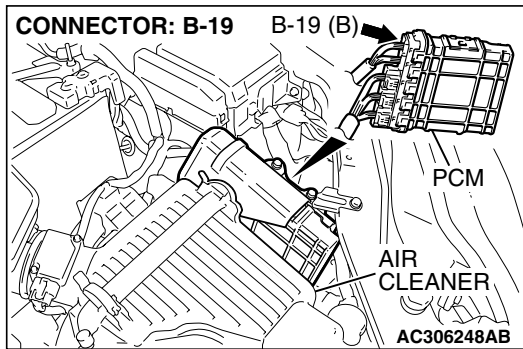
DIAGNOSTIC ITEM 4: Diagnose shorts in the ground to CAN bus line <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>

CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do this, a component connected to the CAN bus line may be damaged.



W4P54M96AA



TROUBLE JUDGMENT

A short to ground may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is less than 1.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector, or a ECU may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- the ETACS-ECU may be defective
- The combination meter may be defective
- The A/C-ECU may be defective
- The SRS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

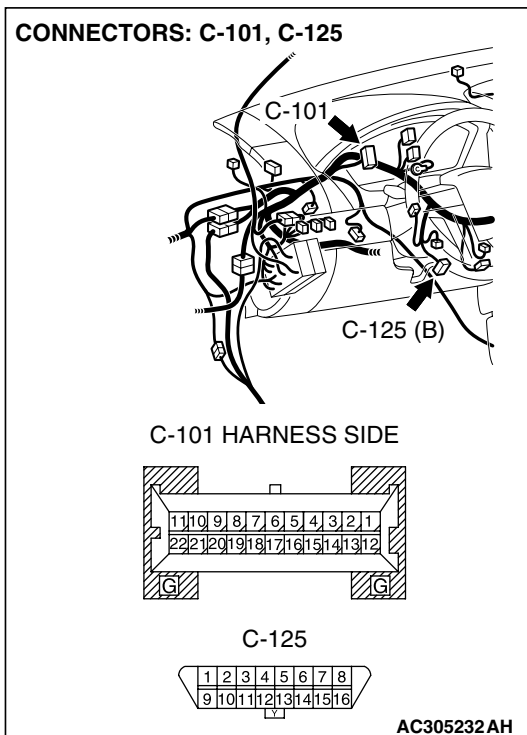
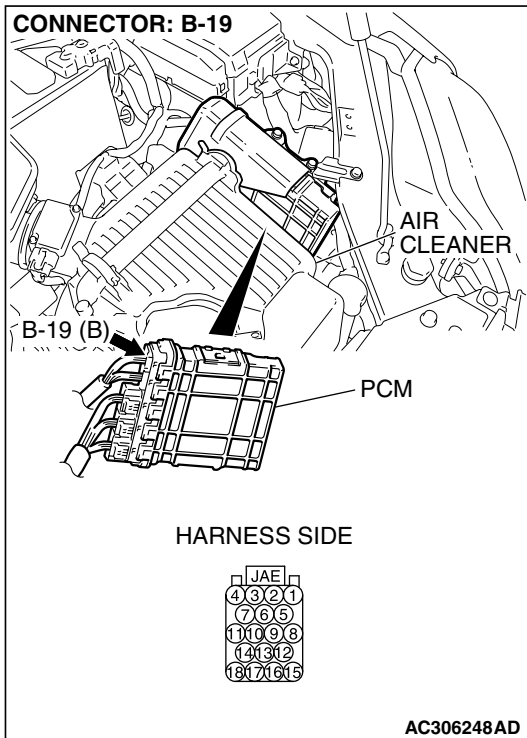
CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

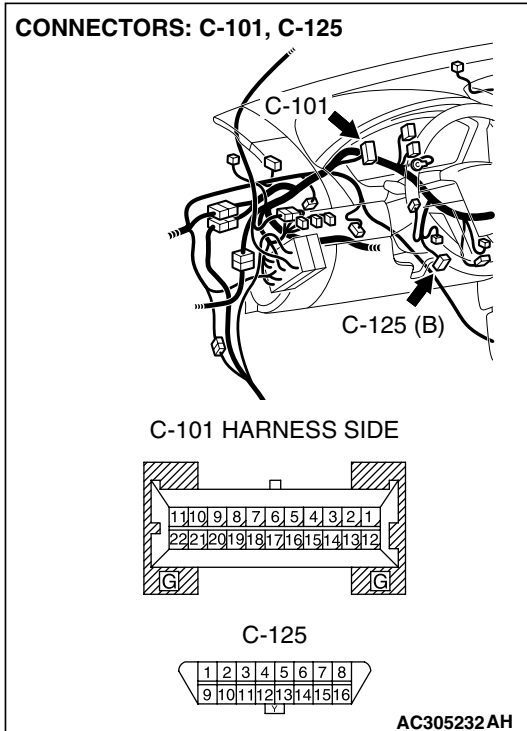
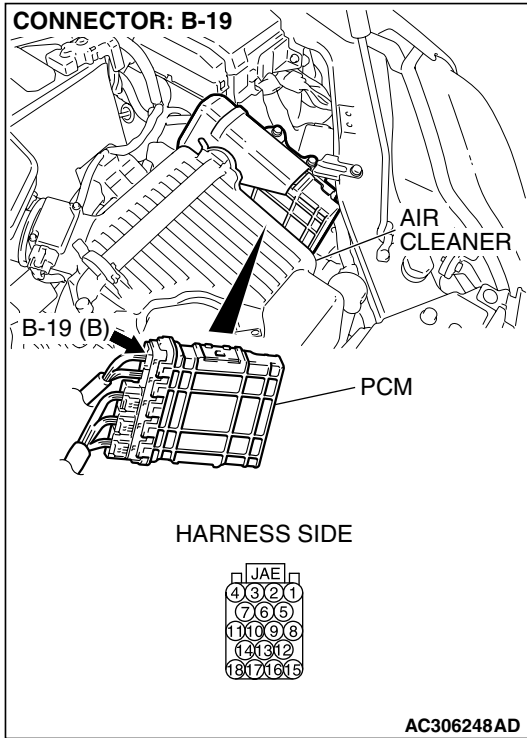
The test wiring harness should be used. For details refer to [P.54C-4](#).

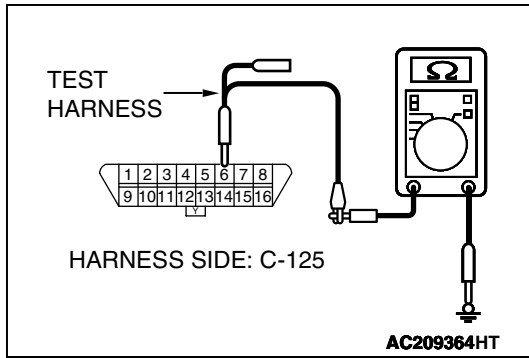
- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





(4) Measure the resistance between data link connector terminal 6 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 3

NO : If the resistance measures less than 1 k Ω , go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

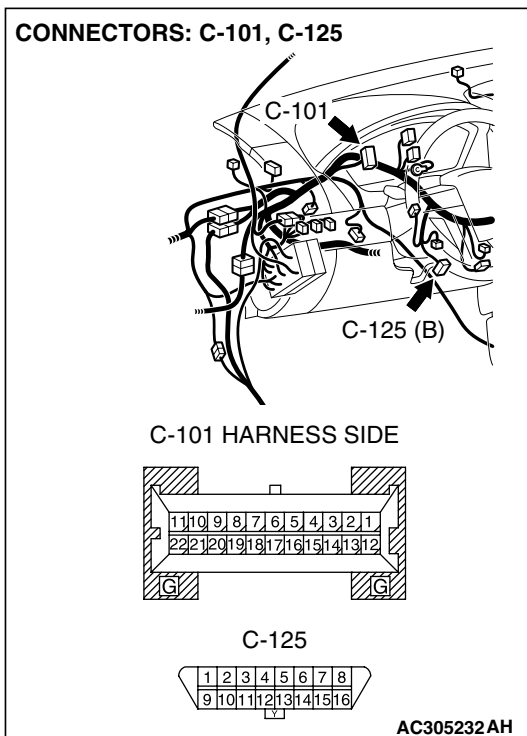
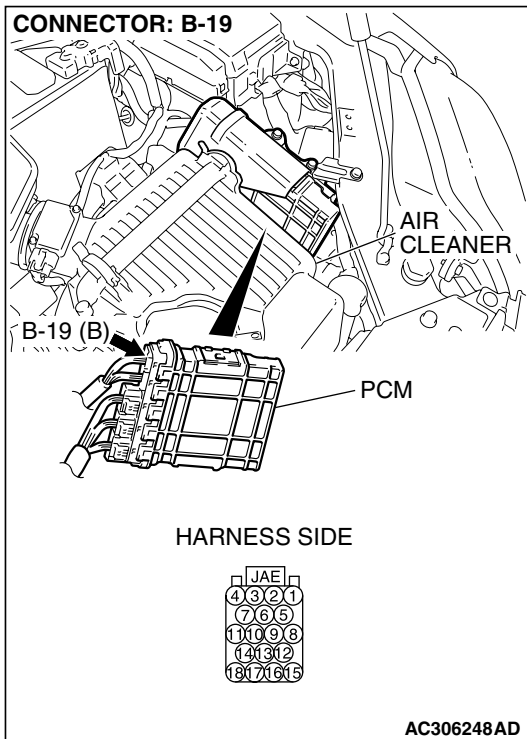
The test wiring harness should be used. For details refer to [P.54C-4](#).

