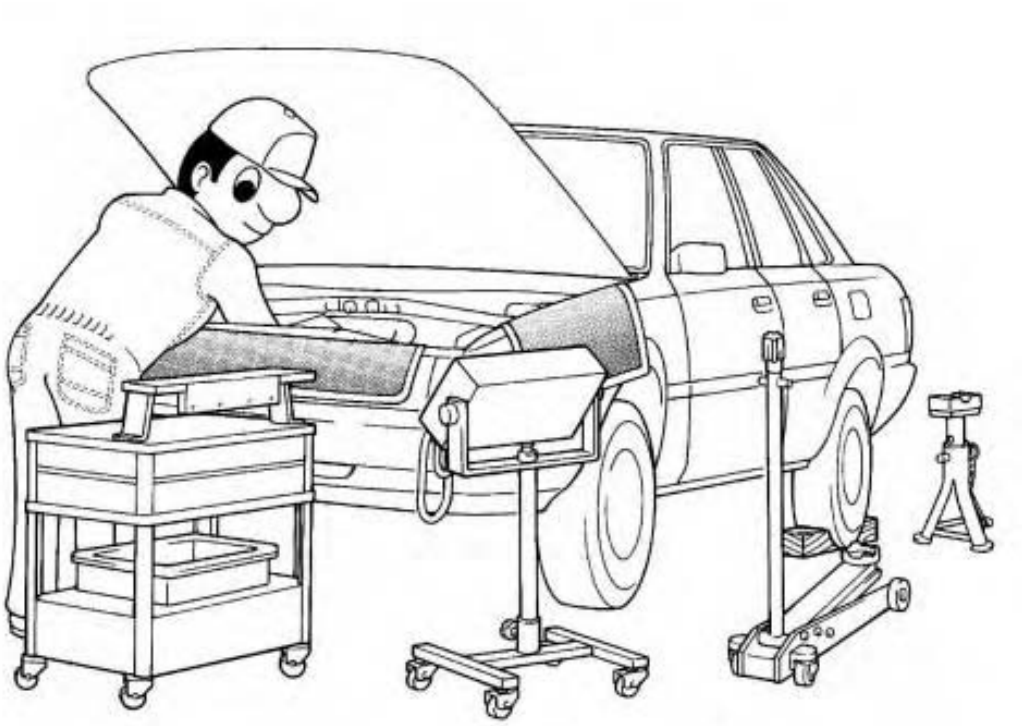
Repair Manual - MY2004 Supplement

For Vehicle Production August 2004



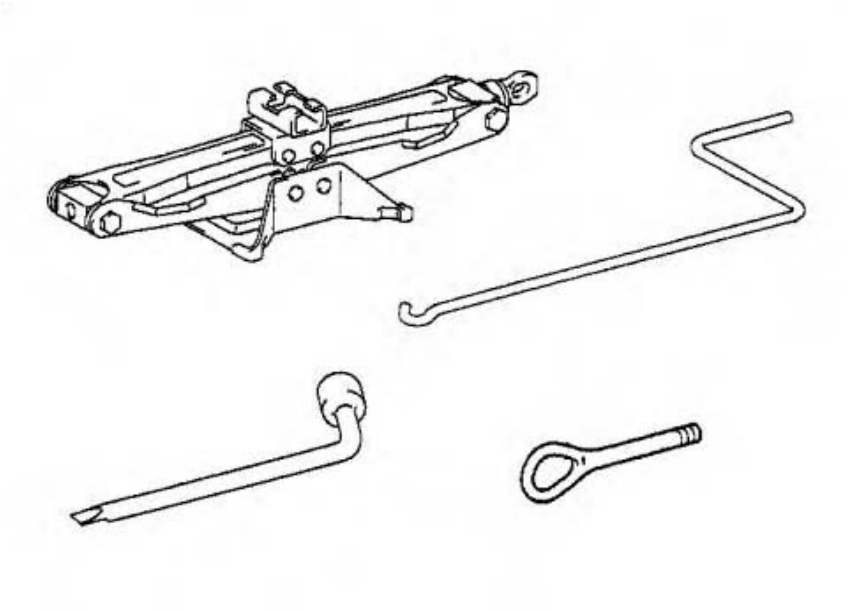
Section 1 – Introduction



GENERAL INFORAMATION

For information pertaining to the Section 1 Introduction please refer to the AC-RM033V2 Introduction section for relevant Information

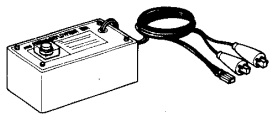
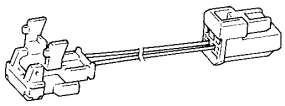
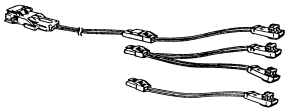
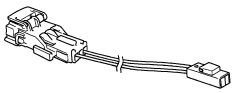
Section 2 – Preparation



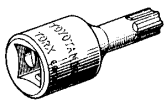
SUPPLEMENTAL RESTRAINT SYSTEM

PREPARATION

SST

	09082-00700	SRS Airbag Deployment Tool	HORN BUTTON ASSY
	09082-00760	Airbag Deployment Wire Sub-harness No.4	HORN BUTTON ASSY
	09082-00802	Airbag Deployment Wire Sub-Harness No. 8	HORN BUTTON ASSY
	(09082-10801)	Wire A	HORN BUTTON ASSY
	(09082-40800)	Wire D	HORN BUTTON ASSY

RECOMMENDED TOOLS

	09042-00010	Torx Socket T30	HORN BUTTON ASSY

EQUIPMENT

Torque wrench	
Feeler gauge	
Bolt Length: 35.0 mm (1.378 in) Pitch: 1.0 mm (0.039 in) Diameter: 6.0 mm (0.236 in)	Airbag disposal
Tire Width: 185 mm (7.28 in) Inner diameter: 360 mm (14.17 in)	Airbag disposal
Tire with disc wheel Width: 185 mm (7.28 in) Inner diameter: 360 mm (14.17 in)	Airbag disposal
Plastic bag	Airbag disposal

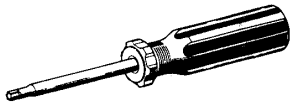
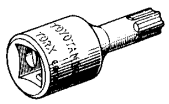
LIGHTING
PREPARATION

White paper	
Clip remover	

AUDIO & VISUAL SYSTEM

PREPARATION

RECOMMENDED TOOLS

	09041-00030	Torx Driver T30	STEERING PAD SWITCH LH
	09042-00010	Torx Socket T30	STEERING PAD SWITCH LH

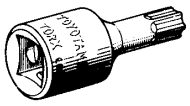
EQUIPMENT

Torque wrench	

WINDSHIELD/WINDOW GLASS/MIRROR

PREPARATION

RECOMMENDED TOOLS

	09042-00030	Torx Socket T20	INNER REAR VIEW MIRROR ASSY

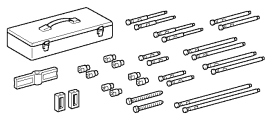
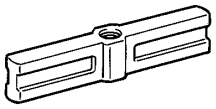
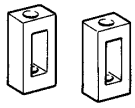
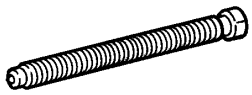
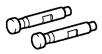
EQUIPMENT

Torque wrench	
Battery	
Black tape	

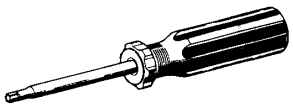
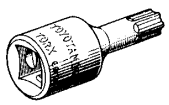
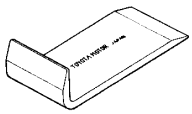
INSTRUMENT PANEL/METER

PREPARATION

SST

	09950-50013	Puller C Set	INSTRUMENT PANEL SAFETY PAD SUB-ASSY
	(09951-05010)	Hanger 150	INSTRUMENT PANEL SAFETY PAD SUB-ASSY
	(09952-05010)	Slide Arm	INSTRUMENT PANEL SAFETY PAD SUB-ASSY
	(09953-05020)	Centre Bolt 150	INSTRUMENT PANEL SAFETY PAD SUB-ASSY
	(09954-05021)	Claw No.2	INSTRUMENT PANEL SAFETY PAD SUB-ASSY

RECOMMENDED TOOLS

	09041-00030	Torx Driver T30	INSTRUMENT PANEL SAFETY PAD SUB-ASSY
	09042-00010	Torx Socket T30	INSTRUMENT PANEL SAFETY PAD SUB-ASSY
	09070-20010	Moulding Remover	INSTRUMENT PANEL SAFETY PAD SUB-ASSY

EQUIPMENT

Torque wrench	
Tape	To avoid surface damage

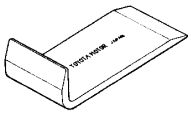
EXTERIOR/INTERIOR TRIM

PREPARATION

SST

	09244-01010	Angle Gauge	NAME PLATE

RECOMMENDED TOOLS

	09070-20010	Moulding Remover	BACK DOOR GARNISH SUB-ASSY OUTSIDE

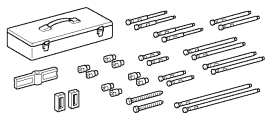
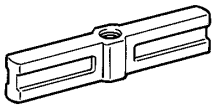
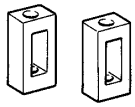
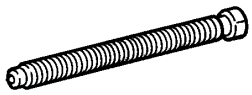
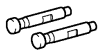
EQUIPMENT

Torque wrench	

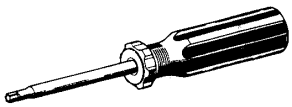
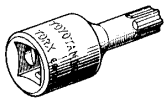
CRUISE CONTROL

PREPARATION

SST

	09950-50013	Puller C Set	CRUISE CONTROL MAIN SWITCH ASSY
	(09951-05010)	Hanger 150	CRUISE CONTROL MAIN SWITCH ASSY
	(09952-05010)	Slide Arm	CRUISE CONTROL MAIN SWITCH ASSY
	(09953-05020)	Centre Bolt 150	CRUISE CONTROL MAIN SWITCH ASSY
	(09954-05021)	Claw No.2	CRUISE CONTROL MAIN SWITCH ASSY

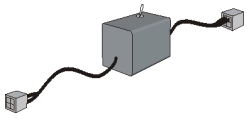
RECOMMENDED TOOLS

	09041-00030	Torx Driver T30	CRUISE CONTROL MAIN SWITCH ASSY
	09042-00010	Torx Socket T30	CRUISE CONTROL MAIN SWITCH ASSY

EQUIPMENT

Torque wrench	

TOYOTA LINK
PREPARATION
SST

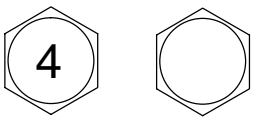
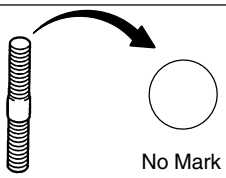
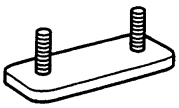
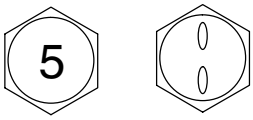
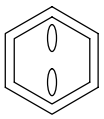
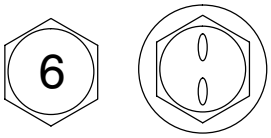
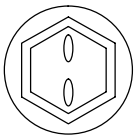
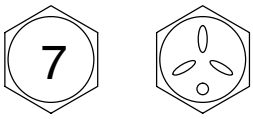
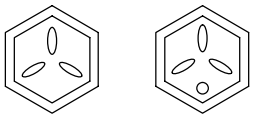
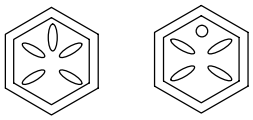
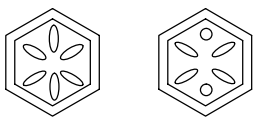
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	Connector Cable	Toyota Link
	Toyota Link Software	Toyota Link

Section 3 – Service Specifications



STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

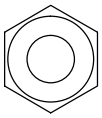
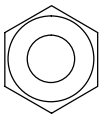
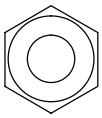
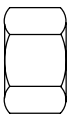
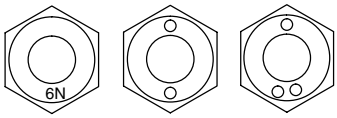
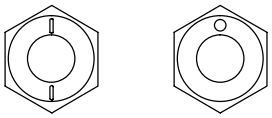
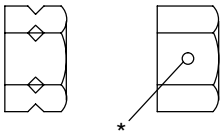
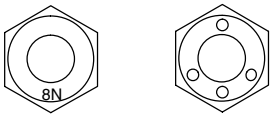
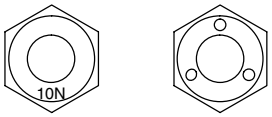
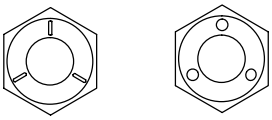
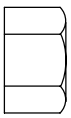
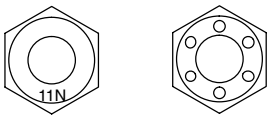
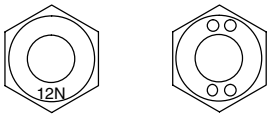
Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
 No Mark	 No Mark	 No Mark		4T
				5T
 w/ Washer	 w/ Washer			6T
				7T
				8T
				9T
				10T
				11T

B06431

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N m	kgf cm	lbf ft	N·m	kgf·cm	lbf ft
4T	6	1	5	55	48 lbf in	6	60	52 lbf in
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	-	-	-
5T	6	1	6.5	65	56 lbf in	7.5	75	65 lbf in
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	-	-	-
6T	6	1	8	80	69 lbf in	9	90	78 lbf in
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	-	-	-
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	-	-	-
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

HOW TO DETERMINE NUT STRENGTH

Nut Type			Class
Present Standard Hexagon Nut	Old Standard Hexagon Nut		
	Cold Forging Nut	Cutting Processed Nut	
 No Mark			4N
 No Mark (w/ Washer)	 No Mark (w/ Washer)	 No Mark	5N (4T)
 6N			6N
		 *	7N (5T)
 8N			8N
 10N		 No Mark	10N (7T)
 11N			11N
 12N			12N

*: Nut with 1 or more marks on one side surface of the nut.

B06432

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

Example: Bolt = 4T

Nut = 4N or more

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATION

Part Tightened	N m	kgf cm	lbf ft
Horn button assy x Steering wheel assy	8.8	90	78 lbf in
Steering wheel assy x Steering column assy	50	510	37
Curtain shield airbag assy x Body	9.8	100	7
Airbag ECU assy x Body	17.5	179	13
Airbag sensor front x Body	17.5	179	13

WINDSHIELD/WINDOWGLASS/MIRROR

TORQUE SPECIFICATION

Part Tightened	N m	kgf cm	lbf ft
INNER REAR VIEW MIRROR ASSY			
Inner rear view mirror assy x windowglass	1.8	18	16 lbf in

INSTRUMENT PANEL/METER

TORQUE SPECIFICATION

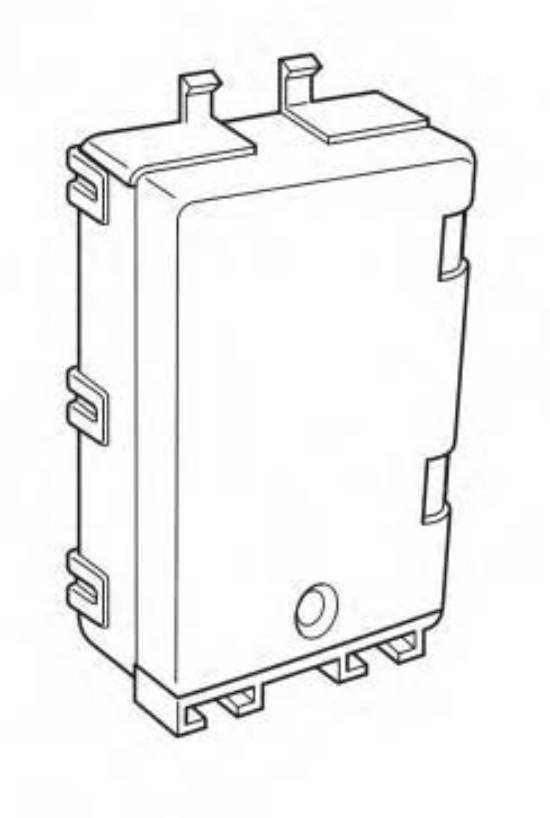
Part Tightened	N m	kgf cm	lbf ft
Instrument Panel Reinforcement × Passenger Airbag	20	204	15

EXTERIOR/INTERIOR TRIM

TORQUE SPECIFICATION

Part Tightened	N m	kgf cm	lbf ft
Front bumper reinforcement sub-assy upper x Body	8.5	87	75 lbf in
Front bumper reinforcement x Body	34	347	25

Section 5 – Diagnostics



SUPPLEMENTAL RESTRAINT SYSTEM

PRECAUTION

HANDLING PRECAUTIONS FOR THE AIRBAG SENSOR

HINT:

In this section, the airbag sensor assembly centre, airbag sensor front LH, airbag sensor front RH, side airbag sensor assembly LH and side airbag sensor assembly RH are collectively referred to as the airbag sensor.

(a) Before starting the following operations, wait for at least 90 seconds after disconnecting the negative (-) battery terminal:
  (1) Replacement of the airbag sensor.
  (2) Adjustment of the front doors of the vehicle equipped with the side airbag.

(b) When connecting or disconnecting the airbag sensor connector, ensure that each sensor is installed in the vehicle.

(c) Do not use an airbag sensor which has been dropped during an operation or transportation.

(d) Do not disassemble the airbag sensor.

INSPECTION PROCEDURE FOR A VEHICLE INVOLVED IN ACCIDENT

(a) When the airbag has not deployed, confirm the DTC by checking the SRS warning light. If there is any malfunction in the SRS airbag system, troubleshoot the system.

(b) When any of the airbags have deployed, replace the airbag sensor and check the installation condition.

HOW TO PROCEED WITH TROUBLESHOOTING

The intelligent tester II can be used at step 3, 4, 6, 9 and 10.

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	CUSTOMER PROBLEM ANALYSIS, see Pub No. AC-RM033V1, page 05-463

NEXT

3	WARNING LIGHT CHECK, see page 05-4

NEXT

4	DTC CHECK (Present and Past DTC), see page 05-4

	DTC IS OUTPUT (INCLUDING NORMAL SYSTEM CODE): Go to step 5
	DTC IS NOT OUTPUT: SEE PROBLEM SYMPTOMS TABLE, see Pub No. AC-RM033V1, page 05-475

5	DTC CHART, see page 05-10

NEXT

6	CIRCUIT INSPECTION, see Pub No. AC-RM033V1, page 05-476 to 05-585 and 05-14 to 05-39)

NEXT

7	REPAIR

NEXT

8	CLEAR DTC (Present and Past DTCs), see page 05-4

NEXT

9	DTC CHECK, see page 05-4

- DTC IS NOT OUTPUT: Go to step 10
- WARNING LIGHT IS ON: Go to step 5

10	SYMPTOM SIMULATION, see Pub No. AC-RM033V1, page 05-476

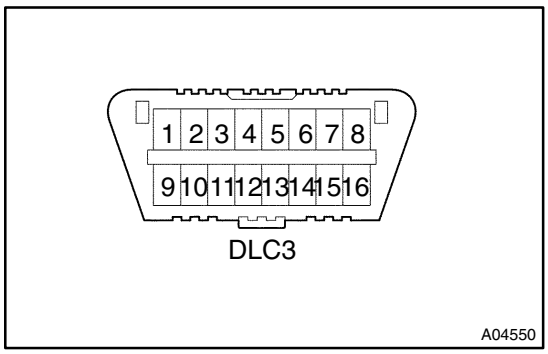
- WARNING LIGHT REMAINS OFF: Go to step 11
- DTC IS OUTPUT: Go to step 5

11	CONFIRMATION TEST

NEXT

END

PRE-CHECK



1. CHECK DLC3

(a) The vehicle's ECU conforms to ISO 9141-2 for communication protocol. The terminals arrangement of the DLC3 complies with ISO 15031-3 and meets the ISO 9141-2 format.

Terminal No.	Connection/Voltage or Resistance	Condition
7	Bus + Line/Pulse generation	During Transmission
4	Chassis Ground - Body Ground/Below 1 Ω	Always
16	Battery Positive - Body Ground/10 - 14 V	Always

HINT:

If the display shows UNABLE TO CONNECT TO VEHICLE, when connecting the cable of the intelligent tester II to the DLC3, turning the ignition switch to the ON position, or operating the intelligent tester II, there is a problem with the vehicle or tool.

- If communication is normal when the tool is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tool itself. Consult the Service Department listed in the tool's instruction manual.

2. FUNCTION OF THE SRS WARNING LIGHT

(a) Primary check.

(1) Turn the ignition switch to the LOCK position. Wait for at least 2 seconds, then turn the ignition switch to the ON position. The SRS warning light comes on for approximately 6 seconds and the SRS airbag system diagnosis (including the seat belt pretensioner) is performed.

HINT:

If trouble is detected during the primary check, the SRS warning light remains on or blinks even after the primary check period (for approximately 6 seconds) has elapsed.

(b) Constant check.

(1) After the primary check, the airbag sensor assembly centre constantly monitors the SRS airbag system for trouble.

HINT:

If trouble is detected during the constant check, the airbag sensor assembly centre functions as follows.

- The SRS warning light comes on or blinks.
- The SRS warning light comes on, and then goes off. This blinking pattern indicates a source voltage drop. The SRS warning light turns off 10 seconds after the source voltage returns to normal.

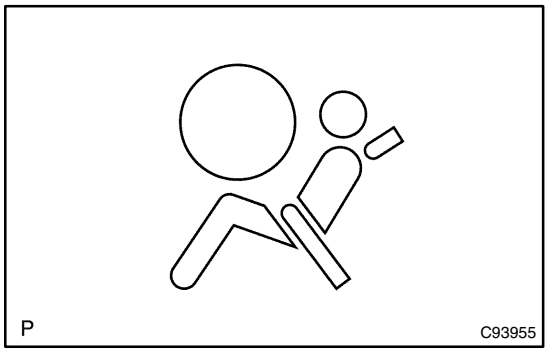
(c) Review.

(1) When the airbag system is normal:
The SRS warning light comes on only for the primary check period (for approximately 6 seconds after the ignition switch is turned to the ON position).

(2) When the airbag system has trouble:

- The SRS warning light remains on or blinks even after the primary check period has elapsed.
- The SRS warning light goes off after the primary check, but comes on or blinks again during the constant check.
- The SRS warning light does not come on when turning the ignition switch from the LOCK to ON position.

HINT:
The airbag sensor assembly centre keeps the SRS warning light on if the airbag has been deployed .



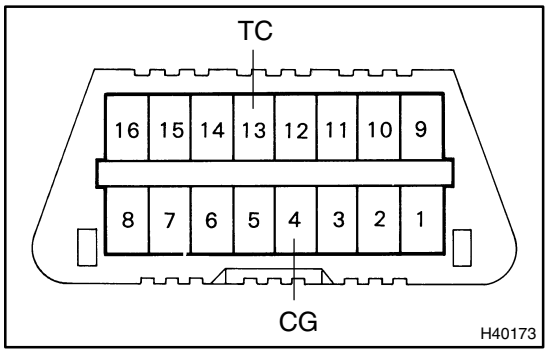
(d) Check the SRS warning light.

(1) Turn the ignition switch to the ON position, and check that the SRS warning light turns on for approximately 6 seconds (primary check).

(2) Check that the SRS warning light turns off approximately 6 seconds after the ignition switch is turned to the ON position (constant check).

HINT:
When any of the following symptom occurs, refer to the “Problem Symptoms Table”, see **Pub No. AC-RM033V1, page 05-475.**

- The SRS warning light comes on occasionally, after the primary check period has elapsed.
- The SRS warning light comes on, but a DTC is not output.
- The ignition switch is turned from the LOCK to the ON position, but the SRS warning light does not come on.



3. DTC CHECK (USING SST CHECK WIRE)

(a) Output the DTCs (Present trouble code).

(1) Turn the ignition switch to the ON position, and wait for approximately 60 seconds.

(2) Using the SST, connect the terminals TC and CG of the DLC3.

SST 09843-18040

NOTICE:

Pay attention to the terminal connection location to avoid causing a malfunction.

(b) Output the DTCs (Past trouble code).

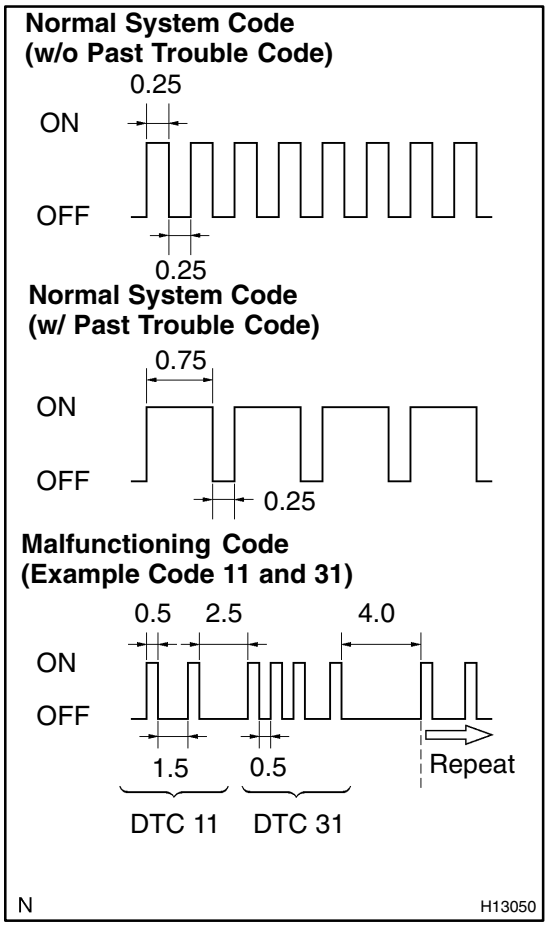
(1) Using SST, connect the terminals TC and CG of the DLC3.

SST 09843-18040

NOTICE:

Pay attention to the terminal connection location to avoid causing a malfunction.

(2) Turn the ignition switch to the ON position, and wait for approximately 60 seconds.



(c) Read the DTCs.

(1) Read the blinking patterns of the DTCs. Examples, the blinking patterns for normal system code, code 11 and code 31 are shown in the illustration to the left.

- Normal system code indication (w/o past trouble code)
  The light blinks twice per second.
- Normal system code indication (w/ past trouble code)
  When the past trouble code is stored in the airbag sensor assembly centre, the light blinks only once a second.
- Malfunction code indication
  The first blinking indicates the first DTC. The seconds blinking occurs after a 1.5-second pause.

If there are 2 or more codes, there will be a 2.5-second pause between each code. After all codes are shown, there will be a 4.0-second pause, and they will all be repeated.

HINT:

If 2 or more malfunctions are found, the codes begin with the smaller numbered code.

(d) Clear the DTCs.

(1) When the ignition switch is turned OFF, the DTCs are cleared.

HINT:

Depending on the DTC, the code may not be cleared by turning off the ignition switch. In this case, proceed to the next procedure.

(2) Using an SST, connect the TC and CG of the DLC3, and then turn the ignition switch to the ON position.
09843-18040

(3) Disconnect the TC terminal of the DLC3 within 3 to 10 seconds after the DTCs are output, and check if the SRS warning light comes on after 3 seconds.

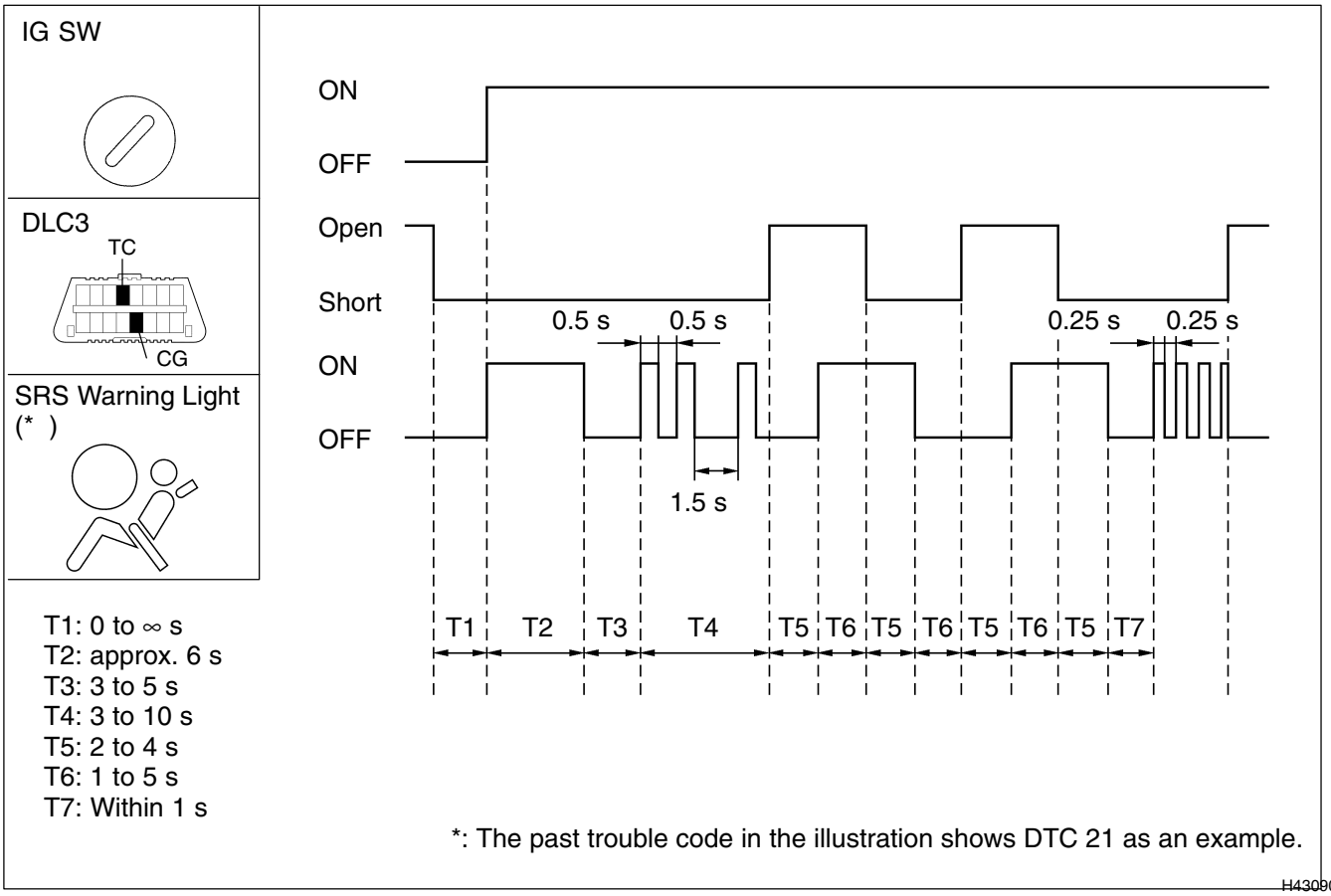
(4) Within 2 to 4 seconds after the SRS warning light comes on, re-connect the TC and CG of the DLC3.

(5) The SRS warning light should go off within 2 to 4 seconds after connecting the TC and CG of the DLC3. Then, disconnect the TC terminal within 2 to 4 seconds after the SRS warning light goes off.

(6) The SRS warning light comes on again within 2 to 4 seconds after disconnecting the TC terminal. Then, re-connect terminals TC and CG within 2 to 4 seconds after the SRS warning light comes on, connect the TC and CG of the DLC3.

(7) Check if the SRS warning light turns off after 2 to 4 seconds after connecting the TC and CG of the DLC3, and the normal code is output within 1 second after the SRS warning light turns off.

If DTCs are not cleared, repeat procedure (d) until the codes are cleared.



4. DTC CHECK (USING INTELLIGENT TESTER II)

(a) Output the DTCs.

(1) Connect the intelligent tester II to the DLC3.

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

(3) Check the DTCs by following the prompts on the tester screen.

HINT:

Refer to the intelligent tester II operator's manual for further details.

(b) Clear the DTCs.

(1) Connect the intelligent tester II to the DLC3.

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

(3) Clear the DTCs by following the prompts on the tester screen.

HINT:

Refer to the intelligent tester II operator's manual for further details.

5. RELEASE METHOD OF THE ACTIVATION PREVENTION MECHANISM

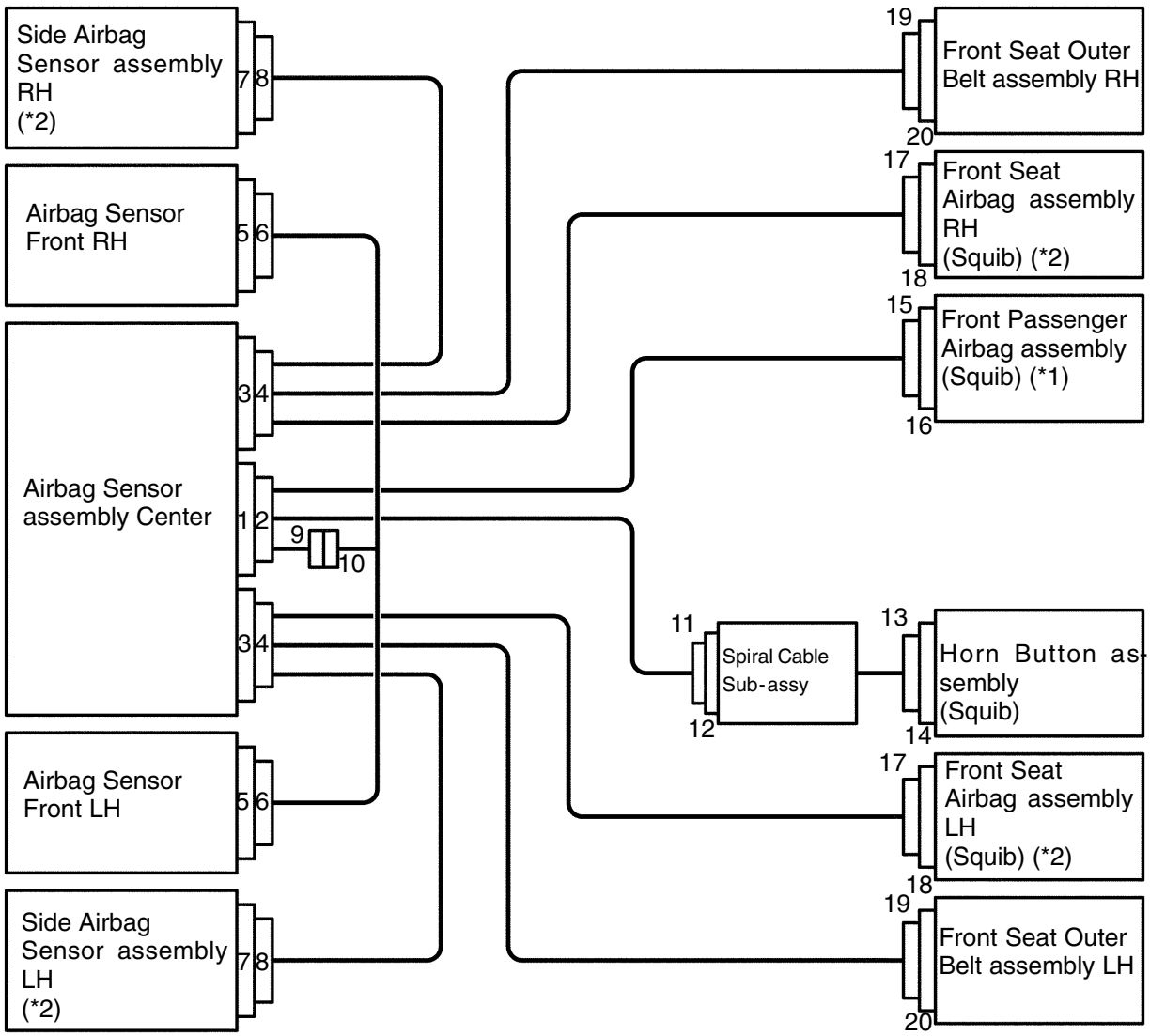
(a) The activation prevention mechanism is built into the connector for the squib circuit of the SRS. As explained in the troubleshooting section, insert a piece of paper that is the same thickness as the male terminal between the terminal and the short spring to release it (Refer to illustrations on the next 2 pages).

CAUTION:

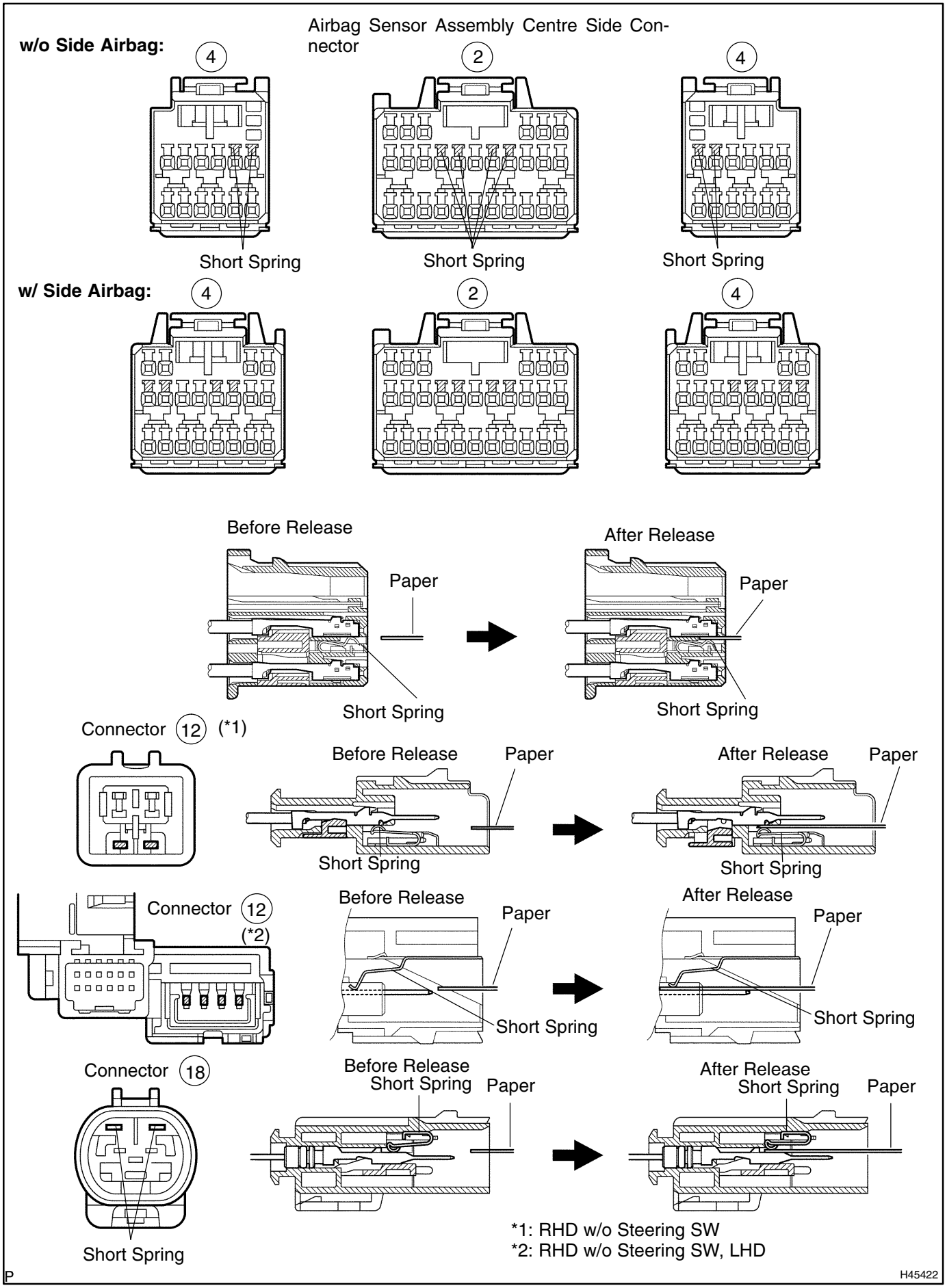
Never release the activation prevention mechanism on the squib connector.

NOTICE:

- **Do not release the airbag activation prevention mechanism unless specially directed by the troubleshooting procedure.**
- **To prevent the terminal and the short spring from becoming damaged, always use a piece of paper that is the same thickness as the male terminals.**



*1: w/ Front Passenger Airbag
*2: w/ Side Airbag


w/o Side Airbag:
Airbag Sensor Assembly Centre Side Connector
4
2
4
Short Spring
Short Spring
Short Spring
w/ Side Airbag:
4
2
4
Before Release
After Release
Paper
Paper
Short Spring
Short Spring
Connector 12 (*1)
Before Release
Paper
After Release
Paper
Short Spring
Short Spring
Connector 12 (*2)
Before Release
Paper
After Release
Paper
Short Spring
Short Spring
Connector 18
Before Release
Short Spring
Paper
After Release
Short Spring
Paper
Short Spring
*1: RHD w/o Steering SW
*2: RHD w/o Steering SW, LHD
P
H45422

DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit listed for the code in the table below (Proceed to the page listed for that circuit).

DTC No. (See page)	Detection Item	Trouble Area	SRS Warning Light
B0100/13 (05-14)	Short in D squib circuit	• Horn button assembly (squib) • Spiral cable sub-assy • Airbag sensor assembly centre • Instrument panel wire	ON
B0101/14 (05-18)	Open in D squib circuit	• Horn button assembly (squib) • Spiral cable sub-assy • Airbag sensor assembly centre • Instrument panel wire	ON
B0102/11 (05-22)	Short in D squib circuit (to ground)	• Horn button assembly (squib) • Spiral cable sub-assy • Airbag sensor assembly centre • Instrument panel wire	ON
B0103/12 (05-26)	Short in D squib circuit (to B+)	• Horn button assembly (squib) • Spiral cable sub-assy • Airbag sensor assembly centre • Instrument panel wire	ON
B0105/53 (*1) (05-30)	Short in P squib circuit	• Front passenger airbag assembly (squib) • Airbag sensor assembly centre • Instrument panel wire	ON
B0106/54 (*1) (05-33)	Open in P squib circuit	• Front passenger airbag assembly (squib) • Airbag sensor assembly centre • Instrument panel wire	ON
B0107/51 (*1) (05-36)	Short in P squib circuit (to ground)	• Front passenger airbag assembly (squib) • Airbag sensor assembly centre • Instrument panel wire	ON
B0108/52 (*1) (05-39)	Short in P squib circuit (to B+)	• Front passenger airbag assembly (squib) • Airbag sensor assembly centre • Instrument panel wire	ON
B0110/43 (*2) (★)	Short in side squib (RH) circuit	• Front seat airbag assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0111/44 (*2) (★)	Open in side squib (RH) circuit	• Front seat airbag assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0112/41 (*2) (★)	Short in side squib (RH) circuit (to ground)	• Front seat airbag assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0113/42 (*2) (★)	Short in side squib (RH) circuit (to B+)	• Front seat airbag assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0115/47 (*2) (★)	Short in side squib (LH) circuit	• Front seat airbag assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0116/48 (*2) (★)	Open in side squib (LH) circuit	• Front seat airbag assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0117/45 (*2) (★)	Short in side squib (LH) circuit (to ground)	• Front seat airbag assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0118/46 (*2) (★)	Short in side squib (LH) circuit (to B+)	• Front seat airbag assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0130/63 (★)	Short in P/T squib (RH) circuit	• Front seat outer belt assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0131/64 (★)	Open in P/T squib (RH) circuit	• Front seat outer belt assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink

B0132/61 (★)	Short in P/T squib (RH) circuit (to ground)	• Front seat outer belt assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0133/62 (★)	Short in P/T squib (RH) circuit (to B+)	• Front seat outer belt assembly RH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0135/73 (★)	Short in P/T squib (LH) circuit	• Front seat outer belt assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0136/74 (★)	Open in P/T squib (LH) circuit	• Front seat outer belt assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0137/71 (★)	Short in P/T squib (LH) circuit (to ground)	• Front seat outer belt assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B0138/72 (★)	Short in P/T squib (LH) circuit (to B+)	• Front seat outer belt assembly LH (squib) • Airbag sensor assembly centre • Floor wire	Blink
B1100/31 (★)	Airbag sensor assembly centre malfunction	• Airbag sensor assembly centre	ON
B1135/24 (★)	Half connection detection malfunction	• Airbag sensor assembly centre • Instrument panel wire • Floor wire	ON
B1140/32 (*2) (★)	Side airbag sensor assembly (RH) malfunction	• Side airbag sensor assembly RH • Airbag sensor assembly centre • Floor wire	Blink
B1141/33 (*2) (★)	Side airbag sensor assembly (LH) malfunction	• Side airbag sensor assembly LH • Airbag sensor assembly centre • Floor wire	Blink
B1156/B1157/15 (★)	Front airbag sensor (RH) malfunction	• Airbag front RH sensor • Airbag sensor assembly centre • Engine room main wire • Instrument panel wire	ON
B1158/B1159/16 (★)	Front airbag sensor (LH) malfunction	• Airbag sensor front LH • Airbag sensor assembly centre • Engine room main wire • Instrument panel wire	ON
Normal (★)	System normal	-	OFF
	Voltage source drop	• Battery • Airbag sensor assembly centre	ON

*1: w/ Front passenger airbag
*2: w/ Side airbag

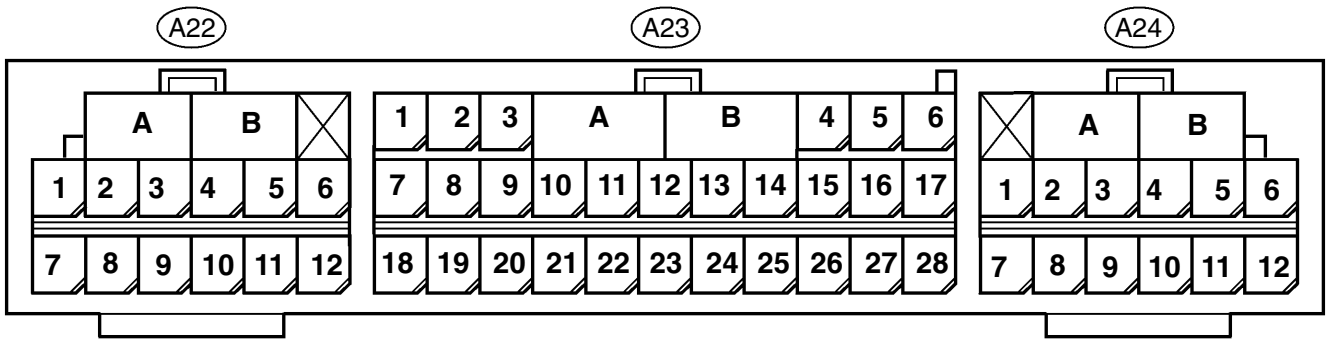
HINT:

- ★: Refer to the Repair Manual CAMRY, Pub. No. AC-RM033V1.
- When the SRS warning light remains on and the DTC output is the normal system code, a voltage source drop is likely. This malfunction is not stored in the memory by the airbag sensor assembly centre. And if the power source voltage returns to normal, the SRS warning light will automatically go off.
- When 2 or more codes are indicated, the code with the lower number appears first.
- If a code is not listed on the display chart, the airbag sensor assembly centre may have failed.
- In the case of any malfunction concerning an open circuit, short to ground , or short to B+ due to an squib, another malfunction code may not be detected. In this case, repair the malfunction currently indicated and then perform malfunction diagnosis again.