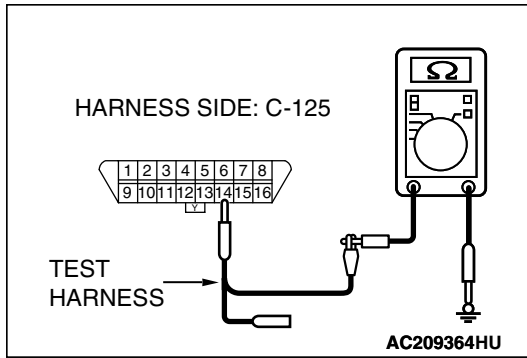
- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





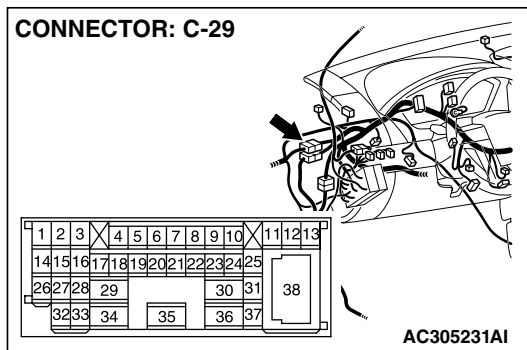
(4) Measure the resistance between data link connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, go to Step 24.



STEP 4. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

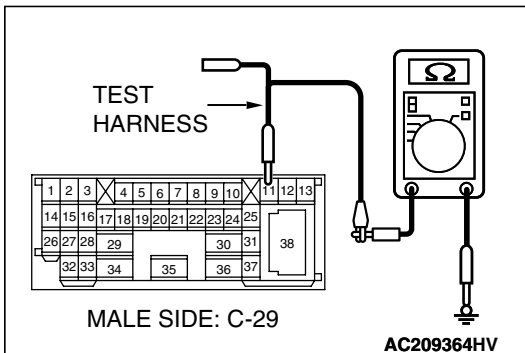
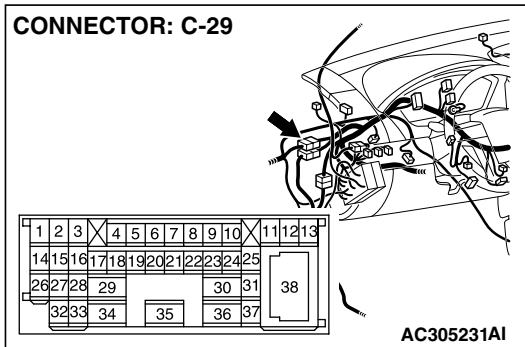
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

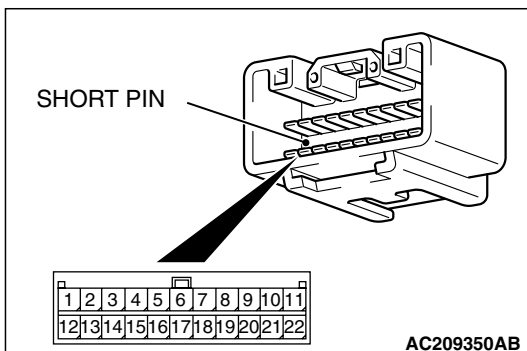
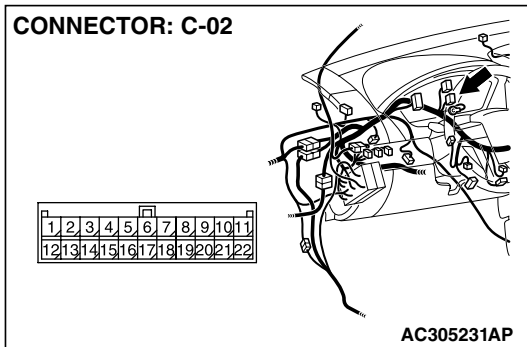
YES : If the resistance measures 1 k Ω or more, go to Step 6

NO : If the resistance measures less than 1 k Ω , go to Step 23.

STEP 6. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 7.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

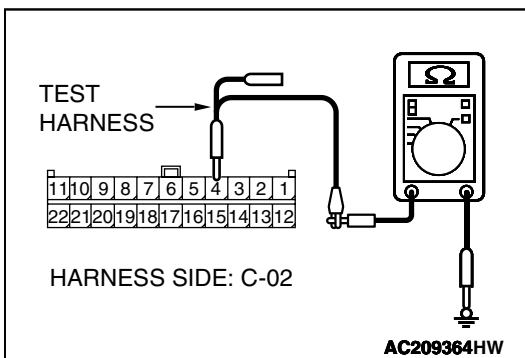
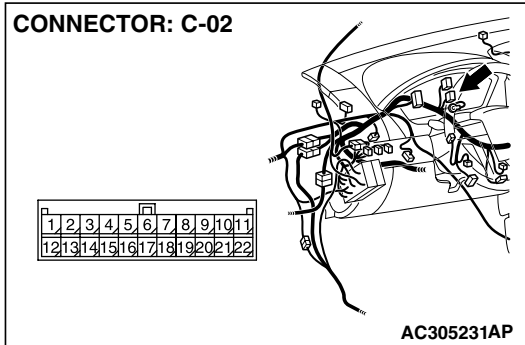
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 9

NO : If the resistance measures less than 1 k Ω , go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

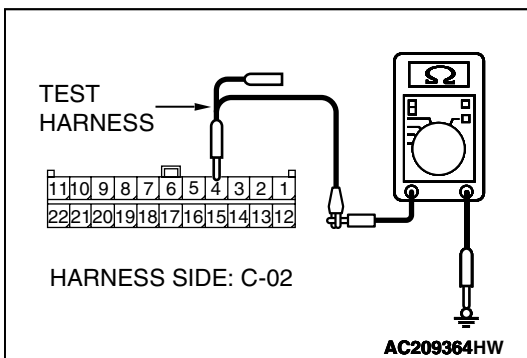
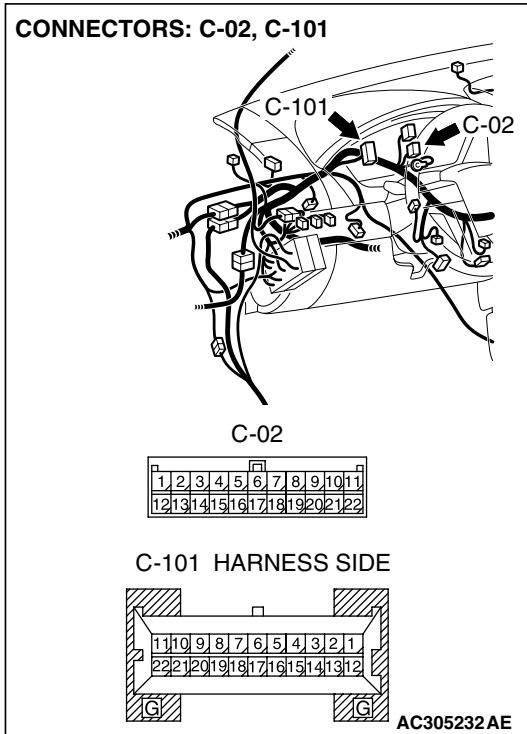
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

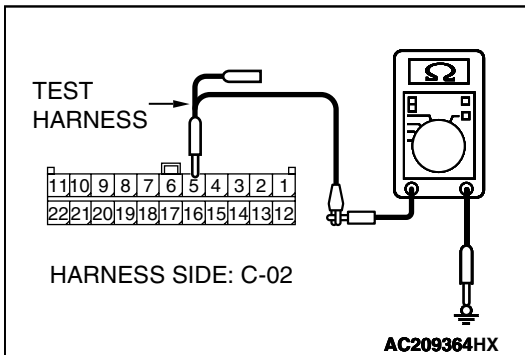
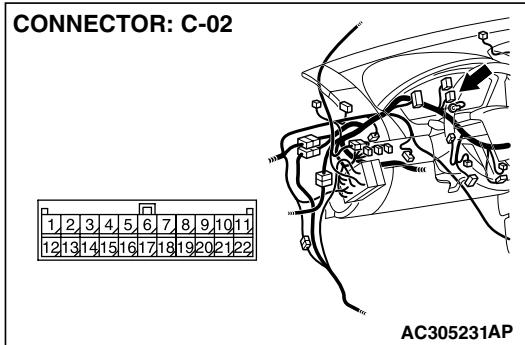
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.



STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.