05M1V-01

TERMINALS OF ECU

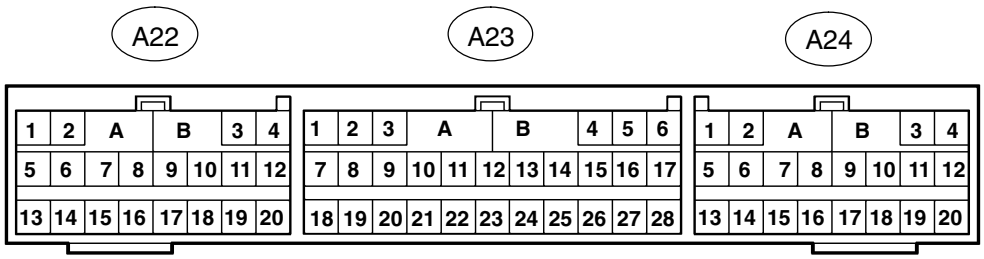
1. W/O SIDE AIRBAG: AIRBAG SENSOR ASSEMBLY CENTRE



No.	Symbol	Destination (Terminal Name)
G A	-	Electrical Connector Check Mechanism H40028
B	-	Electrical Connector Check Mechanism
A23-4	LA	Combination Meter Assembly (SRS warning light)
A23-2	IG2	IGN Fuse (Power Source)
A23-1	IG1	SRS-IG Fuse (Power Source)
A23-15	+SR	Airbag Sensor Front RH
A23-14 (*1)	P+	Front Passenger Airbag Assembly (P Squib)
A23-13 (*1)	P-	Front Passenger Airbag Assembly (P Squib)
A23-12	SIL	Diagnosis
A23-11	D-	Horn Button Assembly (D Squib)
A23-10	D+	Horn Button Assembly (D Squib)
A23-9	+SL	Airbag Sensor Front LH
A23-27	TC	Diagnosis
A23-26	-SR	Airbag Sensor Front RH
A23-20	-SL	Airbag Sensor Front LH
A23-19	E1	Ground
A23-28	E2	Ground
A22-6	PL-	Front Seat Outer Belt Assembly LH (P/T Squib LH)
A22-5	PL+	Front Seat Outer Belt Assembly LH (P/T Squib LH)
A24-2	PR+	Front Seat Outer Belt Assembly RH (P/T Squib RH)
A24-1	PR-	Front Seat Outer Belt Assembly RH (P/T Squib RH)

*1: w/ Front Passenger Airbag

2. W/ SIDE AIRBAG: AIRBAG SENSOR ASSEMBLY CENTRE



P H40533

No.	Symbol	Terminal Name
A	-	Electrical Connector Check Mechanism
B	-	Electrical Connector Check Mechanism
A23-4	LA	Combination Meter Assembly (SRS Warning Light)
A2322 (*1)	GSW3	(To TOYOTA link telematics)
A23-2	IG2	IGN Fuse (Power Source)
A23-1	IG1	SRS-IG Fuse (Power Source)
A23-15	+SR	Airbag Sensor Front RH
A23-14	P+	Front Passenger Airbag Assembly (P Squib)
A23-13	P-	Front Passenger Airbag Assembly (P Squib)
A23-12	SIL	Diagnosis
A23-11	D-	Horn Button Airbag Assembly (D Squib)
A23-10	D+	Horn Button Airbag Assembly (D Squib)
A23-9	+SL	Airbag Sensor Front LH
A23-27	TC	Diagnosis
A23-26	-SR	Airbag Sensor Front RH
A23-20	-SL	Airbag Sensor Front LH
A23-19	E1	Ground
A23-28	E2	Ground
A22-10	PL-	Front Seat Outer Belt Assembly LH (P/T Squib LH)
A22-9	PL+	Front Seat Outer Belt Assembly LH (P/T Squib LH)
A22-6	SFL-	Front Seat Airbag Assembly LH (Side Squib LH)
A22-5	SFL+	Front Seat Airbag Assembly LH (Side Squib LH)
A22-16	VUPL	Side Airbag Sensor Assembly LH
A22-18	ESL	Side Airbag Sensor Assembly LH
A24-12	SFR+	Front Seat Airbag Assembly RH (Side Squib RH)
A24-11	SFR-	Front Seat Airbag Assembly RH (Side Squib RH)
A24-8	PR+	Front Seat Outer Belt Assembly RH (P/T Squib RH)
A24-7	PR-	Front Seat Outer Belt Assembly RH (P/T Squib RH)
A24-18	ESR	Side Airbag Sensor Assembly RH
A24-16	VUPR	Side Airbag Sensor Assembly RH

*1: w/ TOYOTA LINK

DTC	B0100/13	SHORT IN D SQUIB CIRCUIT

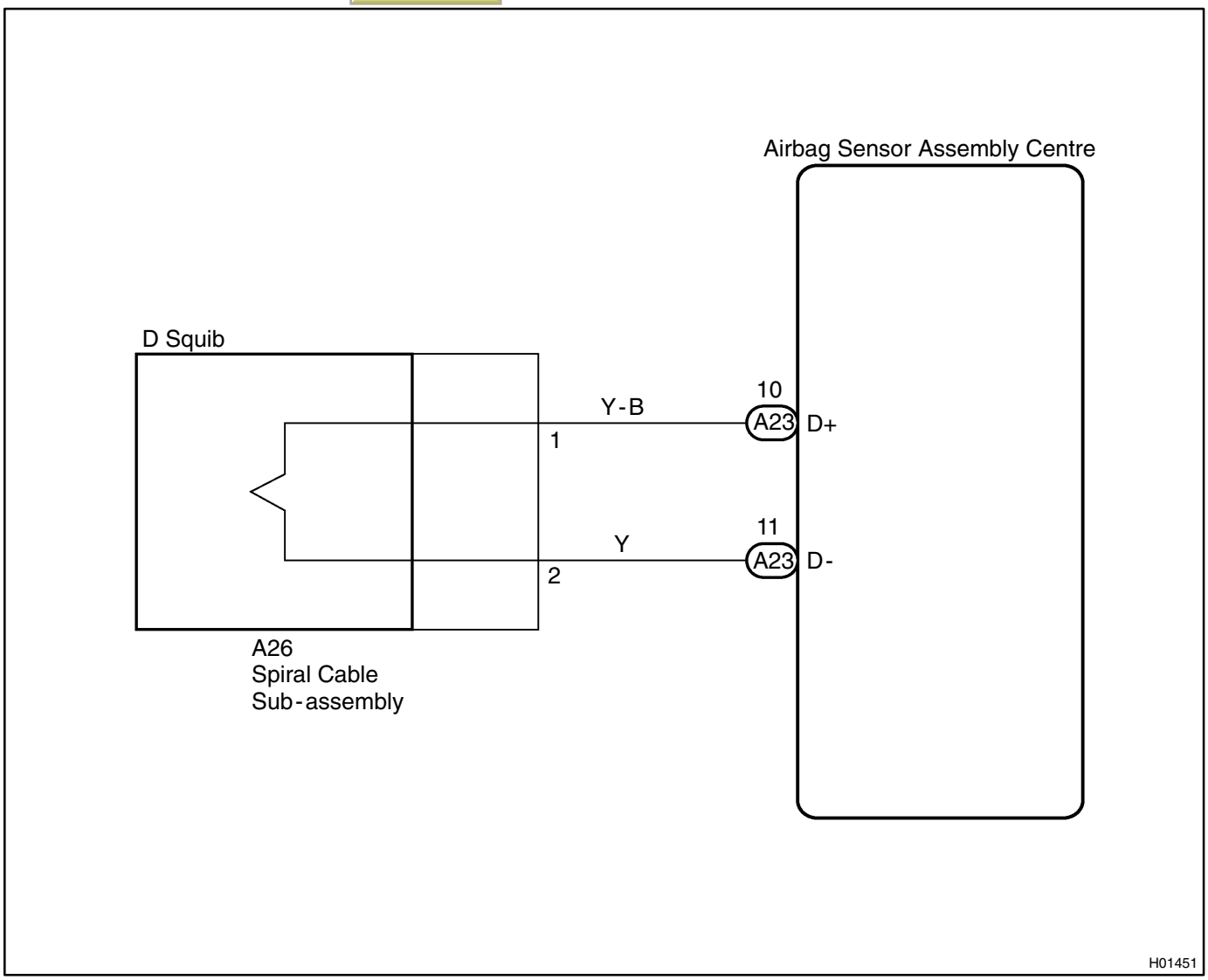
CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly centre, the spiral cable sub-assembly and the horn button assembly.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0100/13 is recorded when a short circuit is detected in the D squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0100/13	• The airbag sensor assembly centre receives a line short circuit signal 5 times in the D squib circuit during primary check. • D squib malfunction • Spiral cable sub-assembly malfunction • Airbag sensor assembly centre malfunction	• Horn button assembly (D squib) • Spiral cable sub-assembly • Airbag sensor assembly centre • Instrument panel wire

WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

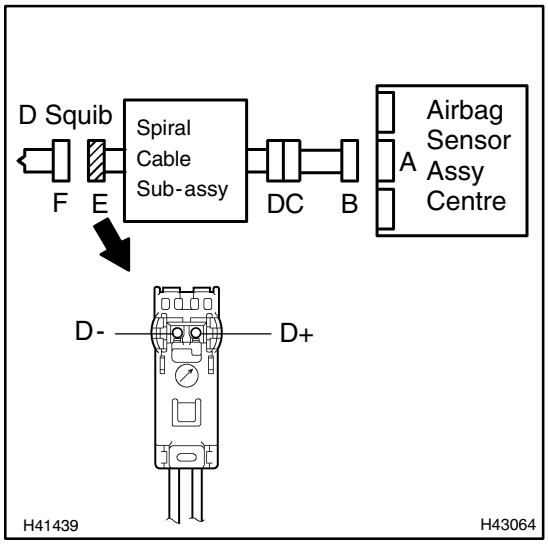
1	CHECK CONNECTOR

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector from the horn button assembly.
(d) Check that the spiral cable sub-assembly connector (on the horn button assembly) is not damaged.
OK:
The lock button is not disengaged, or the claw of the lock is not deformed or damaged.

NG → **REPLACE SPIRAL CABLE SUB-ASSEMBLY**

OK

2	CHECK D SQUIB CIRCUIT



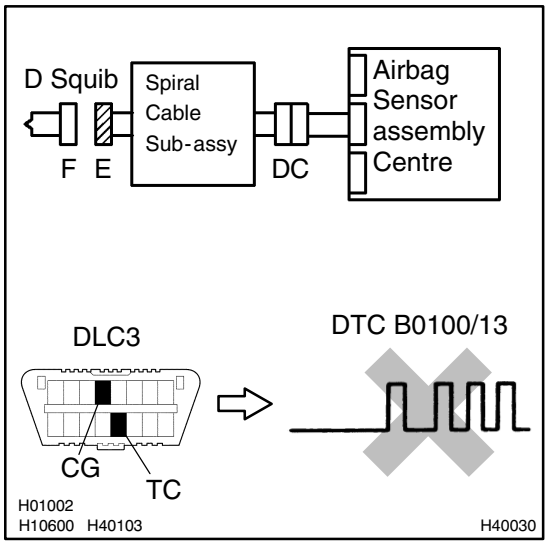
(a) Disconnect the connector from the airbag sensor assembly centre.
(b) Release the activation prevention mechanism built into connector “B”, see page 05-4.
(c) Measure the resistance according to the value(s) in the table below.
Standard:

Tester connection	Condition	Specified condition
D+ - D-	Always	1 MΩ or Higher

NG → **Go to step 5**

OK

3 CHECK AIR BAG SENSOR assembly CENTER



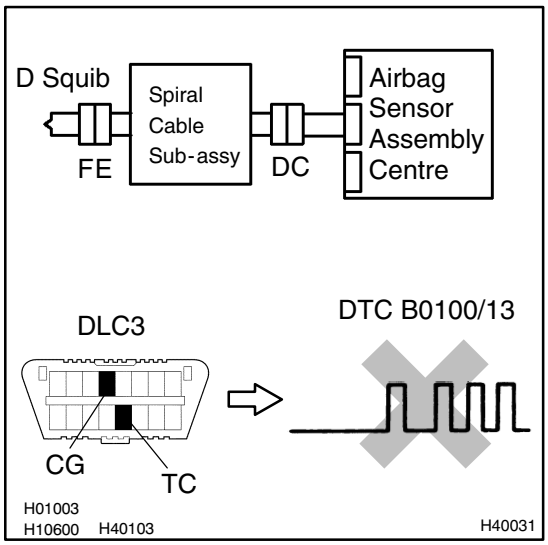
(a) Connect the connector to the airbag sensor assembly centre.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory, see page 05-4.
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs, see page 05-4.
OK:
DTC B0100/13 is not output.

HINT:
Codes other than code B0100/13 may be output at this time, but they are not related to this check.

NG → **REPLACE AIR BAG SENSOR ASSEMBLY CENTRE**

OK

4 CHECK HORN BUTTON ASSEMBLY



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the horn button assembly.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in the memory, see page 05-4.
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs, see page 05-4.
OK:
DTC B0100/13 is not output.

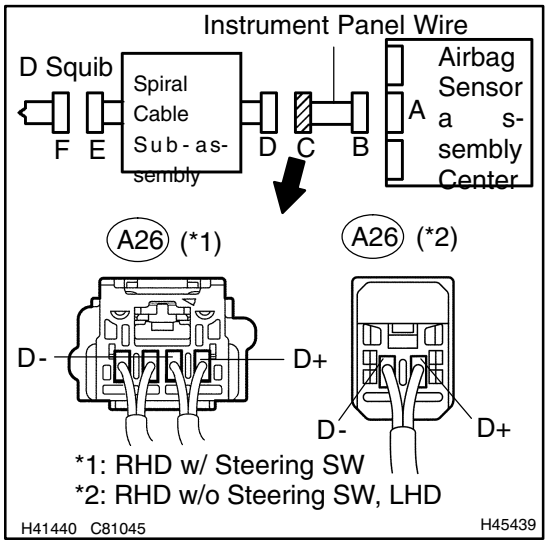
HINT:
Codes other than code B0100/13 may be output at this time, but they are not related to this check.

NG → **REPLACE HORN BUTTON assembly**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

5 CHECK INSTRUMENT PANEL WIRE



(a) Disconnect the instrument panel wire connector from the spiral cable sub-assembly.

HINT:

The activation prevention mechanism of connector “B” has already been released.

(b) Measure the resistance according to the value(s) in the table below.

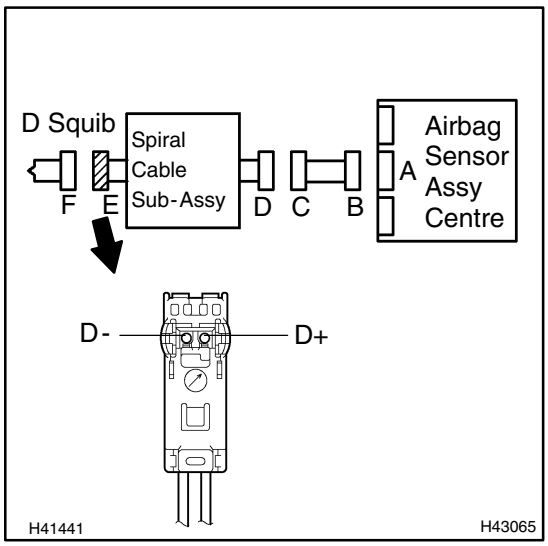
Standard:

Tester connection	Condition	Specified condition
A26-1 (D+) - A26-2 (D-)	Always	1 MΩ or Higher

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

6 CHECK SPIRAL CABLE SUB-ASSEMBLY



(a) Release the activation prevention mechanism built into connector “D”, see page 05-4.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
D+ - D-	Always	1 MΩ or Higher

NG → **REPLACE SPIRAL CABLE SUB-ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

DTC	B0101/14	OPEN IN D SQUIB CIRCUIT

CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly centre, the spiral cable sub-assembly and the horn button assembly.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0101/14 is recorded when an open circuit is detected in the D squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0101/14	• The airbag sensor assembly centre receives an open circuit signal in the D squib circuit for 2 seconds. • D squib malfunction • Spiral cable sub-assembly malfunction • Airbag sensor assembly centre malfunction	• Horn button assembly (D squib) • Spiral cable sub-assembly • Airbag sensor assembly centre • Instrument panel wire

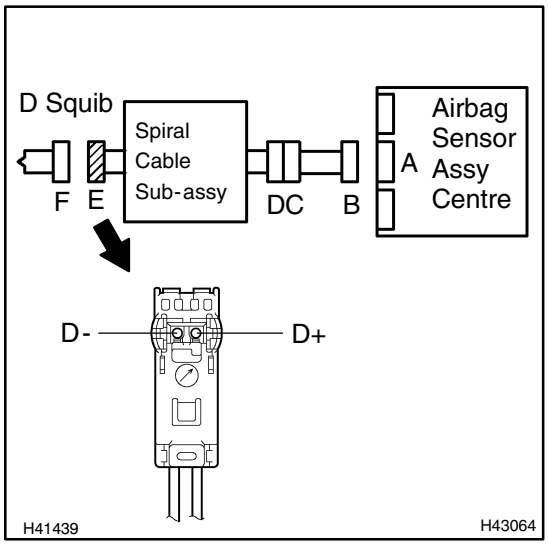
WIRING DIAGRAM

EWD Manual

See page 05-14.

INSPECTION PROCEDURE

1	CHECK D SQUIB CIRCUIT



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assembly centre and the horn button assembly.
(d) Measure the resistance according to the value(s) in the table below.

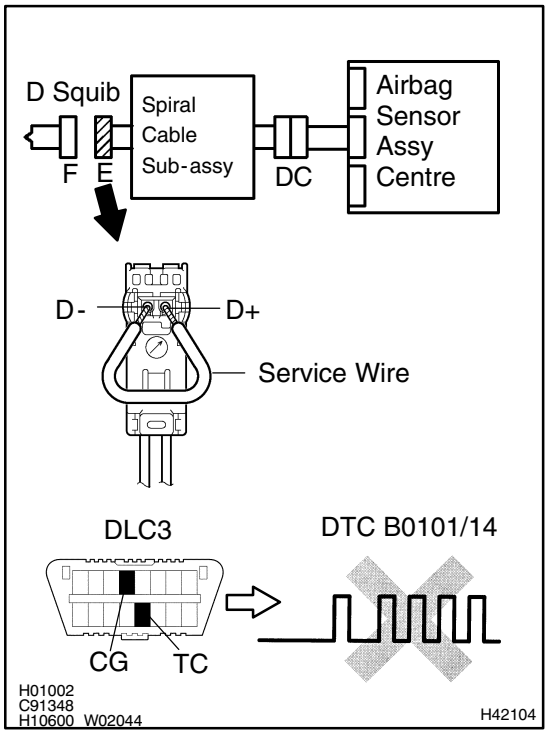
Standard:

Tester connection	Condition	Specified condition
D+ - D-	Always	Below 1 Ω

NG → **Go to step 4**

OK

2	CHECK AIR BAG SENSOR ASSEMBLY CENTRE



(a) Connect the connector to the airbag sensor assembly centre.

(b) Using a service wire, connect D+ and D- of connector “E”.

NOTICE:

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminal of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(e) Clear the DTCs stored in memory, see page 05-4.

(f) Turn the ignition switch to the LOCK position.

(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(h) Check the DTCs, see page 05-4.

OK:

DTC B0101/14 is not output.

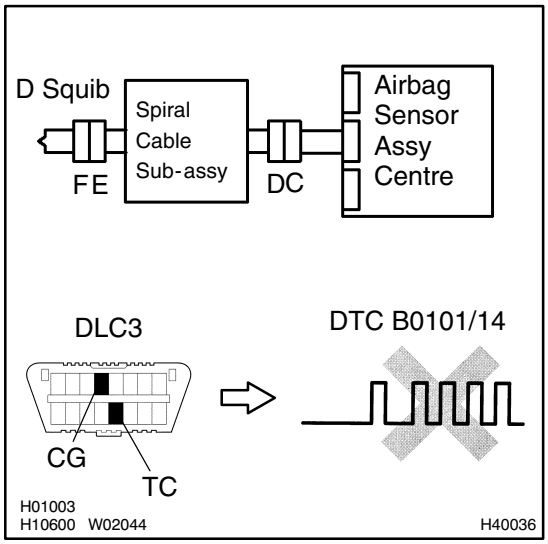
HINT:

Codes other than code B0101/14 may be output at this time, but they are not related to this check.

NG	REPLACE AIR BAG SENSOR ASSEMBLY CENTRE

OK

3	CHECK HORN BUTTON ASSEMBLY



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector “E”.
(d) Connect the connector to the horn button assembly.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in the memory, see page 05-4.
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs, see page 05-4.
OK:
DTC B0101/14 is not output.

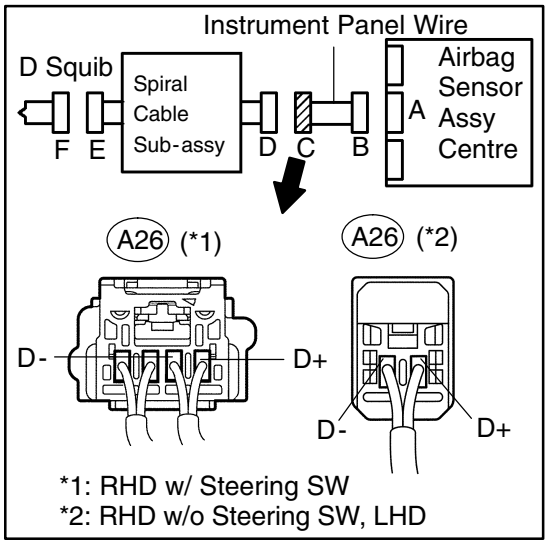
HINT:
Codes other than code B0101/14 may be output at this time, but they are not related to this check.

NG → **REPLACE HORN BUTTON ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

4 CHECK INSTRUMENT PANEL WIRE



(a) Disconnect the instrument panel wire connector from the spiral cable sub-assembly.

(b) Measure the resistance according to the value(s) in the table below.

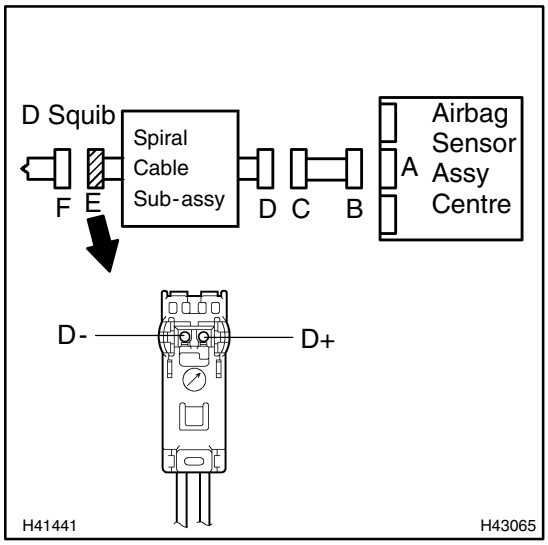
Standard:

Tester connection	Condition	Specified condition
A26-1 (D+) - A26-2 (D-)	Always	Below 1 Ω

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

5 CHECK SPIRAL CABLE SUB-ASSEMBLY



(a) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
D+ - D-	Always	Below 1 Ω

NG → **REPLACE SPIRAL CABLE SUB-ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

DTC	B0102/11	SHORT IN D SQUIB CIRCUIT (TO GROUND)

CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly centre, the spiral cable sub-assembly and the horn button assembly.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0102/11 is recorded when a short to ground is detected in the D squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0102/11	• The airbag sensor assembly centre receives a short circuit to ground signal in the D squib circuit for 0.5 second. • D squib malfunction • Spiral cable sub-assembly malfunction • Airbag sensor assembly centre malfunction	• Horn button assembly (D squib) • Spiral cable sub-assembly • Airbag sensor assembly centre • Instrument panel wire

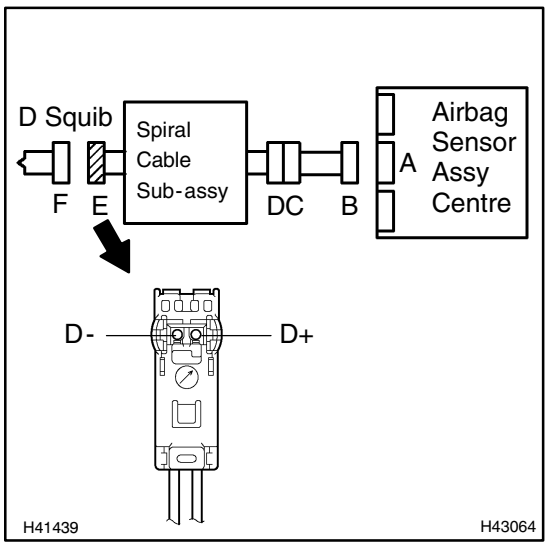
WIRING DIAGRAM

EWD Manual

See page 05-14.

INSPECTION PROCEDURE

1	CHECK D SQUIB CIRCUIT



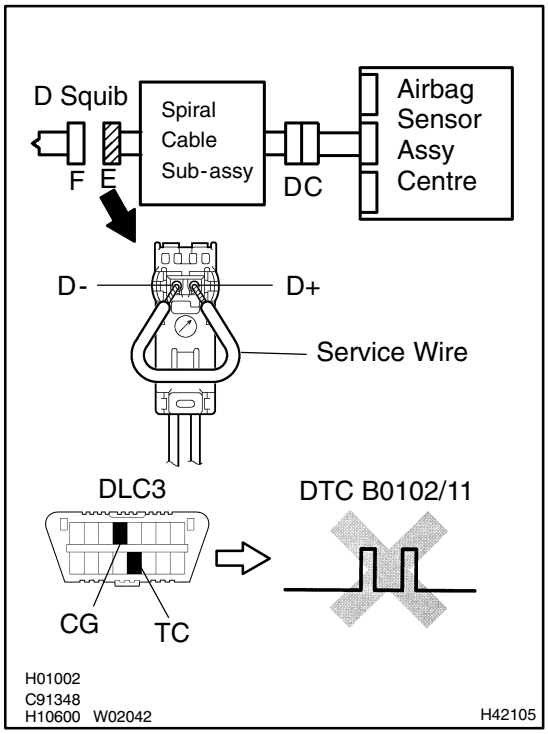
(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assembly centre and the horn button assembly.
(d) Measure the resistance according to the value(s) in the table below.
Standard:

Tester connection	Condition	Specified condition
D+ - Body ground	Always	1 MΩ or Higher
D- - Body ground	Always	1 MΩ or Higher

NG → **Go to step 4**

OK

2	CHECK AIR BAG SENSOR ASSEMBLY CENTRE



(a) Connect the connector to the airbag sensor assembly centre.

(b) Using a service wire, connect D+ and D- of connector "E".

NOTICE:

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminal of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(e) Clear the DTCs stored in the memory, see page 05-4.

(f) Turn the ignition switch to the LOCK position.

(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(h) Check the DTCs, see page 05-4.

OK:

DTC B0102/11 is not output.

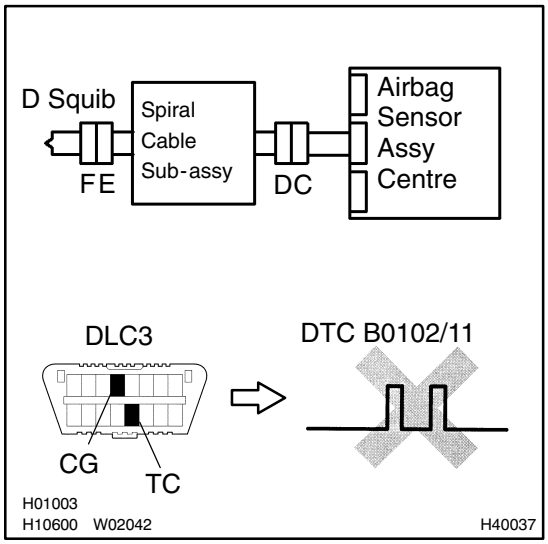
HINT:

Codes other than code B0102/11 may be output at this time, but they are not related to this check.

NG	REPLACE AIR BAG SENSOR ASSEMBLY CENTRE

OK

3	CHECK HORN BUTTON ASSEMBLY



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector “E”.
(d) Connect the connector to the horn button assembly.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in the memory, see page 05-4.
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs, see page 05-4.
OK:
DTC B0102/11 is not output.

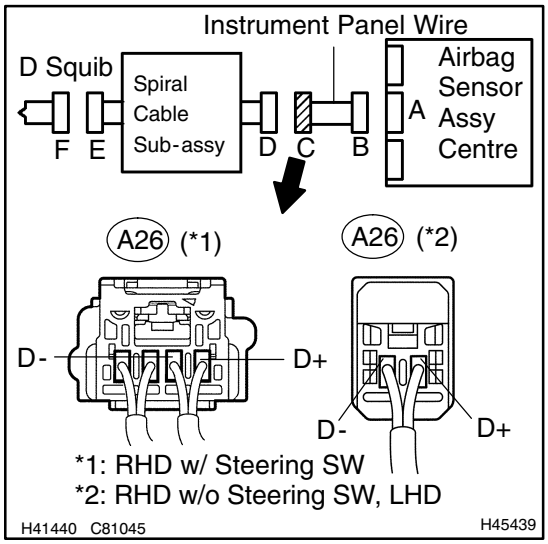
HINT:
Codes other than code B0102/11 may be output at this time, but they are not related to this check.

NG → **REPLACE HORN BUTTON ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

4 CHECK INSTRUMENT PANEL WIRE



(a) Disconnect the instrument panel wire connector from the spiral cable sub-assembly.

(b) Measure the resistance according to the value(s) in the table below.

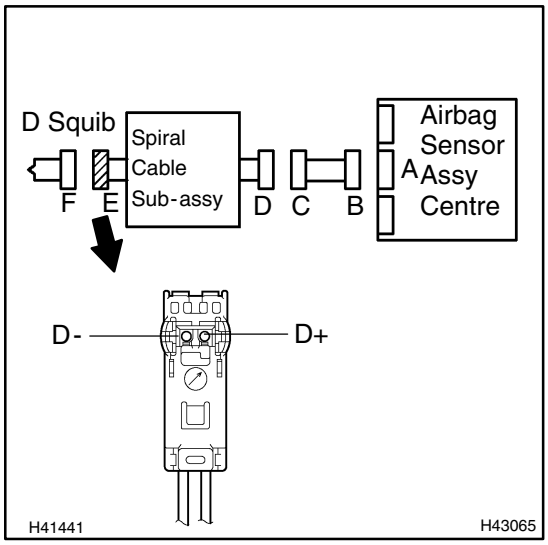
Standard:

Tester connection	Condition	Specified condition
A26-1 (D+) - Body ground	Always	1 MΩ or Higher
A26-2 (D-) - Body ground	Always	1 MΩ or Higher

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

5 CHECK SPIRAL CABLE SUB-ASSEMBLY



(a) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
D+ - Body ground	Always	1 MΩ or Higher
D- - Body ground	Always	1 MΩ or Higher

NG → **REPLACE SPIRAL CABLE SUB-ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

DTC	B0103/12	SHORT IN D SQUIB CIRCUIT (TO B+)

CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assembly centre, the spiral cable sub-assembly and the horn button assembly.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0103/12 is recorded when a short to B+ is detected in the D squib circuit.

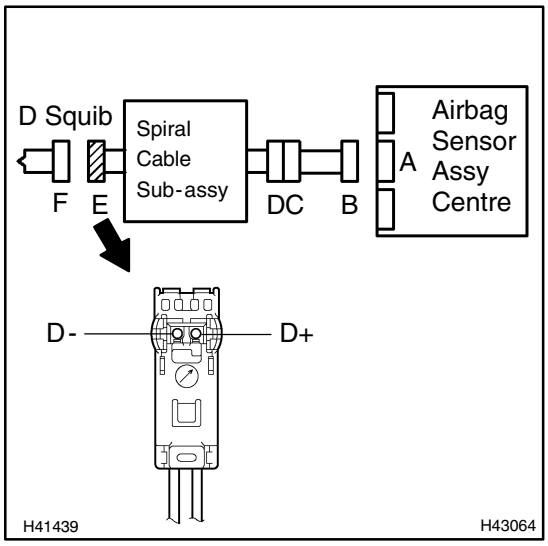
DTC No.	DTC Detecting Condition	Trouble Area
B0103/12	• The airbag sensor assembly centre receives a short circuit to B+ signal in the D squib circuit for 0.5 second. • D squib malfunction • Spiral cable sub-assembly malfunction • Airbag sensor assembly centre malfunction	• Horn button assembly (D squib) • Spiral cable sub-assembly • Airbag sensor assembly centre • Instrument panel wire

WIRING DIAGRAM EWD Manual

See page 05-14.

INSPECTION PROCEDURE

1	CHECK D SQUIB CIRCUIT



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assembly centre and the horn button assembly.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

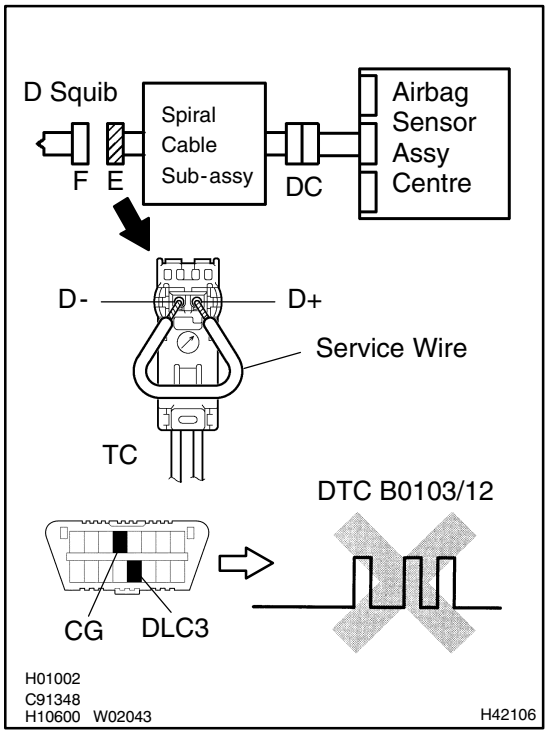
Standard:

Tester connection	Condition	Specified condition
D+ - Body ground	Ignition switch ON	Below 1 V
D- - Body ground	Ignition switch ON	Below 1 V

NG → **Go to step 4**

OK

2	CHECK AIR BAG SENSOR ASSEMBLY CENTRE



(a) Turn the ignition switch to the LOCK position.

(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.

(c) Connect the connector to the airbag sensor assembly centre.

(d) Using a service wire, connect D+ and D- of connector “E”.

NOTICE:

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminal of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(g) Clear the DTCs stored in memory, see page 05-4.

(h) Turn the ignition switch to the LOCK position.

(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(j) Check the DTCs, see page 05-4.

OK:

DTC B0103/12 is not output.

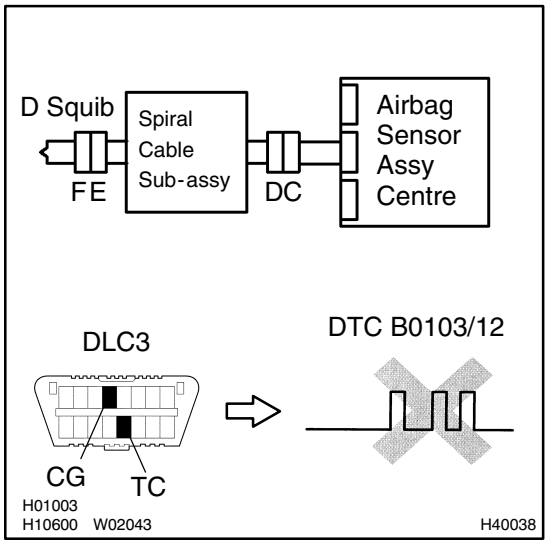
HINT:

Codes other than code B0103/12 may be output at this time, but they are not related to this check.

NG → **REPLACE AIR BAG SENSOR ASSEMBLY CENTRE**

OK

3	CHECK HORN BUTTON ASSEMBLY



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "E".
(d) Connect the connector to the horn button assembly.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory, see page 05-4.
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs, see page 05-4.
OK:
DTC B0103/12 is not output.

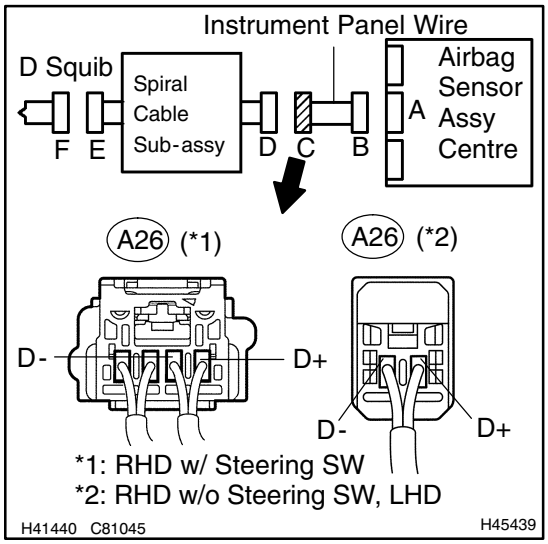
HINT:
Codes other than code B0103/12 may be output at this time, but they are not related to this check.

NG → **REPLACE HORN BUTTON assembly**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

4 CHECK INSTRUMENT PANEL WIRE



(a) Turn the ignition switch to the LOCK position.

(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.

(c) Disconnect the instrument panel wire connector from the spiral cable sub-assembly.

(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(e) Turn the ignition switch to the ON position.

(f) Measure the voltage according to the value(s) in the table below.

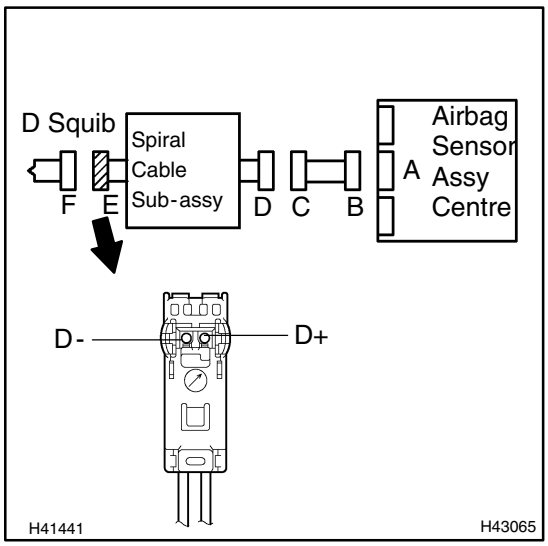
Standard:

Tester connection	Condition	Specified condition
A26-1 (D+) - Body ground	Ignition switch ON	Below 1 V
A26-2 (D-) - Body ground	Ignition switch ON	Below 1 V

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

5 CHECK SPIRAL CABLE SUB-ASSEMBLY



(a) Measure the voltage according to the value(s) in the table below when the ignition switch is in the ON position.

Standard:

Tester connection	Condition	Specified condition
D+ - Body ground	Ignition switch ON	Below 1 V
D- - Body ground	Ignition switch ON	Below 1 V

NG → **REPLACE SPIRAL CABLE SUB-ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

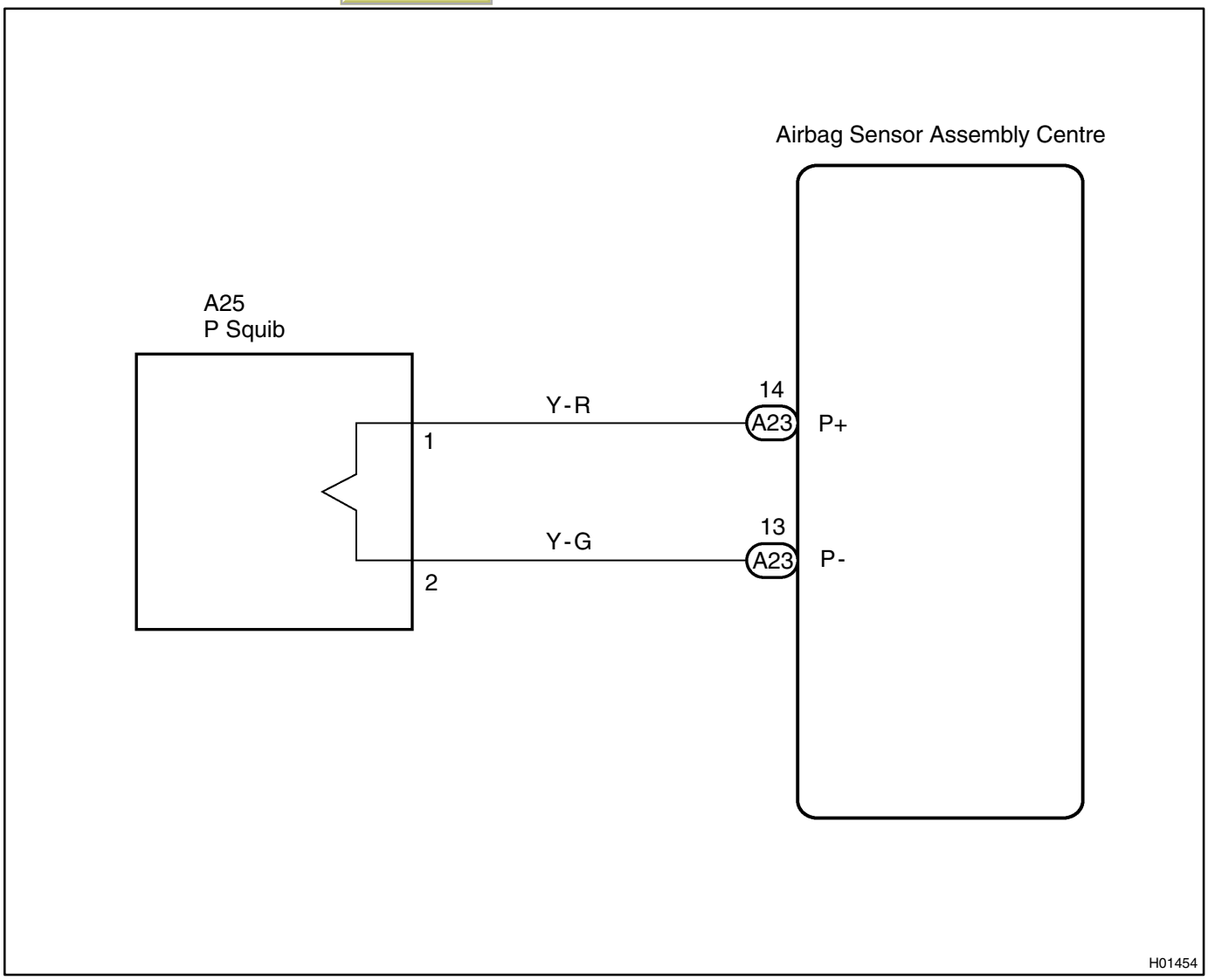
DTC	B0105/53	SHORT IN P SQUIB CIRCUIT

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly centre and the front passenger airbag assembly. The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0105/53 is recorded when a short circuit is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0105/53	• The airbag sensor assembly centre receives a line short circuit signal 5 times in the P squib circuit during primary check • P squib malfunction • Airbag sensor assembly centre malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly centre • Instrument panel wire

WIRING DIAGRAM EWD Manual



INSPECTION PROCEDURE

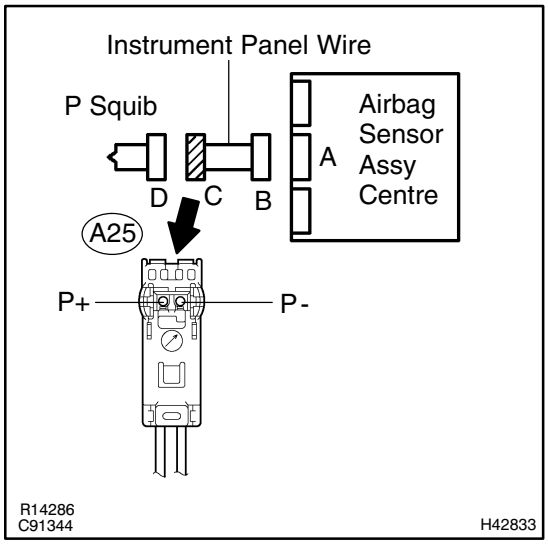
1	CHECK CONNECTOR

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector from the front passenger airbag assembly.
(d) Check that the instrument panel wire connector (on the front passenger airbag assembly) is not damaged.
OK:
The lock button is not damaged, or the claw of the lock is not deformed or damaged.

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

2	CHECK INSTRUMENT PANEL WIRE



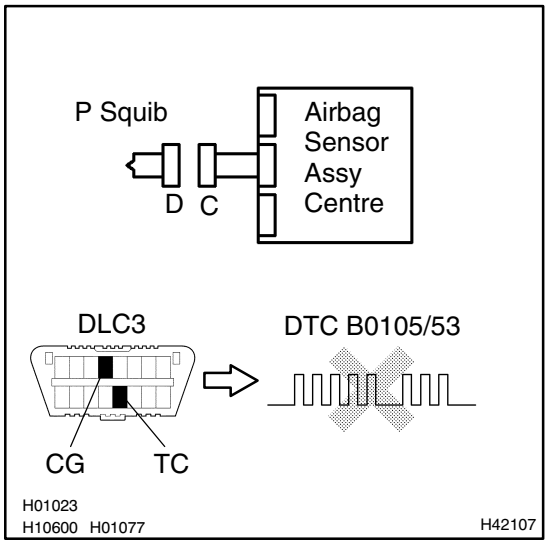
(a) Disconnect the connector from the airbag sensor assembly centre.
(b) Release the activation prevention mechanism built into connector “B”, see page 05-4.
(c) Measure the resistance according to the value(s) in the table below.
Standard:

Tester connection	Condition	Specified condition
A25-1 (P+) - A25-2 (P-)	Always	1 MΩ or Higher

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

3 CHECK AIR BAG SENSOR ASSEMBLY CENTRE



(a) Connect the connector to the airbag sensor assembly centre.

(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(d) Clear the DTCs stored in the memory, see page 05-4.

(e) Turn the ignition switch to the LOCK position.

(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

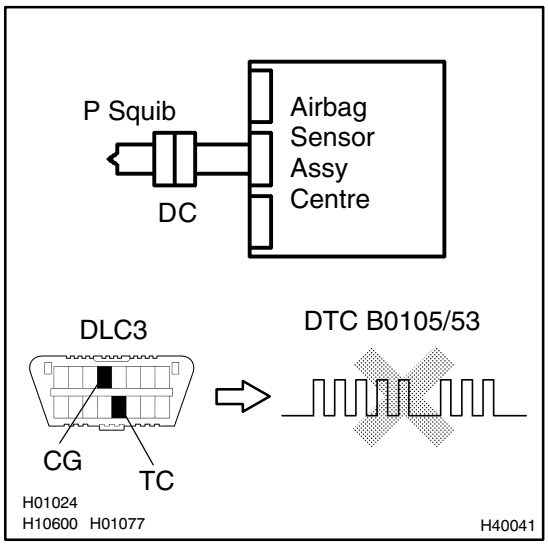
(g) Check the DTCs, see page 05-4.
OK:
DTC B0105/53 is not output.

HINT:
Codes other than code B0105/53 may be output at this time, but they are not related to this check.

NG	REPLACE AIR BAG SENSOR assembly CENTRE

OK

4 CHECK FRONT PASSENGER AIRBAG ASSEMBLY



(a) Turn the ignition switch to the LOCK position.

(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.

(c) Connect the connector to the front passenger airbag assembly.

(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(f) Clear the DTCs stored in memory, see page 05-4.

(g) Turn the ignition switch to the LOCK position.

(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(i) Check the DTCs, see page 05-4.
OK:
DTC B0105/53 is not output.

HINT:
Codes other than code B0105/53 may be output at this time, but they are not related to this check.