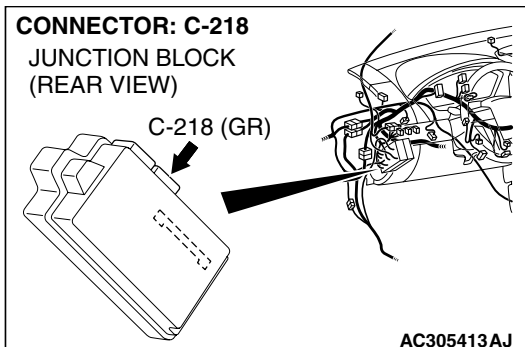
- (4) Measure the resistance between joint connector (3) terminal 5 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 12 .

NO : If the resistance measures less than 1 k Ω , go to Step 10.



STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.

NO : Repair the damaged parts.

STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

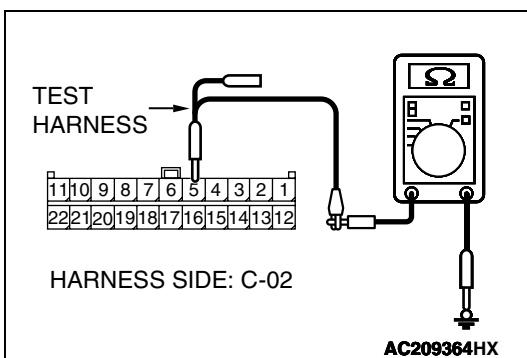
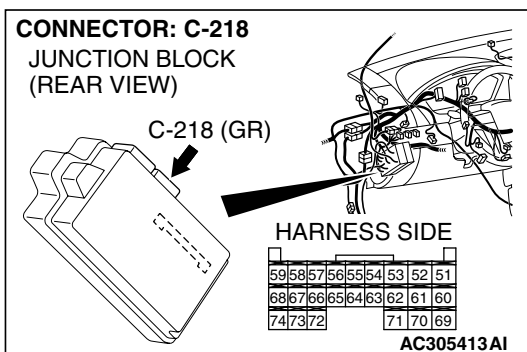
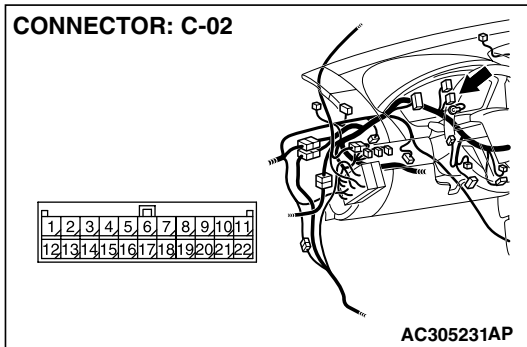
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 5 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

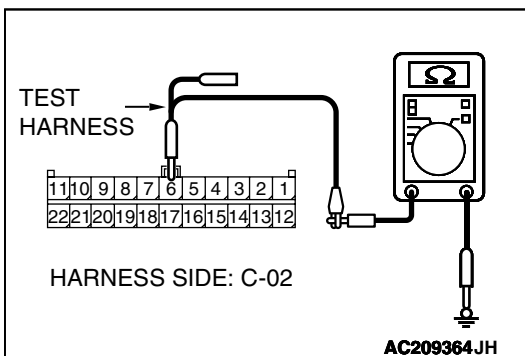
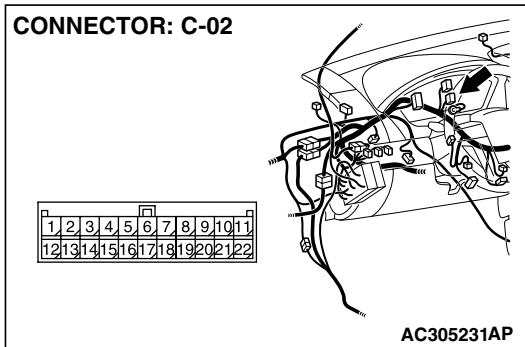
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.

STEP 13. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

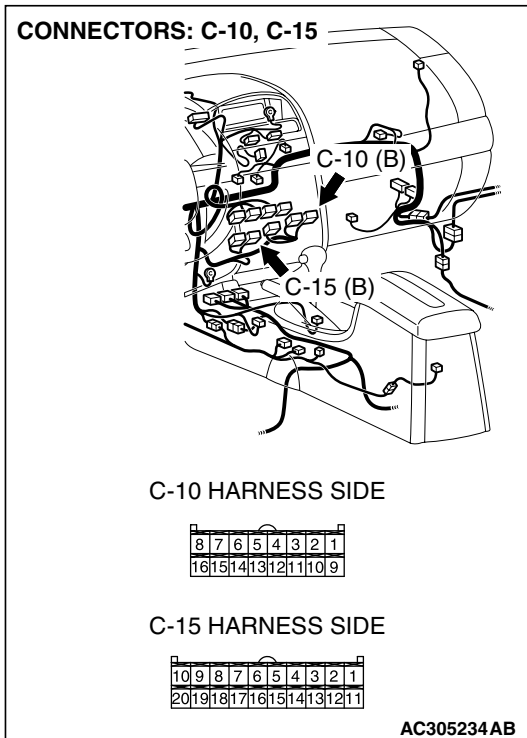
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 14.

NO : Repair the damaged parts.



STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

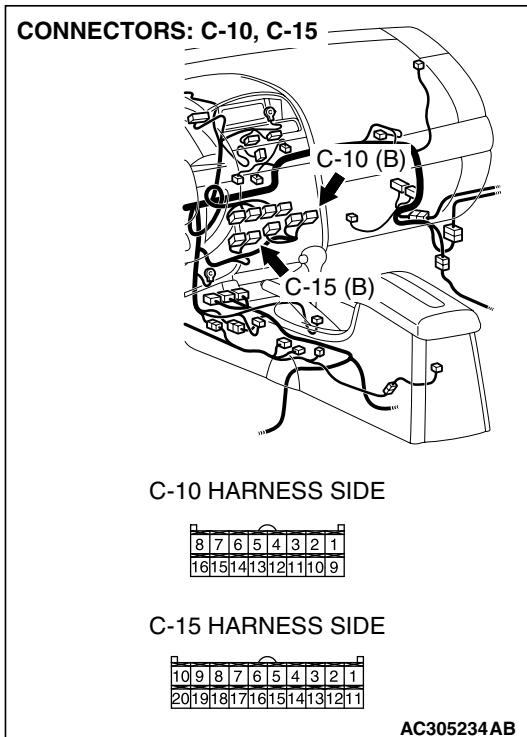
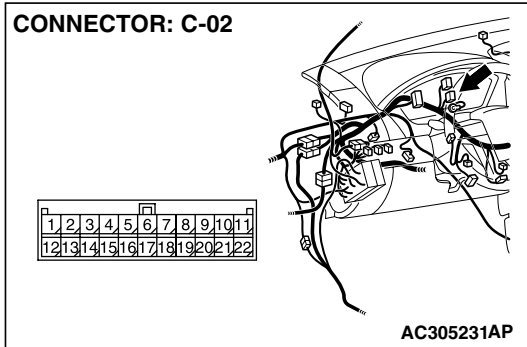
The test wiring harness should be used. For details refer to [P.54C-4](#).

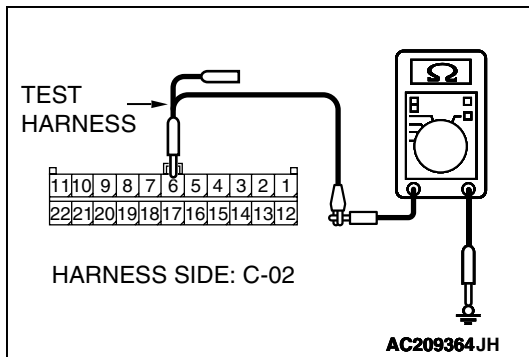
- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





- (4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 k Ω or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to P.54C-456.

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

CAUTION

The test wiring harness should be used. For details refer to P.54C-4.

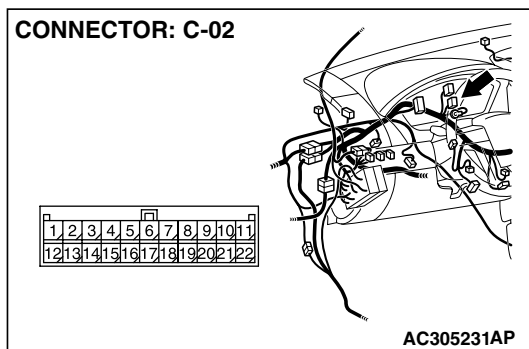
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

- (3) Disconnect the negative battery terminal.