NG	REPLACE FRONT PASSENGER AIRBAG ASSEMBLY

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

DTC	B0106/54	OPEN IN P SQUIB CIRCUIT

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly centre and the front passenger airbag assembly. The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0106/54 is recorded when an open circuit is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0106/54	• The airbag sensor assembly centre receives an open circuit signal in the P squib circuit for 2 seconds. • P squib malfunction • Airbag sensor assembly centre malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly centre • Instrument panel wire

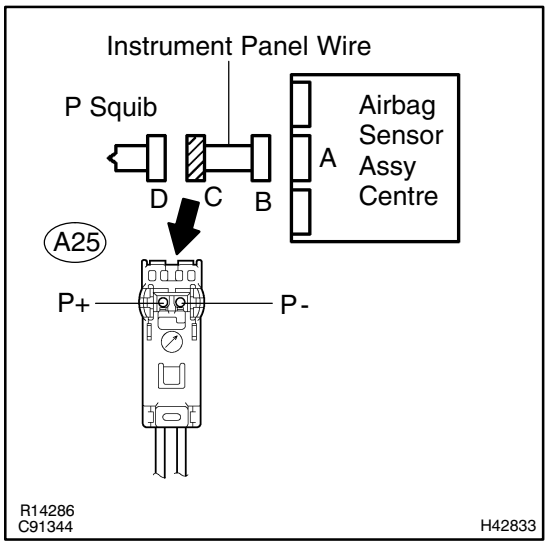
WIRING DIAGRAM

EWD Manual

See page 05-30.

INSPECTION PROCEDURE

1	CHECK INSTRUMENT PANEL WIRE



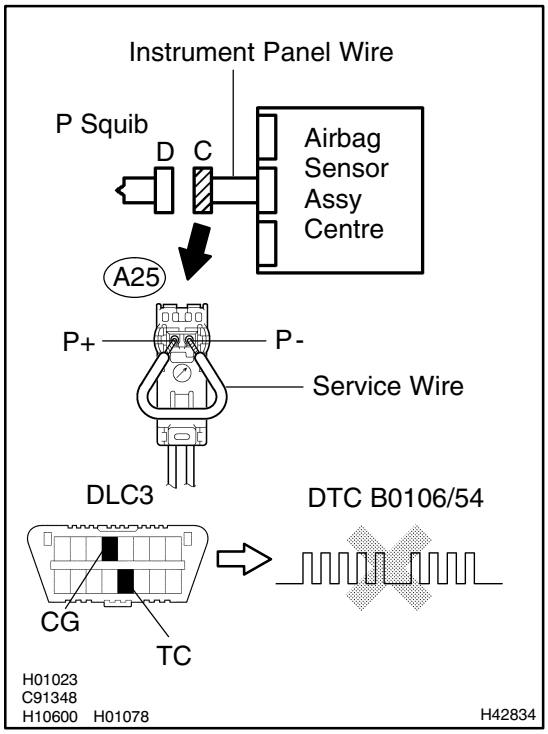
(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assembly centre and the front passenger airbag assembly.
(d) Measure the resistance according to the value(s) in the table below.
Standard:

Tester connection	Condition	Specified condition
A25-1 (P+) - A25-2 (P-)	Always	Below 1 Ω

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

2	CHECK AIR BAG SENSOR assembly CENTRE



(a) Connect the connector to the airbag sensor assembly centre.

(b) Using a service wire, connect A25-1 (P+) and A25-2 (P-) of connector “C”.

NOTICE:

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminal of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(e) Clear the DTCs stored in the memory, see page 05-4.

(f) Turn the ignition switch to the LOCK position.

(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(h) Check the DTCs, see page 05-4.

OK:

DTC B0106/54 is not output.

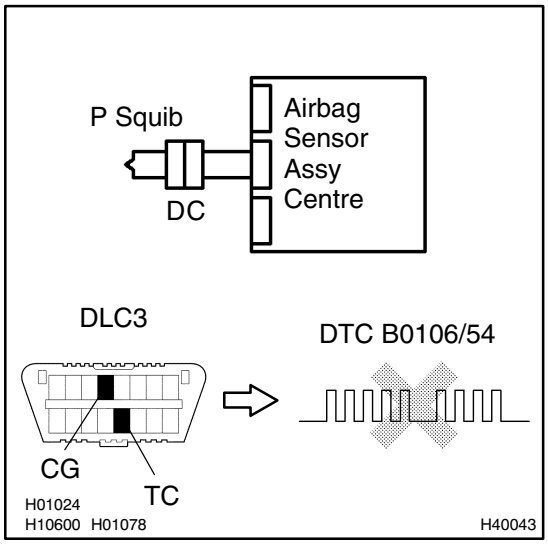
HINT:

Codes other than code B0106/54 may be output at this time, but they are not related to this check.

NG	REPLACE AIR BAG SENSOR ASSEMBLY CENTRE

OK

3	CHECK FRONT PASSENGER AIRBAG ASSEMBLY



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector “C”.
(d) Connect the connector to the front passenger airbag assembly.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in the memory, see page 05-4.
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs, see page 05-4.
OK:
DTC B0106/54 is not output.

HINT:
Codes other than code B0106/54 may be output at this time, but they are not related to this check.

NG → **REPLACE FRONT PASSENGER AIRBAG ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

DTC	B0107/51	SHORT IN P SQUIB CIRCUIT (TO GROUND)

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly centre and the front passenger airbag assembly. The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0107/51 is recorded when a short to ground is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0107/51	• The airbag sensor assembly centre receives a short circuit to ground signal in the P squib circuit for 0.5 second. • P squib malfunction • Airbag sensor assembly centre malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly centre • Instrument panel wire

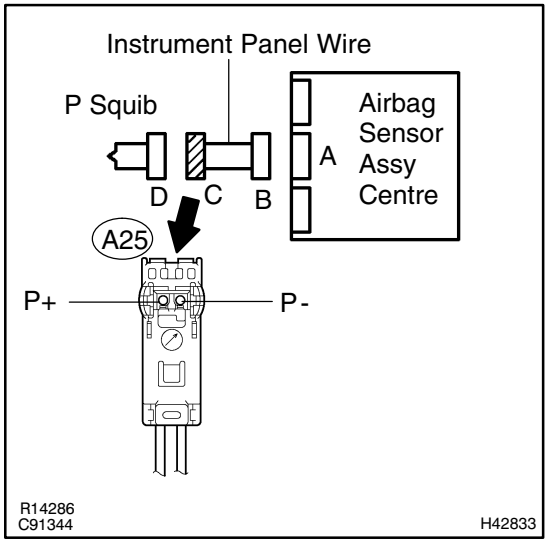
WIRING DIAGRAM

EWD Manual

See page 05-30.

INSPECTION PROCEDURE

1	CHECK INSTRUMENT PANEL WIRE



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assembly centre and the front passenger airbag assembly.
(d) Measure the resistance according to the value(s) in the table below.

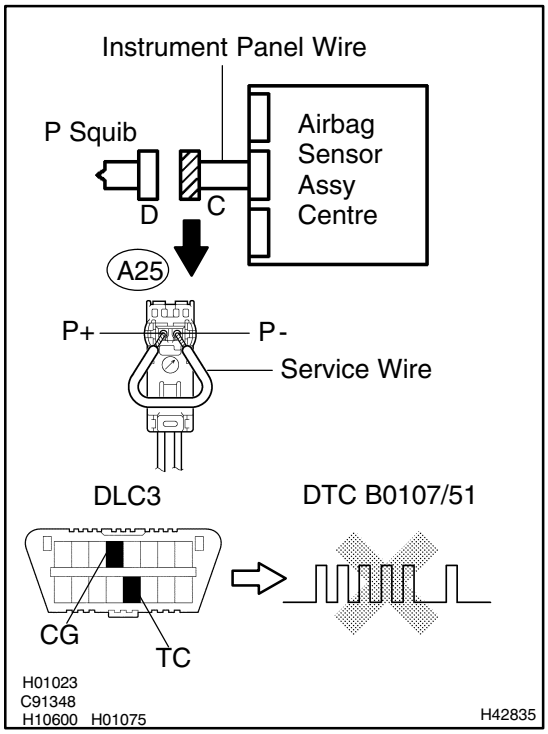
Standard:

Tester connection	Condition	Specified condition
A25-1 (P+) - Body ground	Always	1 MΩ or Higher
A25-2 (P-) - Body ground	Always	1 MΩ or Higher

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

2	CHECK AIR BAG SENSOR ASSEMBLY CENTRE



(a) Connect the connector to the airbag sensor assembly centre.

(b) Using a service wire, connect A25-1 (P+) and A25-2 (P-) of connector “C”.

NOTICE:

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminal of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(e) Clear the DTCs stored in the memory, see page 05-4.

(f) Turn the ignition switch to the LOCK position.

(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(h) Check the DTCs, see page 05-4.
OK:
DTC B0107/51 is not output.

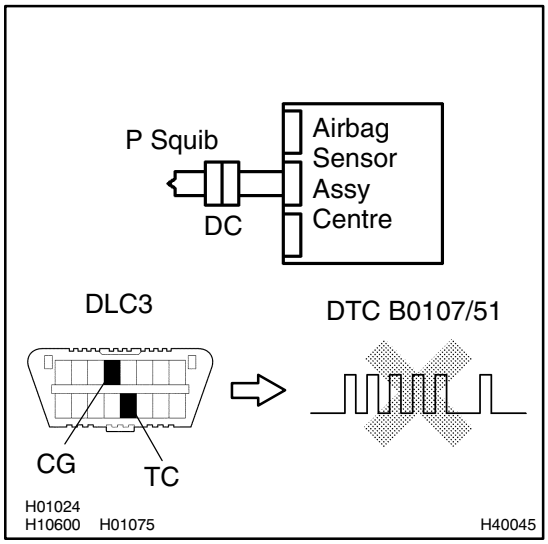
HINT:

Codes other than code B0107/51 may be output at this time, but they are not related to this check.

NG → **REPLACE AIR BAG SENSOR ASSEMBLY CENTRE**

OK

3	CHECK FRONT PASSENGER AIRBAG assembly



(a) Turn the ignition switch to the LOCK position.

(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.

(c) Disconnect the service wire from connector "C".

(d) Connect the connector to the front passenger airbag assembly.

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(g) Clear the DTCs stored in memory, see page 05-4.

(h) Turn the ignition switch to the LOCK position.

(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(j) Check the DTCs, see page 05-4.
OK:
DTC B0107/51 is not output.

HINT:

Codes other than code B0107/51 may be output at this time, but they are not related to this check.

NG → **REPLACE FRONT PASSENGER AIRBAG ASSEMBLY**

OK

USE SIMULATION METHOD TO CHECK, see page 01-26

DTC	B0108/52	SHORT IN P SQUIB CIRCUIT (TO B+)

CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assembly centre and the front passenger airbag assembly. The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0108/52 is recorded when a short to B+ is detected in the P squib circuit.

DTC No.	DTC Detecting Condition	Trouble Area
B0108/52	• The airbag sensor assembly centre receives a short circuit to B+ signal in the P squib circuit for 0.5 second. • P squib malfunction • Airbag sensor assembly centre malfunction	• Front passenger airbag assembly (P squib) • Airbag sensor assembly centre • Instrument panel wire

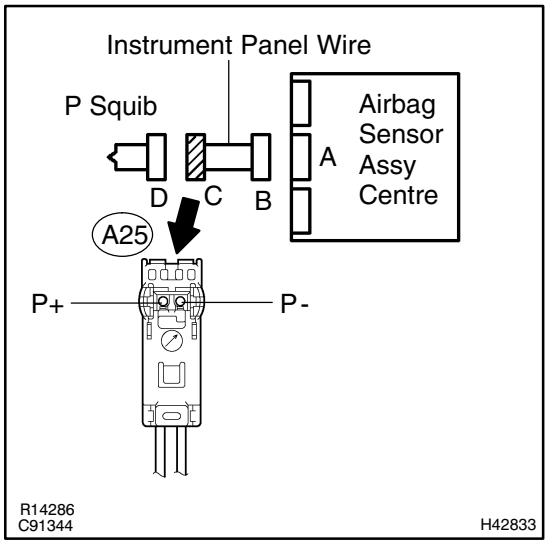
WIRING DIAGRAM

EWD Manual

See page 05-32.

INSPECTION PROCEDURE

1	CHECK INSTRUMENT PANEL WIRE



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assembly centre and the front passenger airbag assembly.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

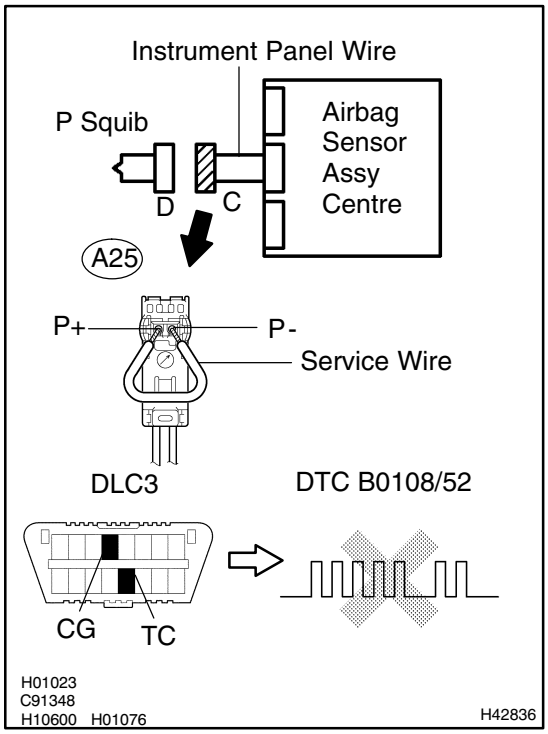
Standard:

Tester connection	Condition	Specified condition
A25-1 (P+) - Body ground	Ignition switch ON	Below 1 V
A25-2 (P-) - Body ground	Ignition switch ON	Below 1 V

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

2	CHECK AIR BAG SENSOR ASSEMBLY CENTRE



(a) Turn the ignition switch to the LOCK position.

(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.

(c) Connect the connector to the airbag sensor assembly centre.

(d) Using a service wire, connect A25-1 (P+) and A25-2 (P-) of connector “C”.

NOTICE:

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminal of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(g) Clear the DTCs stored in the memory, see page 05-4.

(h) Turn the ignition switch to the LOCK position.

(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

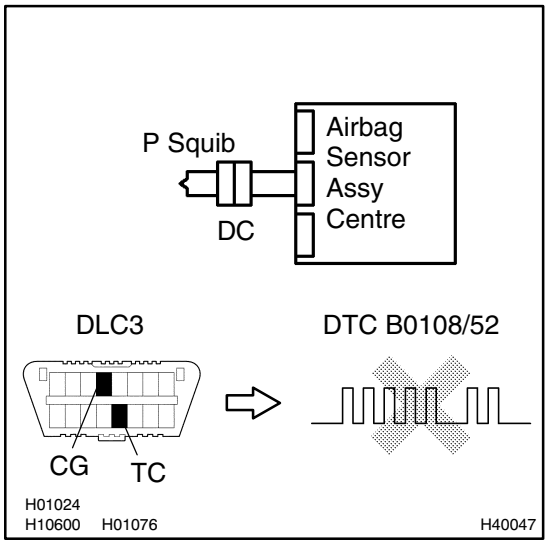
(j) Check the DTCs, see page 05-4.
OK:
DTC B0108/52 is not output.

HINT:
Codes other than code B0108/52 may be output at this time, but they are not related to this check.

NG → **REPLACE AIR BAG SENSOR ASSEMBLY CENTRE**

OK

3	CHECK FRONT PASSENGER AIRBAG ASSEMBLY



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector “C”.
(d) Connect the connector to the front passenger airbag assembly.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in the memory, see page 05-4.
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs, see page 05-4.
OK:
DTC B0108/52 is not output.

HINT:
Codes other than code B0108/52 may be output at this time, but they are not related to this check.

NG → **REPLACE FRONT PASSENGER AIRBAG ASSEMBLY**

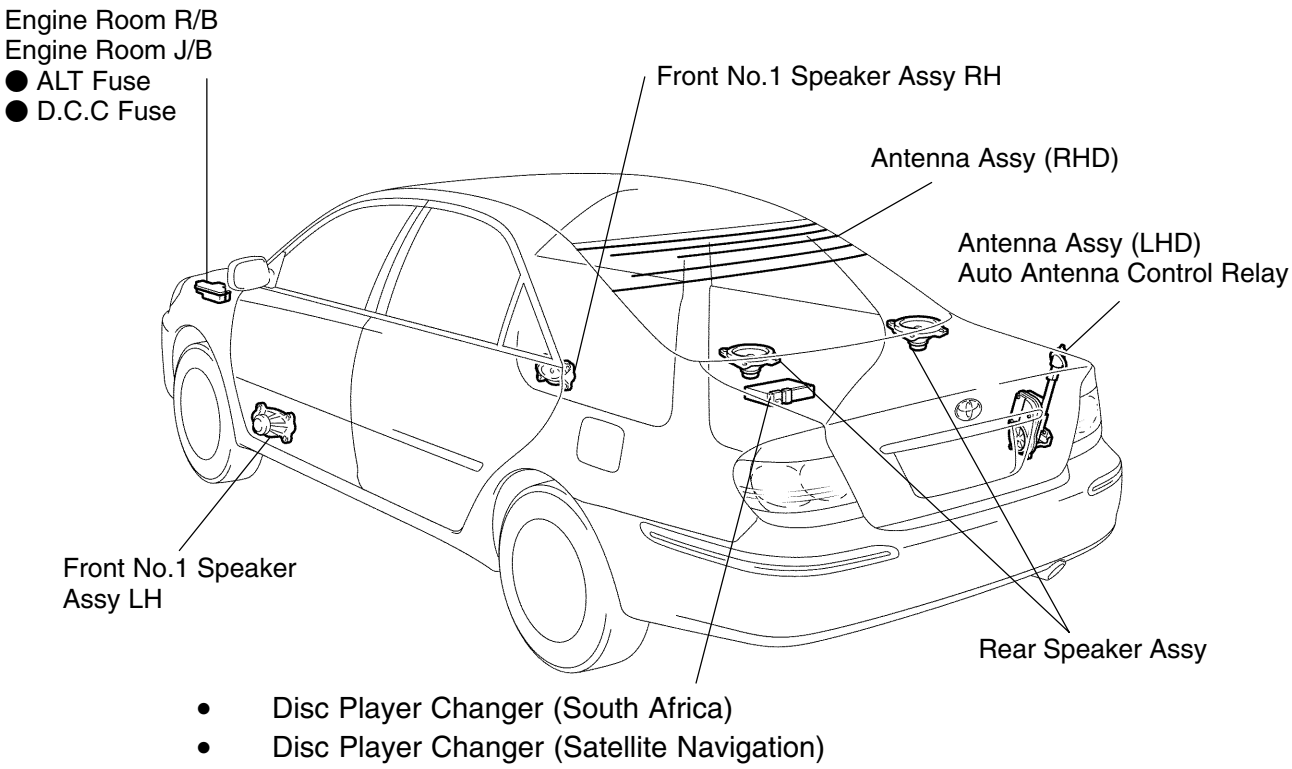
OK

USE SIMULATION METHOD TO CHECK, see page 01-26

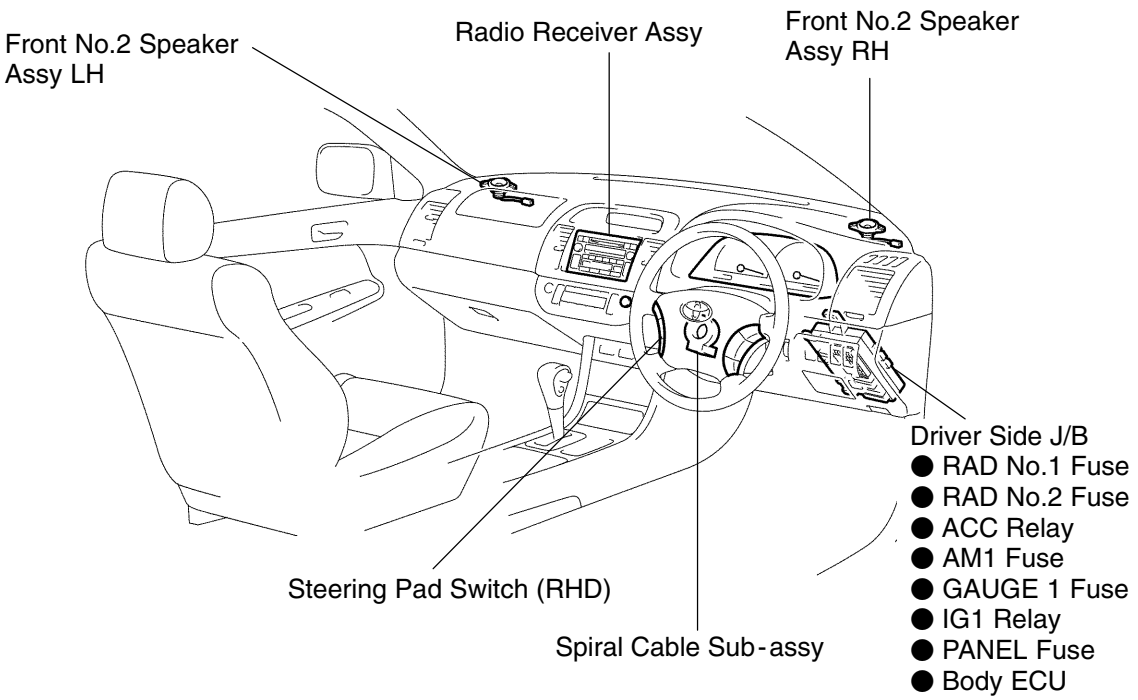
AUDIO SYSTEM

LOCATION

05D0U-09



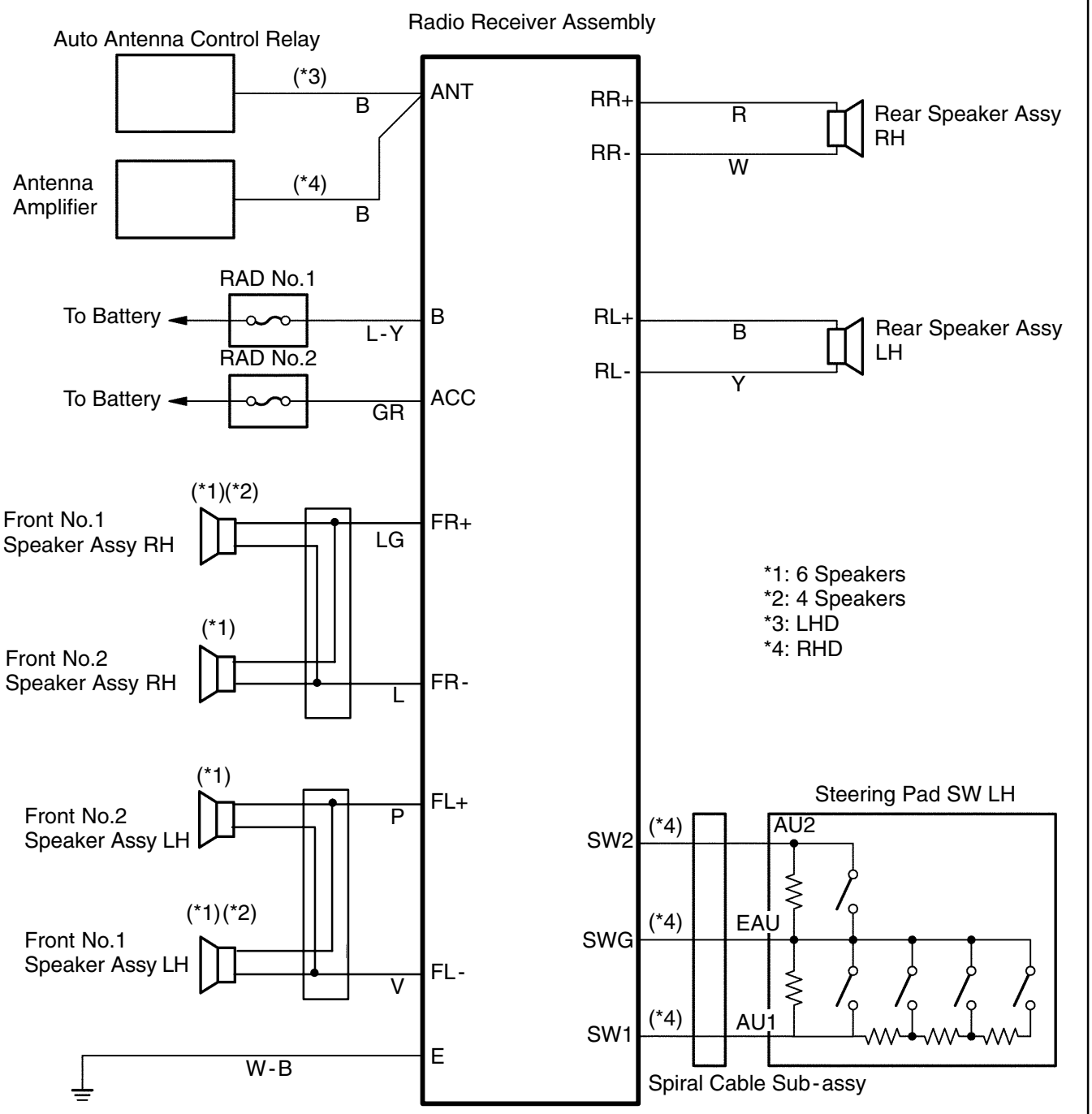
- Disc Player Changer (South Africa)
- Disc Player Changer (Satellite Navigation)



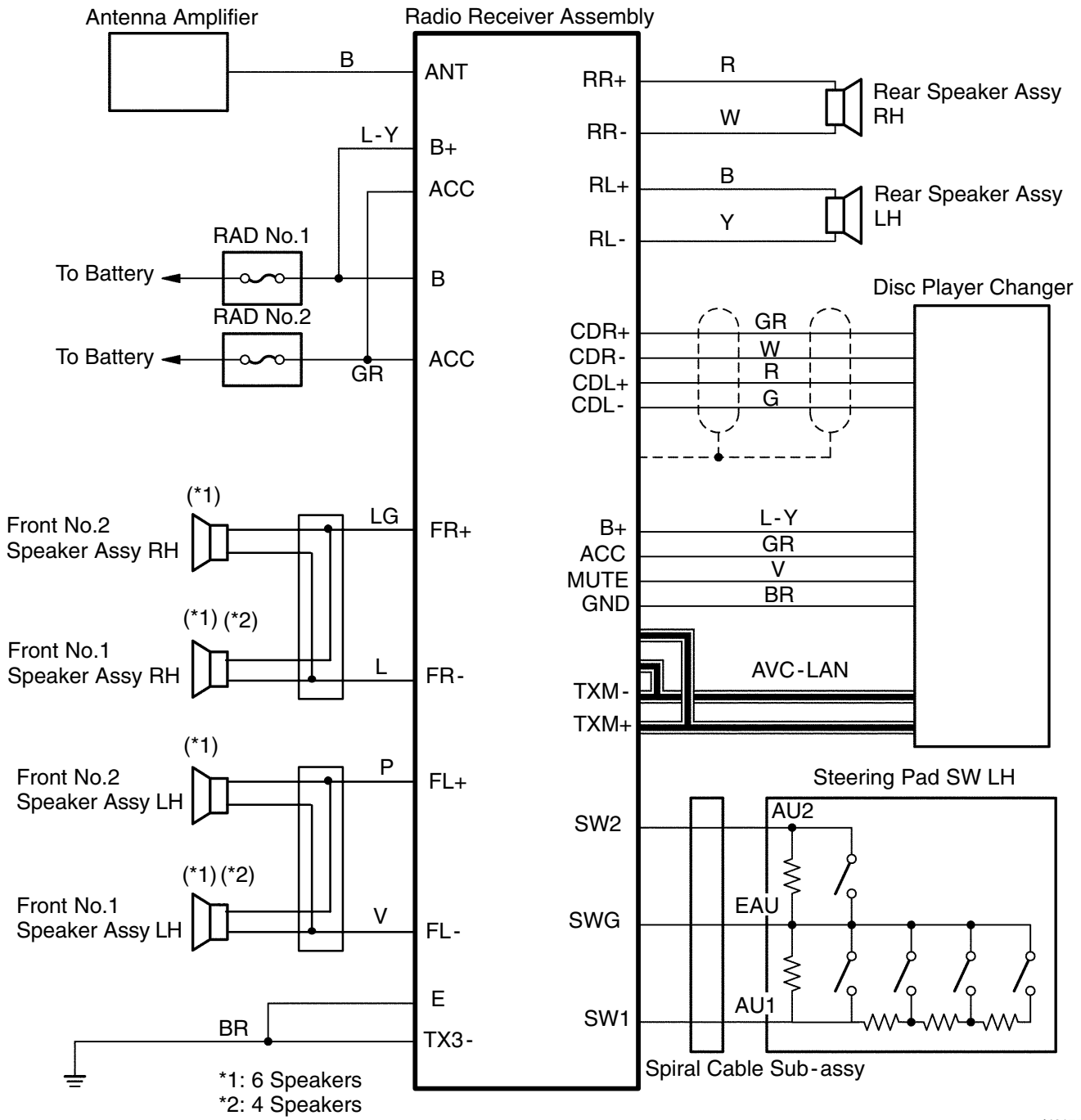
P

SYSTEM DIAGRAM

Except South Africa:



South Africa:



P

I43175

DESCRIPTION

COMPACT DISC PLAYER

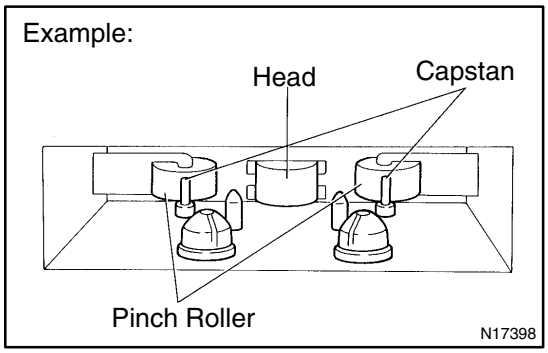
Compact Disc (hereafter called “CD”) players use a laser beam pick-up to read the digital signals recorded on CDs and reproduce analog signals of the recorded data or music. Twelve centimetre (4.7 in) and eight centimetre (3.2 in) discs are available for the CD player.

HINT:

- Never disassemble or apply oil to any part of the player unit.
- Do not insert any object other than a CD into the CD player.

NOTICE:

CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed in the vehicle owner’s manual.

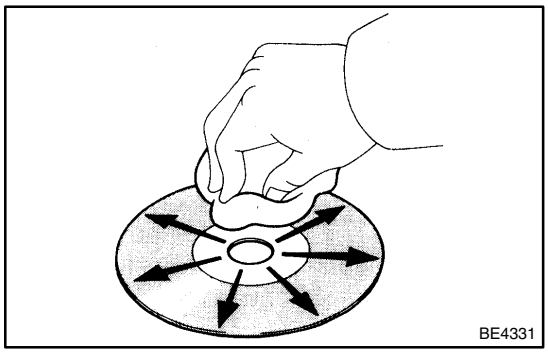


MAINTENANCE

Tape Player Head Cleaning:

(a) Raise the cassette door with your finger.
Using a pencil or similar object, push in the guide.

(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.



CD Player Disc Cleaning:

If the disc gets dirty, clean the disc by wiping the surface from the centre to outside in a radial direction with a soft cloth.

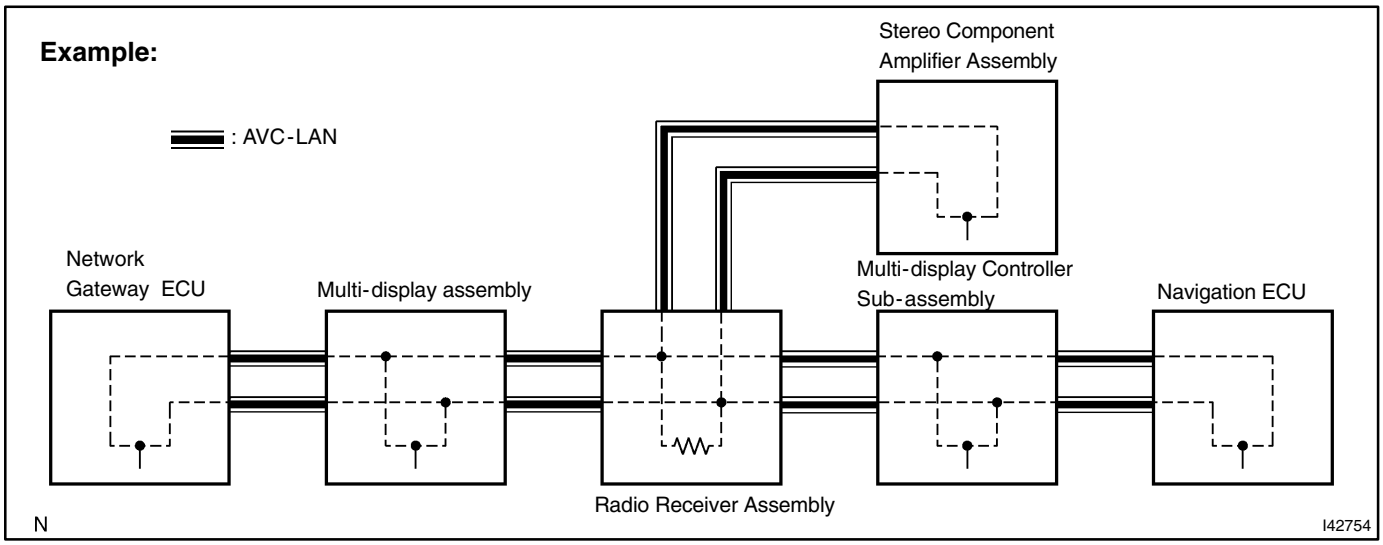
NOTICE:

Do not use a conventional record cleaner or anti-static preservative.

OUTLINE OF AVC-LAN

What is AVC-LAN?

AVC-LAN is the abbreviation for Audio Visual Communication-Local Area Network. This is a unified standard co-developed by 6 audio manufacturers associated with Toyota Motor Corporation.
The unified standard includes signals, such as audio, visual and signals for switch indication and communication.



Objectives

Recent developments in car audio systems have been rapid and functions have been changed drastically. The conventional system has been changed to a multi-media type, such as a navigation system. As well customers may wish to upgrade their system at a later date; therefore the audio systems have been standardised.
Further objectives are explained below:

(1) When products by different manufacturers are combined together, configuration problems can arise, resulting in problems such as, sound failure. This problem can be solved by the standardisation of signals.
(2) Various types of after market products are available.
(3) In general, a new product developed by any particular manufacturer cannot be used due to a lack of compatibility with other manufacturer's products. By developing this new standard, users can enjoy a range of compatible products from different manufacturers.

HINT:

- When a short to +B or short to ground is detected in the AVC-LAN circuit, communication stops, and the audio system will not function.
- When the audio system is not equipped with a navigation system, the audio head unit is the master unit. When the audio system is equipped with a navigation system, the multi-display unit is the master unit.
- The radio receiver assembly is equipped with a resistor (60 to 80 Ω) for communication.
- All car audio systems using an AVC-LAN circuit have a diagnostic function.
- Each unit has its own specified number called a physical address (three-digit number). Numbers are also allotted to each function, which are called logical addresses (two-digit number).

COMMUNICATION SYSTEM

Components in the audio system communicate with each other through the AVC-LAN. (Radio receiver with CD changer control function)

When a short circuit or circuit breakdown occurs in the AVC-LAN circuit, the audio system does not operate normally due to the communication cut-off.

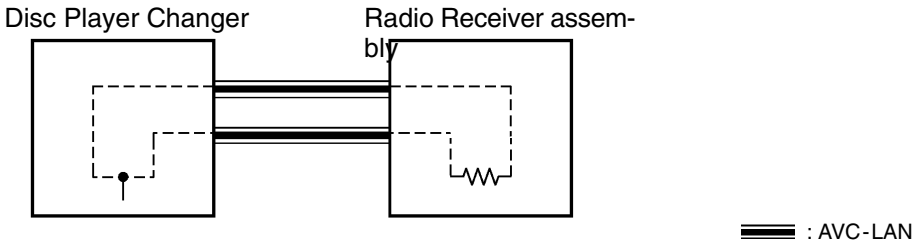
DIAGNOSTIC FUNCTION

(c) The audio system has a diagnostic function (The diagnostic result is displayed on the LCD of the radio receiver assembly). (Radio receiver with CD changer control function)

(d) The component code (physical address), or three-digit number (in hexadecimal) is set for each component comprising the AVC-LAN.

(e) The logical address, or two-digit number (in hexadecimal) is set for each function and component unit in each component.

AVC-LAN:



HOW TO PROCEED WITH TROUBLESHOOTING

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	CUSTOMER PROBLEM ANALYSIS, see page 05-50

(a) Interview and confirm the problem.
  (1) Confirm the condition of the problem.

NEXT

3	BASIC INSPECTION

(a) Basic inspection.
  (1) Check the battery voltage.

  Standard: 11 to 14 V

(b) Check the power supply to the radio receiver assembly.
  (1) Turn the ignition switch to the ACC position.
  (2) Check whether or not the display appears on the radio receiver assembly.

	DISPLAY DOES NOT APPEAR, PROCEED TO PROBLEM SYMPTOMS TABLE, see page 05-53
	DISPLAY APPEARS (GO TO STEP 4)

4	DTC CHECK, see page 05-62

	DTC IS OUTPUT (GO TO STEP 5)
	DTC IS NOT OUTPUT (GO TO STEP 6)

5	DTC CHART, see page 05-73

NEXT	GO TO STEP 7

6	PROBLEM SYMPTOMS TABLE, see page 05-53

NEXT

7	CIRCUIT INSPECTION AND PART INSPECTION (SEE PAGE 05-78 - 05-132)

NEXT

8	IDENTIFICATION OF PROBLEM

NEXT

9	CONFIRMATION TEST

NEXT

END

CUSTOMER PROBLEM ANALYSIS CHECK

AUDIO SYSTEM Check Sheet

Inspector's name: _____

Customer's Name		**VIN**	
		Production Date	
		Licence Plate No.	
Brought-in Date	/ /	**Odometer Reading**	**km mile**

Date of First Occurrence	/ /
Frequency of Problem Occurrence	☐ Constant ☐ Intermittent (Times a day)

Problem Symptom	☐ **Switch**
	☐ **Radio**
	☐ **CD**
	☐ **Noise**

	Part name	**DTC (1st time)**	**DTC (2nd time)**
DTC Check	Radio receiver assembly		
	Disc player changer		

I32867

I35110

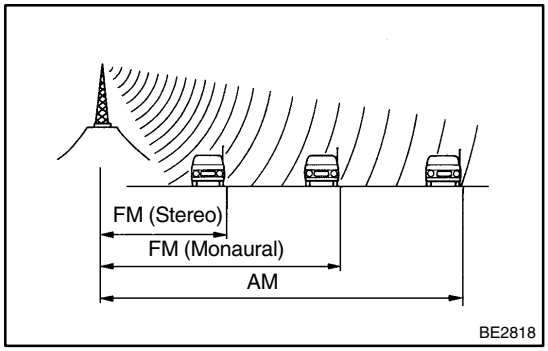
IDENTIFICATION OF NOISE SOURCE

RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

Frequency	30 kHz	300 kHz	3 MHz	30 MHz	300 MHz
Designation	LF	MF	HF	VHF	
Radio wave		AM ⟷		FM ⟷	
Modulation	Amplitude modulation			Frequency modulation	

LF: Low Frequency
MF: Medium Frequency
HF: High Frequency
VHF: Very High Frequency



SERVICE AREA

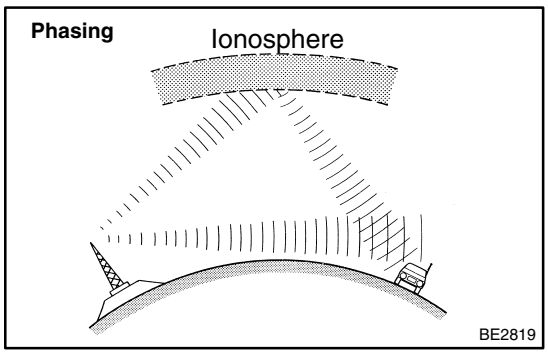
There is a great difference in the size of the service areas for AM and FM broadcasting. Sometimes an FM stereo broadcast cannot be received even though AM can be received very clearly.

FM stereo has a smaller service area, but it alsot picks up static and other types of interference (“noise”) easily.

RECEPTION PROBLEMS

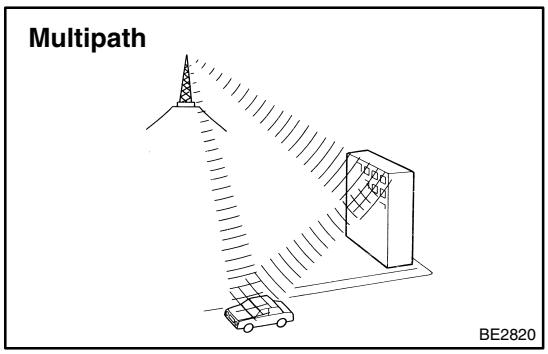
HINT:

Besides the problem of static, there are other problems, such as “phasing”, “multipath” and “fade out”. These problems are caused not by electrical noise but by the nature of the radio waves themselves.



Phasing

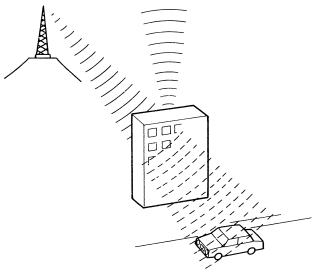
Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals that reach the vehicle’s antenna directly from the same transmitter. This type of interference is called “phasing”.



Multipath

Interference caused by reflection of radio waves against obstructions is called “Multipath”. Multipath occurs when radio signals emitted from the broadcast transmitter antenna are reflected against tall buildings or mountains and interfere with other signals which are to be received directly.

Fade Out



Fade Out

FM radio wave tends to be reflected against obstructions such as tall buildings or mountains because FM frequency is higher than AM. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind those obstructions. This phenomenon is called “fade out”.

NOISE PROBLEMS

It is very important for technicians to clearly understand a customer’s claim about noise. Use the following table to diagnose the phenomena.

Radio wave	Condition in which noise occurs	Probable cause
AM	Noise occurs at a specific place.	Strong possibility of foreign noise.
	Noise occurs when listening to faint broadcasting.	The same program may be broadcasted from some local stations. If the program is the same, one of those may be tuned in.
	Noise occurs only at night.	Strong possibility of an interfering beat from a distant broadcast.
FM	Noise occurs at a specific place during driving.	Strong possibility of multipath noise and phasing noise caused by changes of FM frequency.

HINT:

If the condition when the noise occurs does not meet any of the above, find out the cause based on “Reception Problems”. Refer to the description about multipath and phasing mentioned previously.

IDENTIFY THE CONDITIONS UNDER WHICH THE NOISE OCCURS; CHECK THE NOISE FILTER ON THE RELEVANT PART.

Conditions under which noise occurs	Noise type
Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped.	Alternator noise
Noise occurs during A/C or heater operation.	Blower motor noise
Noise occurs when the vehicle accelerates rapidly on an unpaved road or after the ignition switch is turned on.	Fuel pump noise
Noise occurs when the horn switch is pressed and released or when pressed and held.	Horn noise
Quiet noise occurs while the engine is running, but stops when the engine is stopped.	Ignition noise
Noise occurs synchronously with the blink of the turn signal.	Flasher noise
Noise occurs during window washer operation.	Washer noise
Noise occurs while the engine is running, and continues even after the engine is stopped.	Water temperature sensor noise
Noise occurs during wiper operation.	Wiper noise
Noise occurs when the brake pedal is depressed.	Stop light switch noise
Others	Static electricity stored on the vehicle

Reference:

First ensure that the noise is not coming from an outside source. Failure to do so makes noise source detection difficult and may lead to an incorrect diagnosis.

- Noise should be removed in descending order of volume.
- Tuning the radio so that no station is received makes the noise more noticeable, making the recognition of the phenomenon easier.

PROBLEM SYMPTOMS TABLE

RADIO RECEIVER ASSEMBLY

HINT:

Inspect the “Fuse” and “Relay” before confirming the suspected area as shown in the table below.

★: Refer to Camry Repair Manual, Pub. No. AC-RM033V1 & 2 AUDIO & VISUAL SYSTEM.