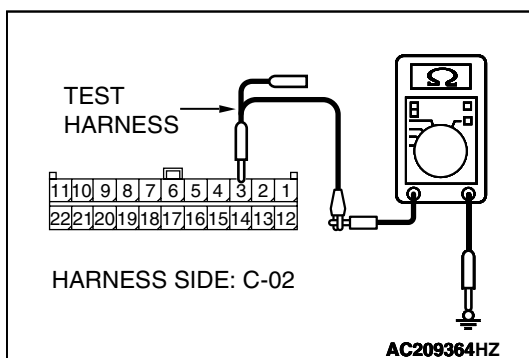
- (4) Measure the resistance between joint connector (3) terminal 3 and body ground.

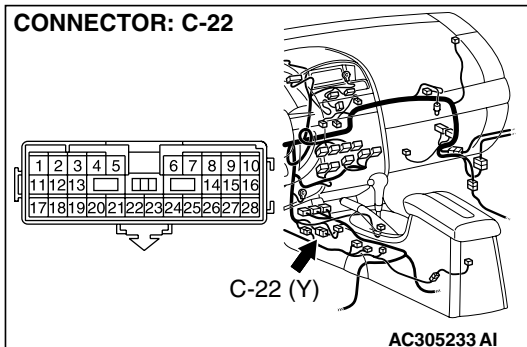
OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 21 .

NO : If the resistance measures less than 1 k Ω , go to Step 16.





STEP 16. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

YES : Go to Step 17.

NO : Repair the damaged parts.

STEP 17. Check the CAN_H-side bus line (communication line including ECUs) of the floor wiring harness for short to ground. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

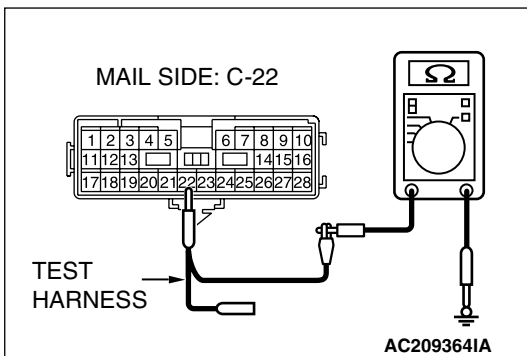
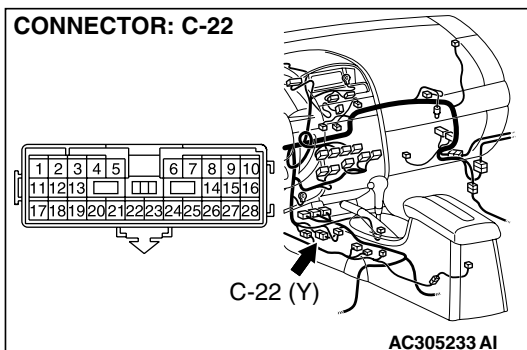
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



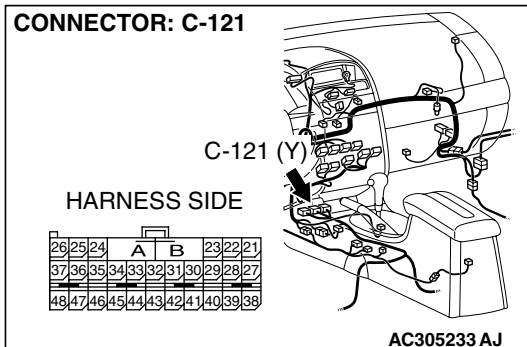
- (4) Measure the resistance between intermediate connector terminal 22 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 20 .

NO : If the resistance does not measure 1 kΩ or more, go to Step 18.



STEP 18. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 19.

NO : Repair the damaged parts.

STEP 19. Check the CAN_ H line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-22.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

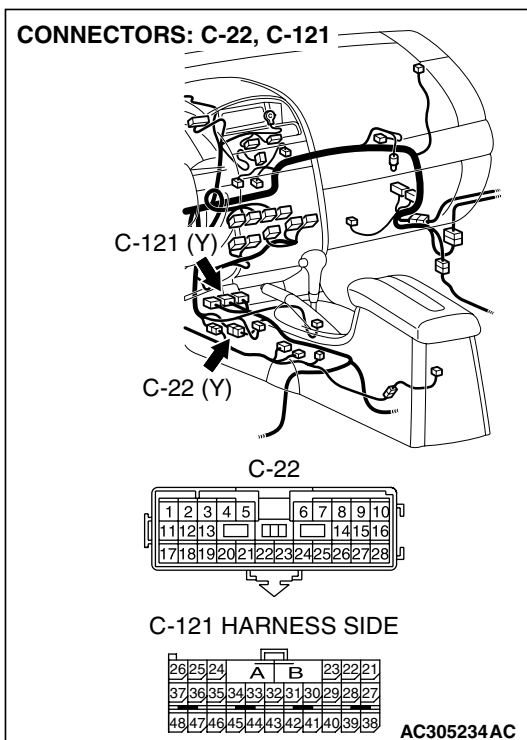
(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor wiring harness side).

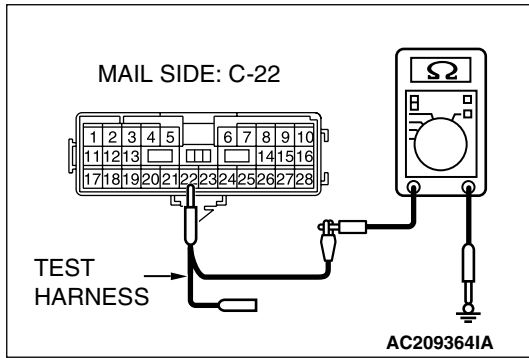
(2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 22 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and SRS-ECU connector.

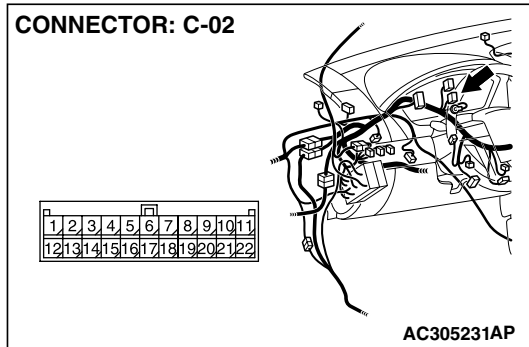
STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



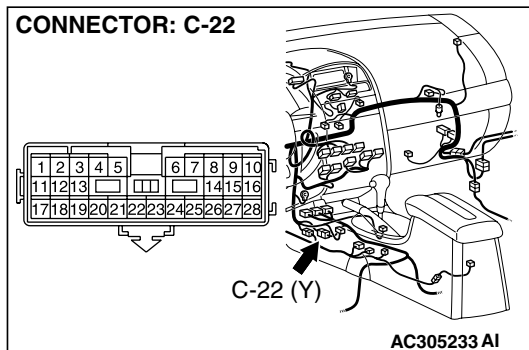
(1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

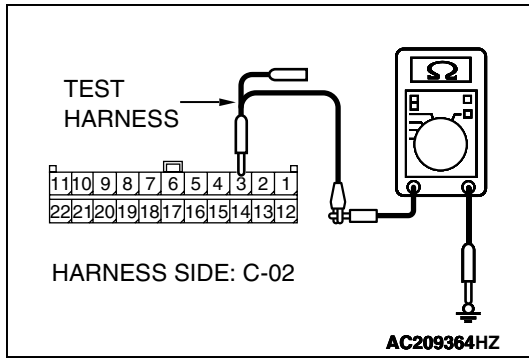
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





- (4) Measure the resistance between joint connector (3) terminals 3 and body ground.

OK: 1 k Ω or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the resistance measure 1 k Ω or more?

- YES :** If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to P.54C-456.
- NO :** If the resistance measures less than 1 k Ω , repair the wiring harness between intermediate connector C-22 and joint connector (3).

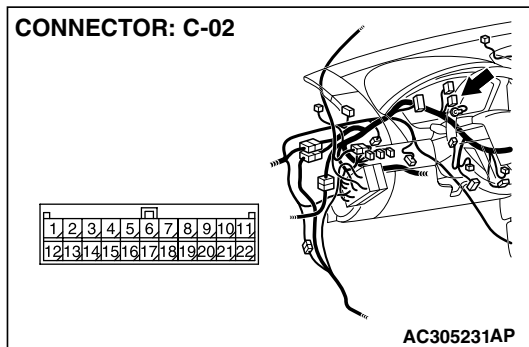
STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to P.54C-4.

CAUTION

The test wiring harness should be used. For details refer to P.54C-4.



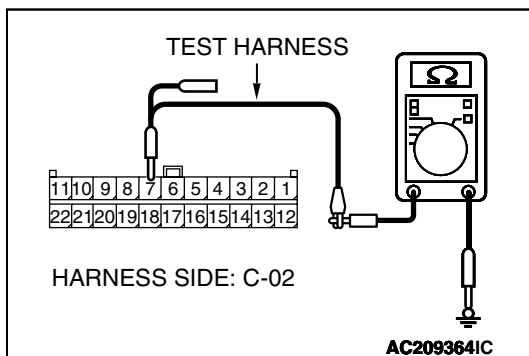
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 7 and body ground.

OK: 1 k Ω or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

Q: Does the resistance measure 1 k Ω or more?

- YES :** If the resistance measures 1 k Ω or more, go to Step 22 .
- NO :** If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

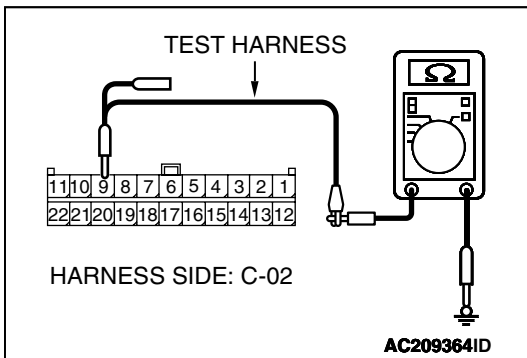
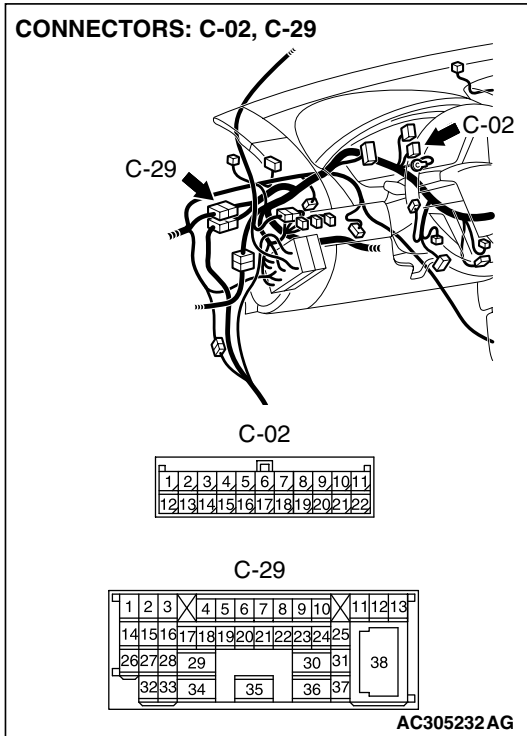
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 9 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).

STEP 23. Check the CAN_H line (communication line only) between intermediate connector and the powertrain control module connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

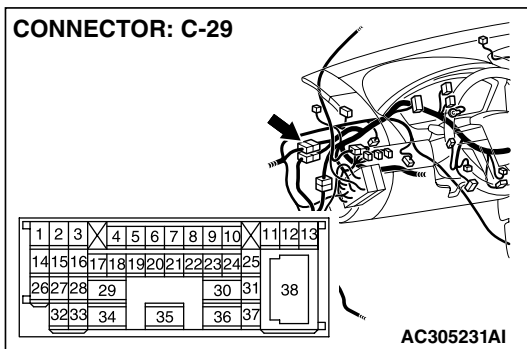
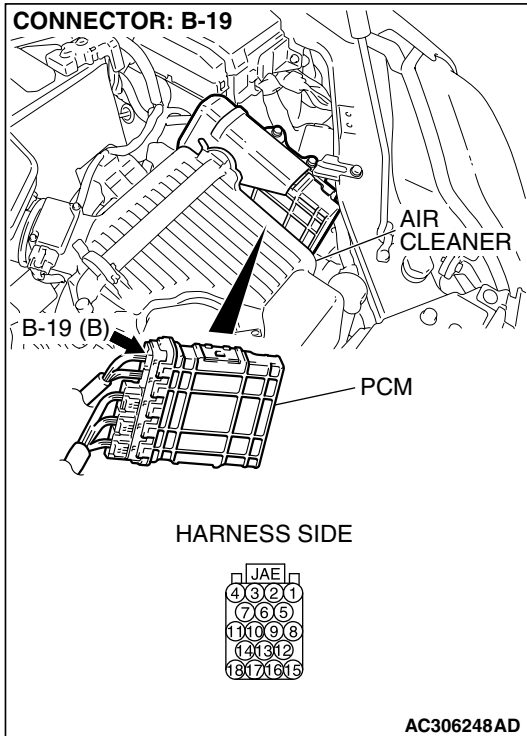
The test wiring harness should be used. For details refer to [P.54C-4](#).

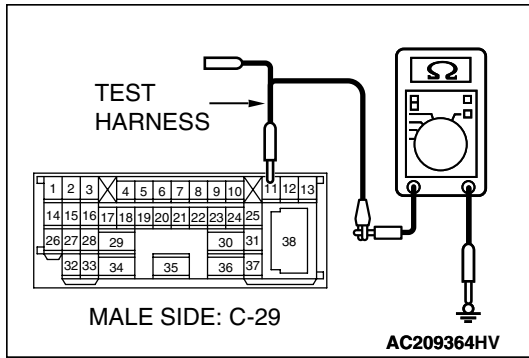
- (1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance at the wiring male side of intermediate connector C-29.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 11 and body ground.

OK: 1 kΩ or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector and the powertrain control module connector.

STEP 24. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

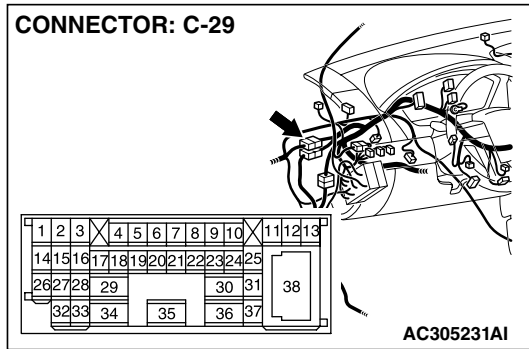
CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-29 in good condition?

YES : Go to Step 25.

NO : Repair the damaged parts.



STEP 25. Check the CAN_L-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

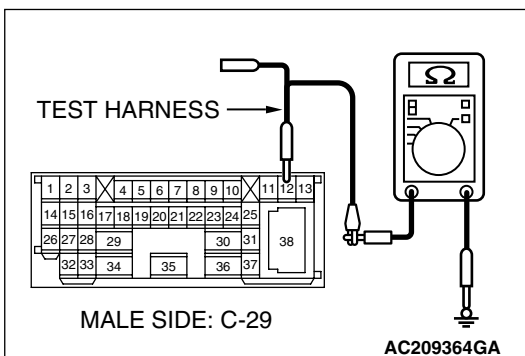
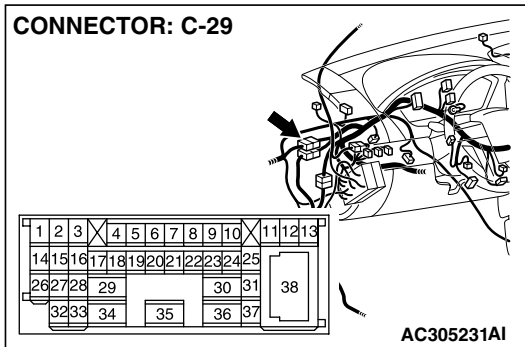
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between intermediate connector terminal 12 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

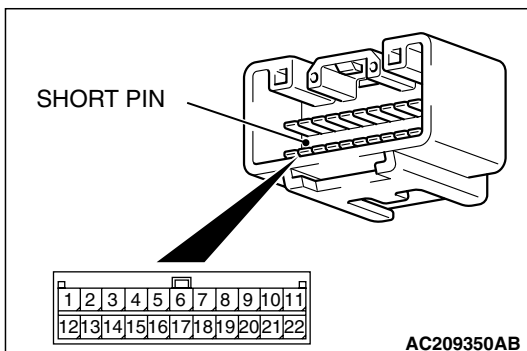
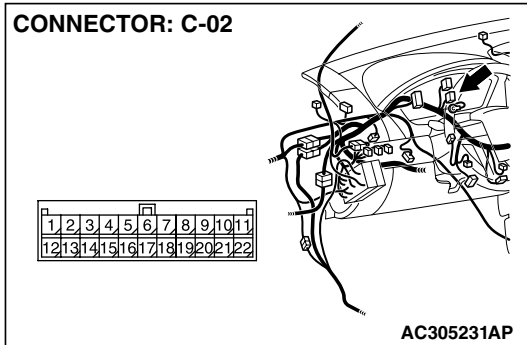
YES : If the resistance measures 1 kΩ or more, go to Step 26 .

NO : If the resistance measures less than 1 kΩ, go to Step 43 .

STEP 26. Check joint connector (3) C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).



Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 27.

NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 27. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4**.

⚠ CAUTION

The test wiring harness should be used. For details refer to **P.54C-4**.

(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to **P.54C-4**.

(3) Disconnect the negative battery terminal.