Symptom	Suspected Area	See page
Pressing power switch does not start system.	1. Power source circuit (radio receiver assembly) 2. Replace radio receiver assembly	05-78 ★
Radio receiver cannot be dimmed in night time.	1. Illumination circuit 2. Replace radio receiver assembly	05-89 ★
No image appears on radio receiver assembly screen (South Africa).	1. Power source circuit (radio receiver assembly) 2. AVC-LAN circuit 3. Replace radio receiver assembly	05-78 05-109 ★
No sound can be heard (South Africa).	1. Power source circuit (radio receiver assembly) 2. Power source circuit (disc player changer) 3. Sound signal circuit (radio receiver assembly - disc player changer) 4. Speaker circuit 5. AVC-LAN circuit 6. Mute signal circuit (radio receiver assembly - disc player changer) 7. Replace disc player changer 8. Replace radio receiver assembly	05-78 05-83 05-105 05-96 05-109 05-101 ★ ★
No sound can be heard (except South Africa).	1. Power source circuit (radio receiver assembly) 2. Speaker circuit 3. Replace radio receiver assembly	05-78 05-96 ★
Sound quality is bad in all modes (volume is too low) (South Africa).	1. Power source circuit (radio receiver assembly) 2. Power source circuit (disc player changer) 3. Speaker circuit 4. Sound signal circuit (radio receiver assembly - disc player changer) 5. Mute signal circuit (radio receiver assembly - disc player changer) 6. Sound quality is bad in all modes (volume is too low)	05-78 05-83 05-96 05-105 05-101 05-118
Sound quality is bad in all modes (volume is too low) (except South Africa).	1. Power source circuit (radio receiver assembly) 2. Speaker circuit 3. Sound quality is bad in all modes (volume is too low)	05-78 05-96 05-118
Noise occurs.	-	05-119
Radio broadcast cannot be received (bad reception). (*1)	-	05-120
Radio broadcast cannot be received (bad reception). (*2)	1. Radio broadcast cannot be received (bad reception) 2. Power source circuit (auto antenna control relay) 3. Auto antenna control relay signal circuit 4. Replace auto antenna control relay 5. Replace radio receiver assembly	05-120 05-87 05-107 ★ ★
CD cannot be inserted or is ejected right after insertion.	1. Power source circuit (radio receiver assembly) 2. CD cannot be inserted or is ejected right after insertion	05-78 05-123
CD cannot be ejected.	1. Power source circuit (radio receiver assembly) 2. CD cannot be ejected	05-78 05-125
Sound quality is bad only when playing CD (volume is too low).	-	05-126
CD sound skips.	-	05-127
Cassette tape cannot be inserted or played.	1. Power source circuit (radio receiver assembly) 2. Cassette tape cannot be inserted or played	05-78 05-129
Cassette tape cannot be ejected.	1. Power source circuit (radio receiver assembly) 2. Cassette tape cannot be ejected	05-78 05-130

Sound quality is bad only when playing tape.	-	05-131
Tape is tangled due to incorrect tape speed or auto-reverse malfunction.	-	05-132

*1: RHD
*2: LHD

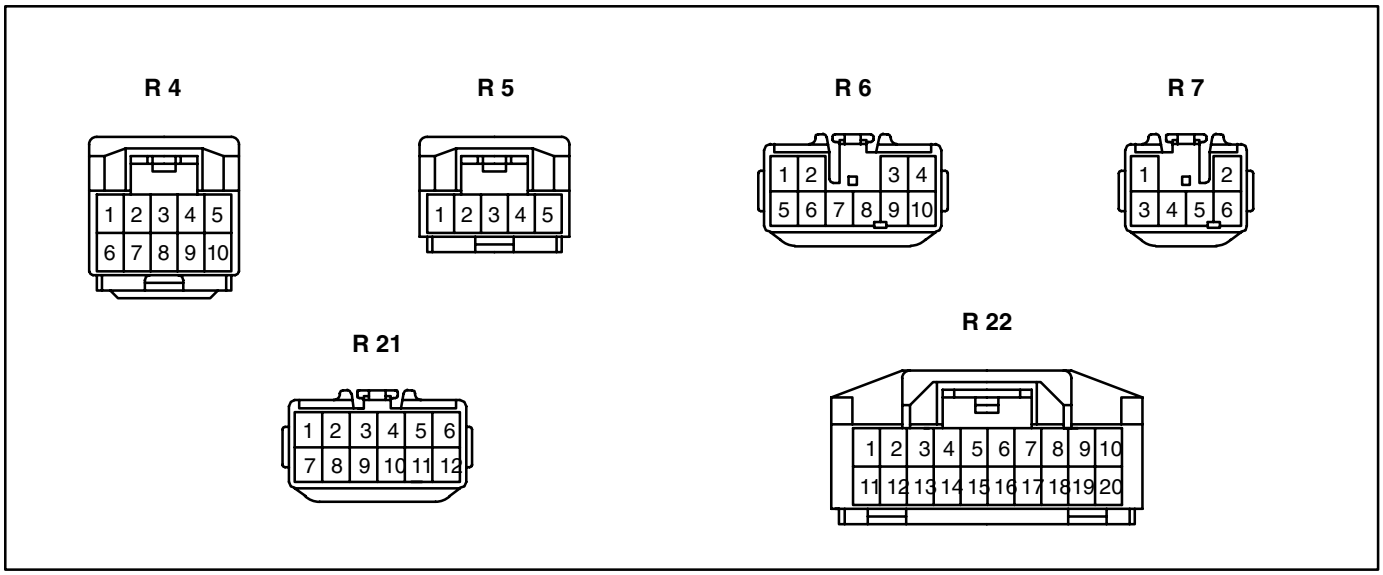
STEERING PAD SWITCH

Symptom	Suspected Area	See page
A audio system cannot be operated with steering pad switch. (*1)	1. Steering pad switch circuit 2. Replace radio receiver assembly	05-113 ★
Illumination for steering pad switch does not come on with TAIL switch on. (*1)	1. Illumination circuit 2. Replace radio receiver assembly	05-89 ★

*1: RHD

TERMINALS OF ECU - RHD

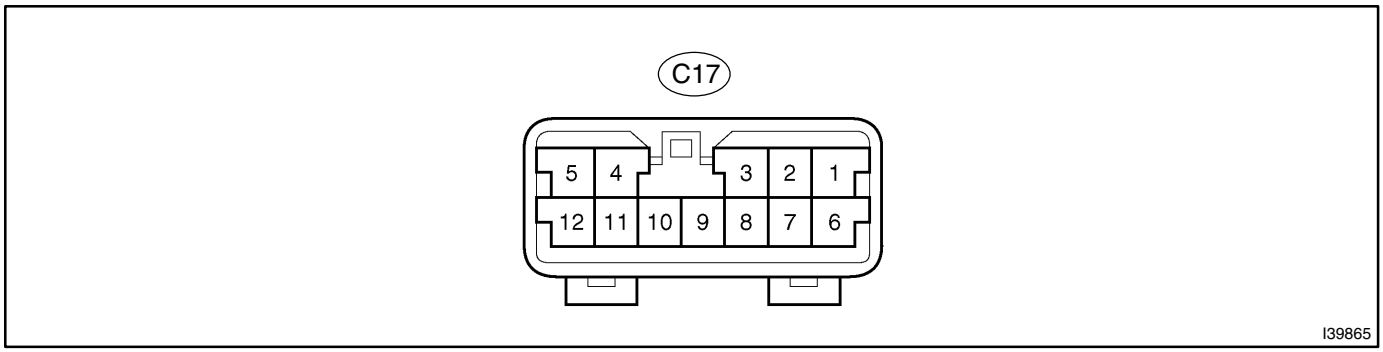
RADIO RECEIVER ASSEMBLY



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
FR+ (R6-1) - GND (R6-7)	LG - BR	Sound signal (Front Right)	Audio system is playing	A wave form synchronized with sounds is output
FL+ (R6-2) - GND (R6-7)	P - BR	Sound signal (Front Left)	Audio system is playing	A wave form synchronized with sounds is output
ACC (R6-3) - GND (R6-7)	GR - BR	Accessory (ON)	Turn ignition switch OFF → ACC	Below 1 V → 10 to 14 V
B (R6-4) - GND (R6-7)	L-Y - BR	Battery	Always	10 to 14 V
FR- (R6-5) - GND (R6-7)	L - BR	Sound signal (Front Right)	Audio system is playing	A waveform synchronized with beep signal is output
FL- (R6-6) - GND (R6-7)	V - BR	Sound signal (Front Left)	Audio system is playing	A waveform synchronized with beep signal is output
GND (R6-7) - Body ground	BR - Body ground	Ground	Always	Below 1 V →
ANT (R6-8) - GND (R6-7)	B - BR	Power source of antenna	Radio switch ON and AM or FM	10 to 14 V
ILL+ (R6-10) - GND (R6-7)	G - BR	Illumination signal	Light control switch OFF → TAIL or HEAD	Below 1 V → 10 to 14 V
RR+ (R7-1) - GND (R6-7)	R - BR	Sound signal (Rear Right)	Audio system is playing	A waveform synchronized with sounds is output
RL+ (R7-2) - GND (R6-7)	B - BR	Sound signal (Rear Left)	Audio system is playing	A wave form synchronized with sounds is output
RR- (R7-3) - GND (R6-7)	W - BR	Sound signal (Rear Right)	Audio system is playing	A wave form synchronized with sounds is output
RL- (R7-6) - GND (R6-7)	Y - BR	Sound signal (Rear Left)	Audio system is playing	A wave form synchronized with sounds is output
CDR+ (R4-2) - GND (R6-7)	B - BR	Sound signal (Right) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
CDL+ (R21-4) - GND (R6-7)	R - BR	Sound signal (Left) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output
SGND (R22-1) - Body ground	Shielded - Body ground	Shielded ground	Always	Below 1 V
MUTE (R21-6) - GND (R6-7)	V - BR	Mute signal	Audio system is playing → changing	Above 3.5 V → Below 1 V
+B (R21-12) - GND (R6-7)	L-Y - BR	Battery (to disc player changer)	Always	10 to 14 V
CDR- (R21-4) - GND (R6-7)	W - BR	Sound signal (Right) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output
CDL- (R21-5) - GND (R6-7)	G - BR	Sound signal (Left) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output
GND (R21-7) - Body ground	BR - Body ground	Ground (to disc player changer)	Always	Below 1 V
TXM- (R4-10) - GND (R6-7)	R - BR	AVC-LAN communication signal	Turn ignition switch to ACC	2 to 3 V
TXM+ (R4-5) - GND (R6-7)	W - BR	AVC-LAN communication signal	Turn ignition switch to ACC	2 to 3 V
ACC (R21-11) - GND (R6-7)	GR - BR	Accessory (ON) (to disc player changer)	Turn ignition switch OFF → ACC or ON	Below 1 V → 10 to 14 V
EAU (R22-6) - GND (R6-7)	BR-Y - BR	Steering pad switch ground	Always	Below 1 V
AU1 (R22-7) - GND (R6-7)	Y- B - BR	Steering pad switch signal	Steering pad switch not operated. → SEEK+ switch pushed → SEEK- switch pushed → VOL+ switch pushed → VOL- switch pushed	4 V or more → Approx. 0.5 V → Approx. 0.9 V → Approx. 2.0 V → Approx. 3.4 V
AU2 (R22-8) - GND (R6-7)	R-Y - BR	Steering pad switch signal	Steering pad switch not operated → MODE switch pushed	4 V or more → Below 2.5 V

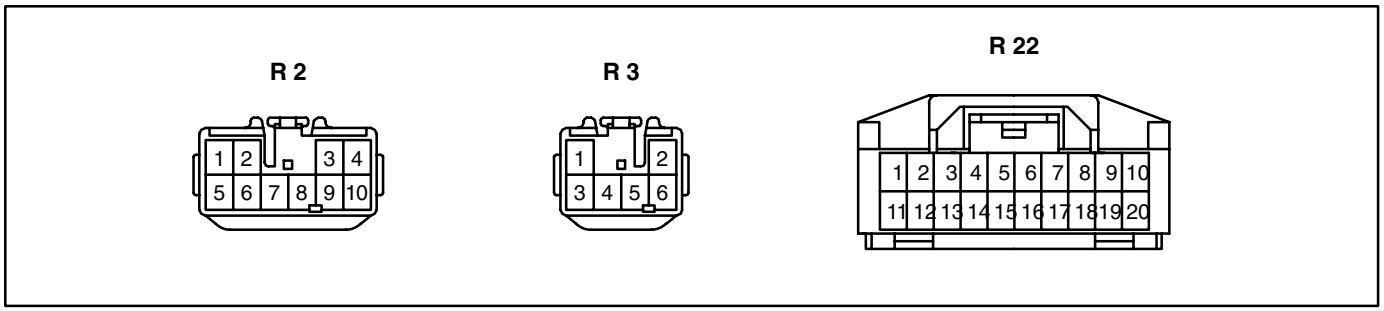
DISC PLAYER CHANGER



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
CDR+ (C17-1) - GND (C17-8)	B - BR	Sound signal (Right)	Audio system is playing	A wave form synchronized with sounds is output
CDL+ (C17-2) - GND (C17-8)	R - BR	Sound signal (Left)	Audio system is playing	A wave form synchronized with sounds is output
MUTE (C17-4) - GND (C17-8)	V - BR	Mute signal	Audio system is playing → changing	Above 3.5 V → Below 1 V
+B (C17-5) - GND (C17-8)	L-Y - BR	Battery	Always	10 to 14 V
CDR- (C17-6) - GND (C17-8)	W - BR	Sound signal (Right)	Audio system is playing	A wave form synchronized with sounds is output
CDL- (C17-7) - GND (C17-8)	G - BR	Sound signal (Left)	Audio system is playing	A wave form synchronized with sounds is output
GND (C17-8) - Body ground	BR - Body ground	Ground	Always	Below 1 V
TXM- (C17-9) - GND (C17-8)	R - BR	AVC-LAN communication signal	Turn the ignition switch to ACC	2 to 3 V
TXM+ (C17-10) - GND (C17-8)	W - BR	AVC-LAN communication signal	Turn the ignition switch to ACC	2 to 3 V
ACC (C17-12) - GND (C17-8)	GR - BR	Accessory (ON)	Turn ignition switch OFF → ACC or ON	Below 1 V → 10 to 14 V

TERMINALS OF ECU - LHD

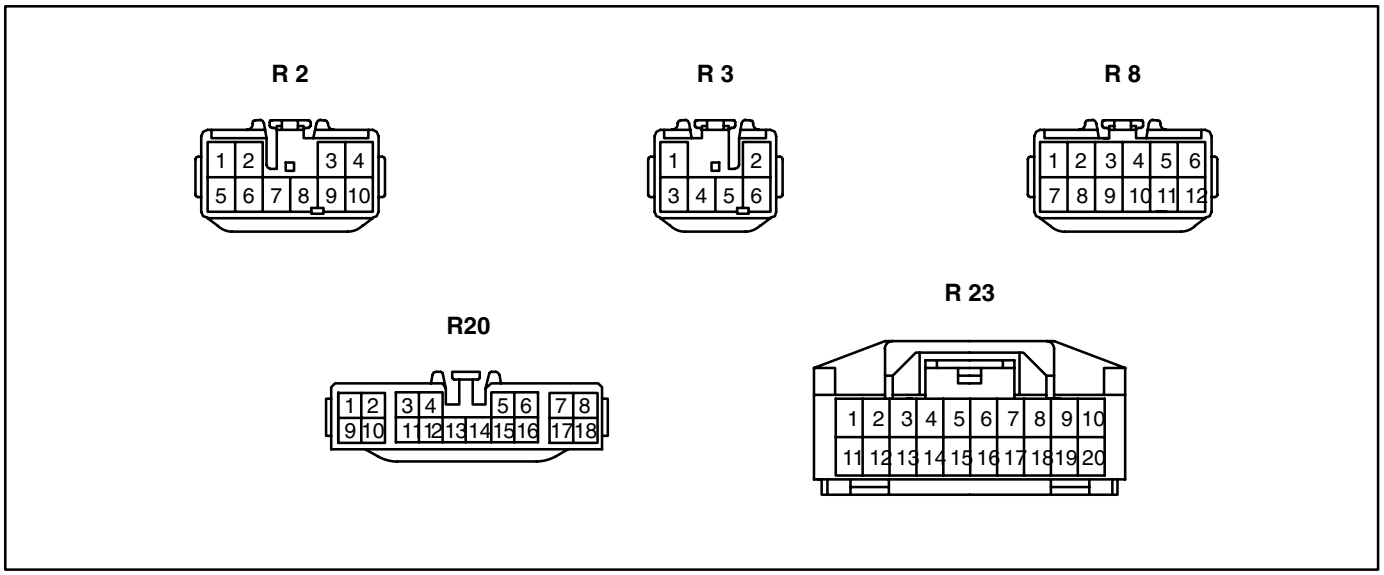
RADIO RECEIVER ASSEMBLY



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
FR+ (R2-1) - E (R2-7)	LG - BR	Sound signal (Front Right)	Audio system is playing	A wave form synchronized with sounds is output
FL+ (R2-2) - E (R2-7)	P - BR	Sound signal (Front Left)	Audio system is playing	A wave form synchronized with sounds is output
ACC (R2-3) (*2) - E (R2-7)	GR - BR	Accessory (ON)	Turn ignition switch OFF → ACC	Below 1 V → 10 to 14 V
B (R2-4) - E (R2-7)	L-Y - BR	Battery	Always	10 to 14 V
FR- (R2-5) - E (R2-7)	L - BR	Sound signal (Front Right)	Audio system is playing	A waveform synchronized with beep signal is output
FL- (R2-6) - E (R2-7)	V - BR	Sound signal (Front Left)	Audio system is playing	A waveform synchronized with beep signal is output
E (R2-7) - Body ground	BR - Body ground	Ground	Always	Below 1 V →
ANT (R2-8) - E (R2-7)	B - BR	Power source of antenna	Radio switch ON and AM or FM	10 to 14 V
ILL+ (R2-10) - E (R2-7)	G - BR	Illumination signal	Light control switch OFF → TAIL or HEAD	Below 1 V → 10 to 14 V
RR+ (R3-1) - E (R2-7)	R - BR	Sound signal (Rear Right)	Audio system is playing	A waveform synchronized with sounds is output
RL+ (R3-2) - E (R2-7)	B - BR	Sound signal (Rear Left)	Audio system is playing	A wave form synchronized with sounds is output
RR- (R3-3) - E (R2-7)	W - BR	Sound signal (Rear Right)	Audio system is playing	A wave form synchronized with sounds is output
RL- (R3-6) - E (R2-7)	Y - BR	Sound signal (Rear Left)	Audio system is playing	A wave form synchronized with sounds is output
SWG (R22-6) - E (R2-7)	BR-Y - BR	Steering pad switch ground	Always	Below 1 V
SW1 (R22-7) - E (R2-7)	Y- B - BR	Steering pad switch signal	Steering pad switch not operated. → SEEK+ switch pushed → SEEK- switch pushed → VOL+ switch pushed → VOL- switch pushed	4 V or more → Approx. 0.5 V → Approx. 0.9 V → Approx. 2.0 V → Approx. 3.4 V
SW2 (R22-8) - E (R2-7)	R-Y - BR	Steering pad switch signal	Steering pad switch not operated → MODE switch pushed	4 V or more → Below 2.5 V

TERMINALS OF ECU - SOUTH AFRICA

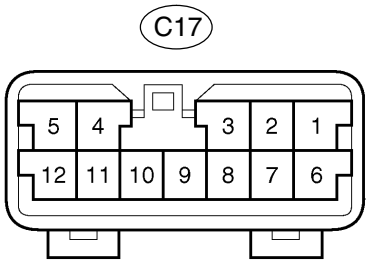
RADIO RECEIVER ASSEMBLY



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
FR+ (R2-1) - E (R2-7)	LG - BR	Sound signal (Front Right)	Audio system is playing	A wave form synchronized with sounds is output
FL+ (R2-2) - E (R2-7)	P - BR	Sound signal (Front Left)	Audio system is playing	A wave form synchronized with sounds is output
ACC (R2-3) - E (R2-7)	GR - BR	Accessory (ON)	Turn ignition switch OFF → ACC	Below 1 V → 10 to 14 V
ACC (R8-19) - E (R2-7)				
B (R2-4) - E (R2-7)	L-Y - BR	Battery	Always	10 to 14 V
FR- (R2-5) - E (R2-7)	L - BR	Sound signal (Front Right)	Audio system is playing	A waveform synchronized with beep signal is output
FL- (R2-6) - E (R2-7)	V - BR	Sound signal (Front Left)	Audio system is playing	A waveform synchronized with beep signal is output
E (R2-7) - Body ground	BR - Body ground	Ground	Always	Below 1 V →
ANT (R2-8) - E (R2-7)	B - BR	Power source of antenna	Radio switch ON and AM or FM	10 to 14 V
ILL+ (R2-10) - E (R2-7)	G - BR	Illumination signal	Light control switch OFF → TAIL or HEAD	Below 1 V → 10 to 14 V
RR+ (R3-1) - E (R2-7)	R - BR	Sound signal (Rear Right)	Audio system is playing	A waveform synchronized with sounds is output
RL+ (R3-2) - E (R2-7)	B - BR	Sound signal (Rear Left)	Audio system is playing	A wave form synchronized with sounds is output
RR- (R3-3) - E (R2-7)	W - BR	Sound signal (Rear Right)	Audio system is playing	A wave form synchronized with sounds is output
RL- (R3-6) - E (R2-7)	Y - BR	Sound signal (Rear Left)	Audio system is playing	A wave form synchronized with sounds is output
CDR+ (R8-1) - E (R2-7)	B - BR	Sound signal (Right) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
CDL+ (R8-2) - E (R2-7)	R - BR	Sound signal (Left) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output
SGND (R8-3) - Body ground	Shielded - Body ground	Shielded ground	Always	Below 1 V
MUTE (R8-4) - E (R2-7)	V - BR	Mute signal	Audio system is playing → changing	Above 3.5 V → Below 1 V
+B (R8-5) - E (R2-7)	L-Y - BR	Battery (to disc player changer)	Always	10 to 14 V
CDR- (R8-6) - E (R2-7)	W - BR	Sound signal (Right) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output
CDL- (R8-7) - E (R2-7)	G - BR	Sound signal (Left) (from disc player changer)	Audio system is playing	A wave form synchronized with sounds is output
E (R8-8) - Body ground	BR - Body ground	Ground (to disc player changer)	Always	Below 1 V
TXM- (R8-9) - E (R2-7)	R - BR	AVC-LAN communication signal	Turn ignition switch to ACC	2 to 3 V
TXM+ (R8-10) - E (R2-7)	W - BR	AVC-LAN communication signal	Turn ignition switch to ACC	2 to 3 V
ACC (R8-12) - E (R2-7)	GR - BR	Accessory (ON) (to disc player changer)	Turn ignition switch OFF → ACC or ON	Below 1 V → 10 to 14 V
SWG (R23-6) - E (R2-7)	BR-Y - BR	Steering pad switch ground	Always	Below 1 V
SW1 (R23-7) - E (R2-7)	Y- B - BR	Steering pad switch signal	Steering pad switch not operated. → SEEK+ switch pushed → SEEK- switch pushed → VOL+ switch pushed → VOL- switch pushed	4 V or more → Approx. 0.5 V → Approx. 0.9 V → Approx. 2.0 V → Approx. 3.4 V
SW2 (R23-8) - E (R2-7)	R-Y - BR	Steering pad switch signal	Steering pad switch not operated → MODE switch pushed	4 V or more → Below 2.5 V

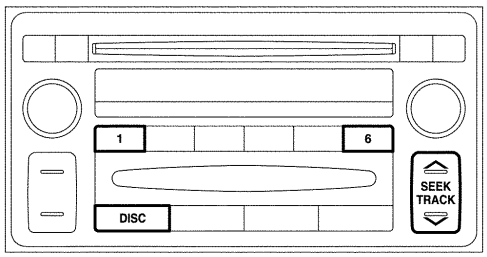
DISC PLAYER CHANGER



I39865

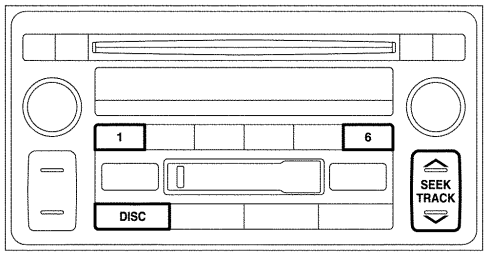
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
CDR+ (C17-1) - E (C17-8)	B - BR	Sound signal (Right)	Audio system is playing	A wave form synchronized with sounds is output
CDL+ (C17-2) - E (C17-8)	R - BR	Sound signal (Left)	Audio system is playing	A wave form synchronized with sounds is output
MUTE (C17-4) - E (C17-8)	V - BR	Mute signal	Audio system is playing → changing	Above 3.5 V → Below 1 V
+B (C17-5) - E (C17-8)	L-Y - BR	Battery	Always	10 to 14 V
CDR- (C17-6) - E (C17-8)	W - BR	Sound signal (Right)	Audio system is playing	A wave form synchronized with sounds is output
CDL- (C17-7) - E (C17-8)	G - BR	Sound signal (Left)	Audio system is playing	A wave form synchronized with sounds is output
E (C17-8) - Body ground	BR - Body ground	Ground	Always	Below 1 V
TXM- (C17-9) - E (C17-8)	R - BR	AVC-LAN communication signal	Turn the ignition switch to ACC	2 to 3 V
TXM+ (C17-10) - E (C17-8)	W - BR	AVC-LAN communication signal	Turn the ignition switch to ACC	2 to 3 V
ACC (C17-12) - E (C17-8)	GR - BR	Accessory (ON)	Turn ignition switch OFF → ACC or ON	Below 1 V → 10 to 14 V

RHD Model (w/o Cassette Player):



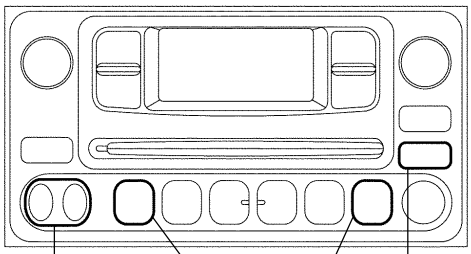
P I43154

RHD Model (w/ Cassette Player):



P I43155

RHD Model (South Africa):



DTC CHECK/CLEAR

DIAGNOSTIC CHECK (RHD)

(a) Starting the Diagnostic Mode (All elements come on during the SW check mode).

(1) Turn off the audio system and turn the ignition switch to the ACC position. While pressing the preset switches “1” and “6” at the same time, press the “DISC” 3 times.

(2) Reference:

- When the system enters the Diagnostic Mode, a beep sound is emitted 3 times and all the elements come on during the SW check mode.
- It takes about 40 seconds to complete the check.
- Turn all the elements in the LCD on.
- When pressing the switch, confirm a beep sound is emitted.

(b) Service Check Screen.

(1) Press the “SEEK TRACK” switch to enter the “Service Check Screen”.

(2) In the service check mode, the system check and the diagnostic memory check are performed, and the check results are displayed in ascending order of the component codes (physical address).

Terms	Meaning
Component code (Physical address)	Three-digit code (in hexadecimal) given to each device comprising the AVC-LAN. Corresponding to its function, individual symbol is provided.
Logical address	Two-digit code (in hexadecimal) given to each function and device unit in each device comprising AVC-LAN.

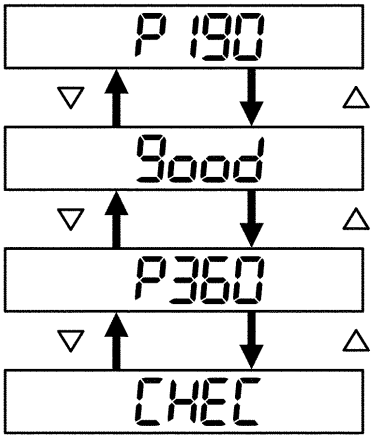
Code No. (physical address) List

Code No. (physical address)	Equipment name
190	Radio receiver assembly (Audio head unit)
360	Disc player changer

(c) Ending the Diagnostic Mode.

Press the “DISC” switch for 2 seconds or more, or turn the ignition switch off.

(d) Service Check Mode Result Display (for checking the current and the past system conditions).
(1) Press the “SEEK TRACK” switch to see the check result of each component.



P---indicates physical address
190---physical address

good---“The component is normal”.

P---indicates physical address
360---physical address

CHEC---“Check needed”.

△ : SEEK TRACK UP
▽ : SEEK TRACK DOWN

The illustration shows a system that has 2 components with codes 190 and 360, and one component (code 360) requires a check.
The check result is displayed in ascending order of component code. The component device code is displayed first, and then the check result follows.

P I34696

(2) Check Result Display.

Display	Original Language	Meaning	Action to be taken
good	Good (normal)	No DTCs are detected in both “System Check Mode” and “Diagnostic Memory Mode”.	-
NCON	No connection	The system recognized the component when it was registered, but the component gives no response to the “Diagnostic Mode ON Request”.	Check the power source circuit and the communication circuit of the component indicated by the component code (physical address).
ECHN	Exchange	One or more DTCs for “Exchange” are detected in either “System Check Mode” or “Diagnostic Memory Mode”.	Go to the detailed information mode to check the trouble area referring to the DTC list.
CHEC	Check	When no DTCs are detected for “Exchange”, one or more DTCs for “Check” are detected in either “System Check Mode” or “Diagnostic Memory Mode”.	Go to the detailed information mode to check the trouble area referring to the DTC list.

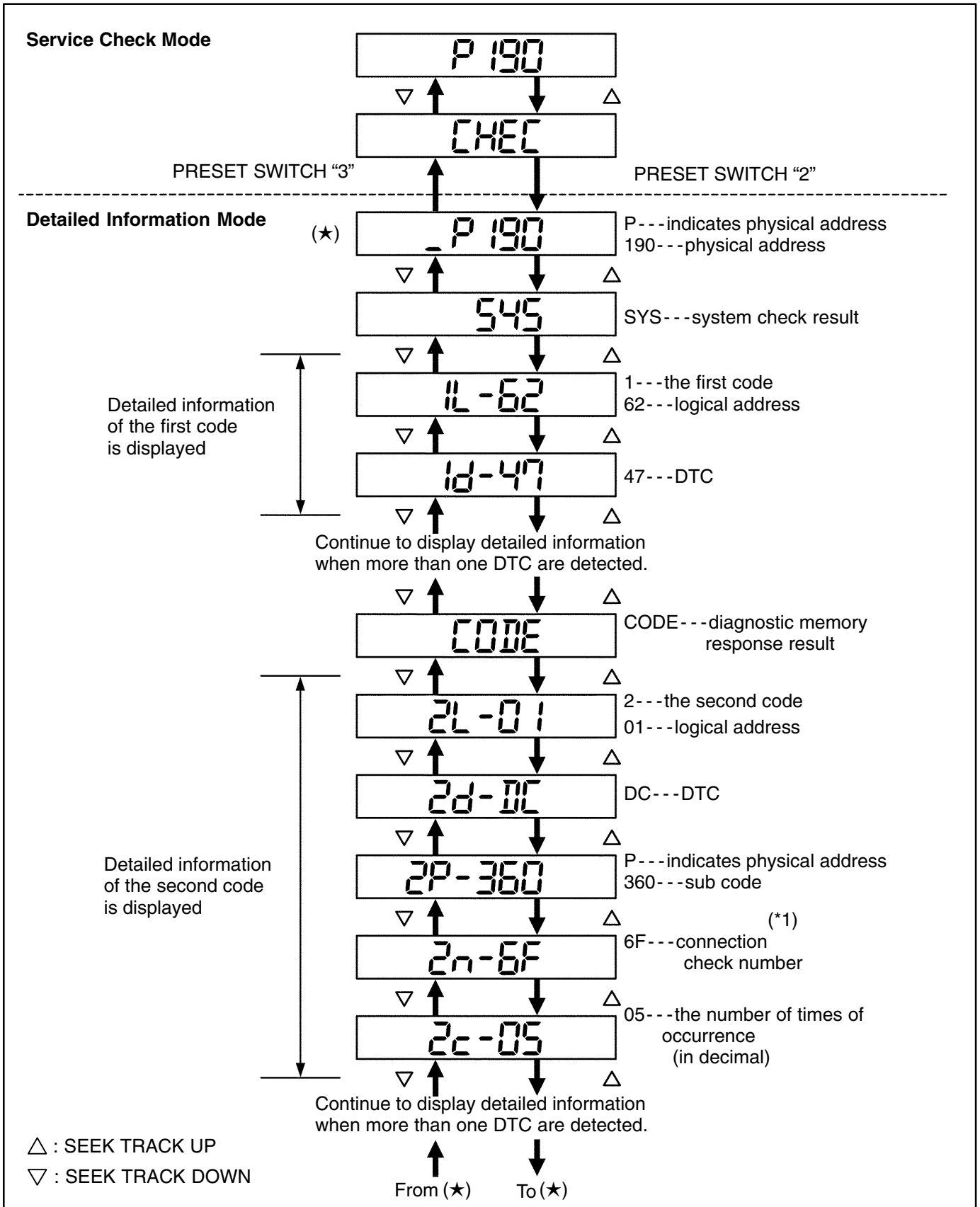
Display	Original Language	Meaning	Action to be taken
OLD	Old version	Old DTC application is identified and DTC is detected in either “System Check Mode” or “Diagnostic Memory Mode”.	-
NRES	No response	The device gives no response to any one of “System Check Mode ON Request”, “System Check Result Request” and “Diagnostic Memory Request”.	Check the power source circuit and the communication circuit of the component indicated by the component code (physical address).

(3) To perform the Service Check again, press the preset switch “1”.

(e) Detailed Information Mode (when displaying the DTC for a troubled component)

(1) With “CHEC” or “ECHN” being displayed, press the preset switch “2” to go to the detailed information mode.

(2) Press the “SEEK TRACK” switch to display the “System Check Result (SYS)” and “Diagnostic Memory Response (CODE)”.



The illustration shows a component with code 190 has DTC "47" and "dC" as a result of the system check and the diagnostic memory response.
The detailed information mode shows the system check result first, then the diagnostic memory response result follows. (*1): As for the DTCs that do not have any sub code, sub code is not displayed.

P

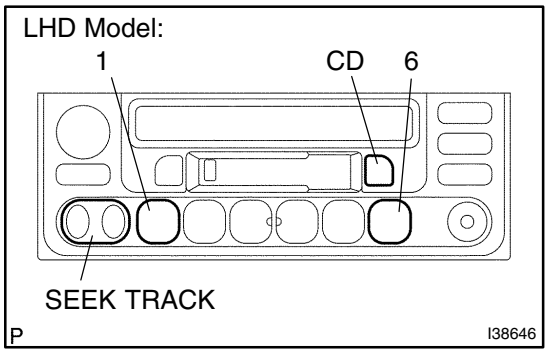
I34695

(3) Displayed Items in Detailed Information Mode

Division Code for DTC display	Meaning	The order of detailed information displayed when the “TUNE UP” switch is pressed. (The order is reversed when the “TUNE DOWN” switch is pressed.)
SYS	System check result is displayed.	Logical address DTC
CODE	Diagnostic memory check result is displayed.	Logical address DTC Sub code Connection confirmation number The number of times of occurrence

(4) Check the trouble area referring to the DTC list.

(5) To return to the service check mode, press the preset switch “3”.



DIAGNOSTIC CHECK (LHD)

(a) Starting Diagnostic Mode

(1) Turn off the audio system and turn the ignition switch to the ACC position. While pressing the preset switches “1” and “6” at the same time, press the “CD” 3 times.

(2) Reference:

- When the system enters the Diagnostic Mode, a beep sound is emitted 3 times.
- It takes about 40 seconds to complete the check.
- When pressing the switch, confirm a beep sound is emitted.
- Press the “SEEK TRACK” switch to enter the “Service Check Screen”.

(b) Service Check Screen

(1) Reference:

In service check mode, the system check and the diagnostic memory check are performed, and the check results are displayed in ascending order of the component codes (physical address).

Terms	Meaning
Component code (Physical address)	Three-digit code (in hexadecimal) given to each device comprising AVC-LAN. Corresponding to its function, individual symbol is provided.
Logical address	Two-digit code (in hexadecimal) given to each function and device unit in each device comprising AVC-LAN.

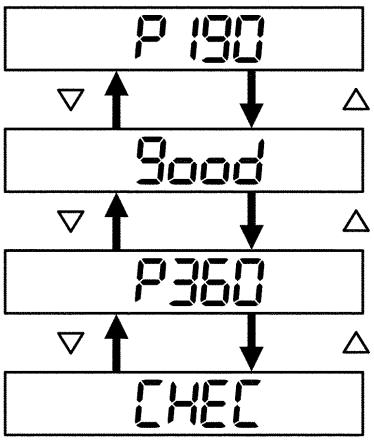
Code No. (physical address) List

Code No. (physical address)	Equipment name
190	Radio receiver assembly (Audio head unit)

(c) Ending the Diagnostic Mode

(1) Press the “CD” for 2 seconds or more, or turn the ignition switch off.

(d) Service Check Mode Result Display (for checking the current and past system conditions).
(1) Press the “SEEK TRACK” switch to see the check result of each component.



P---indicates physical address
190---physical address

good---”The component is normal”.

P---indicates physical address
360---physical address

CHEC---”Check needed”.

△ : SEEK TRACK UP
▽ : SEEK TRACK DOWN

The illustration shows the case that the system has 2 components with codes 190 and 360, and one component (code 360) requires a check.
The check result is displayed in ascending order of component code. The component device code is displayed first, and then the check result follows.

P I34696

(2) Check Result Display.

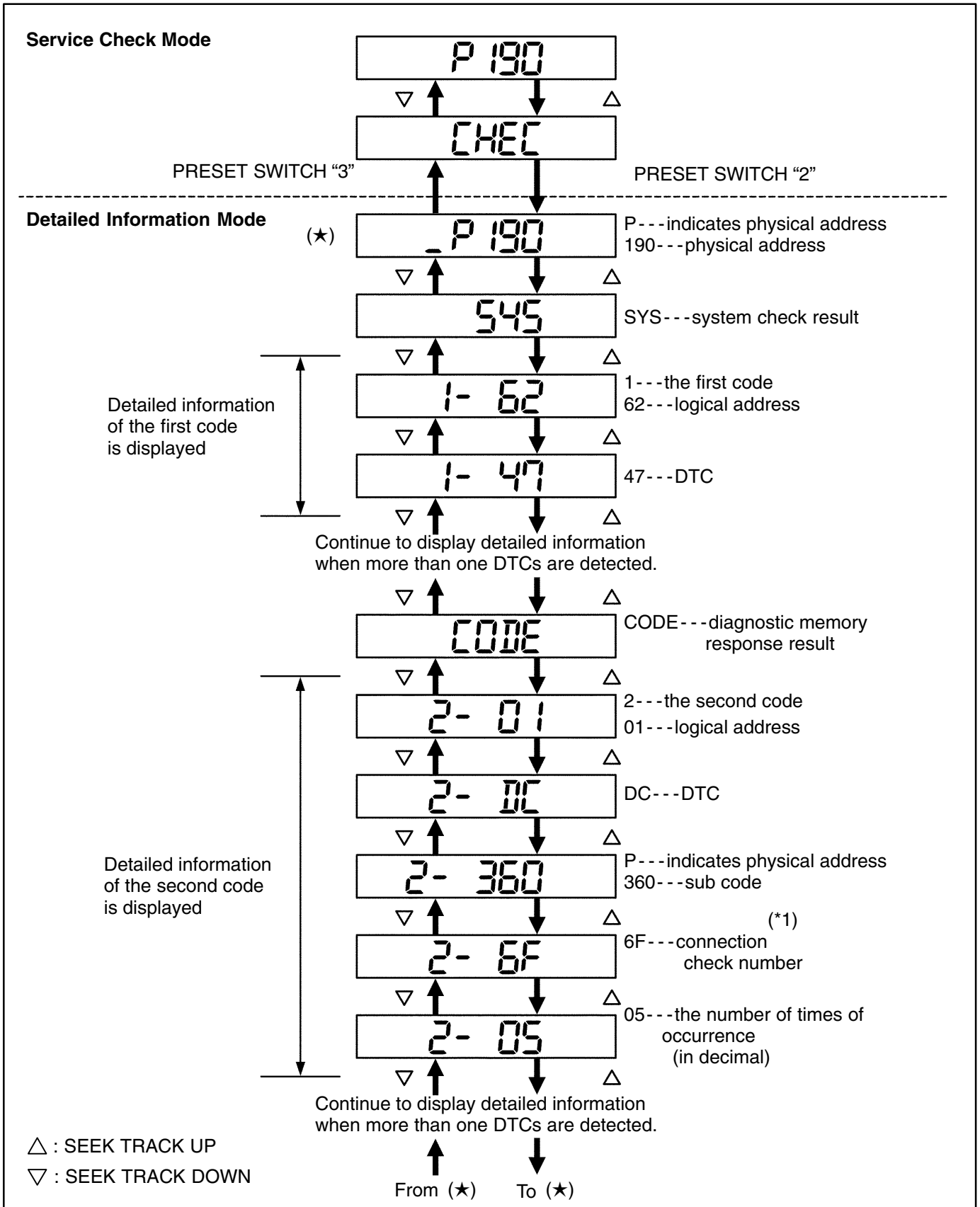
Display	Original Language	Meaning	Action to be taken
good	Good (normal)	No DTCs are detected in both “System Check Mode” and “Diagnostic Memory Mode”.	-
NCON	No connection	The system recognized the component when it was registered, but the component gives no response to the “Diagnostic Mode ON Request”.	Check the power source circuit and the communication circuit of the component indicated by the component code (physical address).
ECHN	Exchange	One or more DTCs for “Exchange” are detected in either “System Check Mode” or “Diagnostic Memory Mode”.	Go to the detailed information mode to check the trouble area referring to the DTC list.
CHEC	Check	When no DTCs are detected for “Exchange”, one or more DTCs for “Check” are detected in either “System Check Mode” or “Diagnostic Memory Mode”.	Go to the detailed information mode to check the trouble area referring to the DTC list.
OLD	Old version	Old DTC application is identified and DTC is detected in either “System Check Mode” or “Diagnostic Memory Mode”.	-
NRES	No response	The device gives no response to any one of “System Check Mode ON Request”, “System Check Result Request” and “Diagnostic Memory Request”.	Check the power source circuit and the communication circuit of the component indicated by the component code (physical address).

(3) To perform the Service Check again, press the preset switch “1”.

(e) Detailed Information Mode (when displaying the DTC for a troubled component)

(1) With “CHEC” or “ECHN” displayed, press the preset switch “2” to go to the detailed information mode.

(2) Press the “SEEK TRACK” switch to display the “System Check Result (SYS)” and “Diagnostic Memory Response (CODE)”.



The illustration shows a component with code 190 has DTC "47" and "dC" as a result of the system check and the diagnostic memory response.
The detailed information mode shows the system check result first, then the diagnostic memory response result follows. (*1): As for the DTCs that do not have any sub code, sub code is not displayed.

P

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(3) Displayed Items in Detailed Information Mode

Division Code for DTC display	Meaning	The order of detailed information displayed when the “TUNE UP” switch is pressed. (The order is reversed when the “TUNE DOWN” switch is pressed.)
SYS	System check result is displayed.	Logical address DTC
CODE	Diagnostic memory check result is displayed.	Logical address→ DTC→ Sub code→ Connection confirmation number→ The number of times of occurrence

(4) Check the trouble area refered to in the DTC list.

(5) To return to the service check mode, press the preset switch “3”.

DTC CLEAR BOTH RHD AND LHD

(a) Clearing individual DTC memory (when clearing the memory of the DTCs detected in the past)
  (1) Press the preset switch “5” for 2 seconds or more while the “ECHN” is displayed in the service check mode or during the detailed information mode.

HINT:

- A beep sound is emitted once when the DTC memory is completely cleared.
- When the DTC memory is cleared, only the component code (physical address) is displayed for the target component.
- To check DTCs, press the preset switch “1” and perform the service check again.

(b) Clearing all the DTC memory (when clearing all the memory of the DTCs detected in the past)
  (1) Start the diagnostic mode after repairing the trouble area.
  (2) Press the preset switch “5” for 2 seconds or more (“CLR” is displayed at this time).

HINT:

- A beep sound is emitted once when the DTC memory is completely cleared.
- When the DTC memory for all the components is cleared, only the component codes (physical address) are displayed.

  (3) Press the preset switch “1” to perform the service check again, and check that no DTCs are displayed for all the component codes (physical address).

(c) Ending the Diagnostic Mode
  (1) Press the “DISC” for 2 seconds or more, or turn the ignition switch off.

DIAGNOSTIC TROUBLE CODE CHART

Terms	Meaning
Physical address	Three-digit code (shown in hexadecimal) which is given to each component comprising the AVC-LAN. Corresponding to the function, individual symbols are specified.
Logical address	Two-digit code (shown in hexadecimal) which is given to each function comprising the inner system of the AVC-LAN.

HINT:
Titles for each unit are stated in the following order: physical address (parts name).

190 (RADIO RECEIVER ASSEMBLY)

HINT:

- *1: Even if no failure is detected, trouble codes may be stored depending on the battery condition or voltage for starting the engine.
- *2: The code is stored 180 seconds after the power supply connector is disconnected after engine start.
- *3: The code may be stored when the engine key is turned 1 minute after engine start.
- *4: The code may be stored when the engine key is turned again after engine start.
- *5: The code is stored 210 seconds after the master component power supply connector is disconnected with the ignition switch in the ACC or ON position.

(a) Logical address: 01 (Communication control)

DTC	Diagnosis item	Diagnosis content	Countermeasure
21	ROM Error	Abnormal condition of ROM is detected.	Replace radio receiver assembly.
22	RAM Error	Abnormal condition of RAM is detected.	Replace radio receiver assembly.
D5 *1	Registered Component Disconnected	Component shown by sub code is or was disconnected from system with ignition switch in ACC or ON position. Communication with component shown by sub code is not ensured when engine is started.	• Check harness for power supply system of component shown by sub code, see page 05-83. • Check harness for communication system of component shown by sub code, see page 05-109.
D6 *1	Absence of Master	Component in which this code is recorded was disconnected from system or master component with ignition switch in ACC or ON.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for power supply system of disc player changer, see page 05-83. • Check harness for communication system of radio receiver assembly, see page 05-109.
D7 *5	Connection Check Error	Component in which this code is recorded was disconnected from system or master component with ignition switch in ACC or ON.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for power supply system of disc player changer, see page 05-83. • Check harness for communication system of radio receiver assembly, see page 05-109.
D8 *2	No Response to Connection Check	Component shown by sub code is or was disconnected from system after engine start.	• Check harness for power supply system of component shown by sub code, see page 05-83. • Check harness for communication system of component shown by sub code, see page 05-109.
D9 *1	Last Mode Error	Audio or visual component operated before engine stop is or was disconnected with ignition switch in ACC or ON.	• Check harness for power supply system of component shown by sub code, see page 05-83. • Check harness for communication system of component shown by sub code, see page 05-109.

DTC	Diagnosis item	Diagnosis content	Countermeasure
DA	No Response to ON/OFF Instruction	No response is identified when changing mode (audio and visual mode change). Sound and picture do not change by button operation.	• Check harness for power supply system of component shown by sub code, see page 05-83. • Check harness for communication system of component shown by sub code, see page 05-109. • If error occurs again, replace component shown by sub code, see Pub. No. AC-RM033V2, section 67.
DB *1	Mode Status Error	Dual alarm is detected.	• Check harness for power supply system of component shown by sub code, see page 05-83. • Check harness for communication system of component shown by sub code, see page 05-109.
DC *3	Transmission Error	Transmission to component shown by sub code has failed. (Detecting this DTC does not necessarily mean actual failure.)	If same sub code is recorded in other component, check harness for power supply and communication system of all components shown by code. (If not, delete DTC and recheck.)
DD *4	Master Reset (Momentary Interruption)	After the engine was started, master component was disconnected from system.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for communication system of radio receiver assembly, see page 05-109. • If this error occurs frequently, replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
DE *4	Slave Reset (Momentary Interruption)	After the engine was started, component shown by sub code was disconnected from system.	• Check harness for power supply system of component shown by sub code, see page 05-83. • Check harness for communication system of component shown by sub code, see page 05-109.
DF *4	Master Error	Due to defective condition of component with a display, master function is switched to audio equipment. Error occurs in communication between sub-master (audio) and master component.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for communication system of radio receiver assembly, see page 05-109.
E0 *1	Registration Completion Instruction Error	”Registration Completion Instruction” command from master cannot be received.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.
E1 *1	Voice Processing Device ON Error	The AMP device records that the AMP output does not function even while the source device operates.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for communication system of radio receiver assembly, see page 05-109.
E2	ON/OFF Instruction Parameter Error	Error occurs in ON/OFF controlling command from master component.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
E3 *1	Registration Request Transmission	Registration Request command is output from component shown by sub code. Receiving Connection Check Instruction, Registration Request command is output from sub-master component.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.
E4 *1	Multiple Frame Abort	Multiple frame transmission is aborted.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.

(b) Logical address: 60 (Radio unit)

DTC	Diagnosis item	Diagnosis content	Countermeasure
43	AM Tuner Error	Abnormal condition of AM tuner is detected.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
44	FM Tuner Error	Abnormal condition of FM tuner is detected.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.

(c) Logical address: 61 (Cassette unit)

DTC	Diagnosis item	Diagnosis content	Countermeasure
40 48	Mechanical Error of Media	Malfunction due to mechanical failure is identified. Either that, or cassette tape is cut or entangled.	• Inspect cassette tape. • Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
41	EJECT Error	Malfunction due to mechanical failure.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
42	Tape caught in the radio receiver assembly	Hub lock etc.	Inspect cassette tape.

(d) Logical address: 62 (CD player)

DTC	Diagnosis item	Diagnosis content	Countermeasure
42	No Disc Readout	Disc cannot be read.	• Inspect CD. • Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
44	CD Player Error	Error is detected in CD player.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
45	EJECT Error	Disc cannot be ejected.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
46	Disc has scratches on the reverse surface	CD has dirt or scratches on the reverse side.	• Inspect CD. • If the same code is detected, replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
47	Detection of high temperature	High temperature is detected in CD player.	With ignition switch off, leave vehicle in cool shaded place for a while and recheck. After deleting the DTC memory, if same code is detected, replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
48	Detection of excess current	Over current is present in CD player.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.

(e) Logical address: 63 (In-dash CD changer)

DTC	Diagnosis item	Diagnosis content	Countermeasure
42	No Disc Readout	Disc cannot be read.	• Inspect CD. • Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
44	CD Player Error	Error is detected in CD player.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
45	EJECT Error	Disc cannot be ejected.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
46	Disc has scratches on the reverse surface	CD has dirt or scratches on the reverse side.	• Inspect CD. • If the same code is detected, replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
47	Detection of high temperature	High temperature is detected in CDCH.	With ignition switch off, leave vehicle in cool shaded place for a while and recheck. After deleting the DTC memory, if the same code is detected, replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
48	Detection of excess current	Over current is present in CDCH.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
51	Elevator Error	Mechanical error occurred during elevator operation.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
52	Clamp Error	Error occurs on clamp.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.

DISC PLAYER CHANGER (PHYSICAL ADDRESS: 360) [CD-CH1]

HINT:

- *1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.
- *2: When 210 sec. have passed after disconnecting the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.
- *3: This code may be stored when the engine key is turned again 1 min. after engine start.
- *4: This code may be stored when the engine key is turned again after engine start.

(a) Logical address: 01 (Communication control)

DTC	Diagnosis item	Diagnosis content	Countermeasure
21	ROM Error	Abnormal condition of ROM is detected.	Replace disc player changer, see Pub. No. AC-RM033V2, section 67.
22	RAM Error	Abnormal condition of RAM is detected.	Replace disc player changer, see Pub. No. AC-RM033V2, section 67.
D6 *1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition in ACC or ON. Either that, or when this code was recorded, radio and display assembly was disconnected.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for power supply system of disc player changer, see page 05-83. • Check harness for communication system between radio receiver and disc player changer, see page 05-109.
D7 *2	Connection Check Error	Component in which this code is recorded has been disconnected from system after engine start. Either that, or when this code was recorded, radio and display assembly was disconnected.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for power supply system of disc player changer, see page 05-83. • Check harness for communication system between radio receiver assembly and disc player changer, see page 05-109.