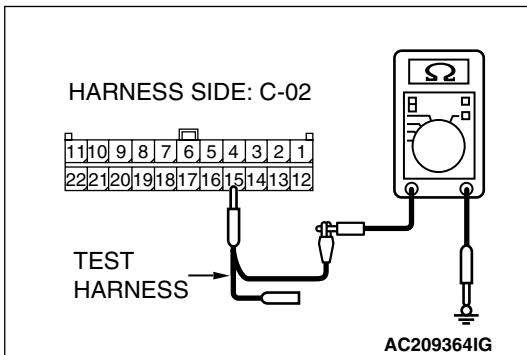
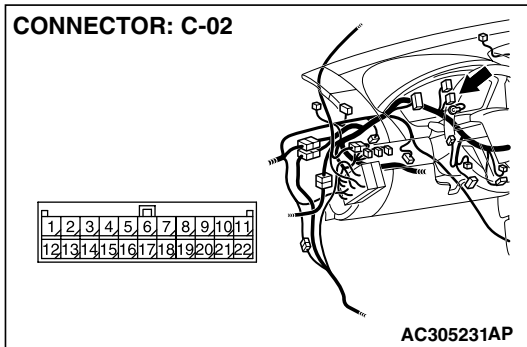
(4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 29 .

NO : If the resistance measures less than 1 kΩ, go to Step 28 .



STEP 28. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

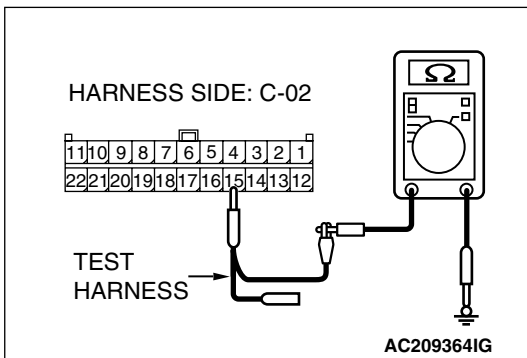
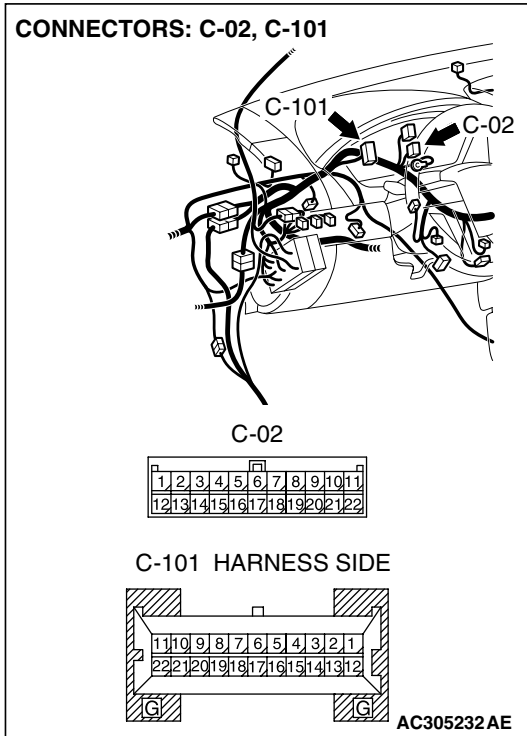
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 29. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.

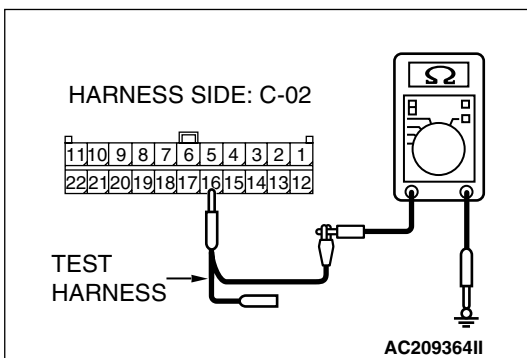
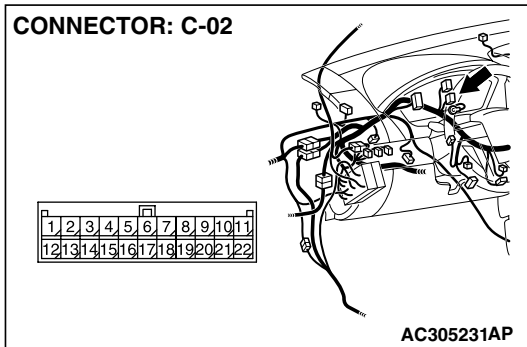
- (4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 32 .

NO : If the resistance measures less than 1 kΩ, go to Step 30 .



STEP 30. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

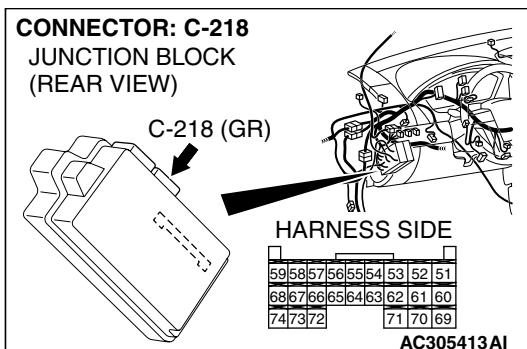
CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 31.

NO : Repair the damaged parts.



STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

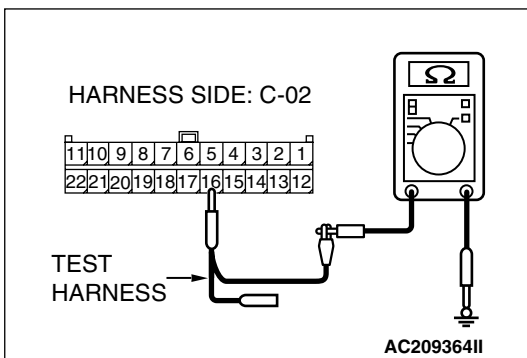
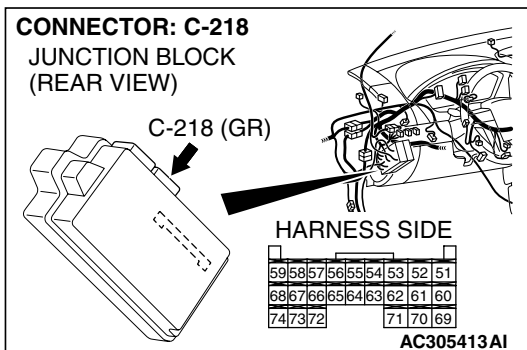
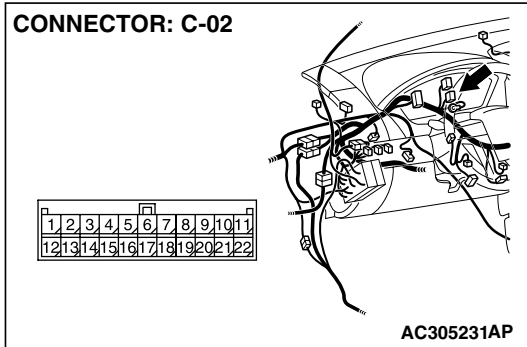
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 32. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.

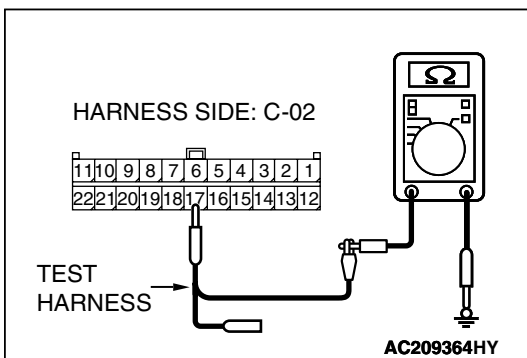
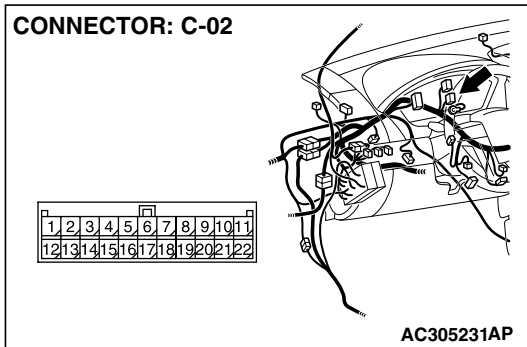
- (4) Measure the resistance between joint connector (3) terminal 17 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 35 .

NO : If the resistance measures less than 1 kΩ, go to Step 33 .



STEP 33. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

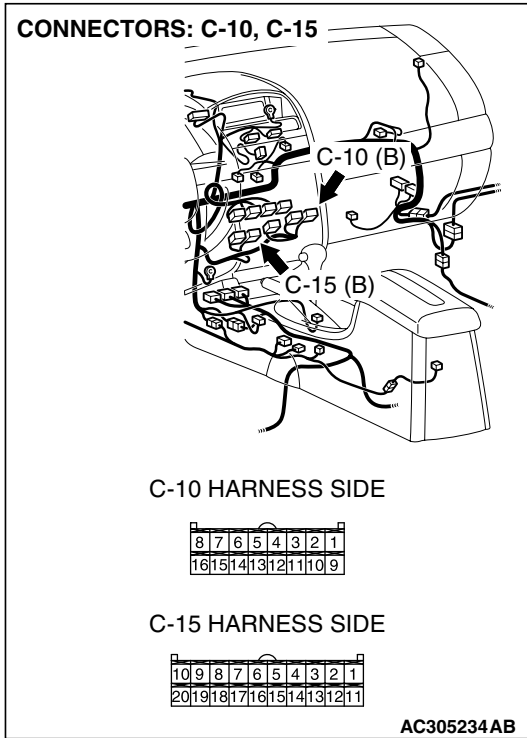
⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : Go to Step 34.