DTC	Diagnosis item	Diagnosis content	Countermeasure
DC *3	Transmission Error	Transmission to component shown by sub-code has failed. (This code does not necessarily mean actual failure.)	If same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code.
DD *4	Master Reset (Momentary Interruption)	Component that is to be master has been disconnected after engine start.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for communication system between radio receiver assembly and disc player changer, see page 05-109. • If error occurs frequently, replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
DF *4	Master Error	Due to defective condition of component with a display, master function is switched to audio equipment. Error occurs in communication between sub-master (audio) and master component.	• Check harness for power supply system of radio receiver assembly, see page 05-78. • Check harness for communication system between radio receiver assembly and disc player changer, see page 05-109.
E0 *1	Registration Completion Instruction Error	”Registration Completion Instruction” command from master cannot be received.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.
E2	ON/OFF Instruction Parameter Error	Error is detected in ON/OFF control command from radio and display assembly.	Replace radio receiver assembly, see Pub. No. AC-RM033V2, section 67.
E3 *1	Registration Request Transmission	• Registration Request command is output from slave component. • Registration Request command is output from sub-master component.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.
E4	Multiple frame incomplete	Multiple frame transmission ends incomplete.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.

(b) Logical address: 43 (CD changer)

DTC	Diagnosis item	Diagnosis content	Countermeasure
42	Disc cannot be read	The disc cannot be read.	• Inspect CD. • If the same code is detected, replace the disc player changer, see Pub. No. AC-RM033V2, section 67.
45	EJECT Error	Magazine cannot be ejected.	Replace disc player changer, see Pub. No. AC-RM033V2, section 67.
47	CD temperature is high	The sensor detects that the CD unit temperature is high.	• Park the vehicle in a cool place. Turn the engine off. After checking that the temperature of the disc player changer becomes sufficiently low, turn the engine on to verify the malfunction symptom. • If the same code is detected, replace the disc player changer, see Pub. No. AC-RM033V2, section 67.
48	Excess current	Excess current is applied to disc player changer.	Replace disc player changer, see Pub. No. AC-RM033V2, section 67.

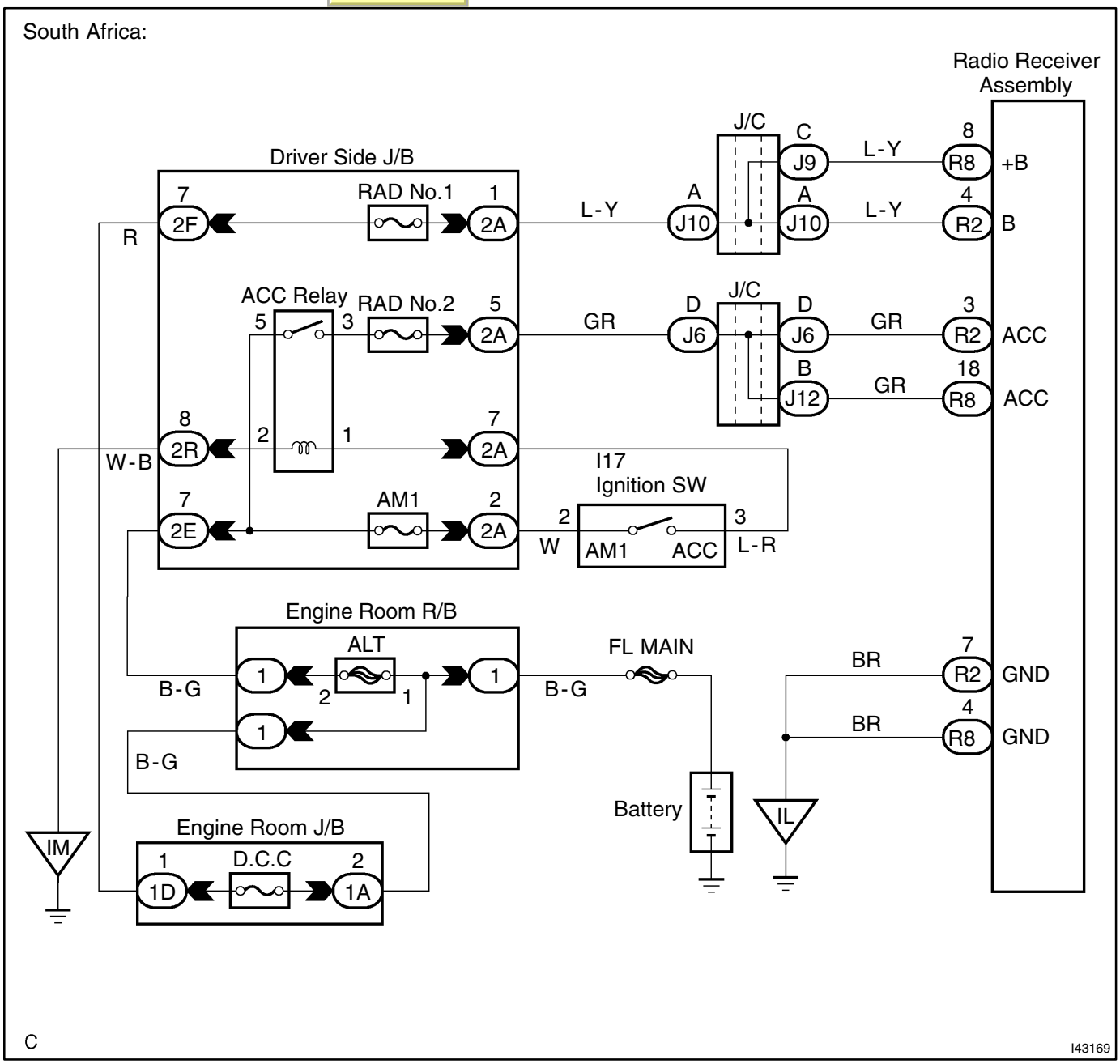
POWER SOURCE CIRCUIT (RADIO RECEIVER ASSEMBLY)

CIRCUIT DESCRIPTION

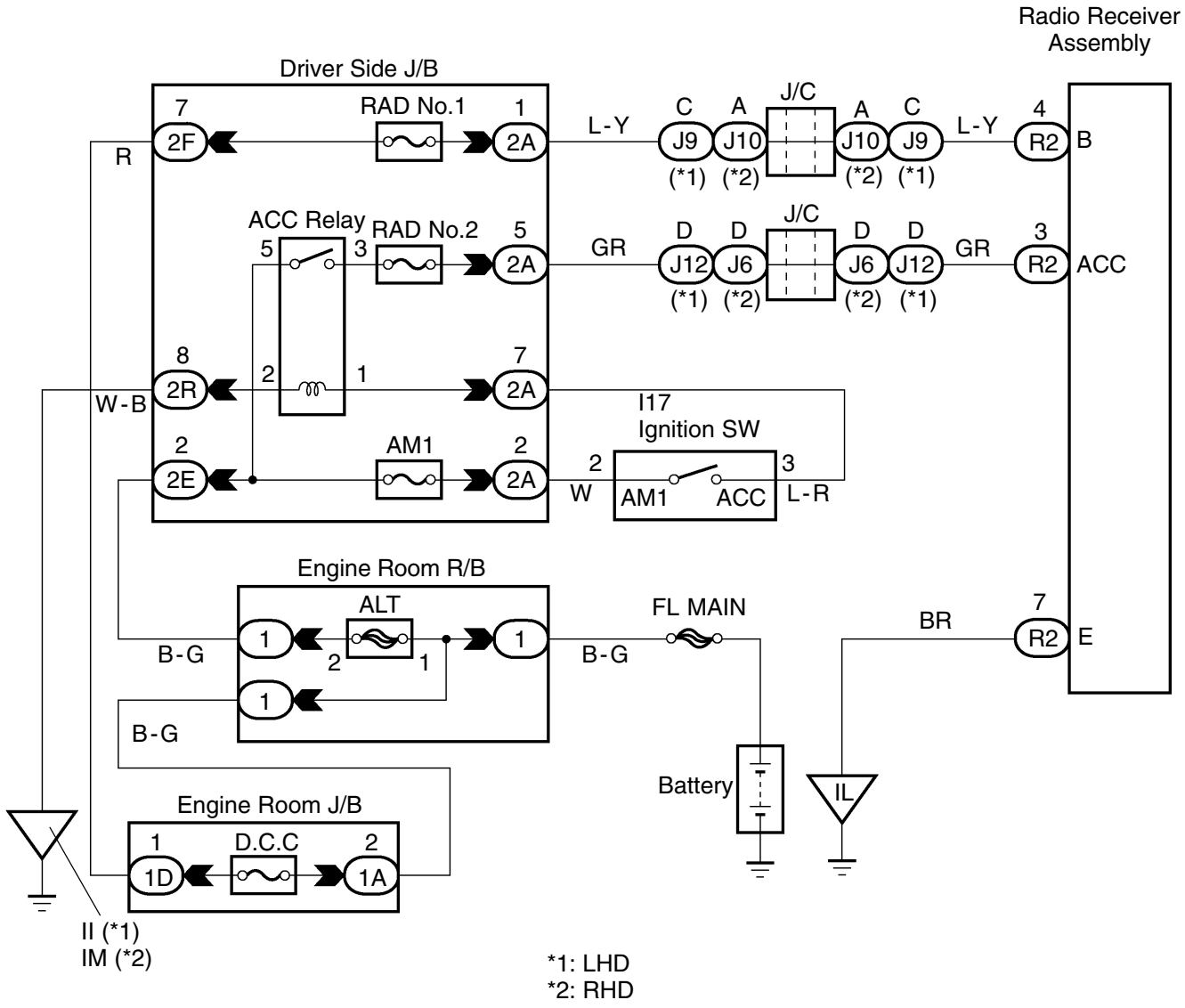
This circuit provides power to the radio receiver assembly.

WIRING DIAGRAM

EWD Manual



Except South Africa:



INSPECTION PROCEDURE

1	INSPECT RADIO RECEIVER ASSEMBLY

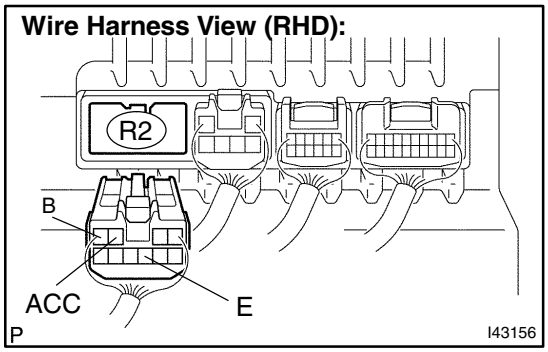
(a) Choose the model to be inspected.

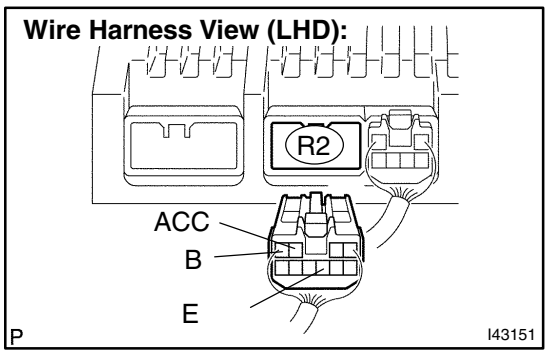
Model	Proceed to
Except South Africa	A
South Africa	B

B → **Go to step 3**

A

2	INSPECT RADIO RECEIVER ASSEMBLY





(a) Disconnect the radio receiver assembly R2 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
E (R2-7) - Body ground	Always	Below 1 Ω

(c) Measure the voltage according to the value(s) in the table below.

Standard:

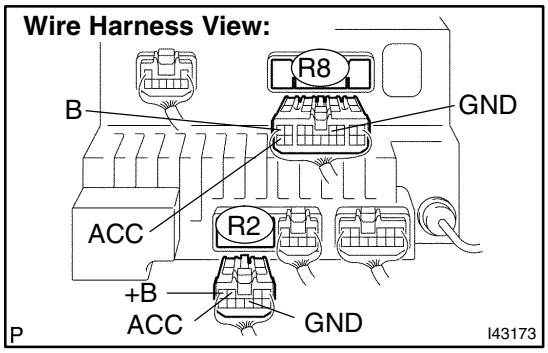
Tester connection	Condition	Specified condition
B (R2-4) - E (R2-7)	Always	10 to 14 V
ACC (R2-3) - E (R2-7)	Ignition SW ACC	10 to 14 V

OK → **Go to step 4**

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR (RADIO RECEIVER ASSEMBLY - BATTERY OR BODY GROUND)

3 INSPECT RADIO RECEIVER ASSEMBLY



(a) Disconnect the radio receiver assembly R8and R2 connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
GND (R2-7) - Body ground	Always	Below 1 Ω
GND (R8-4) - Body ground	Always	Below 1 Ω

(c) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
+B (R2-4) - GND (R2-7)	Always	10 to 14 V
+B (R8-8) - GND (R8-4)	Always	10 to 14 V
ACC (R2-3) - GND (R2-7)	Ignition SW ACC	10 to 14 V
ACC (R8-18) - GND (R8-4)	Ignition SW ACC	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (RADIO RECEIVER ASSEMBLY - BATTERY OR BODY GROUND)**

OK

4 TROUBLESHOOTING FLOW

(a) Continue troubleshooting according to the table below.

When troubleshooting according to the DIAGNOSTIC TROUBLE CODE CHART	A
When troubleshooting according to the PROBLEM SYMPTOMS TABLE	B

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53**

A

5	CHECK DIAGNOSTIC TROUBLE CODE CHART

(a) Check the diagnostic trouble code chart.

All possible countermeasures have been taken	A
Possible countermeasures still exist	B

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART, see page 05-73**

A

6	REPLACE DISC PLAYER CHANGER, see Pub. No AC-RM033 V2, section 67

HINT:
If the vehicle is not equipped with a disc player changer, proceed to “NG”.

(a) Replace the disc player changer and check if it operates normally.
OK: The audio system operates normally.

OK → **NORMAL OPERATION**

NG

REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67

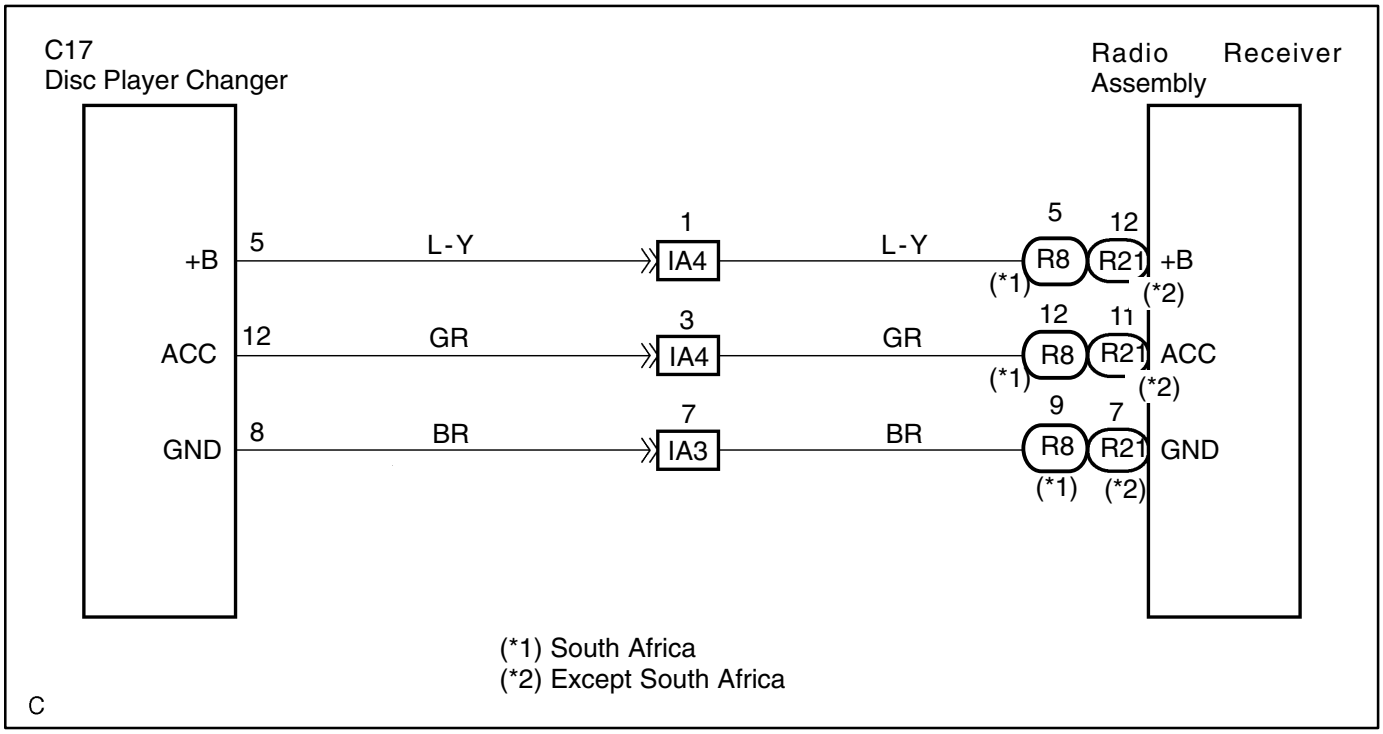
POWER SOURCE CIRCUIT (DISC PLAYER CHANGER)

CIRCUIT DESCRIPTION

This circuit provides power to the disc player changer.

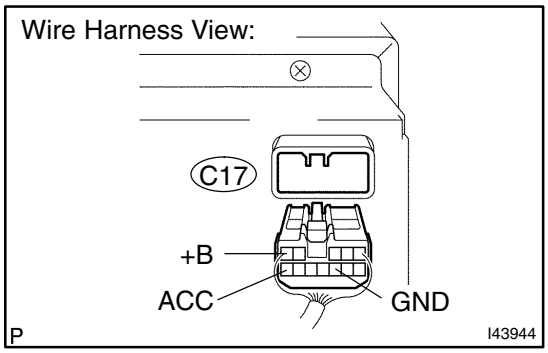
WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	INSPECT DISC PLAYER CHANGER



(a) Disconnect the disc player changer connector C17.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
GND (C17-8)- Body ground	Always	Below 1 Ω

(c) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
+B (C17-5) - GND (C17-8)	Always	10 to 14 V
ACC (C17-12) - GND (C17-8)	Ignition SW ACC	10 to 14 V

OK → **REPLACE DISC PLAYER CHANGER, see Pub. No AC-RM033 V2, section 67**

NG

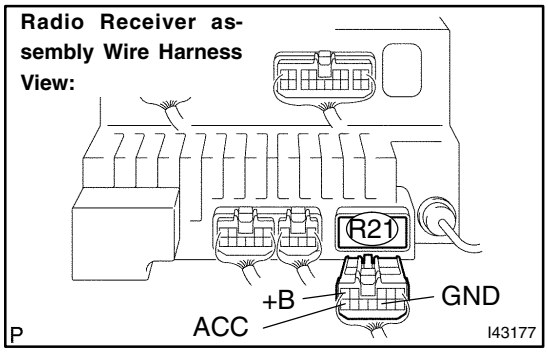
(d) Choose the model to be inspected.

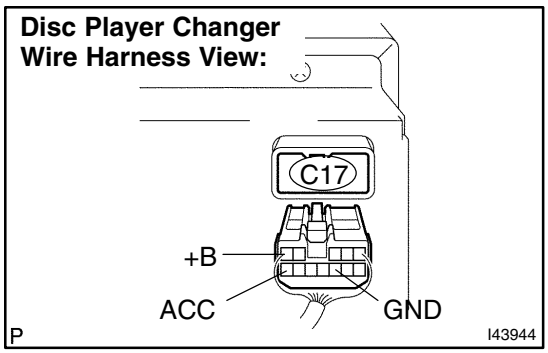
Model	Proceed to
Except South Africa	A
South Africa	B

B → **Go to step 3**

A

2 CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSEMBLY - DISC PLAYER CHANGER)





(a) Disconnect the radio receiver assembly R21 connector and disc player changer C17 connector.

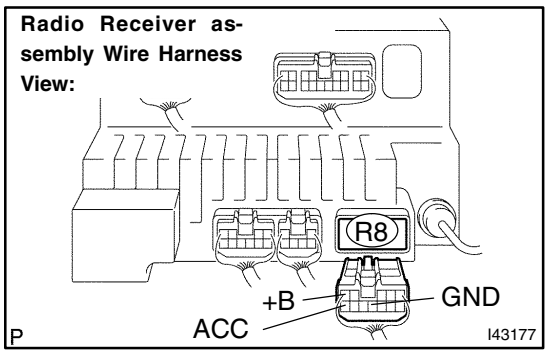
(b) Measure the resistance according to the value(s) in the table below.

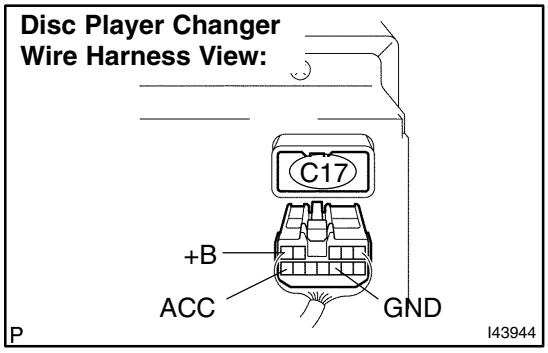
Standard:

Tester connection	Condition	Specified condition
GND (R21-8) - GND (C17-8)	Always	Below 1 Ω
ACC (R21-12) - ACC (C17-12)	Always	Below 1 Ω
+B (R21-5) - +B (C17-5)	Always	Below 1 Ω
GND (R21-8 or C17-8) - Body ground	Always	10 kΩ or higher
ACC (R21-12) - Body ground	Always	10 kΩ or higher
+B (R21-5) - Body ground	Always	10 kΩ or higher

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR
OK	Go to step 4

3 CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSEMBLY - DISC PLAYER CHANGER)





(a) Disconnect the radio receiver assembly R8 connector and disc player changer C17 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
GND (R8-9) - GND (C17-8)	Always	Below 1 Ω
ACC (R8-12) - ACC (C17-12)	Always	Below 1 Ω
+B (R8-5) - +B (C17-5)	Always	Below 1 Ω
GND (R8-8 or C17-8) - Body ground	Always	10 kΩ or higher
ACC (R8-12) - Body ground	Always	10 kΩ or higher
+B (R8-5) - Body ground	Always	10 kΩ or higher

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4	TROUBLESHOOTING FLOW

(a) Continue troubleshooting according to the table below.

When troubleshooting according to the DIAGNOSTIC TROUBLE CODE CHART	A
When troubleshooting according to the PROBLEM SYMPTOMS TABLE	B

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53**

A

5	CHECK DIAGNOSTIC TROUBLE CODE CHART

(a) Check the diagnostic trouble code chart.

All possible countermeasures have been taken	A
Possible countermeasures still exist	B

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART, see page 05-73**

A

6	REPLACE DISC PLAYER CHANGER, see Pub. No AC-RM033 V2, section 67

(a) Replace the disc player changer and check if it operates normally.
OK: The audio system operates normally.

OK → **NORMAL OPERATION**

NG

REPLACE RADIO RECEIVER assembly, see Pub. No AC-RM033 V2, section 67

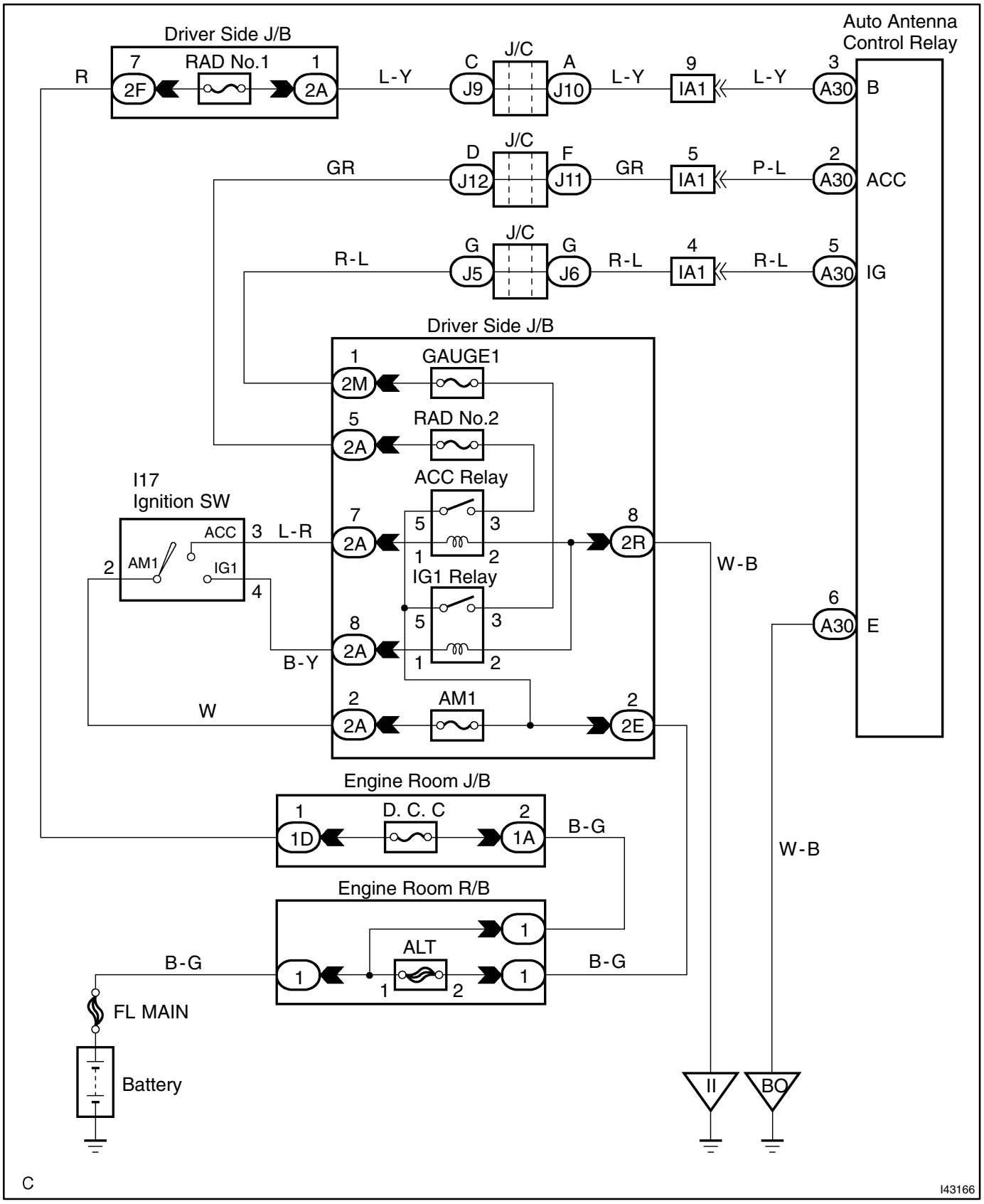
POWER SOURCE CIRCUIT (AUTO ANTENNA CONTROL RELAY)

CIRCUIT DESCRIPTION

This circuit provides power to the auto antenna control relay.

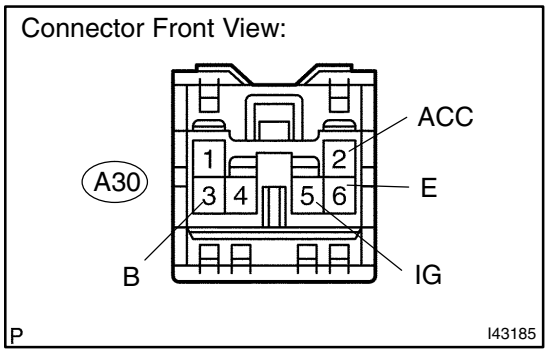
WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

7	INSPECT AUTO ANTENNA CONTROL RELAY



(a) Disconnect the auto antenna control relay connector A30.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
E (A30-6) - Body ground	Always	Below 1 Ω

(c) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
B (A30-3) - E (A30-6)	Always	10 to 14 V
IG (A30-5) - E (A30-6)	Ignition SW ON	10 to 14 V
ACC (A30-2) - E (A30-6)	Ignition SW ACC	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53

05M4R-01

ILLUMINATION CIRCUIT

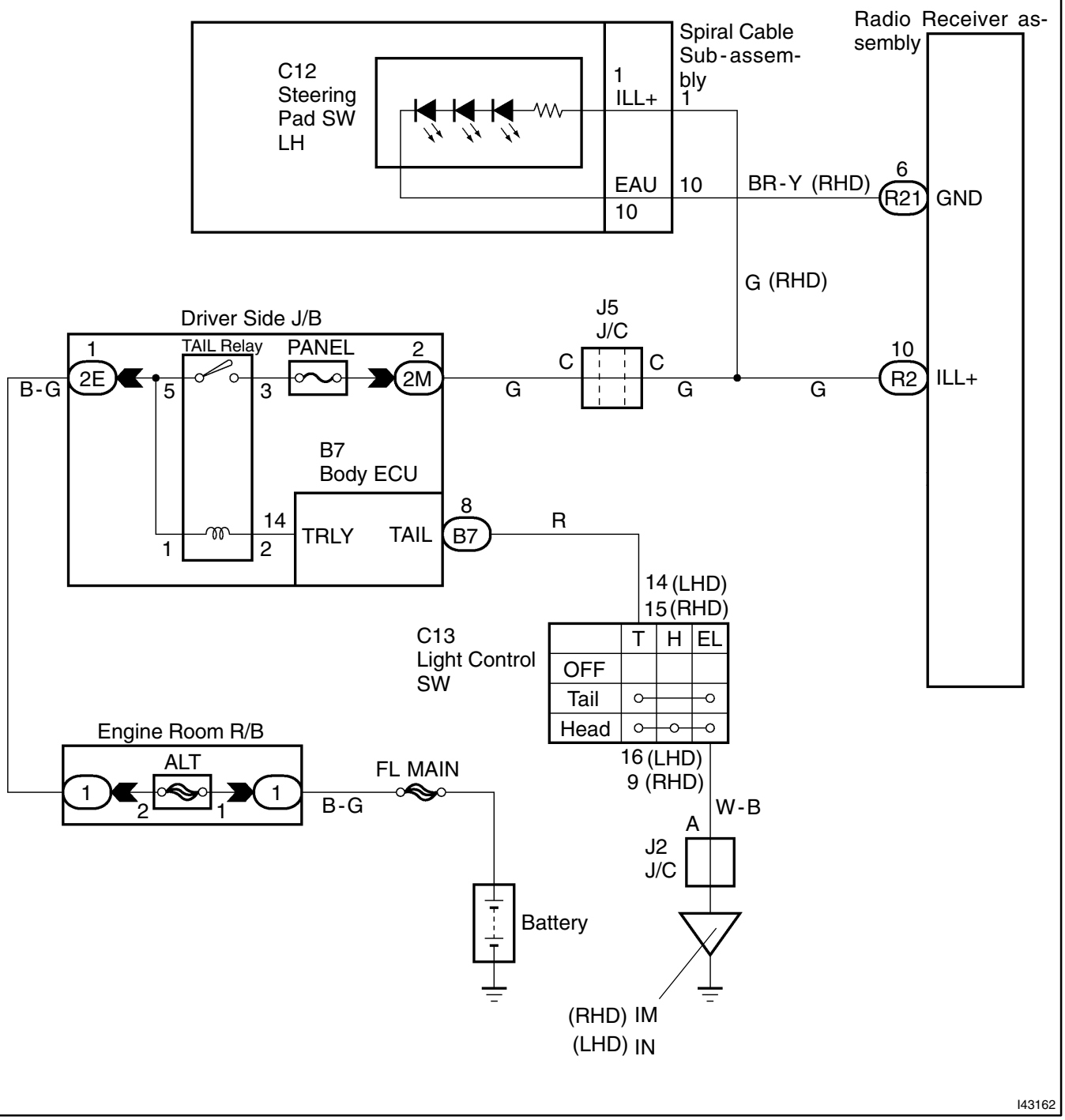
CIRCUIT DESCRIPTION

Power is supplied to the radio receiver panel and the steering pad switch assembly illumination when the light control switch is in the TAIL or HEAD position.

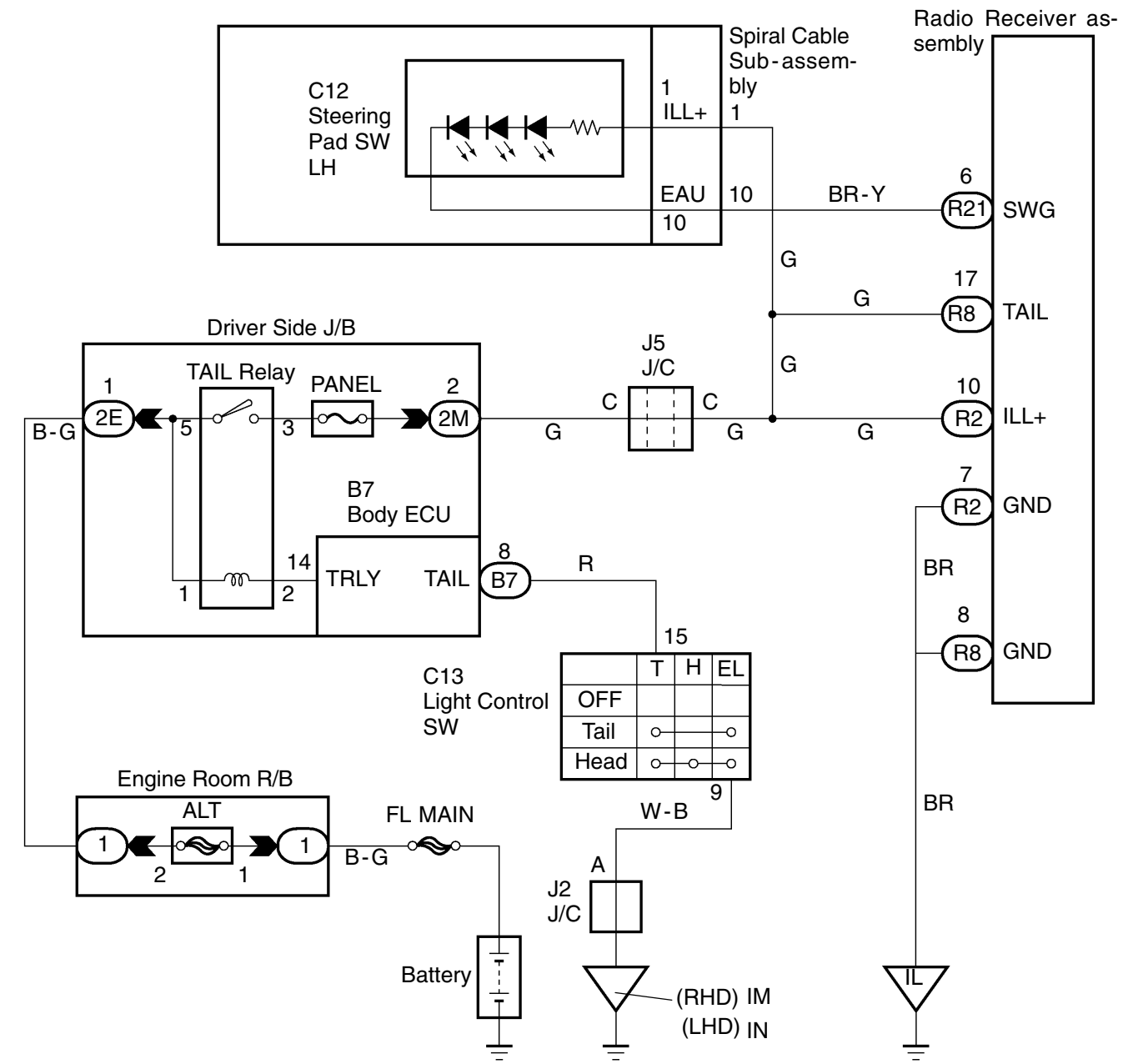
WIRING DIAGRAM

EWD Manual

Except South Africa:



South Africa:



C I43167

I43178

INSPECTION PROCEDURE

NOTICE:

The vehicle is equipped with SRS (Supplemental Restraint System) such as airbags. Before servicing (including removal or installation of parts), be sure to read the precautionary notice for the supplemental restraint system, see page 60-1.

1	CHECK ILLUMINATION

(a) Check that the illumination for the radio receiver assembly, steering pad switch assembly, A/C switch, cigarette lighter, etc. comes on when the light control switch is turned to the HEAD or TAIL position.

Result:

Result	Proceed to
No illumination comes on.	A
Illumination comes on for all components except steering pad switch assembly.	B
Illumination comes on for all components except radio receiver assembly.	C

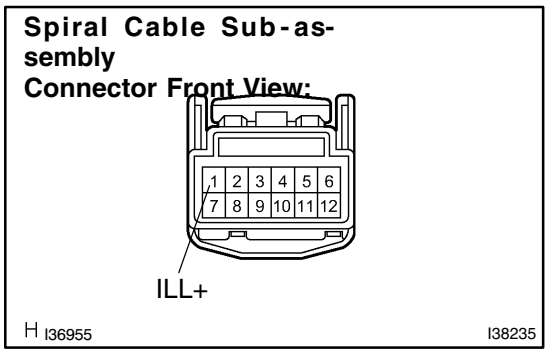
B → **Go to step 2**

C → **Go to step 6**

A

GO TO LIGHTING SYSTEM, see Pub. No AC-RM033 V2, section 05

2	INSPECT SPIRAL CABLE SUB-ASSEMBLY (ILL+)



(a) Disconnect the spiral cable sub-assembly connector.

(b) Measure the voltage according to the value(s) in the table below.

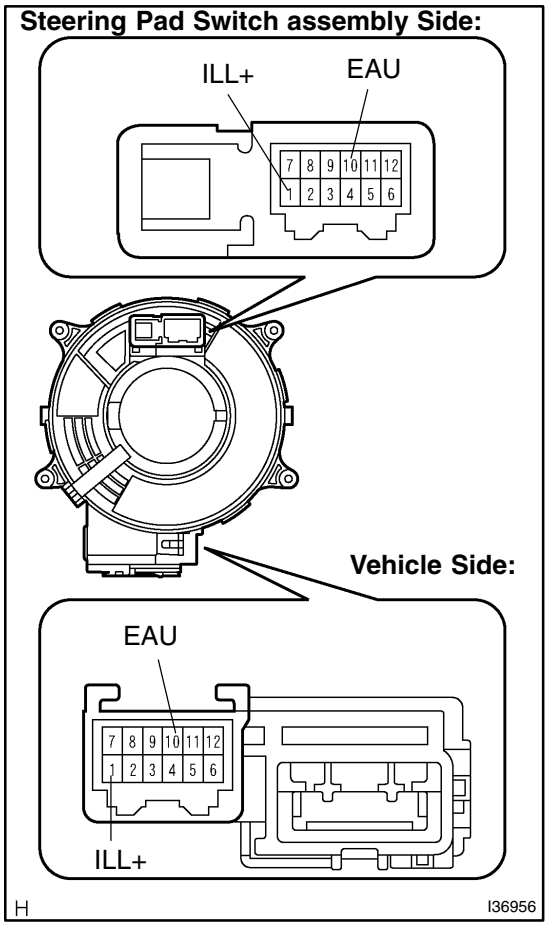
Standard:

Tester connector	Condition	Specified condition
ILL+ - Body ground	Light control switch TAIL or HEAD	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3	INSPECT SPIRAL CABLE SUB-ASSEMBLY



(a) Disconnect the steering pad switch assembly and spiral cable sub-assembly connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

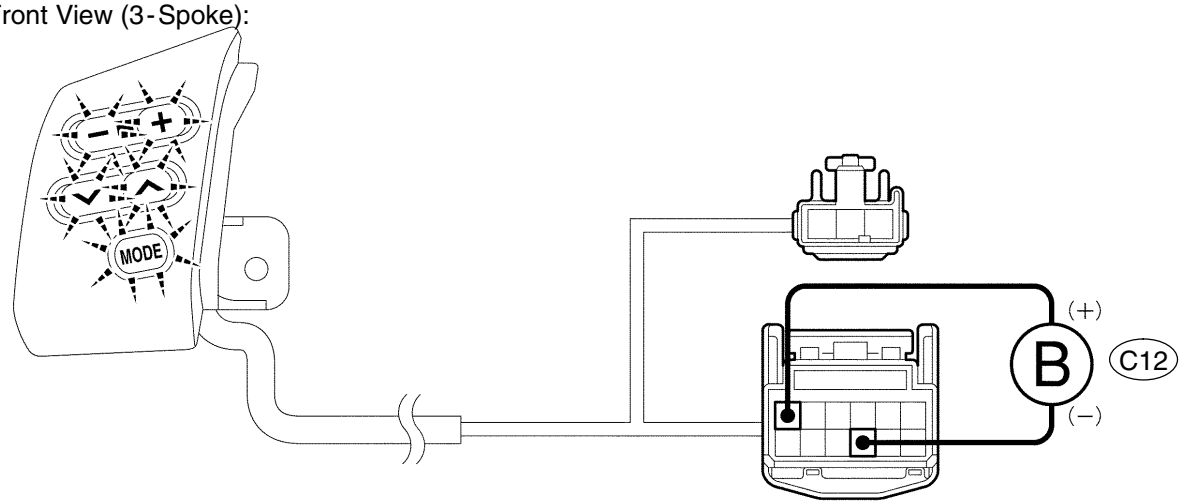
Tester connection	Specified condition
EAU - EAU	Below 1 Ω
ILL+ - ILL+	Below 1 Ω

NG → **REPLACE SPIRAL CABLE SUB-assembly**

OK

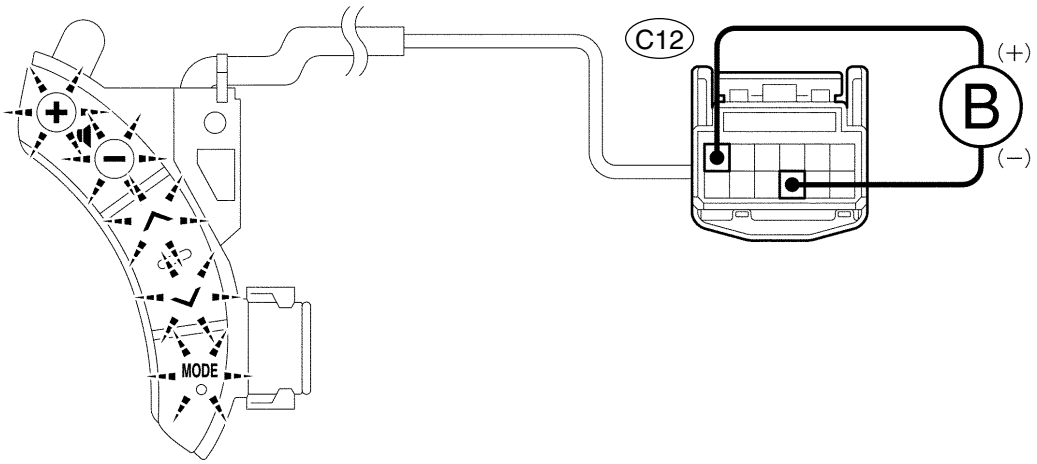
4	INSPECT STEERING PAD SWITCH ASSEMBLY

Connector Front View (3-Spoke):



P I43179

Connector Front View (4-Spoke):



P I43180

(a) Disconnect the steering pad switch assembly connector.
(b) Connect the positive (+) lead to terminal ILL+ and the negative (-) lead to terminal EAU of the steering pad switch assembly connector.
(c) Check that the illumination for the steering pad switch assembly comes on.

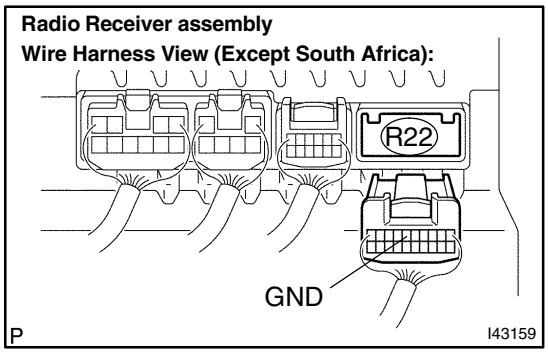
OK:

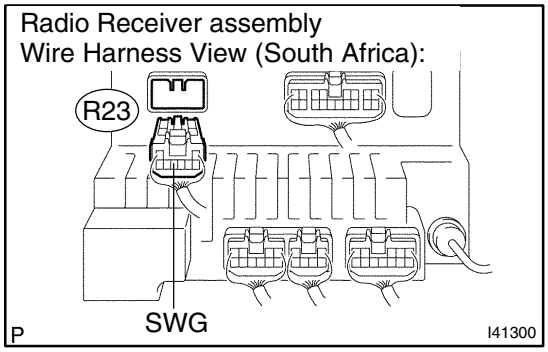
Illumination for the steering pad switch assembly comes on.

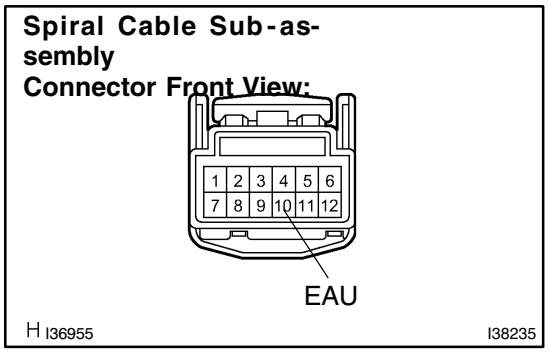
NG → **REPLACE STEERING PAD SWITCH ASSEMBLY, see page 67-2**

OK

5	CHECK HARNESS AND CONNECTOR(SPIRAL CABLE SUB-ASSEMBLY - RADIO RECEIVER ASSEMBLY)







(a) Disconnect the spiral cable sub-assembly connector and radio receiver assembly connector R22 or R23.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

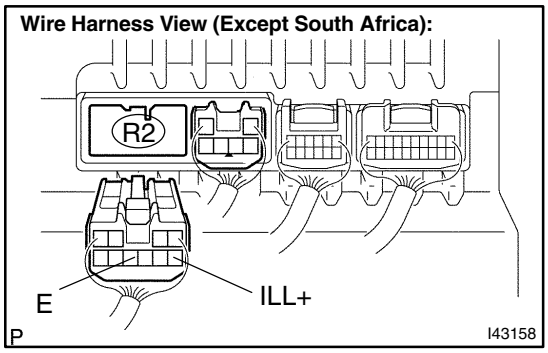
Tester connector	Condition	Specified condition
EAU - GND (R22-6) or SWG (R23-6)	Always	Below 1 Ω

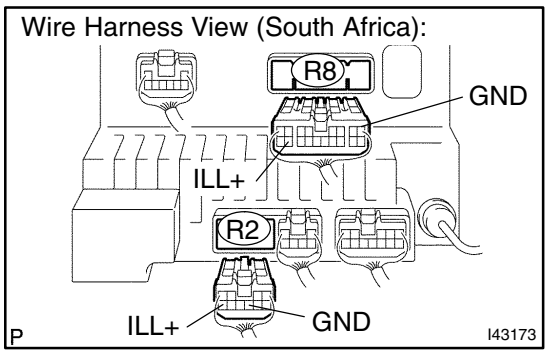
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67

6 INSPECT RADIO RECEIVER ASSEMBLY





(a) Disconnect the radio receiver assembly connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard (Except South Africa):

Tester connection	Condition	Specified condition
E (R2-7) - Body ground	Always	Below 1 Ω

Standard (South Africa):

Tester connection	Condition	Specified condition
GND (R2-7) - Body ground	Always	Below 1 Ω
GND (R8-8) - Body ground	Always	Below 1 Ω

(c) Measure the voltage according to the value(s) in the table below.

Standard (Except South Africa):

Tester connection	Condition	Specified condition
ILL+ - E	Light control switch TAIL or HEAD	10 to 14 V

Standard (South Africa):

Tester connection	Condition	Specified condition
ILL+ (R8-17) - E (R8-8)	Light control switch TAIL or HEAD	10 to 14 V
ILL+ (R2-10) - E (R2-7)	Light control switch TAIL or HEAD	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-53)

SPEAKER CIRCUIT

CIRCUIT DESCRIPTION

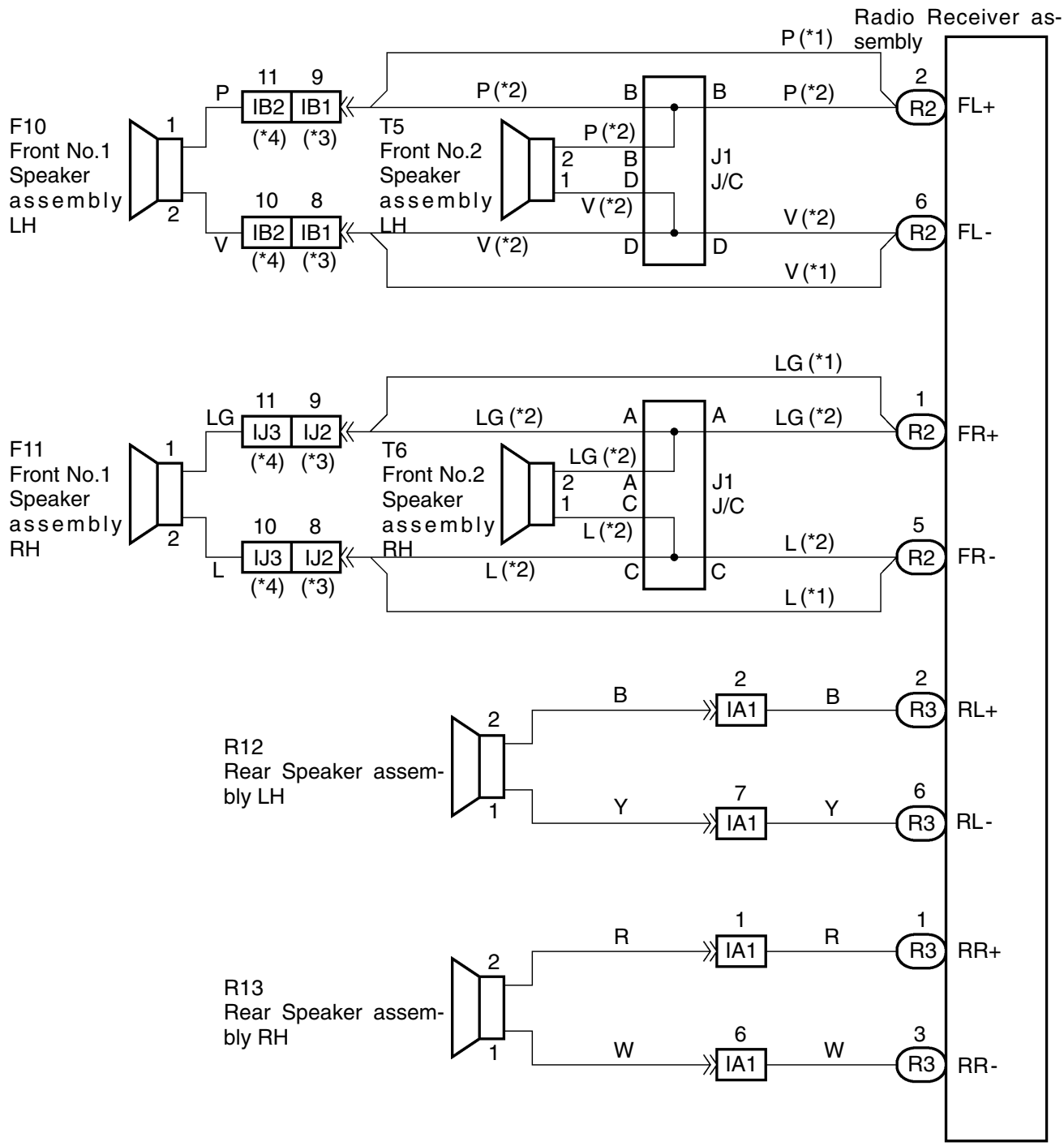
IThe sound signal that has been amplified by the radio receiver assembly (built-in amp) is sent to the speakers from the radio receiver assembly through this circuit.

If there is a short in this circuit, the radio receiver assembly (built-in amp) detects it and stops output to the speakers.

Thus sound cannot be heard from the speakers even if there is no malfunction in the radio receiver assembly (built-in amp) or speakers.

WIRING DIAGRAM

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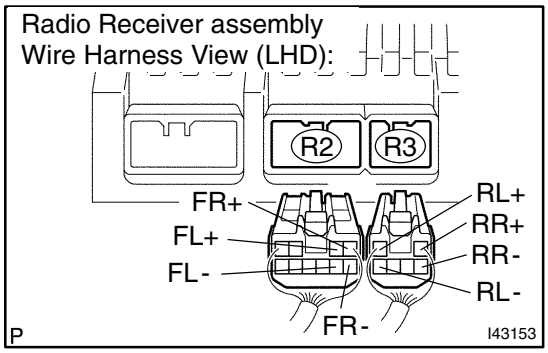


C

I44641

INSPECTION PROCEDURE

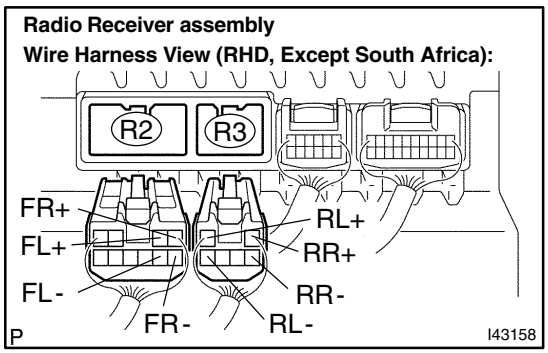
1	CHECK HARNESS AND CONNECTOR

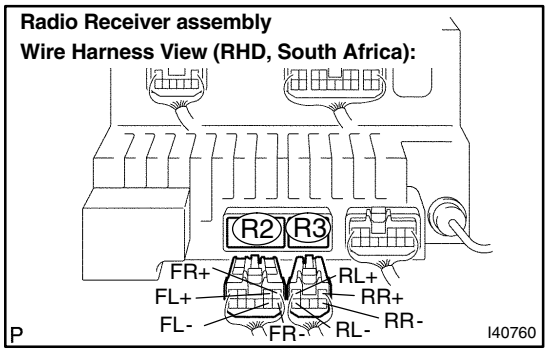


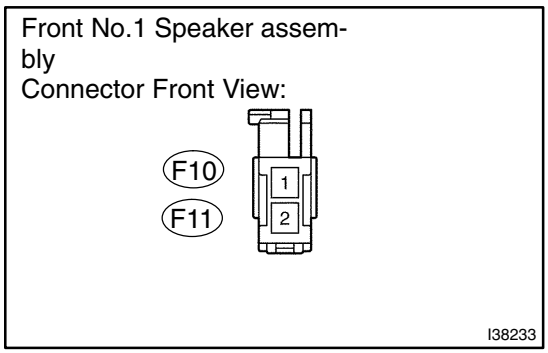
(a) Disconnect the connectors shown in the illustration on the left from the radio receiver assembly and speakers.

(b) Measure the resistance between each speaker and the radio receiver assembly to check for an open circuit in the wire harness.
Standard: Below 1 Ω

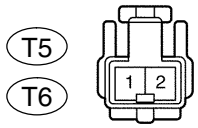
(c) Measure the resistance between each speaker and body ground to check for a short circuit in the wire harness.
Standard: 10 kΩ or higher





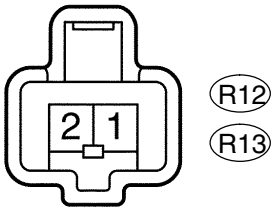


Front No.2 Speaker assembly
Connector Front View:



I38664

Rear Speaker assembly
Connector Front View:



P I43123

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2	INSPECT FRONT NO.1 SPEAKER ASSEMBLY

(a) Resistance check.
(1) Measure the resistance between the terminals of the speaker.
Standard: 3.4 to 4.6 Ω

NG → REPLACE FRONT NO.1 SPEAKER ASSEMBLY, see Pub. No AC-RM033 V2, section 67

OK

3	INSPECT FRONT NO.2 SPEAKER ASSEMBLY

(a) Check that malfunction disappears when another speaker in good condition is installed.
OK: Malfunction disappears.

HINT:
- Connect all the connectors to the speakers.
- When there is a possibility that either right or left front speaker is detective, inspect by interchanging the right one and the left one.

NG → REPLACE FRONT NO.2 SPEAKER ASSEMBLY, see Pub. No AC-RM033 V2, section 67

OK

4	INSPECT REAR SPEAKER ASSEMBLY

(a) Resistance check.
(1) Measure the resistance between the terminals of the speaker.
Standard: 5.1 to 6.9 Ω

NG → **REPLACE REAR SPEAKER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53

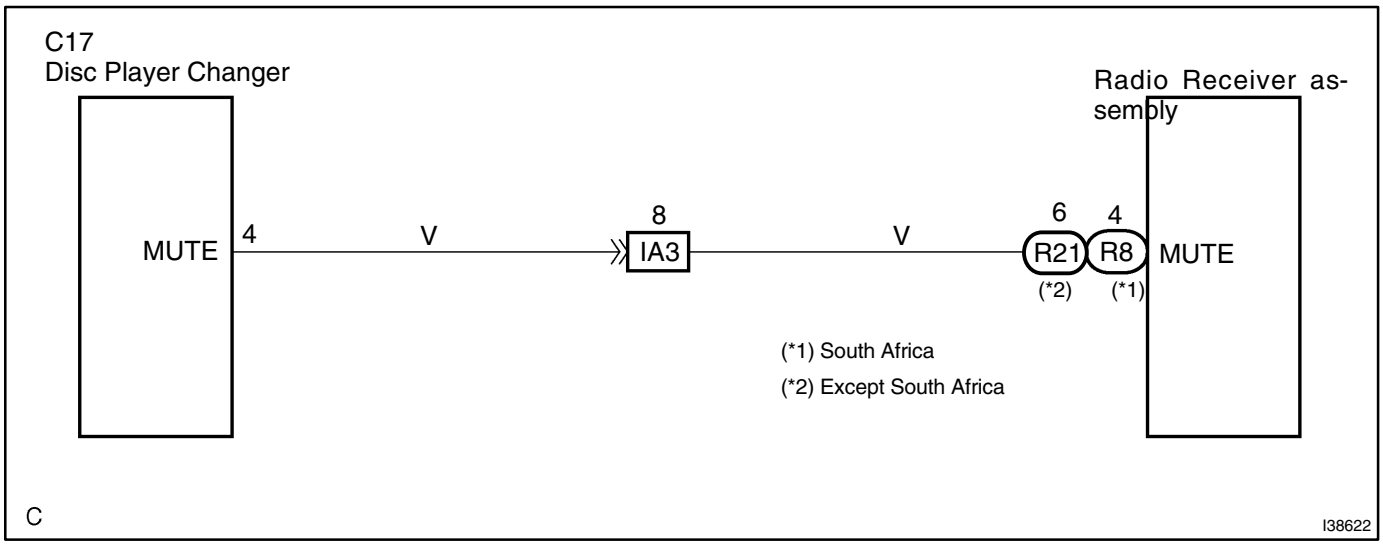
MUTE SIGNAL CIRCUIT (RADIO RECEIVER ASSEMBLY - DISC PLAYER CHANGER)

CIRCUIT DESCRIPTION

This circuit sends a signal to the disc player changer to mute the noise. Because of that, the noise produced by changing the sound source ceases.
If there is an open in the circuit, noise can be heard from the speaker when changing the sound source.
If there is a short in the circuit, even though the disc player changer is normal, no sound or only extremely small sound can be produced.

WIRING DIAGRAM

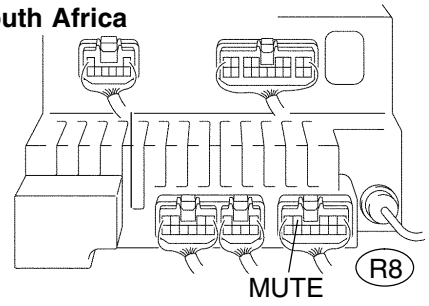
EWD Manual



INSPECTION PROCEDURE

1	INSPECT RADIO RECEIVER ASSEMBLY

Wire Harness View: South Africa

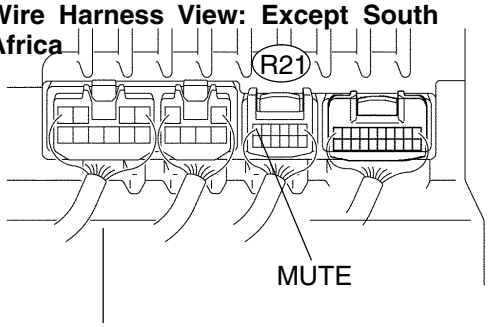


(a) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specification
MUTE (R8-4) - Body ground	Turn ignition switch to ACC, disc player changer is playing → Changing	Above 3.5 V → Below 1 V
MUTE (R21-6) - Body ground		

Wire Harness View: Except South Africa



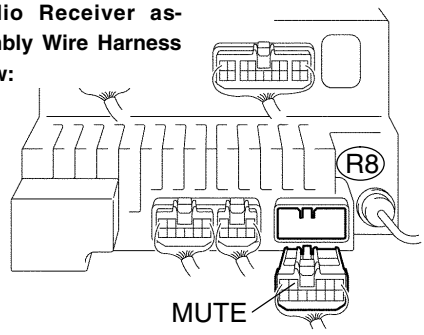
NG → **Go to step 2**

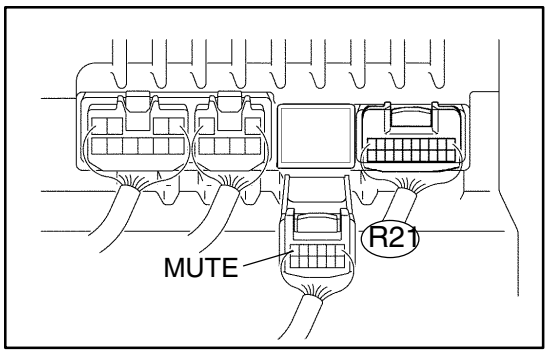
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53

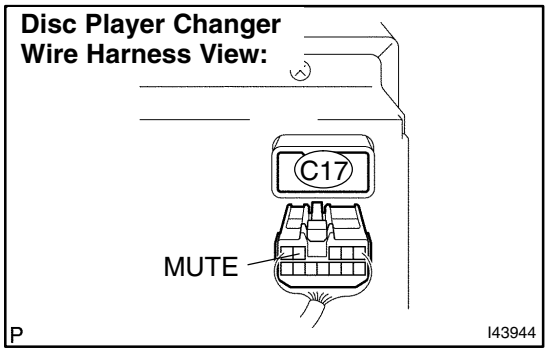
2	CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSEMBLY - DISC PLAYER CHANGER)

Radio Receiver assembly Wire Harness View:





Disc Player Changer Wire Harness View:



(a) Disconnect the radio receiver assembly connector indicated in the table below and disc player changer C17 connector.

(b) Measure the resistance according to the value(s) in the table below.

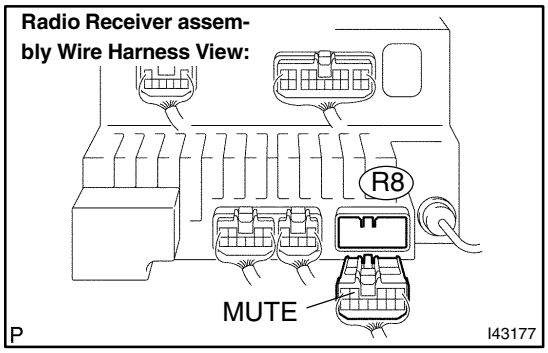
Standard:

Tester connection	Condition	Specified condition
MUTE (R8-4) - MUTE (C17-4)	Always	Below 1 Ω
MUTE (R8-4) - Body ground	Always	10 kΩ or higher
MUTE (R21-6) - MUTE (C17-4)	Always	Below 1 Ω
MUTE (R21-6) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3 INSPECT DISC PLAYER CHANGER

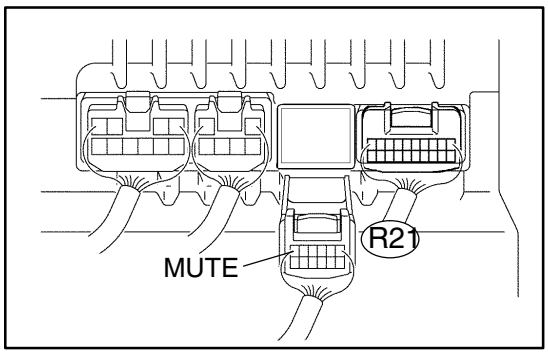


(a) Reconnect the disc player changer connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specification
MUTE (R8-4) - Body ground	Turn ignition switch to ACC	Above 3.5 V
MUTE (R21-6) - Body ground	Turn ignition switch to ACC	Above 3.5 V



NG → **REPLACE DISC PLAYER CHANGER, see Pub. No AC-RM033 V2, section 67**

OK

REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67

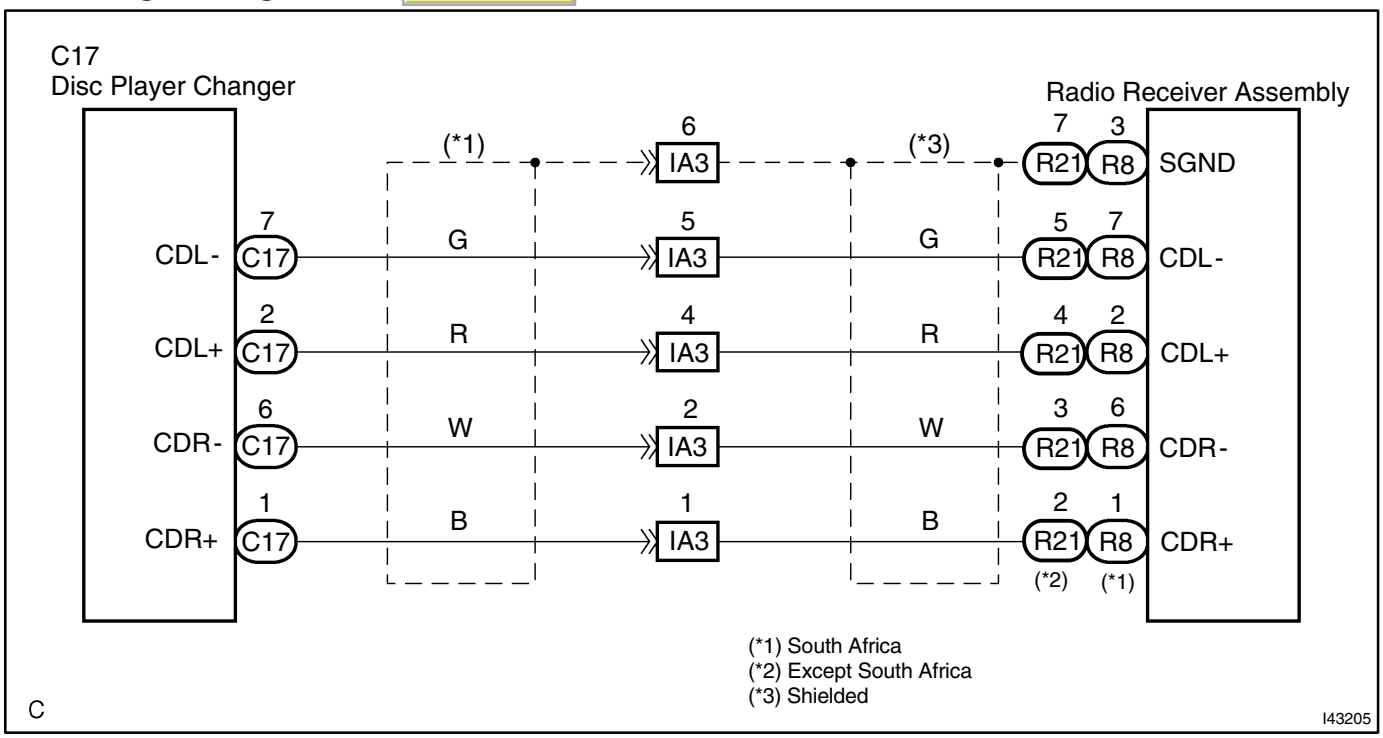
SOUND SIGNAL CIRCUIT (RADIO RECEIVER ASSEMBLY - DISC PLAYER CHANGER)

CIRCUIT DESCRIPTION

The disc player changer sends a sound signal to the radio receiver assembly through this circuit. The sound signal that has been sent is amplified by the radio receiver assembly (built-in amp), and then sent to the speakers. If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the radio receiver assembly (built-in amp) or speakers.

WIRING DIAGRAM

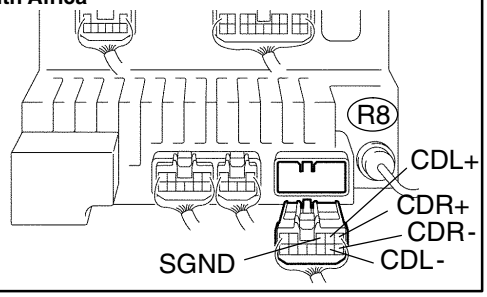
EWD Manual



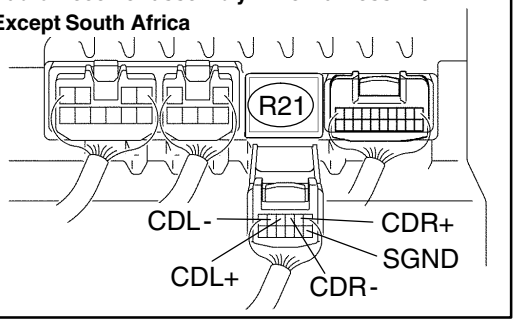
INSPECTION PROCEDURE

4	CHECK HARNESS AND CONNECTOR(RADIO RECEIVER assembly - DISC PLAYER CHANGER)

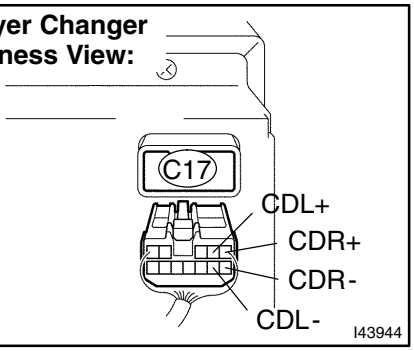
Radio Receiver assembly Wire Harness View:
South Africa



Radio Receiver assembly Wire Harness View:
Except South Africa



Disc Player Changer Wire Harness View:



(a) Disconnect the radio receiver assembly connector shown in the tables below and the disc player changer C17 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

South Africa

Tester connection	Specified condition
CDL+ (R8-2) - L+ (C17-2)	Below 1 Ω
CDL- (R8-7) - L- (C17-7)	Below 1 Ω
CDR+ (R8-1) - R+ (C17-1)	Below 1 Ω
CDR- (R8-6) - R- (C17-6)	Below 1 Ω
CDL+ (R8-2) - Body ground	10 kΩ or higher
CDL- (R8-7) - Body ground	10 kΩ or higher
CDR+ (R8-1) - Body ground	10 kΩ or higher
CDR- (R8-6) - Body ground	10 kΩ or higher
SGND (R8-3) - Body ground	10 kΩ or higher

Except South Africa

Tester connection	Specified condition
CDL+ (R21-4) - L+ (C17-2)	Below 1 Ω
CDL- (R21-5) - L- (C17-7)	Below 1 Ω
CDR+ (R21-2) - R+ (C17-1)	Below 1 Ω
CDR- (R21-3) - R- (C17-6)	Below 1 Ω
CDL+ (R21-4) - Body ground	10 kΩ or higher
CDL- (R21-5) - Body ground	10 kΩ or higher
CDR+ (R21-2) - Body ground	10 kΩ or higher
CDR- (R21-3) - Body ground	10 kΩ or higher
SGND (R21-7) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53

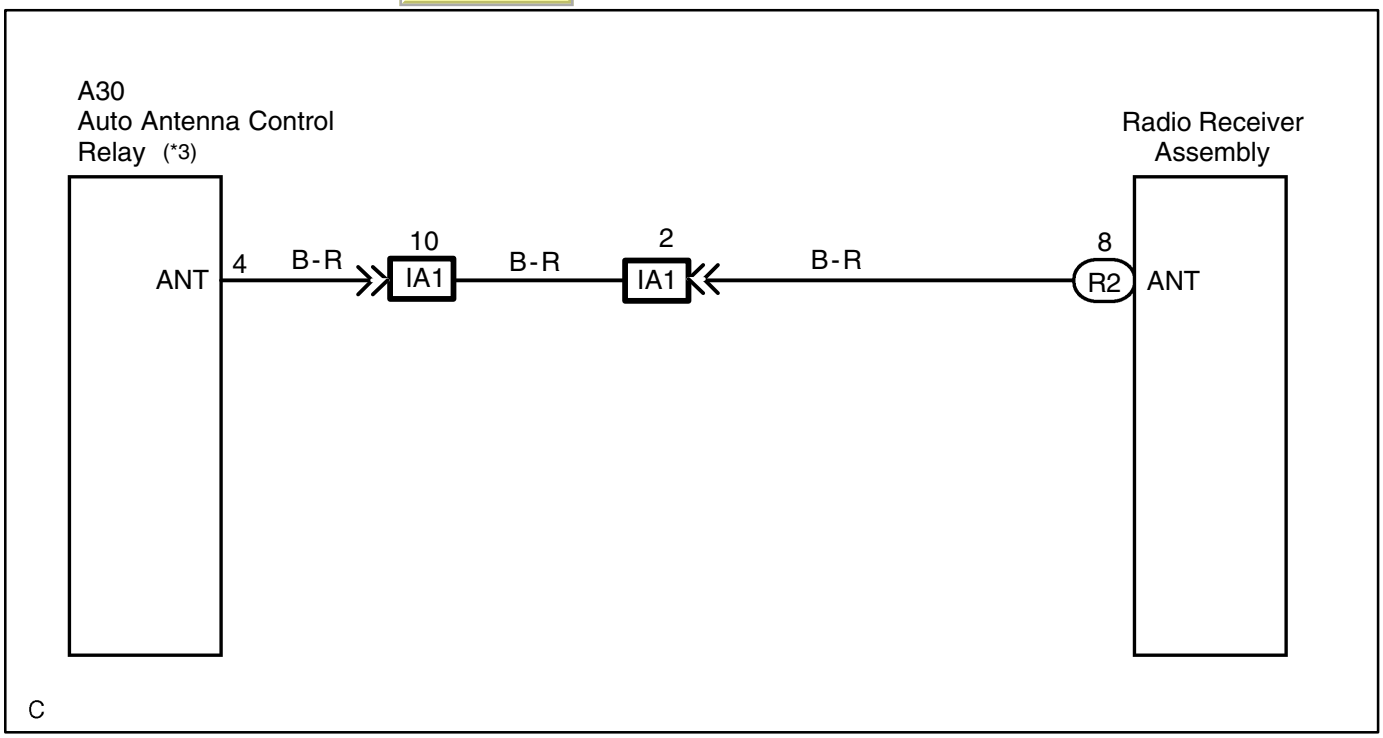
AUTO ANTENNA CONTROL RELAY SIGNAL CIRCUIT- LHD ONLY

CIRCUIT DESCRIPTION

The radio receiver assy sends an operation signal to the auto antenna control relay via this circuit.

WIRING DIAGRAM

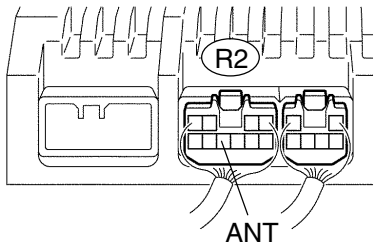
EWD Manual



INSPECTION PROCEDURE

1	INSPECT RADIO RECEIVER ASSY

Wire Harness View:



P I43165

(a) Measure the voltage according to the value(s) in the table below.

Standard:

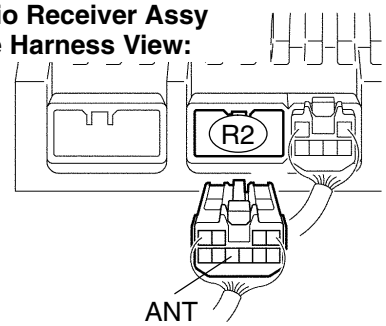
Tester connection	Condition	Specified condition
ANT (R2-8) - Body ground	Radio Switch ON and AM or FM	8 to 14 V

NG → **REPLACE RADIO RECEIVER ASSY, see Pub. No AC-RM033V2, page 67-5.**

OK

2	CHECK HARNESS AND CONNECTOR(AUTO ANTENNA CONTROL RELAY - RADIO RECEIVER ASSY)

Radio Receiver Assy Wire Harness View:



P I43151

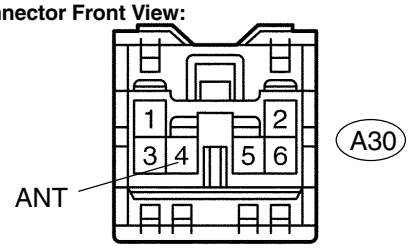
(a) Disconnect the radio receiver assy R2 connector and auto antenna control relay A30 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
ANT (R2-8) - ANT (A30-4)	Always	Below 1 Ω
ANT (R2-8) - Body ground	Always	10 kΩ or higher

Auto Antenna Control Relay Connector Front View:



P I43185

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53

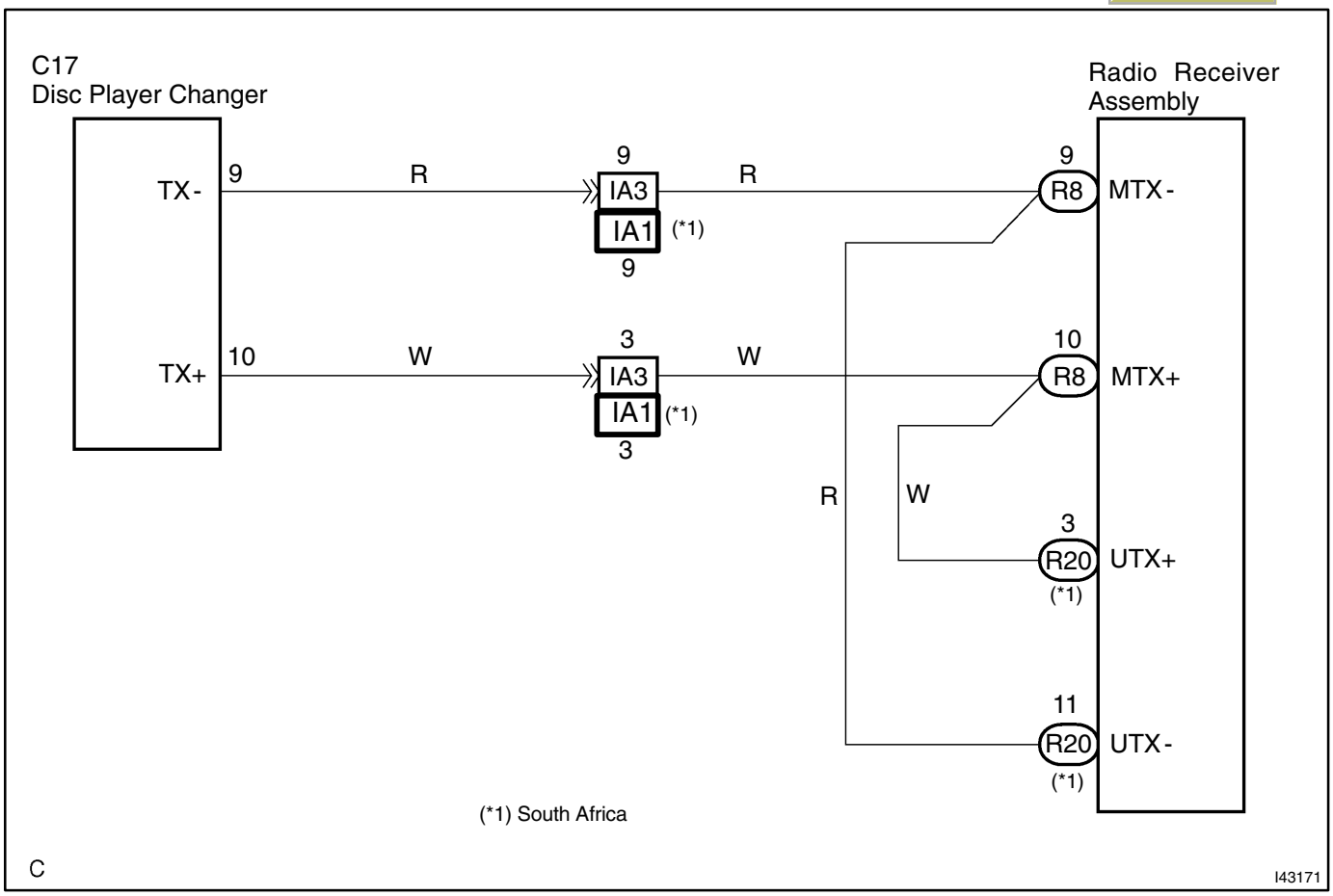
AVC-LAN CIRCUIT

CIRCUIT DESCRIPTION

Each unit of the audio system connected to the AVC-LAN (communication bus) transfers the signal of each switch by communication.
When a short to +B or short to ground occurs in this AVC- LAN, the audio system will not function normally as communications are discontinued.
In this AVC-LAN, the radio receiver assembly becomes the master of the communication, and the radio receiver assembly has the resistance necessary for transmitting communication data.

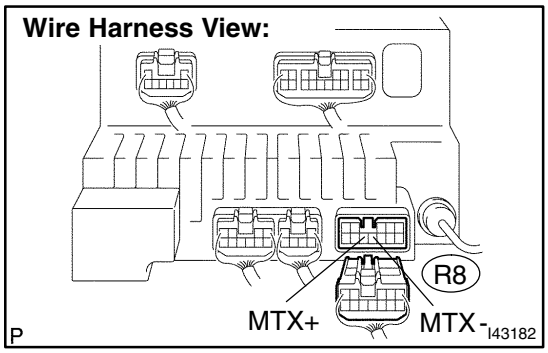
WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1 INSPECT RADIO RECEIVER ASSEMBLY



(a) Disconnect the radio receiver assembly connector R8.

(b) Measure the resistance according to the value(s) in the table below.

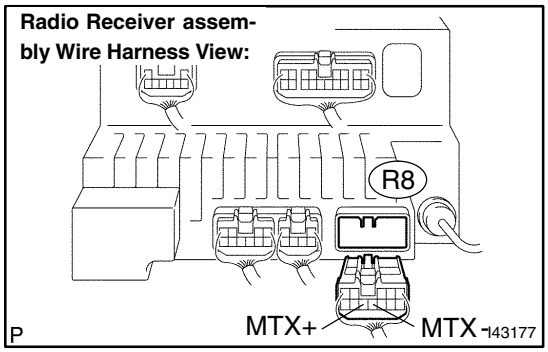
Standard:

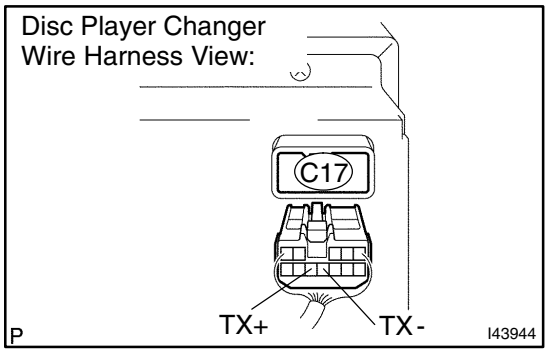
Tester connection	Condition	Specified condition
MTX+(R8-10) - MTX- (R8-9)	Always	60 to 80 Ω

NG → **REPLACE RADIO RECEIVER assembly, see Pub. No. AC-RM033V2, page 67-5.**

OK

2 CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSEMBLY - DISC PLAYER CHANGER)





(a) Disconnect the radio receiver assembly R8 connector and disc player changer C17 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
TX+ (C17-10) - MTX+ (R8-10)	Always	Below 1 Ω
TX- (C17-9) - MTX- (R8-9)	Always	Below 1 Ω
TX+ (C17-10) - Body ground	Always	10 kΩ or higher
TX- (C17-9) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

(c) Choose the model to be inspected.

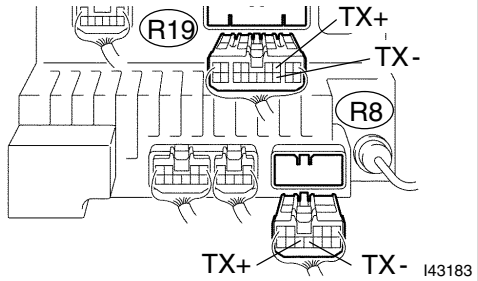
Model	Proceed to
South Africa	A
Except South Africa	B

B → **Go to step 4**

A

3	CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSEMBLY - RADIO RECEIVER DISPLAY)

Radio Receiver assembly and Radio Receiver Display Wire Harness View:



(a) Disconnect the radio receiver assembly R8 connector and radio receiver assembly R19 connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
TX+ (R8-10) - TX+ (R19-3)	Always	Below 1 Ω
TX- (R8-9) - TX- (R19-11)	Always	Below 1 Ω
TX+ (R8-10) - Body ground	Always	10 kΩ or higher
TX- (R8-9) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4	TROUBLESHOOTING FLOW

(a) Continue troubleshooting according to the table below.

When troubleshooting according to the DIAGNOSTIC TROUBLE CODE CHART	A
When troubleshooting according to the PROBLEM SYMPTOMS TABLE	B

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53**

A

5	CHECK DIAGNOSTIC TROUBLE CODE CHART

(a) Check the diagnostic trouble code chart.

All possible countermeasures have been taken	A
Possible countermeasures still exist	B

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART, see page 05-73.**

A

6	**REPLACE DISC PLAYER CHANGER, see Pub. No AC-RM033 V2, section 67**

If the vehicle is not equipped with a disc player changer, proceed to “NG”.

(a) Replace the disc player changer and check if it operates normally.

OK: The audio system operates normally.

OK → **NORMAL OPERATION**

NG

REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67

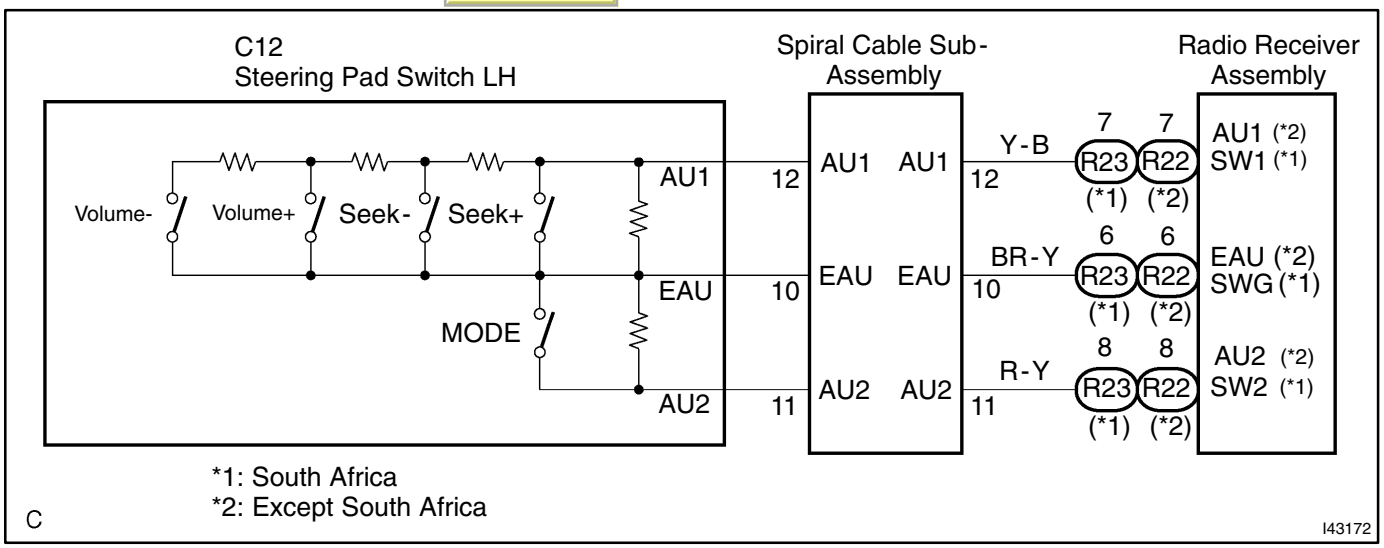
STEERING PAD SWITCH CIRCUIT

CIRCUIT DESCRIPTION

This circuit sends an operation signal from the steering pad switch assembly to the radio receiver assembly.
If there is an open circuit, the audio system cannot be operated by the steering pad switch assembly.
If there is a short circuit, the same condition as when the switch is continuously depressed occurs. Therefore, the radio receiver assembly cannot be operated by the steering pad switch assembly, and the radio receiver assembly itself does not function.

WIRING DIAGRAM

EWD Manual



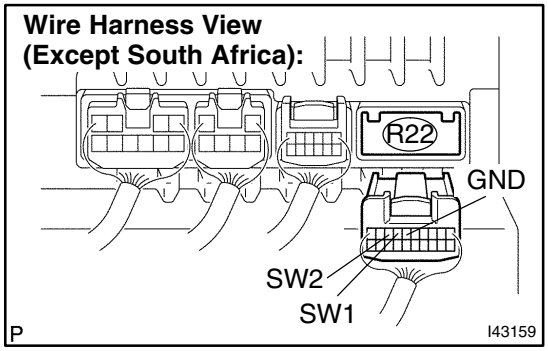
INSPECTION PROCEDURE

NOTICE:

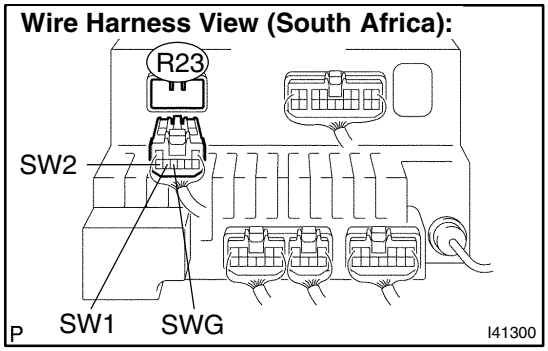
The vehicle is equipped with an SRS (Supplemental Restraint System). Before servicing this system (including removal or installation of parts), be sure to read the precautionary notice for the supplemental restraint system, see page 60-1.

1	INSPECT RADIO RECEIVER ASSEMBLY

Wire Harness View (Except South Africa):



Wire Harness View (South Africa):



(a) Disconnect the radio receiver assembly connector R22 or R23.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
SW1 (R22-7 or R23-7) - GND (R22-6) or SWG (R23-6)	No switch is pushed	Approx. 100 kΩ
SW1 (R22-7 or R23-7) - GND (R22-6) or SWG (R23-6)	SEEK+ switch: push	Approx. 0 Ω
SW1 (R22-7 or R23-7) - GND (R22-6) or SWG (R23-6)	SEEK- switch: push	Approx. 0.3 kΩ
SW1 (R22-7 or R23-7) - GND (R22-6) or SWG (R23-6)	VOL+ switch: push	Approx. 1 kΩ
SW1 (R22-7 or R23-7) - GND (R22-6) or SWG (R23-6)	VOL- switch: push	Approx. 3.2 kΩ
SW2 (R22-8 or R23-8) - GND (R22-6) or SWG (R23-6)	No switch is pushed	Approx. 100 kΩ
SW2 (R22-8 or R23-8) - GND (R22-6) or SWG (R23-6)	MODE switch: push	Approx. 0 Ω

R22: Except South Africa

R23: South Africa

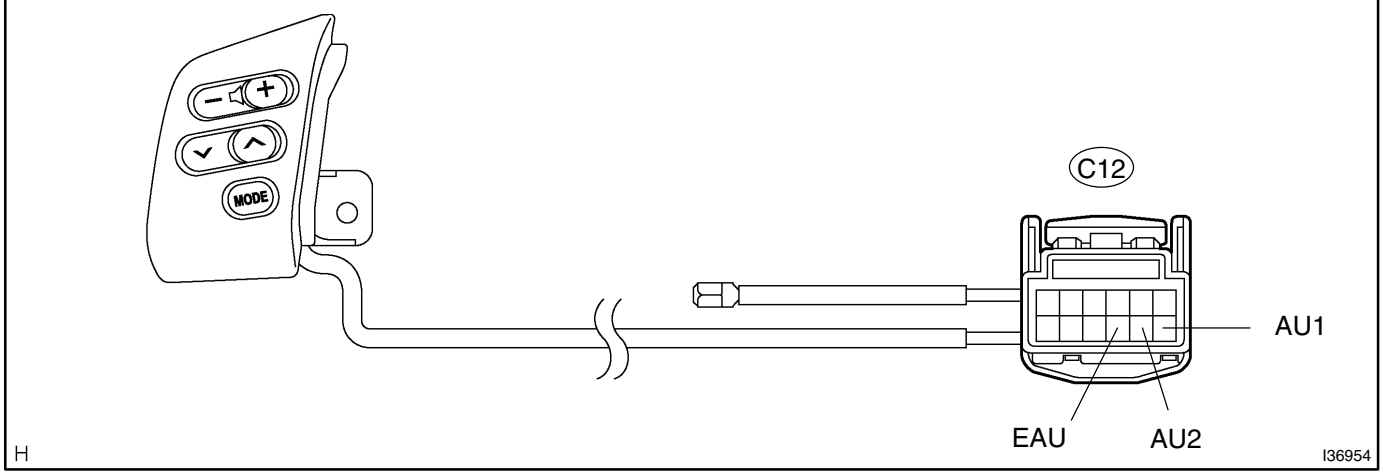
NG → **Go to step 2**

OK

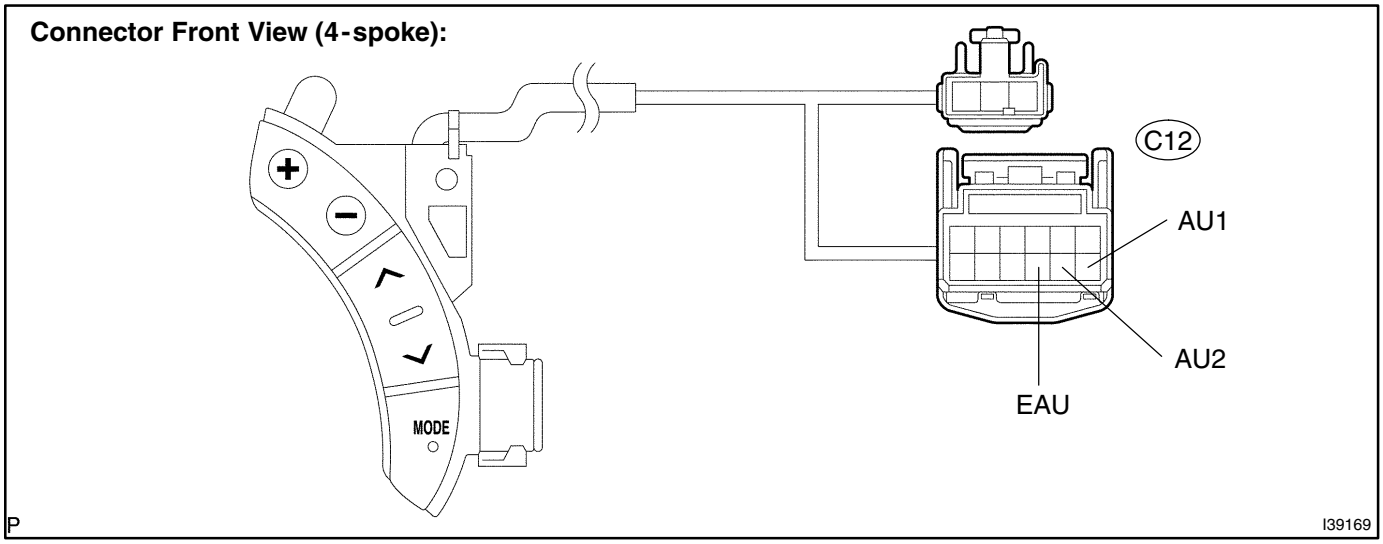
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53

2	INSPECT STEERING PAD SWITCH ASSEMBLY

Connector Front View (3-spoke):



Connector Front View (4-spoke):



(a) Disconnect the steering pad switch assembly connector.