NO : Repair the damaged parts.



STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to **P.54C-4.**

⚠ CAUTION

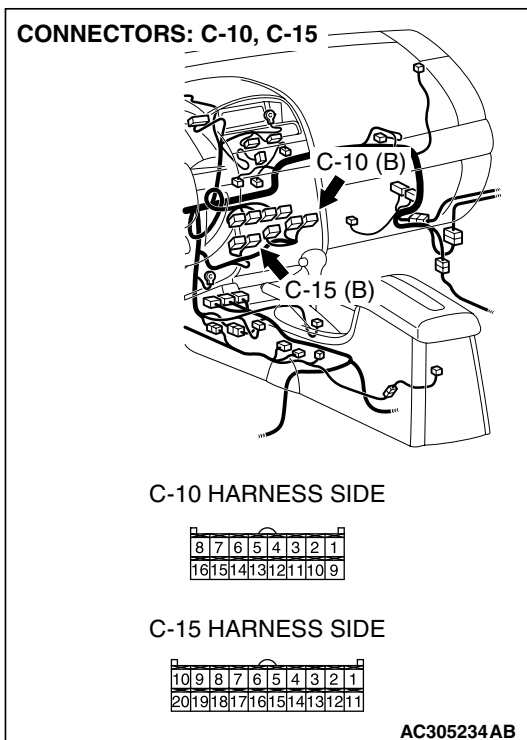
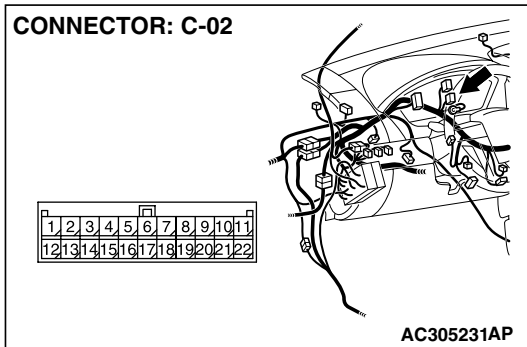
The test wiring harness should be used. For details refer to **P.54C-4.**

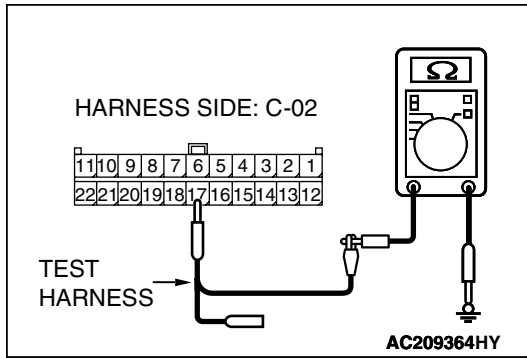
- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to **P.54C-4.**

- (3) Disconnect the negative battery terminal.





- (4) Measure the resistance between joint connector (3) terminal 17 and body ground.

OK: 1 kΩ or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 35. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

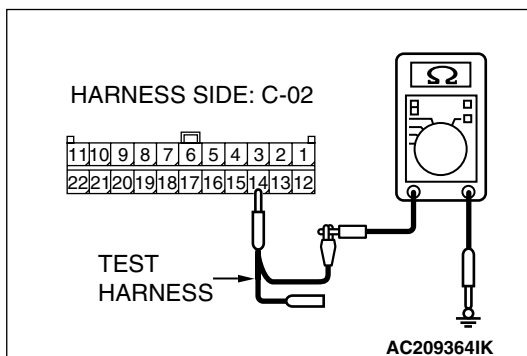
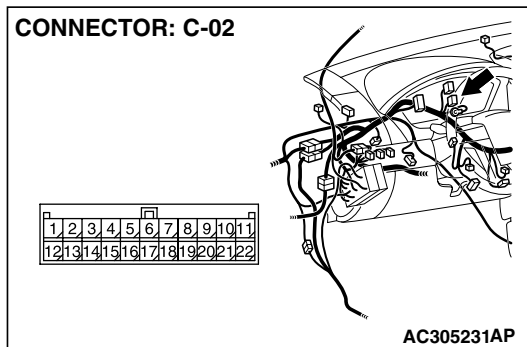
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



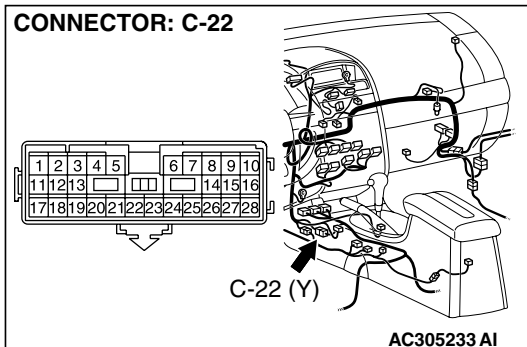
- (4) Measure the resistance between joint connector (3) terminals 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 41 .

NO : If the resistance measures less than 1 kΩ, go to Step 36.



STEP 36. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is intermediate connector C-22 in good condition?

YES : Go to Step 37.

NO : Repair the damaged parts.

STEP 37. Check the CAN_L-side bus line (communication line including ECUs) of the floor wiring harness for short to ground. Measure the resistance at intermediate connector C-22.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

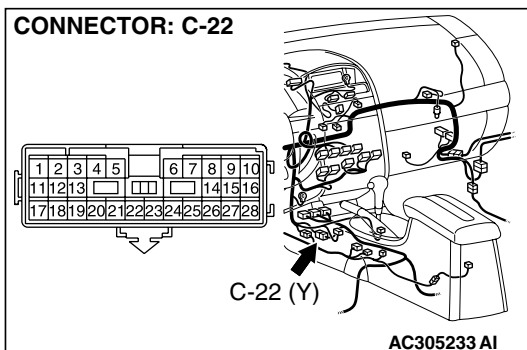
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



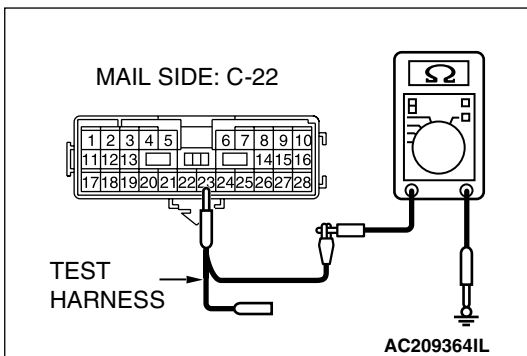
- (4) Measure the resistance between intermediate connector terminal 23 and body ground.

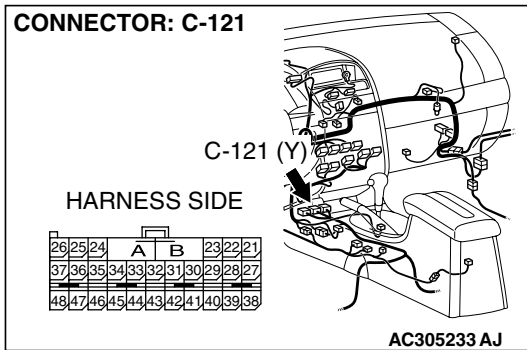
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 40 .

NO : If the resistance does not measure 1 kΩ or more, go to Step 38.





STEP 38. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

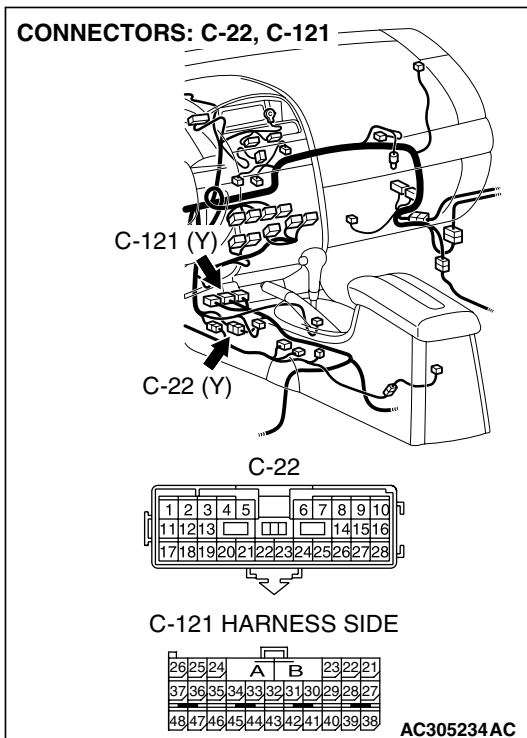
CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-4](#).

Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 39.

NO : Repair the damaged parts.