(b) Measure the resistance according to the value(s) in the table below.

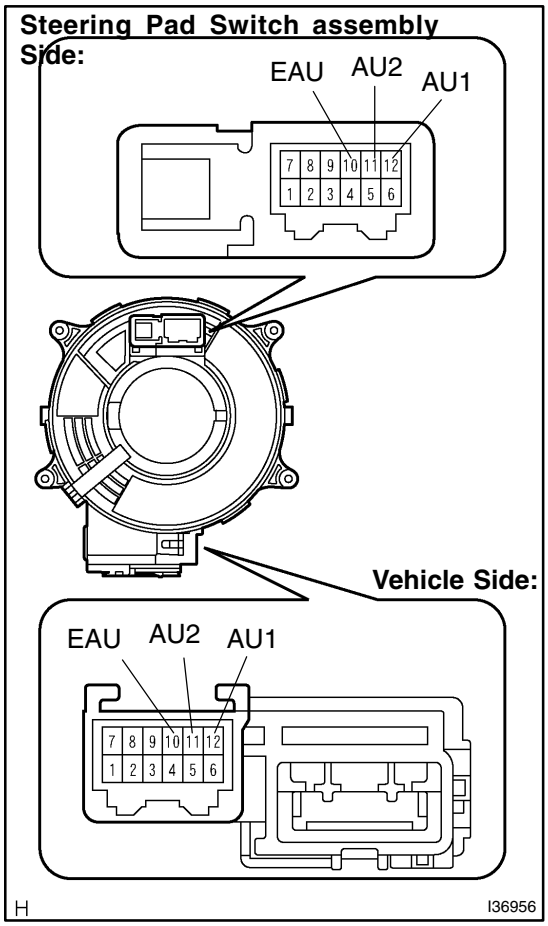
Standard:

Tester connection	Condition	Specified condition
AU1 - EAU	No switch is pushed	Approx. 100 kΩ
AU1 - EAU	SEEK+ switch: push	Approx. 0 Ω
AU1 - EAU	SEEK- switch: push	Approx. 0.3 kΩ
AU1 - EAU	VOL+ switch: push	Approx. 1 kΩ
AU1 - EAU	VOL- switch: push	Approx. 3.2 kΩ
AU2 - EAU	No switch is pushed	Approx. 100 kΩ
AU2 - EAU	MODE switch: push	Approx. 0 Ω

NG → **REPLACE STEERING PAD SWITCH ASSEMBLY, see page 67-2)**

OK

3	INSPECT SPIRAL CABLE SUB-ASSEMBLY



(a) Disconnect the steering pad switch assembly C12 and spiral cable sub-assembly connectors.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

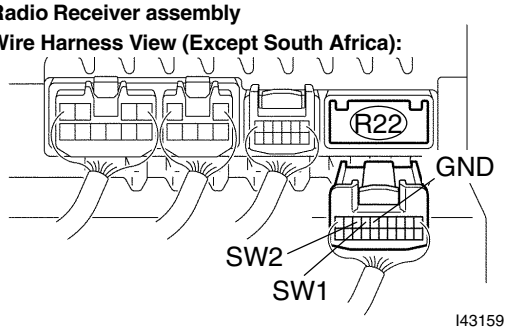
Tester connection	Specified condition
EAU - EAU	Below 1 Ω
AU1 - AU1	Below 1 Ω
AU2 - AU2	Below 1 Ω

NG → **REPLACE SPIRAL CABLE SUB-ASSEMBLY**

OK

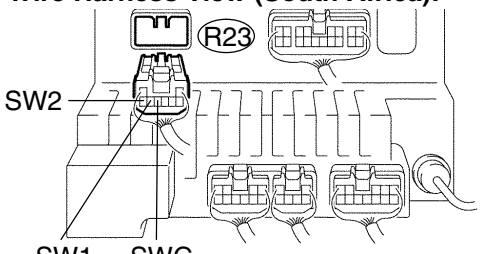
4	CHECK HARNESS AND CONNECTOR(SPIRAL CABLE SUB-ASSEMBLY - RADIO RECEIVER ASSEMBLY)

Radio Receiver assembly
Wire Harness View (Except South Africa):



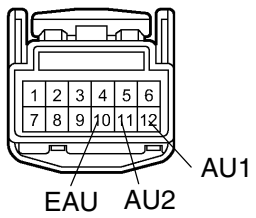
P I43159

Radio Receiver assembly
Wire Harness View (South Africa):



P I41300

Spiral Cable Sub-assembly
Connector Front View:



H I36955 I38235

(a) Disconnect the connectors from the spiral cable sub-assembly and radio receiver assembly R22 or R23.

(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
SW1 (R22-7) or (R23-7) - AU1	Always	Below 1 Ω
SW2 (R22-8) or (R23-8) - AU2	Always	Below 1 Ω
GND (R22-6) or SWG (R23-6) - EAU	Always	Below 1 Ω
SW1 (R22-7) or (R23-7) - Body ground	Always	10 kΩ or higher
SW2 (R22-8) or (R23-8) - Body ground	Always	10 kΩ or higher
GND (R22-6) or SWG (R23-6) - Body ground	Always	10 kΩ or higher

R22: Except South Africa
R23: South Africa

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE, see page 05-53

SOUND QUALITY IS BAD IN ALL MODES (VOLUME IS TOO LOW)

INSPECTION PROCEDURE

1	ADJUST SOUND QUALITY

(a) Adjust the sound quality.
(1) Operate the radio receiver assy to adjust the sound quality.
OK: Malfunction disappears.

OK → **SYSTEM IS OK**

NG

2	COMPARE IT WITH ANOTHER VEHICLE OF SAME MODEL

(a) Compare it with another vehicle of the same model.
(1) Compare it with a vehicle of the same model which does not have trouble to see if there is any difference in the sound quality.
OK: Malfunction disappears.

OK → **SYSTEM IS OK**

NG

REPLACE RADIO RECEIVER ASSEMBLY , see Pub. No AC-RM033 V2, section 67

NOISE OCCURS

INSPECTION PROCEDURE

3	CHECK SPEAKER INSTALLATION

(a) Check the speaker installation condition.
(1) Check that each speaker is securely installed.
OK: Malfunction disappears.

HINT:
The audio and vehicle electrical system is equipped with static and dynamic noise filters that block noise generated from noise sources within the vehicle. If such noise occurs, check that all wiring is correct and that the antenna installation ground and noise filter are installed correctly.

Conditions under which noise occurs	Noise type
Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped.	Altenator noise
Noise occurs during A/C or heater operation.	Blower motor noise
Noise occurs when the vehicle accelerates rapidly on an unpaved road or after the ignition switch is turned on.	Fuel pump noise
Noise occurs when the horn switch is pressed and released or when pressed and held.	Horn noise
Quiet noise occurs while the engine is running, but stops when the engine is stopped.	Ignition noise
Noise occurs synchronously with the blink of the turn signal.	Flasher noise
Noise occurs during window washer operation.	Washer noise
Noise occurs while the engine is running, and continues even after the engine is stopped.	Water temperature sensor noise
Noise occurs during wiper operation.	Wiper noise
Noise occurs when the brake pedal is depressed.	Stop light switch noise
Others	Static electricity stored on the vehicle

HINT:
- Identify the conditions under which the noise occurs, and check the noise filter on the relevant part.
- First ensure that the noise is not coming from an outside noise source. Failure to do so makes noise source detection difficult and may lead to a misdiagnosis.
- Noise should be removed in descending order of loudness.

NG → INSTALL IT PROPERLY

OK

IDENTIFICATION OF NOISE SOURCE

RADIO BROADCAST CANNOT BE RECEIVED (BAD RECEPTION)

INSPECTION PROCEDURE

1 CHECK IF RADIO AUTO-SEARCH FUNCTIONS PROPERLY

(a) Check if the radio auto-search functions properly.
(1) Perform the auto-search of the radio and check that it functions normally.
OK: The radio auto-search functions properly.

OK → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

NG

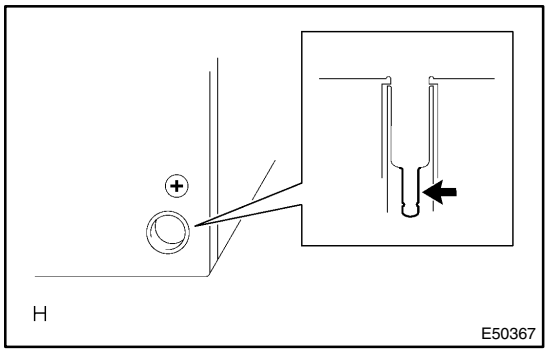
2 CHECK OPTIONAL COMPONENT

(a) Check optional component (sun shade film, telephone antenna, etc.).
(1) Check whether or not any optional component such as the sun shade film and the telephone antenna is installed.
OK: Optional component is installed.

OK → **EFFECT FROM OPTIONAL COMPONENT**

NG

3 INSPECT RADIO RECEIVER ASSEMBLY (ANTENNA)



(a) Preparation for Check
(1) Remove the antenna plug of the radio receiver assembly.

(b) Noise Check
(1) With the radio receiver assembly connector connected, turn the ignition switch to the ACC position.
(2) Turn on the radio and choose the AM mode.
(3) Place a screwdriver or a piece of metal such as thin wire on an antenna jack of the radio receiver assembly and check that the noise is heard from the speaker.
OK: Noise occurs.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK

4 CHECK ANTENNA TYPE

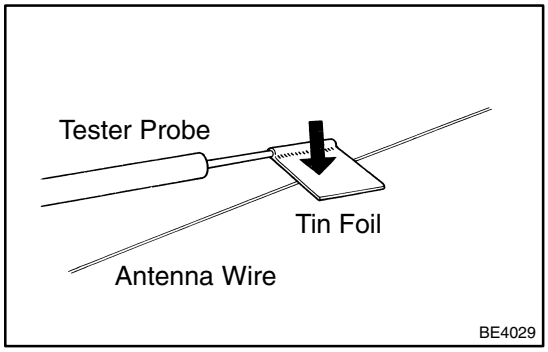
(a) Choose type to be inspected.

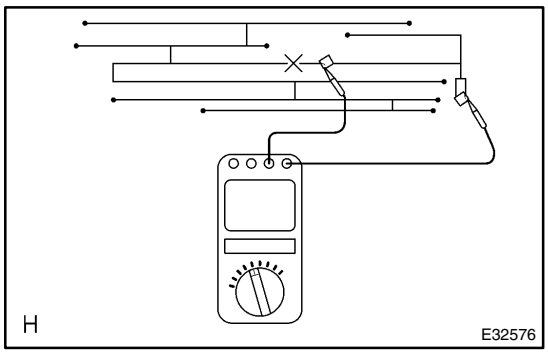
Type	Go to step
Glass printed type antenna	A
Auto antenna control relay type antenna	B

B → **Go to step 8**

A

5 CHECK ANTENNA ASSEMBLY





(a) Check for continuity of the antenna.

HINT:

Check the continuity at the center of each antenna wire as shown in the illustration.

NOTICE:

When cleaning the glass, wipe it in the direction of the wire with a soft dry cloth. Take care not to damage the wire. Do not use detergents or glass cleaners with abrasive ingredients. When measuring voltage, wind a piece of tin foil around the top of the negative probe and press the foil against the wire with your finger, as shown in the illustration.

OK: There is continuity in the antenna.

NG → **REPAIR ANTENNA ASSEMBLY , see Pub. No AC-RM033 V2, section 67**

OK

6 CHECK ANTENNA CORD SUB-ASSEMBLY

(a) Remove the antenna plug of the radio receiver assembly and antenna assembly.

(b) Measure the resistance between the antenna assembly and radio receiver assembly to check for an open circuit in the antenna cord sub-assembly.
Standard: Below 1 Ω

(c) Measure the resistance between the antenna code sub-assembly and body ground to check for a short circuit in the antenna cord sub-assembly.
Standard: 10 kΩ or higher

NG → **REPLACE ANTENNA CORD SUB-ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK

7	REPLACE AMPLIFIER ANTENNA ASSEMBLY, see Pub. No AC-RM033 V2, section 67

(a) Replace the amplifier antenna assembly and check if it operates normally.
OK: The amplifier antenna assembly operates normally.

OK	NORMAL OPERATION

NG

REPLACE RADIO RECEIVER ASSEMBLY , see Pub. No AC-RM033 V2, section 67

8	CHECK ANTENNA ASSEMBLY

(a) Check that the antenna is securely installed.
OK: The antenna is installed properly.

OK	Go to step 6

NG

INSTALL ANTENNA ASSEMBLY PROPERLY

CD CANNOT BE INSERTED OR IS EJECTED RIGHT AFTER INSERTION

INSPECTION PROCEDURE

1	CHECK IF A NORMAL CD IS INSERTED

(a) Check if a normal CD is inserted.
(1) Make sure that the CD is a normal audio CD, and that there is no deformation, flaw, stain, burr or other defects on the CD.
OK: Normal audio CD is inserted.

HINT:
- Translucent or oddly-shaped CDs cannot be played.
- Computer CD-ROMs (even those with music) and CD-R discs cannot be played.
- Playing an 8-cm CD does not require an adapter.

NG → **CD IS FAULTY**

OK

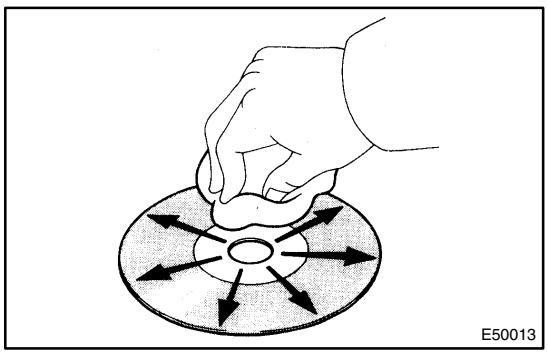
2	CHECK IF A CD IS INSERTED PROPERLY

(a) Check if a CD is inserted properly.
(1) Check whether or not the CD is inserted upside down.
OK: Not upside down.

NG → **SET DISC CORRECTLY**

OK

3	DISC CLEANING



(a) Disc cleaning
(1) If the disc gets dirty, clean the disc by wiping the surface from the centre to outside in a radial direction with a soft cloth.

NOTICE:
Do not use a conventional record cleaner or anti-static preservative.
OK: Malfunction disappears.

OK → **DISC IS DIRTY**

NG

4	REPLACE CD WITH ANOTHER AND RECHECK

(a) Replace the CD with another and recheck.
(1) Replace the CD with another normal one to see if the same trouble occurs again.
OK: Malfunction disappears.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK →

CD IS FAULTY

CD CANNOT BE EJECTED

INSPECTION PROCEDURE

1	PRESS “EJECT” AND CHECK OPERATION

(a) Press “EJECT”and check the operation.

(1) Press the CD EJECT switch of the radio receiver assembly for 2 seconds or more to see if the CD is ejected.

OK: CD is ejected.

HINT:

If the CD is not ejected, bring the vehicle in for repair.
Do not attempt to remove it by force.

NG → **REPLACE RADIO RECEIVER ASSY, see Pub. No AC-RM033 V2, section 67**

OK

2	REPLACE CD WITH ANOTHER AND RECHECK

(a) Replace the CD with another and recheck.

(1) Replace the CD with another normal one to see if the same trouble occurs again.

OK: Malfunction disappears.

NG → **REPLACE RADIO RECEIVER ASSY, see Pub. No AC-RM033 V2, section 67**

OK

CD IS FAULTY

SOUND QUALITY IS BAD ONLY WHEN CD IS PLAYED (VOLUME IS TOO LOW)

INSPECTION PROCEDURE

1	REPLACE CD WITH ANOTHER AND RECHECK

(a) Replace the CD with another one and recheck.
(1) Replace the CD with another normal one to see if the same trouble occurs again.
OK: Malfunction disappears.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK

CD IS FAULTY

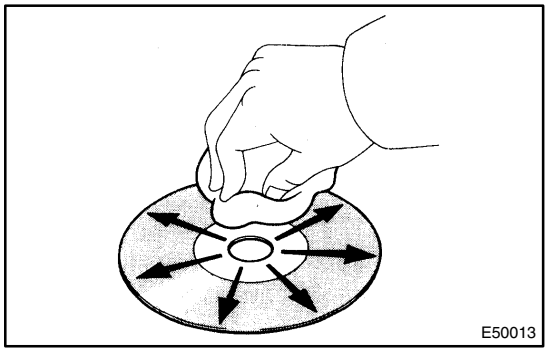
CD SOUND SKIPS

HINT:

- The sound may skip when driving on an unpaved road.

INSPECTION PROCEDURE

1	DISC CLEANING



(a) Disc cleaning

(1) If the disc gets dirty, clean the disc by wiping the surface from the centre to outside in a radial direction with a soft cloth.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.

OK: Malfunction disappears.

OK → **DISC IS DIRTY**

NG

2	REPLACE CD WITH ANOTHER AND RECHECK

(a) Replace the CD with another and recheck.

(1) Replace the CD with another normal one to see if the same trouble occurs again.

OK: Malfunction disappears.

OK → **CD IS FAULTY**

NG

3	CHECK RADIO RECEIVER ASSEMBLY INSTALLATION

(a) Check the radio receiver assembly installation condition.

(1) Check that the radio receiver assembly is installed properly.

OK: Installed properly.

NG → **INSTALL RADIO RECEIVER ASSEMBLY PROPERLY**

OK

4	DID TEMPERATURE IN CABIN CHANGE RAPIDLY?

(a) Did the temperature in the cabin change rapidly?
(1) Check whether or not a rapid temperature change occurred in the cabin.
OK: A rapid temperature change occurred.

HINT:
A rapid temperature change creates condensation inside the CD player, which may prevent the CD from being played.

NG → **REPLACE RADIO RECEIVER ASSY, see Pub. No AC-RM033 V2, section 67**

OK

CONDENSATION DUE TO TEMPERATURE CHANGE (LET IT SIT FOR A WHILE BEFORE USING)

CASSETTE TAPE CANNOT BE INSERTED OR PLAYED

INSPECTION PROCEDURE

1	CHECK FOR ANY FOREIGN OBJECT

(a) Check for any foreign objects.
(1) Check that no foreign objects or defects are detected in the cassette tape player of the radio receiver assembly.
OK: No foreign objects or defects are detected.

NG → **REMOVE FOREIGN OBJECT**

OK

2	CHECK CASSETTE TAPE

(a) Check the cassette tape.
(1) Check that the cassette tape is a normal tape with music or voice recorded.

OK: Proper cassette tape with music or voice recorded.

NG → **CASSETTE TAPE IS FAULTY**

OK

3	REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK

(a) Replace the cassette tape with another one and recheck.
(1) Replace the cassette tape with another normal one to see if the same trouble occurs again.

OK: The function returns to be normal.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK

CASSETTE TAPE IS FAULTY

05D16-07

CASSETTE TAPE CANNOT BE EJECTED

INSPECTION PROCEDURE

1	PRESS “EJECT” AND CHECK OPERATION

(a) Press “EJECT” and check the operation.
  (1) Press the cassette tape EJECT switch of the radio receiver assembly for 2 seconds or more and check that the cassette tape is ejected.
  OK: The cassette tape is ejected.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK

2	CHECK CASSETTE TAPE

(a) Check the cassette tape.
  (1) Check that the ejected cassette tape does not have a peeled label, a cassette body deformation or any other defect.
  OK: No fault on the cassette tape.

NG → **CASSETTE TAPE IS FAULTY**

OK

3	REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK

(a) Replace the cassette tape with another and recheck.
  (1) Replace the cassette tape with another normal one to see if the same trouble occurs again.
  OK: Malfunction disappears.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No AC-RM033 V2, section 67**

OK

CASSETTE TAPE IS FAULTY

SOUND QUALITY IS BAD ONLY WHEN PLAYING TAPE

INSPECTION PROCEDURE

1	REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK

(a) Replace the cassette tape with another one and recheck.
(1) Replace the cassette tape with another normal one to see if the same trouble occurs again.
OK: Malfunction disappears.

OK → **CASSETTE TAPE IS FAULTY**

NG

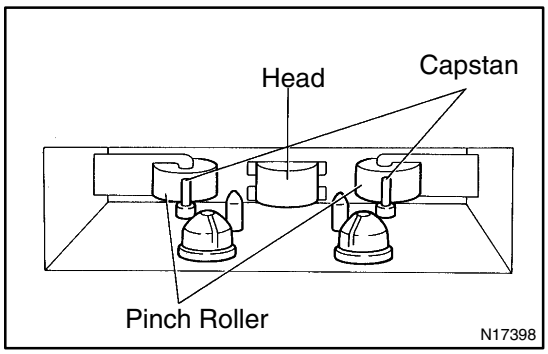
2	CHECK FOR ANY FOREIGN OBJECT

(a) Check for foreign objects.
(1) Check that no foreign objects or defects are detected in the cassette tape player.
OK: No foreign objects or defects are detected.

NG → **REMOVE FOREIGN OBJECT**

OK

3	CLEAN HEAD AND CHECK OPERATION



(a) Head cleaning
(1) Raise the cassette door with your finger. Using a pencil or similar object, push in the guide.
(2) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.
(3) Check if the same trouble occurs again.
OK: Malfunction disappears.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No. AC-RM033V2, page 67-5.**

OK

HEAD IS DIRTY

TAPE IS TANGLED DUE TO INCORRECT TAPE SPEED OR AUTO-REVERSE MALFUNCTION

INSPECTION PROCEDURE

1	CHECK FOR ANY FOREIGN OBJECT

(a) Check for any foreign objects.
  (1) Check that no foreign objects or defects are detected in the cassette tape player of the radio receiver assembly.
  OK: No foreign objects or defects are detected.

NG → **REMOVE FOREIGN OBJECT**

OK

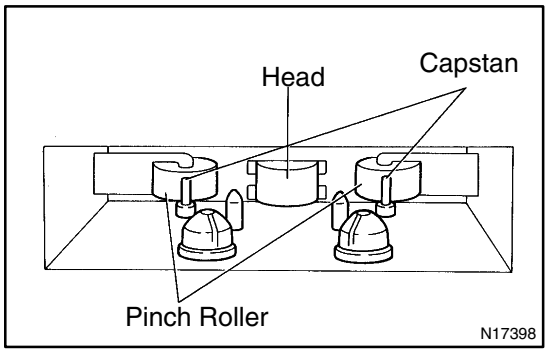
2	REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK (BELOW 90 MIN.)

(a) Replace the cassette tape with another one and recheck.
  (1) Replace the cassette tape with another normal one (90 minutes or less) to see if the same trouble occurs again.
  OK: Malfunction disappears.

OK → **CASSETTE TAPE IS FAULTY**

NG

3	CLEAN HEAD AND CHECK OPERATION



(a) Head cleaning
  (1) Raise the cassette door with your finger. Using a pencil or similar object, push in the guide.
  (2) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.
  (3) Check if the same trouble occurs again.

  OK: Malfunction disappears.

NG → **REPLACE RADIO RECEIVER ASSEMBLY, see Pub. No. AC-RM033V2, page 67-5.**

OK

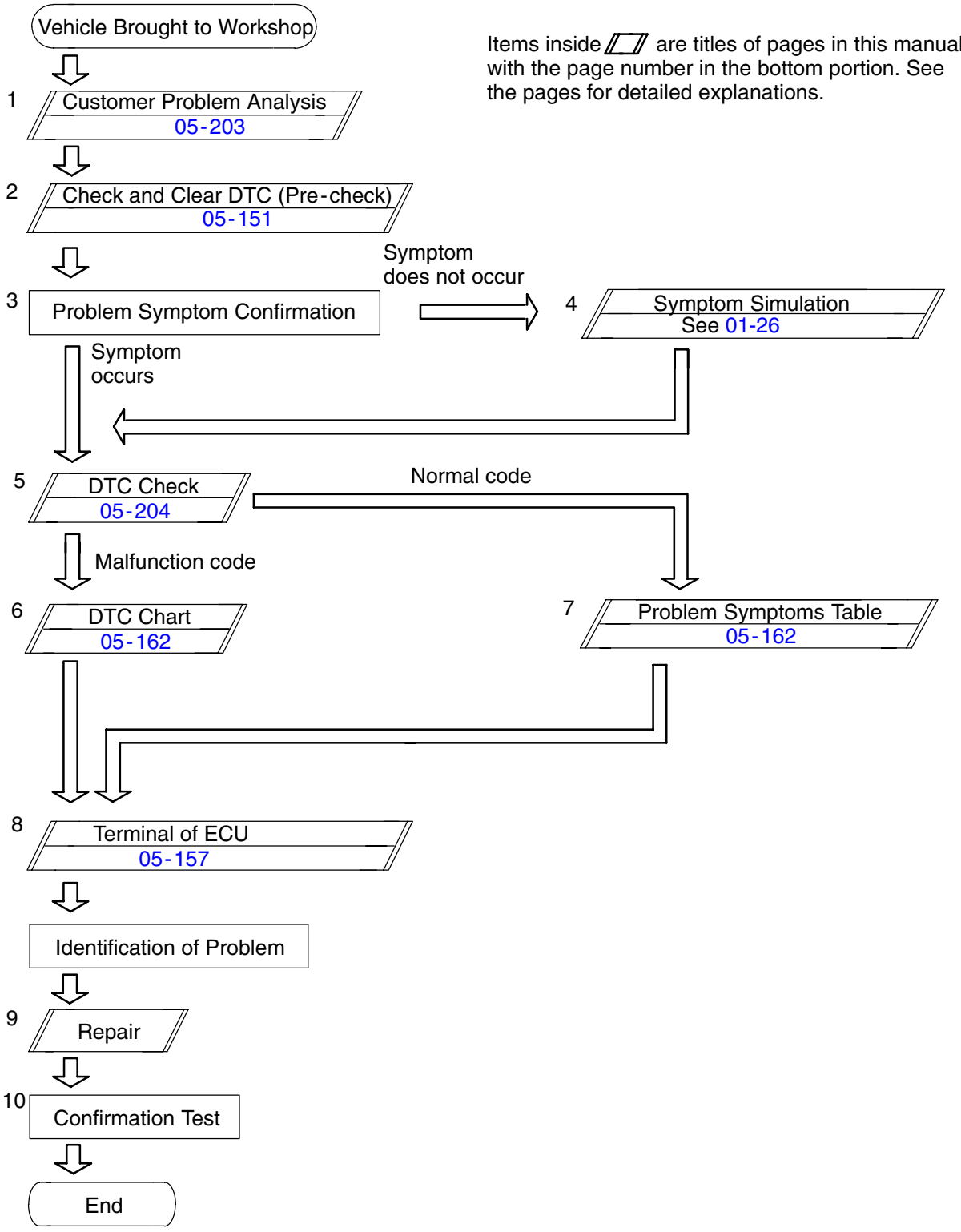
HEAD IS DIRTY

NAVIGATION SYSTEM

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

The ECU of this system is connected to the multiplex communication system. Therefore, before starting trouble-shooting, make sure to check that there is no trouble in the multiplex communication system.



CUSTOMER PROBLEM ANALYSIS CHECK

NAVIGATION SYSTEM Check Sheet

Inspector's name: _____

Customer's Name		**Registration No.**	
		Registration Year	
		Frame No.	
Date Vehicle Brought in	/ /	**Odometer Reading**	**km Mile**

Date Problem First Occurred	/ /
Frequency Problem Occurs	☐ Constant ☐ Intermittent (Times a day)

Problem Symptom	**Navigation Malfunction**	☐ Cursor movement is defective.
		☐ Cursor does not move.
		☐ GPS mark does not appear.
		☐ Map is not displayed.
		☐ Others ( )
	Display Malfunction	☐ Screen is dark.
		☐ Screen is white.
		☐ Colour is not uniform.
		☐ Screen is in disorder.
		☐ Others ( )
	Control Switch Malfunction	☐ Panel switches do not operate.
		☐ Touch switches do not operate.
		☐ Others ( )

	Parts name	**1st time malfunction code.**	**2nd time malfunction code.**
DTC Check	Navigation ECU		
	AVX display assembly		
	Stereo component amplifier		

PRE-CHECK

1. USER PROBLEMS UNDER NORMAL OPERATING CONDITIONS FOR THE NAVIGATION SYSTEM

(a) Voice guidance is not performed even though the system is operating normally when:
  (1) The destination has not been set up.
  (2) The vehicle is not on the designated route. (The remaining distance is not displayed at the lower left of the map screen that tells the driver of the current position of the vehicle.)
  (3) “Guidance in Other Modes” is not set up. (In this case no voice guidance is given except on the map screen.)

(b) The vehicle icon turns arbitrarily on the screen even when the system is operating normally.

If the ignition switch is turned to “ACC” or “ON” while the vehicle is turning around such as being on the turntable, the Navigation System memorizes the angle speed of that moment as the standard figure. To solve this problem, at a vehicle speed of 0 km/h, turn off the ignition switch and then turn it to “ACC” or “ON” again, and see if the problem is still present.

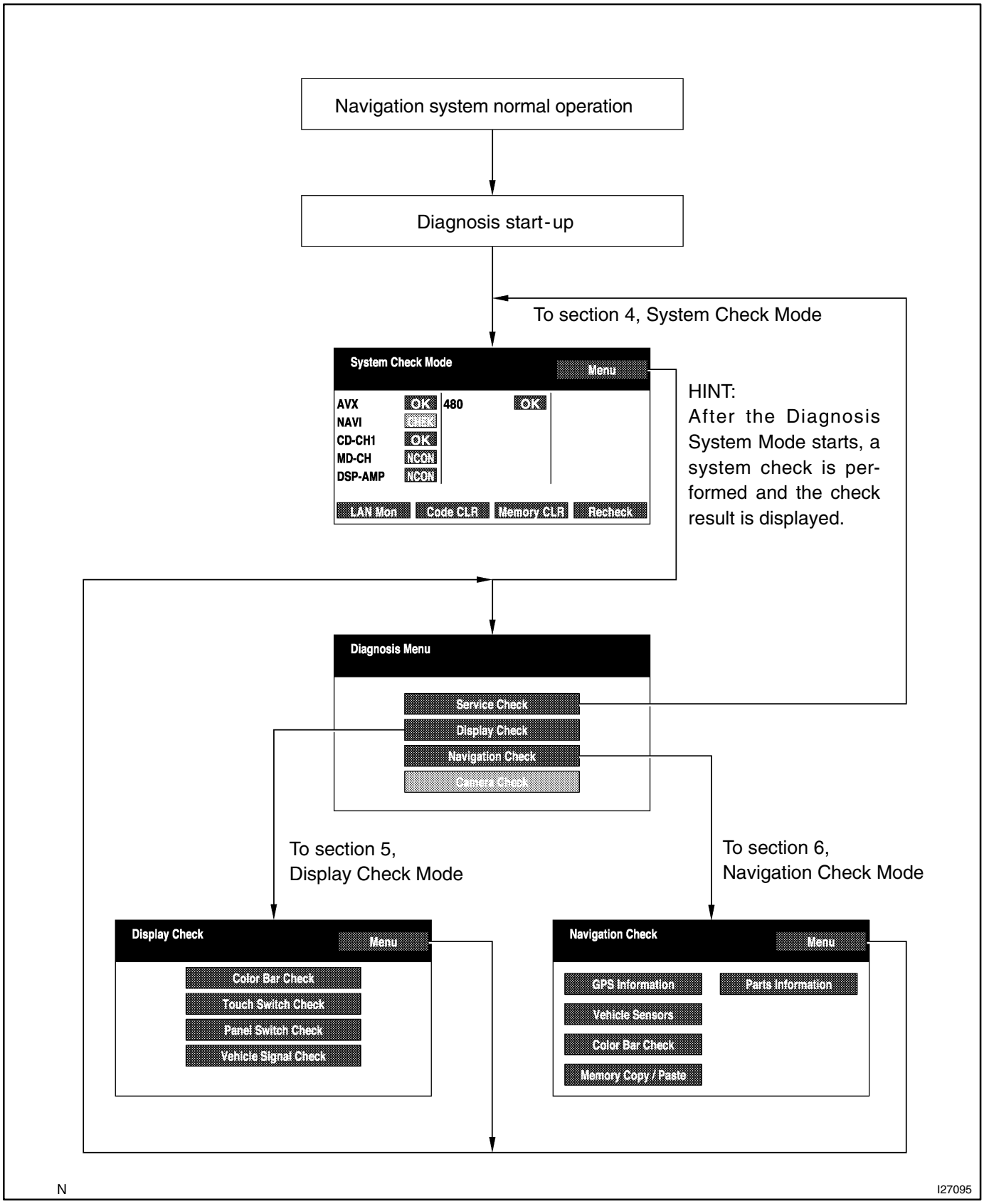
2. INSPECTION OF THE LOCATION WITH TROUBLE OCCURRENCE

Examine if the current vehicle position icon is displayed on the map screen in the correct position at a known location.

HINT:

It is difficult to determine an accurate vehicle position when driving on a freeway, looped road or a road which runs parallel with another, and immediately after exiting a parking area. In these cases the vehicle icon may be displayed in an incorrect position.

3. DIAGNOSIS SYSTEM MODE



4. START-UP AND EXITING OF THE DIAGNOSIS SYSTEM

Start-up of the diagnosis system

Use either of the two methods listed below to start-up the diagnosis system.

HINT:

- Before starting the diagnosis system, make sure that the map appears on the screen after turning the ignition switch ON position.

If the map does not appear, some items cannot be checked.

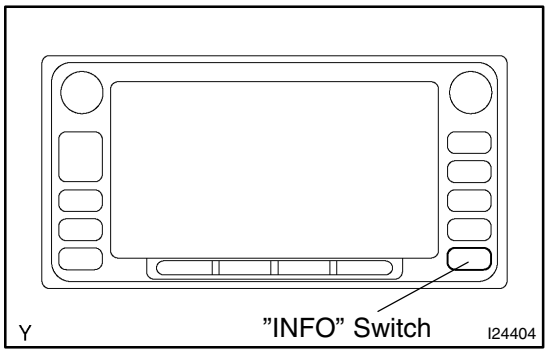
(1) Diagnosis start-up using the light control switch.

(a) Vehicle speed should be 0 km/h.

(b) Apply the park brake.

(c) Turn the ignition switch to the ACC or ON position.

(d) While pressing the “INFO” switch on the radio receiver, turn the light control switch from OFF → TAIL → OFF → TAIL → OFF → TAIL → OFF.



Display Item	Description
System Check	By performing a system check and collecting data from the diagnosis memory, this mode checks the current and past condition of each connected device.
Display Check	It displays Display Check on screen.
Navigation Check	It displays Navigation ECU Check on screen.

HINT:

- When the diagnosis system starts, “System Check Mode” screen is displayed and a system check begins.
- Select “Menu” to display the Diagnosis Menu.

(2) Diagnosis start-up using the touch switch.

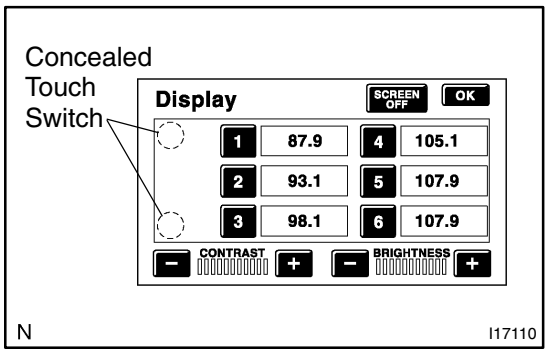
(a) Vehicle speed should be 0 km/h.

(b) Apply the park brake.

(c) Turn the ignition switch to the ACC or ON position.

(d) Activate the display adjustment screen by pushing “DISPLAY”.

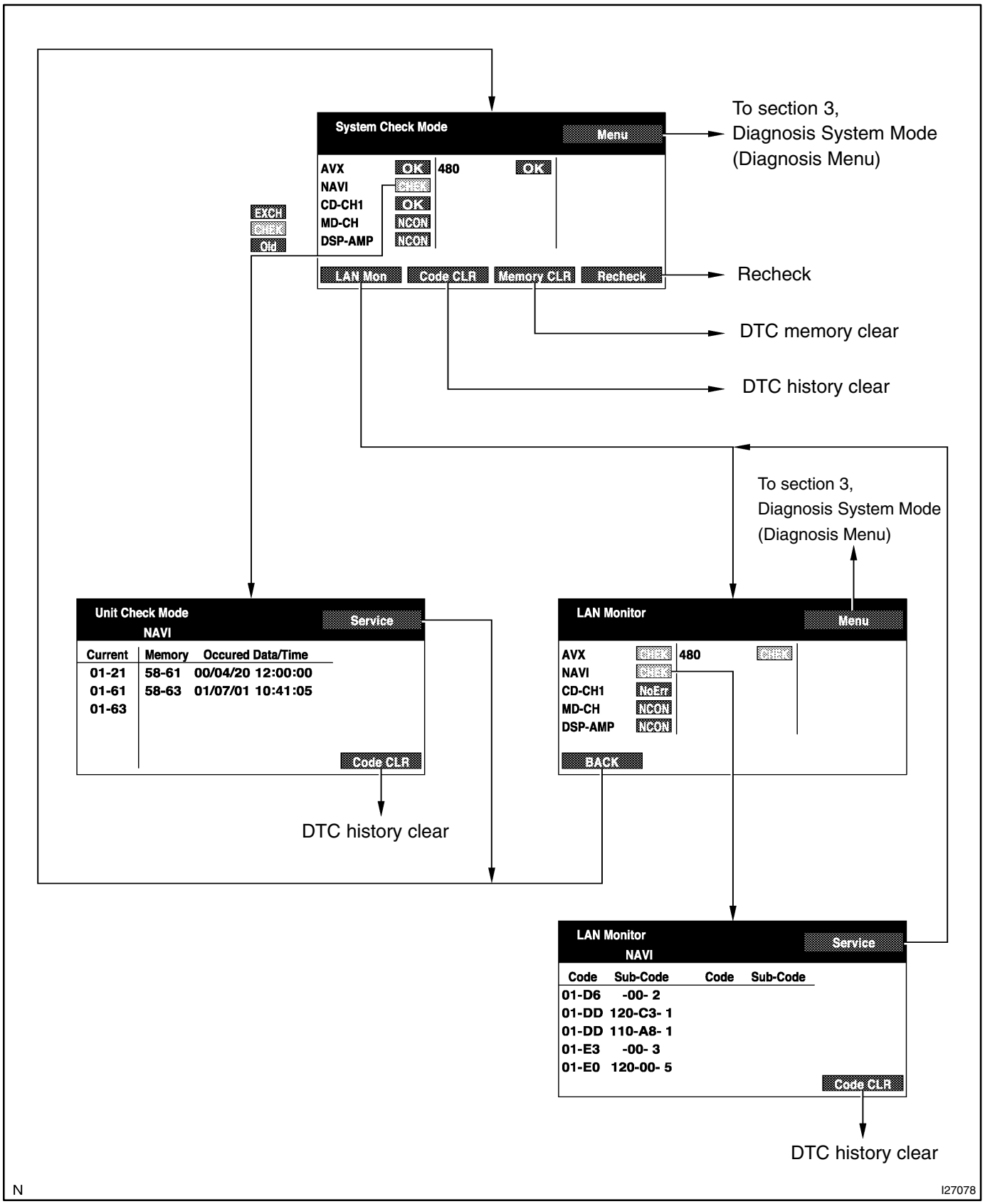
(e) Alternately touch the upper and lower parts on the left end of the screen 3 times.



Exiting the diagnosis system

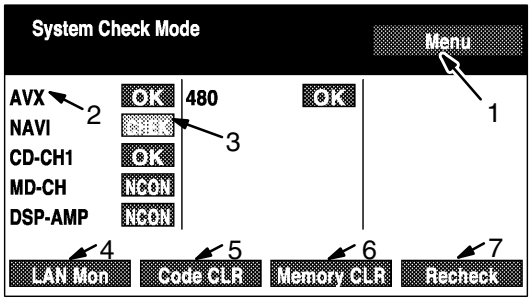
To exit the diagnostic system, turn the ignition switch off.

5. SYSTEM CHECK MODE



N

I27078



N I27079

(a) System Check Mode Screen

(1) Start the diagnosis system.

Item No.	Display Item	Description
1	Menu	Touch this switch to activate the Diagnosis Menu screen.
2	Components Name	List of Component names including optional components (15 components max.) are displayed. When the names are not identified, their physical addresses are displayed.
3	Check result	Touch this switch to display check results.
4	LAN Mon	Touch this switch to activate the LAN monitor screen.
5	Code CLR	Touch this switch for 3 sec. to delete all the components in the diagnosis memory . It deletes the “Service Check” results and the screen displaying the check results.
6	Memory CLR	Touch this switch for 3 sec. to delete all master component registration information.
7	Recheck	Touch this switch to perform the Service Check again.

HINT:

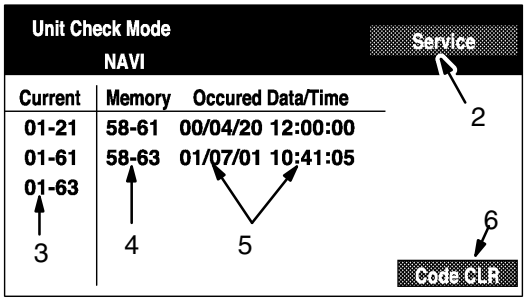
In the “System Check Mode”, the check results are displayed based on the information obtained from each component’s response to “System Check Execution” and “Diagnosis Memory Request”, and the information of “Current DTC Notification” (the unit check and the LAN check information that will be displayed on the next screens).

(2) Read the check result.

Check Result	Meaning
OK	No DTC is identified.
EXCH	One or more DTCs requesting exchange are detected.
CHEK	One or more DTCs requesting check are detected.
NCON	No connection response to Diagnosis System start-up, whereas it has the connection response to the AVC-LAN system when the power switch is turned on (when ignition switch is turned to ACC).
Old	One or more DTCs are detected because of old version.
NRES	No response to the information about the Diagnosis System, whereas it responds to the Diagnosis System start-up.
NoErr	No DTC is identified.

HINT:

- After repair and check, touch “Code CLR” for more than 3 seconds to delete the diagnosis memory.
- After deleting the diagnosis memory, touch “Recheck” and make sure that “OK” is displayed on the screen.



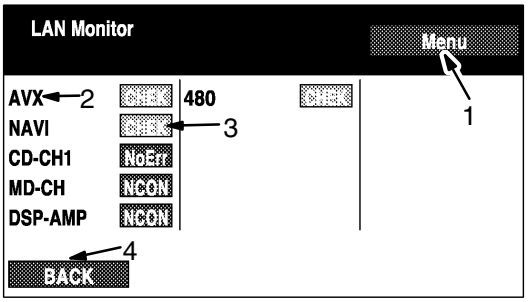
N I27080

(3) "EXCH", "CHEK" and "Old" can be used as switches to activate the "Unit Check Mode" for detailed information. When inspecting the malfunctioning area, refer to the DTC list.

Item No.	Display Item	Description
1	Components Name	Names of components to be checked are displayed.
2	Service	Pressing this returns to the System Check Mode screen.
3	Current	Up to 6 DTCs detected during the System Check are displayed.
4	Memory	DTC memories stored and current DTC Notification are displayed.
5	Date/Time	The date and time stamped at the time of DTC occurrence are displayed in the order of year-month-day-hour-minute-second. (If the date and time data is invalid, blank is displayed).
6	Code CLR	Pressing this switch for 3 sec. deletes DTC memory of the selected diagnosis component.

HINT:

- Detecting Unit DTC activates the "Unit Check Mode" on the screen.
- In the "Unit Check Mode", a DTC which is identified as "EXCH" in the System Check, is displayed as classified into Current DTC and Past DTC.



N I27081

(b) LAN Monitor

(1) Select “LAN Mon”.

Item No.	Display Item	Description
1	Menu	Touching this switch activates the Diagnosis Menu screen.
2	Components Name	List of component names including optional components (15 components max.) are displayed. When the names are not identified, their physical addresses are displayed.
3	CHECK	Check results are displayed.
4	BACK	Touching this switch activates the System Check Mode screen.

HINT:

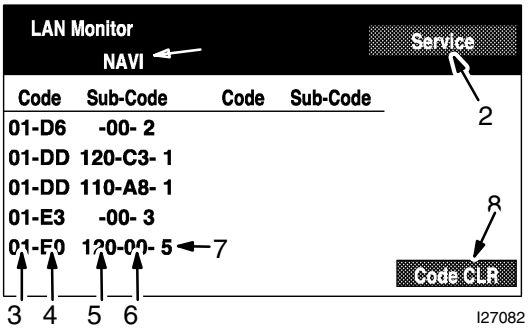
In the “System Check Mode”, the check results are displayed based on the information obtained from each component’s response to “System Check Execution” and “Diagnosis Memory Request”, and the information of “Current DTC Notification” (the “LAN Monitor” that will be displayed on the next screens).

(2) Read Check Result

Check Result	Meaning
OK	No DTC is identified.
EXCH	One or more DTCs requesting exchange are detected.
CHEK	One or more DTCs requesting check are detected.
NCON	No connection response to Diagnosis System start-up, whereas it has the connection response to the AVC-LAN system when the power switch is turned on (when ignition switch is turned to ACC).
Old	One or more DTCs are detected because of old version.
NRES	No response to the information about the Diagnosis System, whereas it responds to the Diagnosis System start-up.
NoErr	No DTC is identified.

HINT:

- After repair and check, touch “Code CLR” for more than 3 seconds to delete diagnosis memory.
- After deleting diagnosis memory, touch “Recheck” and make sure that “OK” is displayed on the screen.