STEP 39. Check the CAN_L line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-22.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

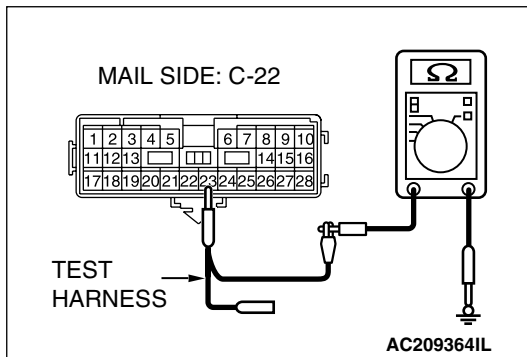
(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor wiring harness side).

(2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.



- (4) Measure the resistance between intermediate connector terminal 23 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and SRS-ECU connector.

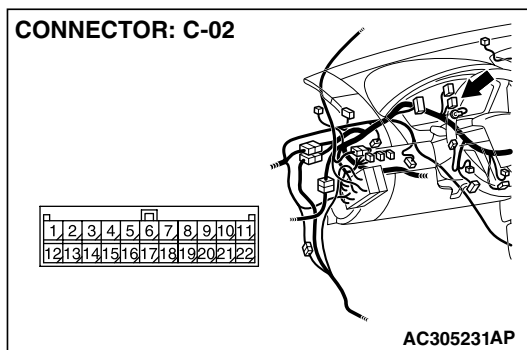
STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

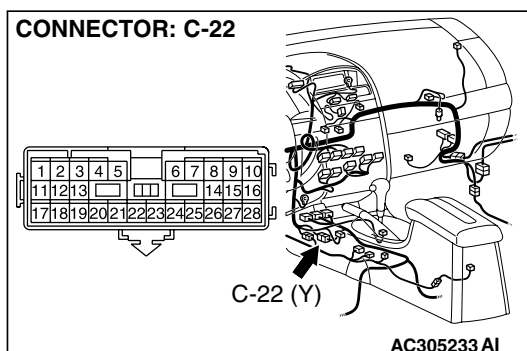


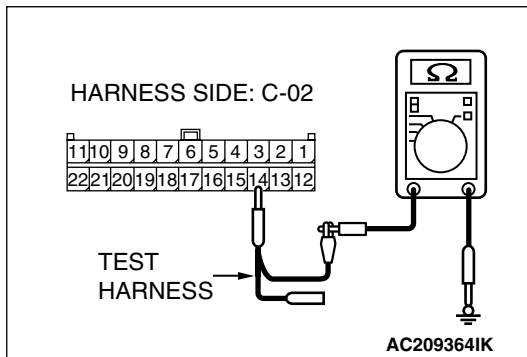
- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





- (4) Measure the resistance between joint connector (3) terminals 14 and body ground.

OK: 1 kΩ or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

- YES** : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).
- NO** : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and joint connector (3).

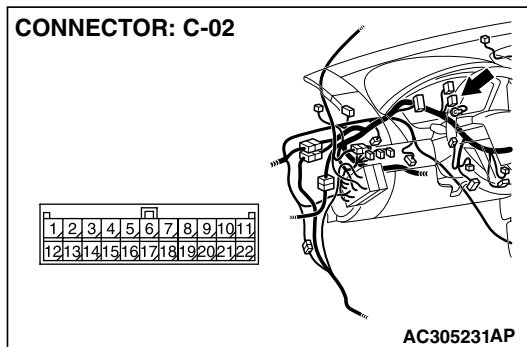
STEP 41. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).



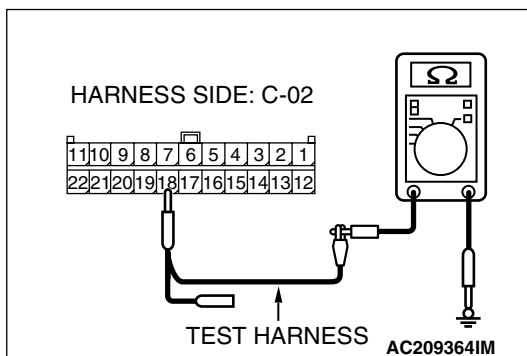
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 18 and body ground.

OK: 1 kΩ or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

- YES** : If the resistance measures 1 kΩ or more, go to Step 42 .
- NO** : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 42. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

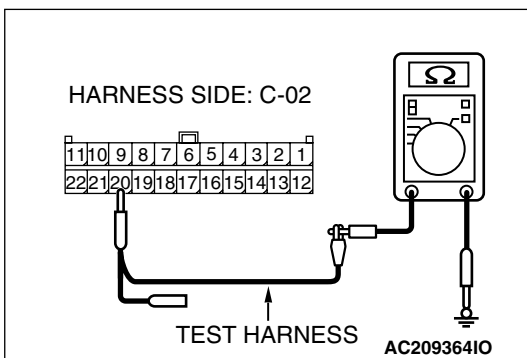
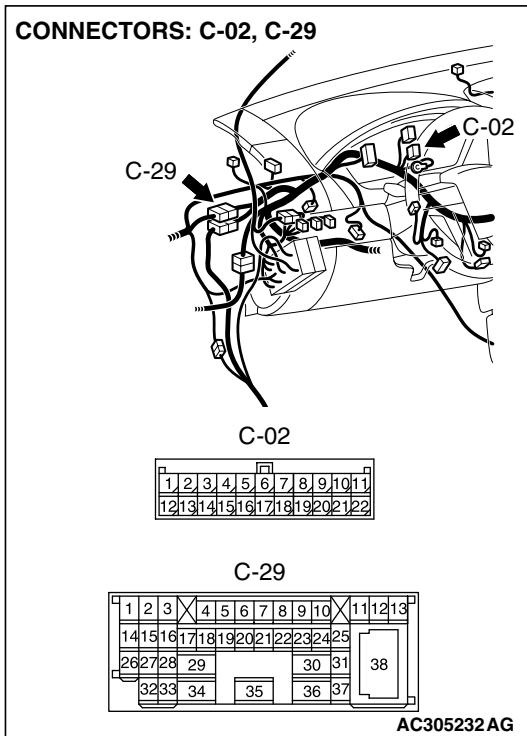
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.



- (4) Measure the resistance between joint connector (3) terminal 20 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).

STEP 43. Check the CAN_L line (communication line only) between intermediate connector and the powertrain control module connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

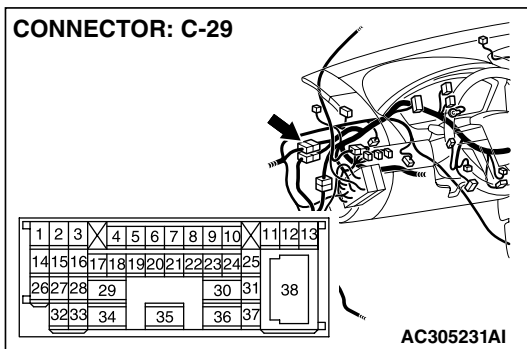
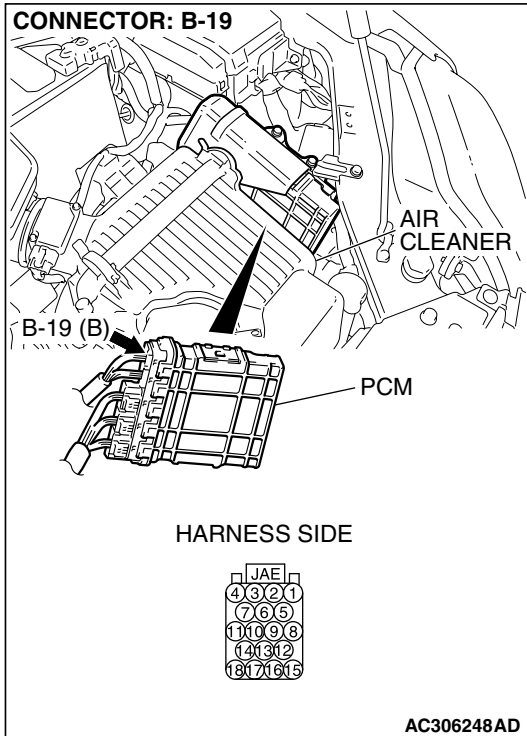
The test wiring harness should be used. For details refer to [P.54C-4](#).

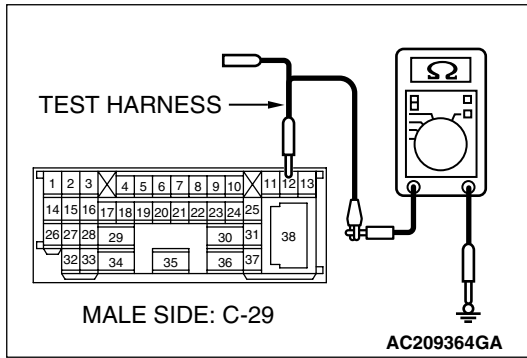
- (1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance at the wiring harness side of intermediate connector C-29.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 12 and body ground.

OK: 1 kΩ or more

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector and the powertrain control module connector.

NEXT>>