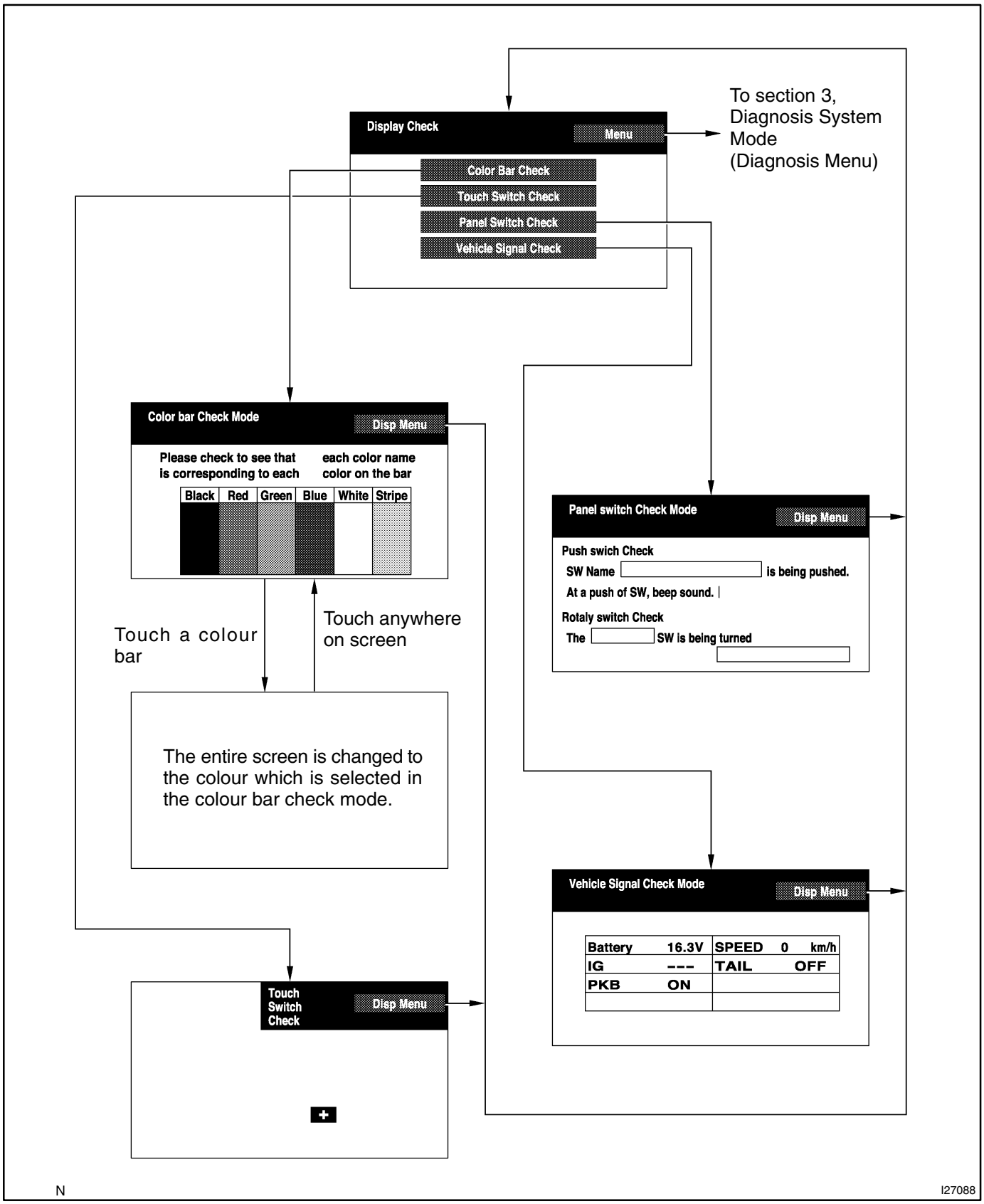


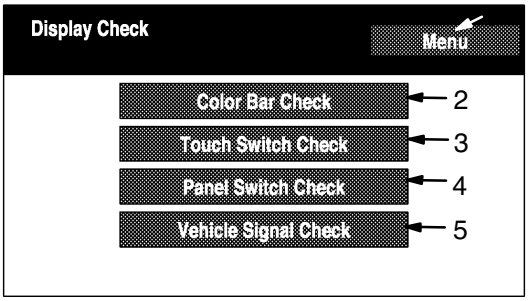
(3) "CHEK" can be used as a switch to activate "LAN Monitor" for detailed information. Check malfunctioning parts of the components in these modes by referring to the DTC code list.

Item No.	Display Item	Description
1	Components Name	Names of components to be checked are displayed.
2	Service	Pressing this returns to the System Check Mode screen.
3	Segment	Logical address codes corresponding to DTC are displayed.
4	DTC	DTC is displayed.
5	Sub-code (address numbers of related components)	Physical address codes memorized together with DTC are displayed.
6	Sub-code (Connection confirmation number)	Connection confirmation numbers memorized together with DTC are displayed.
7	Sub-code (Number of occurrence)	The number of occurrence of the same DTC is displayed.
8	Code CLR	Pressing this switch for 3 sec. deletes DTC memory of the selected diagnosis component.

HINT:
Detecting no LAN DTC activates the LAN Monitor on the screen.

6. DISPLAY CHECK MODE



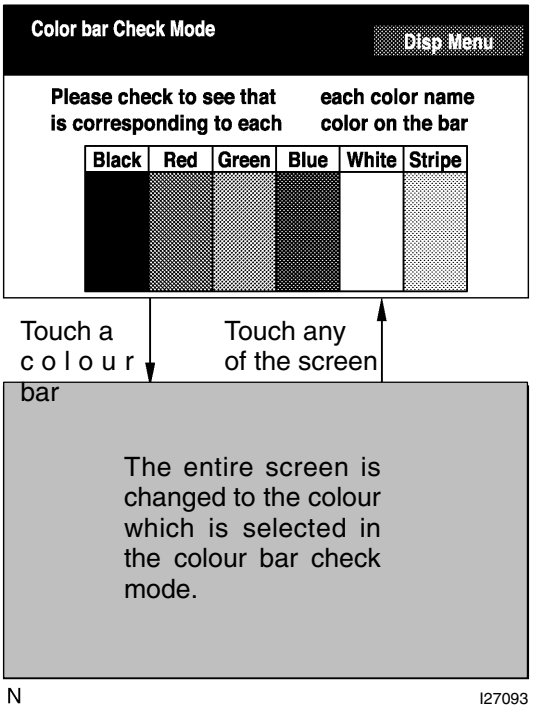


N I27092

(a) Display Check Mode Screen
(1) Start the diagnosis system.
(2) Select “Menu”.
(3) Select “Display Check”.

Item No.	Display Item	Description
1	Menu	Touching this switch activates the Diagnosis Menu screen.
2	Colour Bar Check	Colour display is checked.
3	Touch Switch Check	Operating condition of touch point display is checked.
4	Panel Switch Check	Operating condition of switches on both sides of the display is checked.
5	Vehicle Signal Check	Status of the vehicle signal which has been loaded into the display is checked.

HINT:
In the “Display Check”, above checks can be performed.



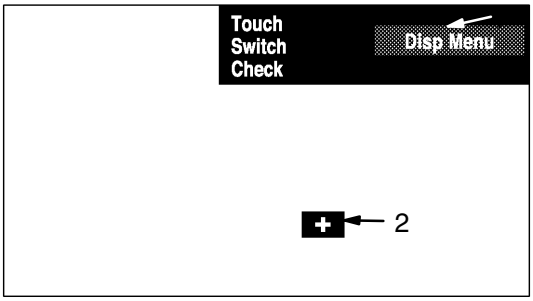
N I27093

(b) Colour bar Check Mode
(1) Start the diagnosis system.
(2) Select “Menu”.
(3) Select “Display Check”.
(4) Select “Colour Bar Check”.
(5) Make sure that each colour name is corresponding to each colour on the bar.

HINT:
Select “Black, Red, Green, Blue, White and Stripe” to display selected colours and stripe on the entire screen.

(6) Compare with the “Colour bar Check” in the “Navigation Check” and make sure that there is no difference.

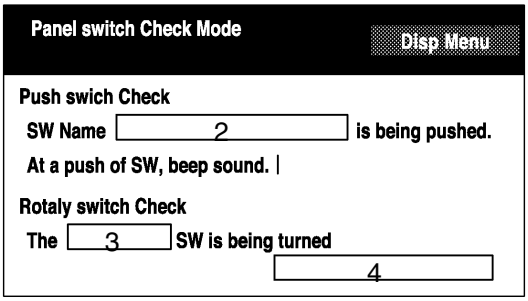
Display Item	Description
Disp Menu	Touching this switch activates the Display Check screen.



N I27090

(c) Touch Switch Check
(1) Start the diagnosis system.
(2) Select “Menu”.
(3) Select “Display Check”.
(4) Select “Touch Switch Check”.
(5) Check the position detected by the pressure sensing touch switch.

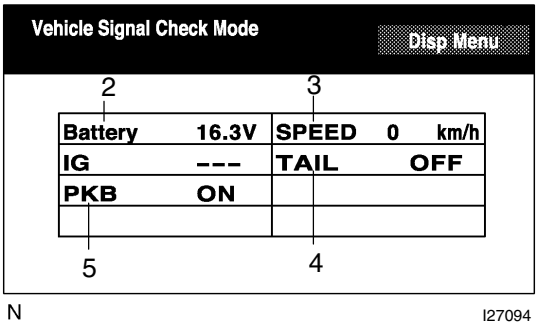
Item No.	Display Item	Description
1	Disp Menu	Touching this switch activates the Display Check screen.
2	Press point	The detected point is indicated by a cross-hair cursor.



N I27091

(d) Panel switch Check
(1) Start the diagnosis system.
(2) Select “Menu”.
(3) Select “Display Check”.
(4) Select “Panel Switch Check”.
(5) Touch each switch and make sure that it corresponds to the display on the screen.

Item No.	Display Item	Description
1	Disp Menu	Touching this switch activates the Display Check screen.
2	Names of push-button switches	Names of push-button switches pressed are displayed. Pressing 2 or more push-button switches is displayed as “MULTIPLE”. After that if the number of push-button switches being pressed becomes 1, the name of the push-button switch being pressed is displayed.
3	Names of rotary switches	Names of rotary switches are displayed.
4	Direction of rotary switches	Direction of rotary switches are displayed.



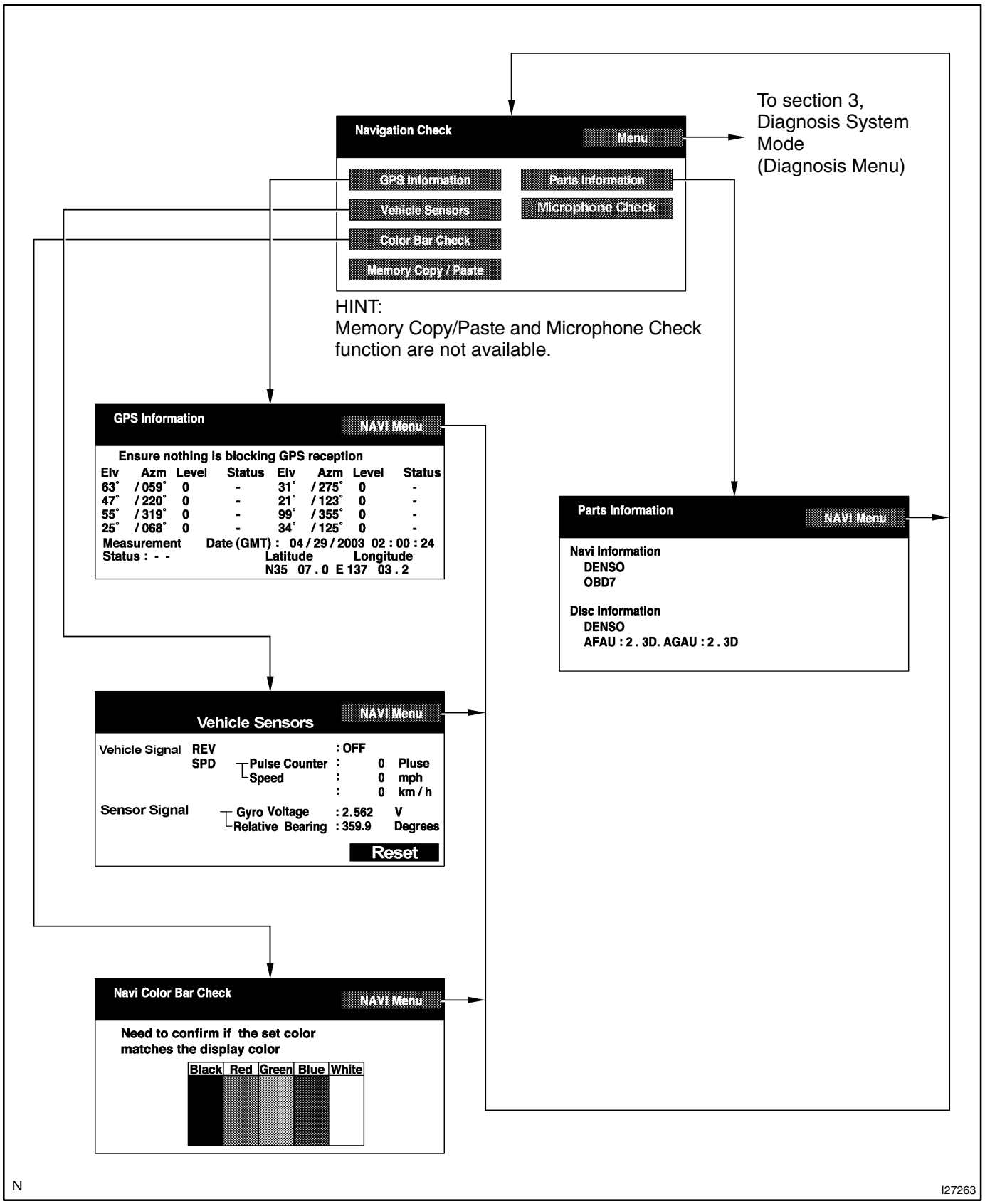
N I27094

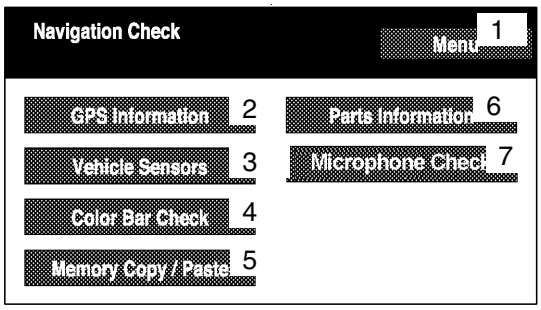
(e) Vehicle Signal Check
(1) Start the diagnosis system.
(2) Select “Menu”.
(3) Select “Display Check”.
(4) Select ”Vehicle Signal Check“.
(5) Check the status of the vehicle signal (Battery, IG, PKB, SPEED, TAIL) loaded into the display.

HINT:
Vehicle signal data is updated every 1 second.

Item No.	Display Item	Description
1	Disp Menu	Touching this switch activates the Display Check screen.
2	Battery	Battery voltage is displayed
3	SPEED	SPD is displayed by calculating the vehicle speed from the pulse signal.
4	TAIL	TAIL (Signal State) is displayed by ON/OFF.
5	PKB	Parking Brake Switch (Signal State) is displayed by ON/OFF. (IG switch ON)

7. NAVIGATION CHECK MODE





(a) Navigation Check Mode Screen

(1) Start the diagnosis system.

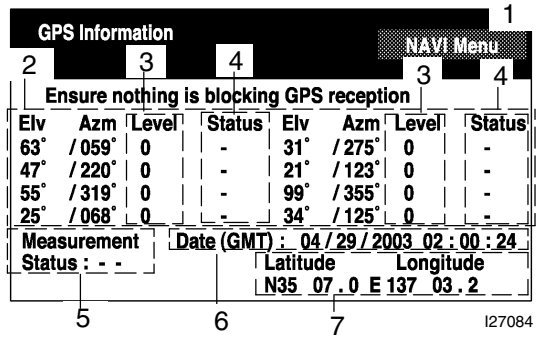
(2) Select “Menu“.

(3) Select “Navigation Check“.

Item No.	Display Item	Description
1	Menu	Pressing this switch activates the Diagnosis Menu screen.
2	GPS Information	Information related to GPS is displayed (updated every 1 second).
3	Vehicle Sensors	Vehicle signal information to be loaded in the Navigation ECU is displayed (updated every 1 second).
4	Colour Bar Check	Colour display of the Navigation ECU is checked (Compare with the Colour Bar Check results in the Display Check.)
5	Memory Copy/Paste	This function is not available.
6	Parts Information	Navigation program version and disc version are displayed.
7	Microphone Check	This function is not available.

HINT:

- In the “Navigation Check” mode, the checks mentioned above can be conducted.
- The navigation ECU operates each “Navigation Check” screen.



(b) GPS Information

(1) Start the diagnosis system.

(2) Select “Menu“.

(3) Select “Navigation Check“.

(4) Select ”GPS Information”.

(5) Check the GPS-related information.

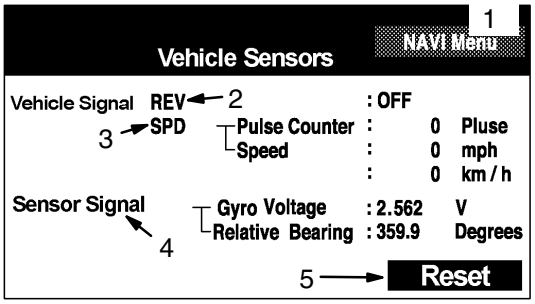
Item No.	Display Item	Description
1	Navi Menu	Pressing this switch activates the Navigation Check screen.
2	Satellite Information	“Angle of elevation”, “Azimuth”, “Level of Signal” and “Status of Wave Reception” of the Satellite captured by the antenna are displayed (for 8 satellites max.)
3	Level of Signal	As level of signal is higher, receiving sensitively becomes better.
6	Time Data	Date and time data obtained from the GPS receiver is displayed.
7	Position Data	The latitude and longitude of the current position are displayed in degree, minute and second.

Status of Wave Reception: Item No. 4

Display	Conditions
P	Using GPS.
-	Complement no GPS.
T	Complement GPS but no using.

Measurement Status:Item No. 5

Display	Conditions
2D	Measurement on 2 dimensions
3D	Measurement on 3 dimensions
NG	GPS information cannot be used.
Error	Reception error occurs.
- -	Other than the above

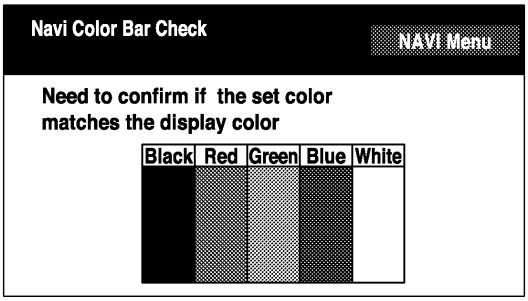


I27085

(c) Vehicle Signal Check

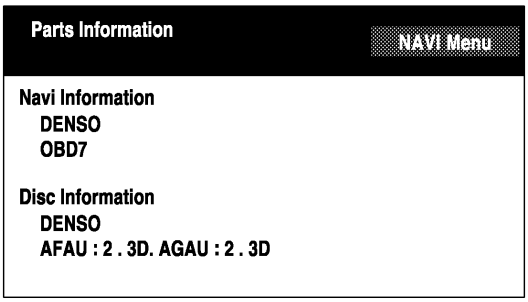
(1) Start the diagnosis system.
(2) Select “Menu“.
(3) Select “Navigation Check“.
(4) Select “Vehicle Signal Check”.
(5) Check the vehicle signals (ACC, REV, SPD) and the output signal of the gyro sensor introduced into the navigation ECU.

Item No.	Display Item	Description
1	Navi Menu	Touching this switch activates the Navigation Check screen.
2	REV signal status	Displayed as ON/OFF.
3	SPD signal status	The cumulative value of input pulse count and the vehicle speed [km/h] [mph] are displayed. [The cumulative value of input pulse count is set to be 0 when this screen is displayed. When the vehicle starts to drive, it is counted and displayed continually.]
4	Output signal of the gyro sensor	Voltage [mV] and relative azimuthal angle [degree] are displayed. [The position of the vehicle when this screen is displayed is set to be 0 degree in azimuth. Based on this, relative azimuthal angle is measured and displayed continually.]
5	Reset	Touch this switch for 3 seconds to reset the sensor reading to zero.



N I27086

(d) Navi Colour Bar Check
(1) Start the diagnosis system.
(2) Select “Menu“.
(3) Select “Navigation Check“.
(4) Select “Colour Bar Check”.
(5) Make sure that the set colour matches the display colour.
(6) Compare with the Colour Bar Check in the Display Check and make sure that no difference is found.



N I27087

(e) Parts Information
(1) Start the diagnosis system.
(2) Select “Menu“.
(3) Select “Navigation Check“.
(4) Select “Parts Information”.
(5) Check the program and disc version.

The display illustrated on the left is an example. The information such as a version No. may differ from that of the actual display.

DIAGNOSTIC TROUBLE CODE CHART

Terms	Meaning
Logical address	Two-digit code (shown in hexadecimal) which is given to each function comprising the inner system of the AVC-LAN.

Radio receiver assembly

Logical address: 01 (Communication control)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
21	ROM Error	ROM is malfunctioning.	Replace radio receiver assembly.
22	RAM Error	RAM is malfunctioning.	Replace radio receiver assembly.
D5*1	Registered component disconnected	• Component shown by sub-code is or was disconnected from system with ignition switch in ACC or ON position. • Communication with component shown by sub-code is not ensured when engine is started.	• Check harness for power supply of component shown by sub-code. • Check harness for communication system of component shown by sub-code.
D8*2	No response to connection check	Component shown by sub-code is or was disconnected from system after engine is started.	• Check harness for power supply of component shown by sub-code. • Check harness for communication system of component shown by sub-code.
D9*1	Last Mode Error	Component operated (sound and/or image was provided) before engine stop is or was disconnected with ignition switch in ACC or ON position.	• Check harness for power supply of component shown by sub-code. • Check harness for communication system of component shown by sub-code.
DA	No Response to ON/OFF Instruction	• No response is identified after changing mode (audio and visual mode change). • Sound and picture do not change using button.	• Check harness for power supply system of component shown by sub-code. • Check harness for communication system of component shown by sub-code. • If error occurs again, replace component shown by sub-code.
DB *1	Mode Status Error	Dual alarm is detected.	• Check harness for power supply system of component shown by sub-code. • Check harness for communication system of component shown by sub-code.
DC *4	Transmission Error	Transmission to component shown by sub-code has been failed. (This code does not necessarily mean actual failure.)	If the same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code.
DE *3	Slave Reset (Momentary Interruption)	After engine starts, slave component has been disconnected.	• Check harness for power supply system of component shown by sub-code. • Check harness for communication system of component shown by sub-code.
E2	ON/OFF Instruction Parameter Error	Error is detected in ON/OFF control command from radio receiver assembly.	Replace radio receiver assembly.
E3*1	Registration Request Transmission	• Registration Request command is output from slave component. • By reception of connection check instruction, Registration Request command is output from sub-master component.	This DTC is provided for engineering purposes. This may be detected when no actual failure exists.

HINT:

*1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.

*2: This code is stored when 180 seconds have passed after the power supply connector is disconnected after the engine starts.

*3: This code may be stored when the key is turned again after the engine starts.

*4: This code may be stored when the key is turned again 1 minute after the engine starts.

Logical address: 21 (Switch)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
10	Panel Switch Error	Error in panel switch input part is detected. (Error in switch control part, or internal communication error with switch control part is detected.)	• Inspect all switches on panel switch test screen in display check mode. If any of them does not function, replace radio receiver assembly. • If all switches function without problem, observe them for a while.
11	Touch Switch Error	Error in touch switch sensor is detected. (Light level of LED is detected to be less than a fixed value.)	• Inspect all touch switches on touch switch test screen in display check mode. If any of lines does not react, replace radio receiver assembly. • If all of vertical and horizontal lines react normally, observe them for a while.

Logical address: 34 (Front passenger monitor)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
10	Error in Picture Circuit	Error in power supply system for picture circuit (abnormal voltage) is detected.	Replace radio receiver assembly.
11	Back-light Error (No current)	Decline in power output from inverter circuit for back-light.	Replace radio receiver assembly.
12	Back-light Error (Excess current)	Excess power output from inverter circuit for back-light.	Replace radio receiver assembly.

Logical address: 60 (Radio player)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
11	FM Tuner Error	Error in FM tuner.	Replace radio receiver assembly.
43	AM Tuner Error	Error in AM tuner.	Replace radio receiver assembly.

Logical address: 61 (Cassette tape player)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
40	Mechanical Error of Media	Malfunction due to mechanical failure is identified. Or cassette tape is cut or entangled.	• Inspect cassette tape. • Replace radio receiver assembly.

Logical address: 62 (CD player)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
42	No Disc Readout	Disc cannot be read.	Inspect CD.
44	CD Error	Error is detected in CD player.	Replace radio receiver assembly.
45	EJECT Error	Disc cannot be ejected.	Replace radio receiver assembly.
47	CD High Temp.	High temperature is detected in CD changer.	Replace radio receiver assembly.
48	CD Excess Current	Excess current is applied to CD changer.	Replace radio receiver assembly.

Navigation ECU (Physical address: 178)

Logical address: 01 (Communication control)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
D6*1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition switch in the ACC or ON position. Or, when this code was recorded, multi-display (LCD) was disconnected.	• Check harness for power supply system of radio receiver assembly. • Check harness for communication system of radio receiver assembly. • Check harness for power supply system of navigation ECU. • Check harness for communication system of navigation ECU.
D7*2	Connection Check Error	Component in which this code is recorded has been disconnected from system after engine starts. Or, when this code was recorded, multi-display (LCD) was disconnected.	• Check harness for power supply system of radio receiver assembly. • Check harness for communication system of radio receiver assembly. • Check harness for power supply system of navigation ECU. • Check harness for communication system of navigation ECU.
DC *3	Transmission Error	Transmission to component shown by sub-code has been failed. (This code does not necessarily mean actual failure.)	If the same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code.
DD *4	Master Reset (Momentary Interruption)	Component that is to be master has been disconnected after engine starts.	• Check harness for power supply system of radio receiver assembly. • Check harness for communication system of radio receiver assembly. • If error occurs frequently, replace radio receiver assembly.
E0*1	Registration Completion Instruction Error	”Registration Completion Instruction” command cannot be received from master.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
E2	ON/OFF Instruction Parameter Error	Error is detected in ON/OFF control command from multi-display (LCD).	Replace radio receiver assembly.
E3*1	Registration Request Transmission	• Registration Request command is output from slave component. • Registration Request command is output from sub-master component.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
DF*4	Master Error	Due to defective condition of component with display, master function is switched to audio equipment. Error occurs in communication between sub-master (audio) and master component.	• Check harness for power supply of radio receiver assembly. • Check harness for communication system of radio receiver assembly.
E4*1	Multiple Frame Abort	Multiple frame transmission is aborted.	This DTC is provided for engineering purposes. This may be detected when no actual failure exists.

HINT:

*1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.

*2: When 210 seconds have passed after the power supply connector of the master component is disconnected with the ignition switch in the ACC or ON position, this code is stored.

*3: This code may be stored when the key is turned in 1 minute again after the engine starts.

*4: This code may be stored when the key is turned again after the engine starts.

Logical address: 58 (Navigation ECU)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
10	Gyro Error	Error in gyro sensor is detected. (Voltage output from sensor is abnormal for more than specified time.)	Replace navigation ECU.
11	GPS Receiver Error	Operation error of GPS receiver is detected.	At an outdoor site with a clear view, operate to display GPS data. If GPS mark is not properly displayed after 15 min. or more, replace navigation ECU.
40	GPS Antenna Error	GPS antenna is open. (Open circuit, connection failure of connectors, etc.)	Inspect antenna and replace if necessary.
41	Power Supply Error of GPS Antenna	Abnormal voltage of GPS antenna cable is abnormal or has short circuit.	• Inspect GPS antenna and replace if necessary. (When no continuity is identified between connector's core and sealed part, GPS antenna is normal.) • If GPS antenna is normal, replace navigation ECU.
42	Map Disc Error	Data cannot be read for a certain time due to scratches or dirt on disc surface or insertion of wrong disc.	• Inspect disc and replace if necessary. (Visually check disc surface and wipe it with soft cloth.) • When a map does not come out even if a disc is replaced, replace navigation ECU.
43	Vehicle Signal Error	Input error of vehicle signal is detected. (When no vehicle signal has been input for a certain time.)	• Inspect wire harness. • If wire harness is normal, replace navigation ECU.

CD Changer (Physical address: 360)

Logical address: 01 (Communication control)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
42	No Disc Readout	Disc cannot be read.	Inspect CD.
44	CD Error	Error is detected in CD player.	Replace radio receiver assembly.
45	EJECT Error	Disc cannot be ejected.	Replace radio receiver assembly.
47	CD High Temp.	High temperature is detected in CD changer.	Replace radio receiver assembly.
48	CD Excess Current	Excess current is applied to CD changer.	Replace radio receiver assembly.

Stereo Component Amplifier (Physical address: 480)

Logical address: 01 (Communication control)

DTC	Diagnosis item	Condition	Countermeasure and inspected parts
D6*1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition switch in ACC or ON position. Or, when this code was recorded, multi-display (CRT display) was disconnected.	• Check harness for power supply of multi-display. • Check harness for communication system of multi-display. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier.
D7	Communication Check Error	Component in which this code is recorded is or was disconnected from system after engine starts. Or, when recording this code, multi-display (CRT display) was disconnected.	• Check harness for power supply of multi display. • Check harness for communication system of multi-display. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier.
DC *2	Transmission Error	Transmission to component shown by sub-code has been failed. (Detecting this DTC does not necessarily mean actual failure.)	If same sub-code is recorded in other component, check harness for power supply and communication system of all components shown by code.
DD *3	Master Reset (Momentary Interruption)	After engine starts, multi-display (CRT display) display was disconnected from system.	• Check harness for power supply of multi-display. • Check harness for communication system of multi-display. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier. • If this error occurs frequently, replace multi-display (CRT display).
DF*4	Master Error	Due to defective condition of component with a display, master function is switched to audio equipment. Error occurs in communication between sub-master (audio) and master component.	• Check harness for power supply of multi-display (CRT display). • Check harness for communication system of multi-display (CRT display). • Check harness for communication system between multi-display (CRT display) and sub-master component.
E0*1	Registration Completion Instruction Error	”Registration Completion Instruction” command cannot be received from master.	This DTC is provided for engineering purpose. This may be detected when no actual failure exists.
E1*1	Audio Processor ON error	While source equipment is operating, AMP output is stopped.	• Check harness for power supply of multi-display (CRT display). • Check harness for communication system of multi-display (CRT display).
E2	ON/OFF Instruction Parameter Error	Error occurs in ON/OFF controlling command from multi-display (CRT display) display.	Replace multi-display (CRT display).
E3*1	Registration Request Transmission	• Registration Request command is output from slave component. • Registration Connection Check Instruction, Registration Request command is output from sub-master component.	This DTC is provided for engineering purpose. This may be detected when no actual failure exists.

HINT:

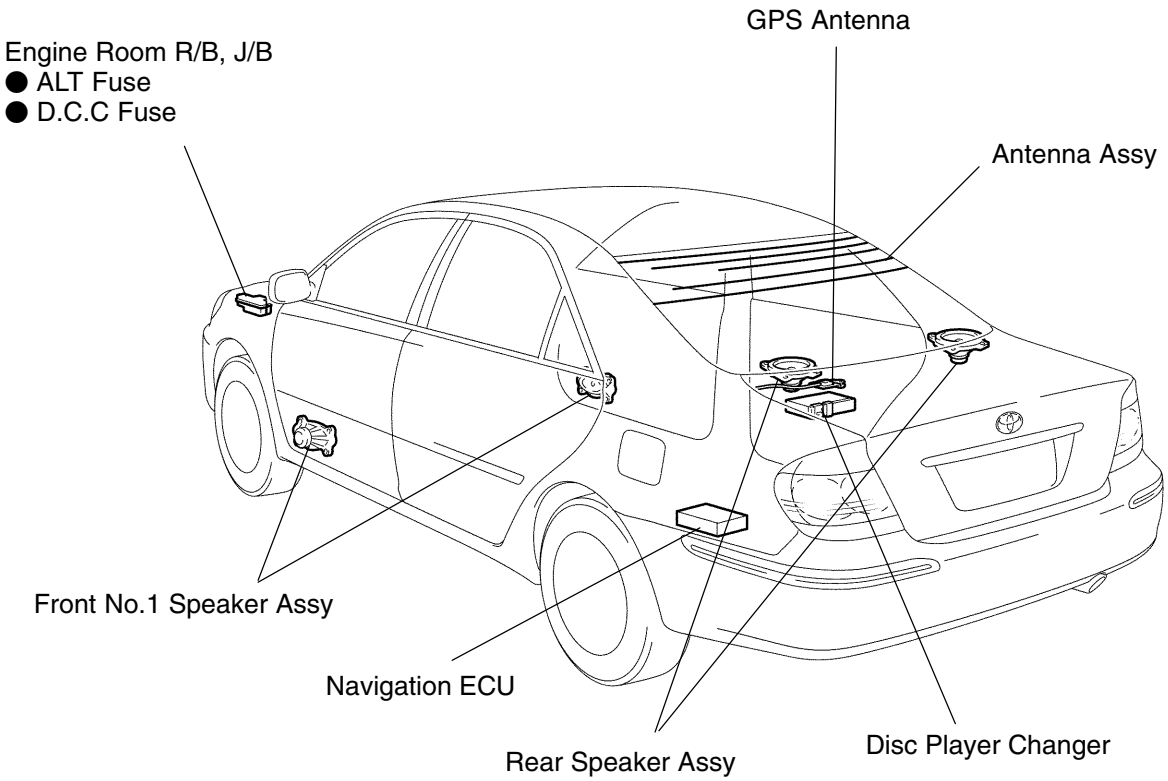
*1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.

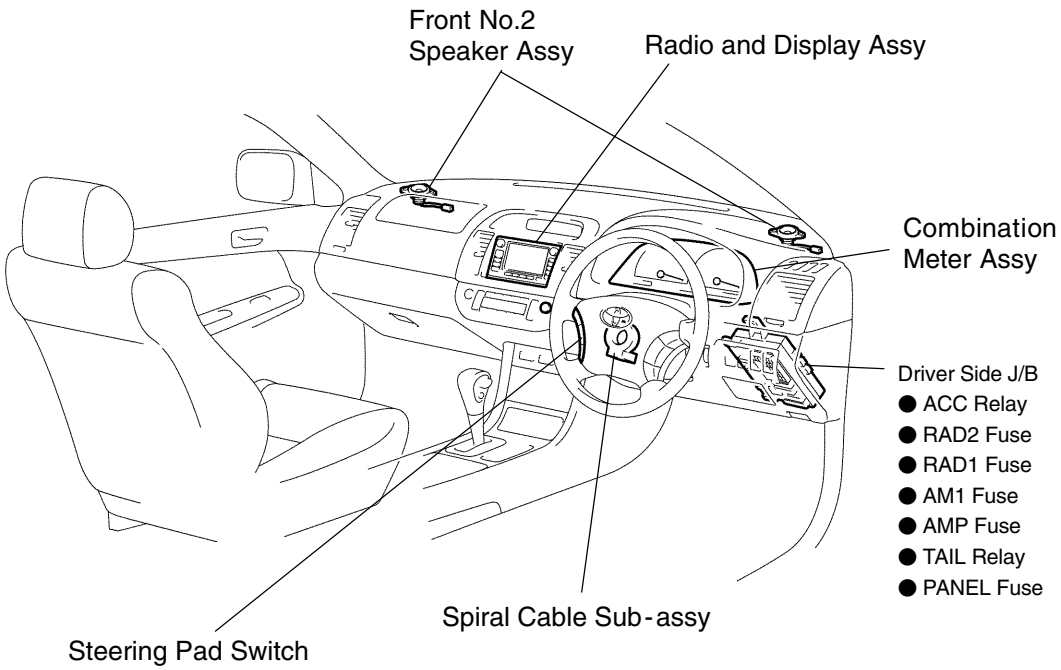
*2: This code may be stored when the key is turned again in 1 minute after the engine starts.

*3: This code may be stored when the key is turned again after the engine starts.

*4: When 210 seconds have passed after pulling out the power supply connector of the master component with the ignition switch in the ACC or ON position, this code is stored.

PARTS LOCATION





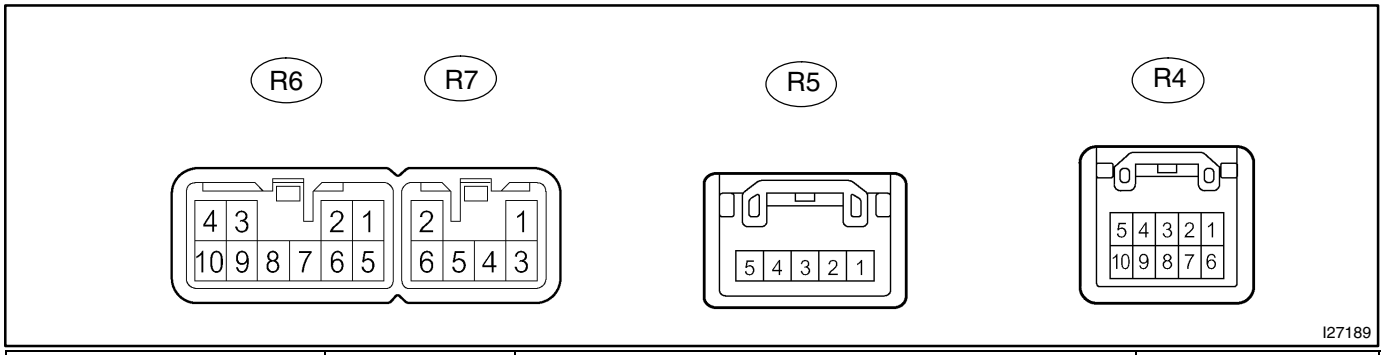
P

I23196

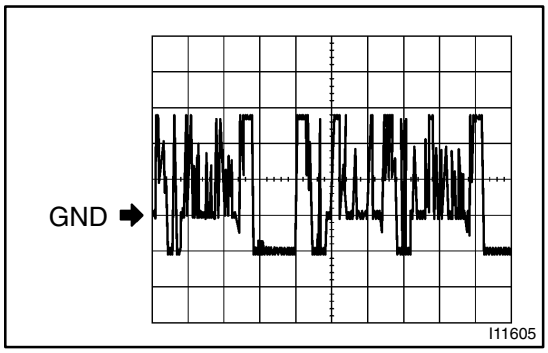
DIC0B-01

TERMINALS OF ECU

RADIO RECEIVER ASSEMBLY



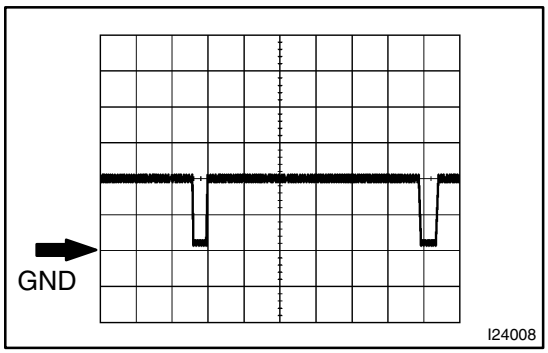
Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
FR+ (R6-1) - E (R6-7)	LG - BR	Audio system is playing	A waveform synchronized with sounds is output
FL+ (R6-2) - E (R6-7)	P - BR	Audio system is playing	A waveform synchronized with sounds is output
ACC (R6-3) - E (R6-7)	G-R - BR	Ignition switch ACC	10 to 14 V
+B (R6-4) - E (R6-7)	L-Y - BR	Constant	10 to 14 V
FR- (R6-5) - E (R6-7)	L - BR	Audio system is playing	A waveform synchronized with sounds is output
FL- (R6-6) - E (R6-7)	V - BR	Audio system is playing	A waveform synchronized with sounds is output
GND (R6-7) - Body ground	BR - Body ground	Constant	Below 1 Ω
ANT (R16-8) - E (R6-7)	B - BR	Constant	10 to 14 V
ILL+ (R6-10) - E (R6-7)	G - BR	Light control switch in TAIL or HEAD	10 to 14 V
RR+ (R7-1) - E (R6-7)	R - BR	Audio system is playing	A waveform synchronized with sounds is output
RL+ (R7-2) - E (R6-7)	B - BR	Audio system is playing	A waveform synchronized with sounds is output
RR- (R7-3) - E (R6-7)	W - BR	Audio system is playing	A waveform synchronized with sounds is output
RL- (R7-6) - E (R6-7)	Y - BR	Audio system is playing	A waveform synchronized with sounds is output
PKB (R5-1)	R-W	See “Vehicle Signal Check Mode”	-
SPD (R5-3)	V-W	See “Vehicle Signal Check Mode”	-
VR (R4-1) - Body ground	B - Body ground	Ignition switch OFF	Below 1 V
R (R4-2) - E (R6-7)	G - BR	Navigation display is on	Pulse generation*1
B (R4-3) - E (R6-7)	W - BR	Navigation display is on	Pulse generation*1
TX+ (R4-5)	W	See “System Check Mode”	-
VG (R4-6) - Body ground	Shielded - Body ground	Constant	Below 1 Ω
G (R4-7) - E (R6-7)	R - BR	Navigation display is on	Pulse generation*1
SYNC (R4-8) - E (R6-7)	Y - BR	Navigation display is on	Pulse generation*2
TX- (R4-10)	R -R	See “System Check Mode”	-



HINT:

*1: Reference the oscilloscope data in the table below.

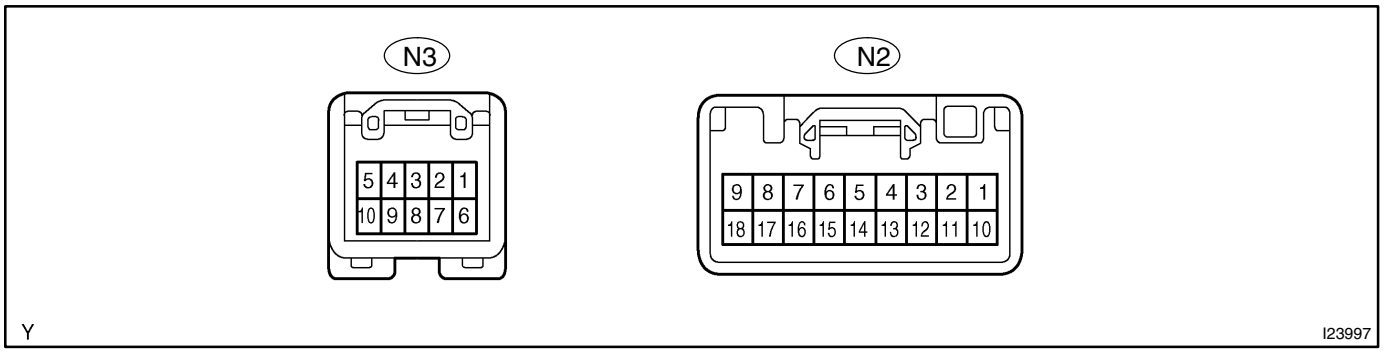
Item	Contents
Terminal to be measured	R, G, B to GND
Tool setting	200 mV/DIV, 10 µs/DIV
Vehicle condition	Navigation display is on



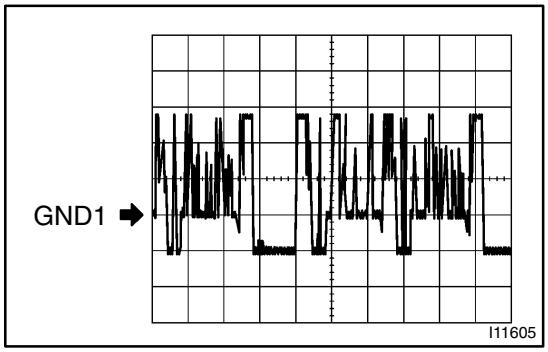
*2: Reference the oscilloscope data in the table below.

Item	Contents
Terminal to be measured	SYNC to GND
Tool setting	500 mV/DIV, 10 µs/DIV
Vehicle condition	Navigation display is on

NAVIGATION ECU



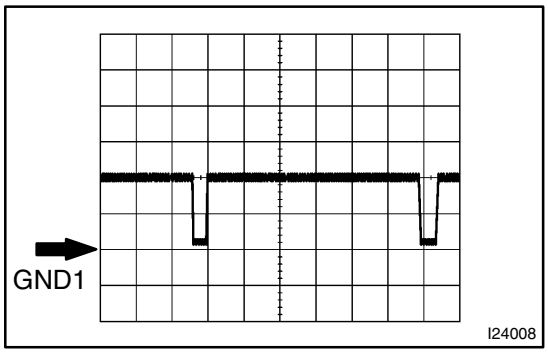
Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
VR (N3-1) - VG (N3-6)	B - Shielded	Ignition switch OFF	Below 1 V
R (N3-2) - VG (N3-6)	G - Shielded	Navigation display is on	Pulse generation*1
B (N3-3) - VG (N3-6)	W - Shielded	Navigation display is on	Pulse generation*1
TX+ (N3-5)	W	See “System Check Mode”	-
VG (N3-6) - GND1 (N2-17)	Shielded - W-B	Ignition switch OFF	Below 1 V
G (N3-7) - VG (N3-6)	R - Shielded	Navigation display is on	Pulse generation*1
SYNC (N3-8) - VG (N3-6)	Y - Shielded	Navigation display is on	Pulse generation*2
TX- (N3-10)	R	See “System Check Mode”	-
SPD (N2-5) - GND1 (N2-17)	V - W-B	See “Vehicle Signal Check Mode”	-
+B (N2-9) - GND1 (N2-17)	L-Y - W-B	Constant	10 to 14 V
VOI- (N2-13) - GND1 (N2-17)	B-R - W-B	Audio system is playing	A waveform synchronized with sounds is output
VOI+ (N2-12) - GND1 (N2-17)	BR - W-B	Sound quality test	-
REV (N2-14)	R-B	See “Vehicle Signal Check Mode”	-
GND1 (N2-17) - Body ground	W-B - Body ground	Constant	Below 1 Ω
ACC (N2-18) - GND1 (N2-17)	GR - W-B	Ignition switch OFF	Below 1 V
		Ignition switch ACC or ON	10 to 14 V



HINT:

*1: Reference the oscilloscope data in the table below.

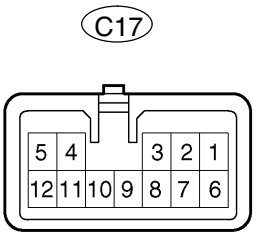
Item	Contents
Terminal to be measured	R, G, B to GND1
Tool setting	200 mV/DIV, 10 µs/DIV
Vehicle condition	Navigation display is on



*2: Reference the oscilloscope data in the table below.

Item	Contents
Terminal to be measured	SYNC to GND1
Tool setting	500 mV/DIV, 10 µs/DIV
Vehicle condition	Navigation display is on

CD CHANGER



Y

I27269

Symbols (Terminal No.)	Wiring Color	Condition	Specified Condition
CDR+ (C17-1) - GND (C17-8)	B - W-B	Audio system is playing	A waveform synchronized with sounds is output
CDL+ (C17-2) - GND (C17-8)	R - W-B	Audio system is playing	A waveform synchronized with sounds is output
MUTE (C17-4) - GND (C17-8)	V - W-B	Navigation display is on	3.5 V or more
+B (C17-5) - GND (C17-8)	L-Y - W-B	Constant	10 to 14 V
CDR- (C17-6) - GND (C17-8)	W - W-B	Audio system is playing	A waveform synchronized with sounds is output
CDL- (C17-7) - GND (C17-8)	G - W-B	Audio system is playing	A waveform synchronized with sounds is output
ACC (C17-12) - GND (C17-8)	GR - W-B	Ignition switch ACC	10 to 14 V

PROBLEM SYMPTOMS TABLE

Flow Chart No.	Symptom	See Page
1	Even though “PWR/VOL” switch or any audio switch is pressed, the screen remains black	05-163
2	Panel switch does not function	05-165
3-1	Although “PWR/VOL” switch is pressed, no sound is heard (display and switch operation are normal)	05-166
4	No navigation screen is displayed when “MAP/VOICE”, “MENU” or “DEST” switch is pressed (screen cannot be switched)	05-168
5	Navigation screen is not stabilized (synchronous error)	05-171
6	Color on navigation screen is unusual (RGB signal error)	05-174
7	Black screen appears when “MAP”, “MENU” or “DEST” switch is pressed	05-177
8-1	Only front speaker (driver side) is not heard (radio, casette tape and CD)	05-179
9	Map disc cannot be inserted	05-182
10	Map screen does not appear (disc caution screen does not change)	05-184
11	Map is displayed in white or blue screen (switch and vehicle position mark are displayed)	05-185
12	Screen cannot be dimmed when light control switch is turned to “TAIL” position	05-186
13	Touch switch does not function (navigation screen only)	05-189
14	Vehicle position is greatly deviated from correct point	05-190
15	GPS mark does not appear	05-192
16-1	No voice navigation	05-193
17	Vehicle position mark turns without control (map turns without control)	05-196
18	Driving directions are opposite to moving direction of vehicle position mark	05-199
19	CD cannot be inserted/ is ejected right after insertion/ cannot be played	05-201
20	CD cannot be ejected	05-203
21	CD sound skips	05-205
22	Cassette tape cannot be inserted or played	05-207
23	Cassette tape cannot be ejected	05-209
24	Noise occurs	05-211
25	Radio broadcast cannot be received (bad reception)	05-213

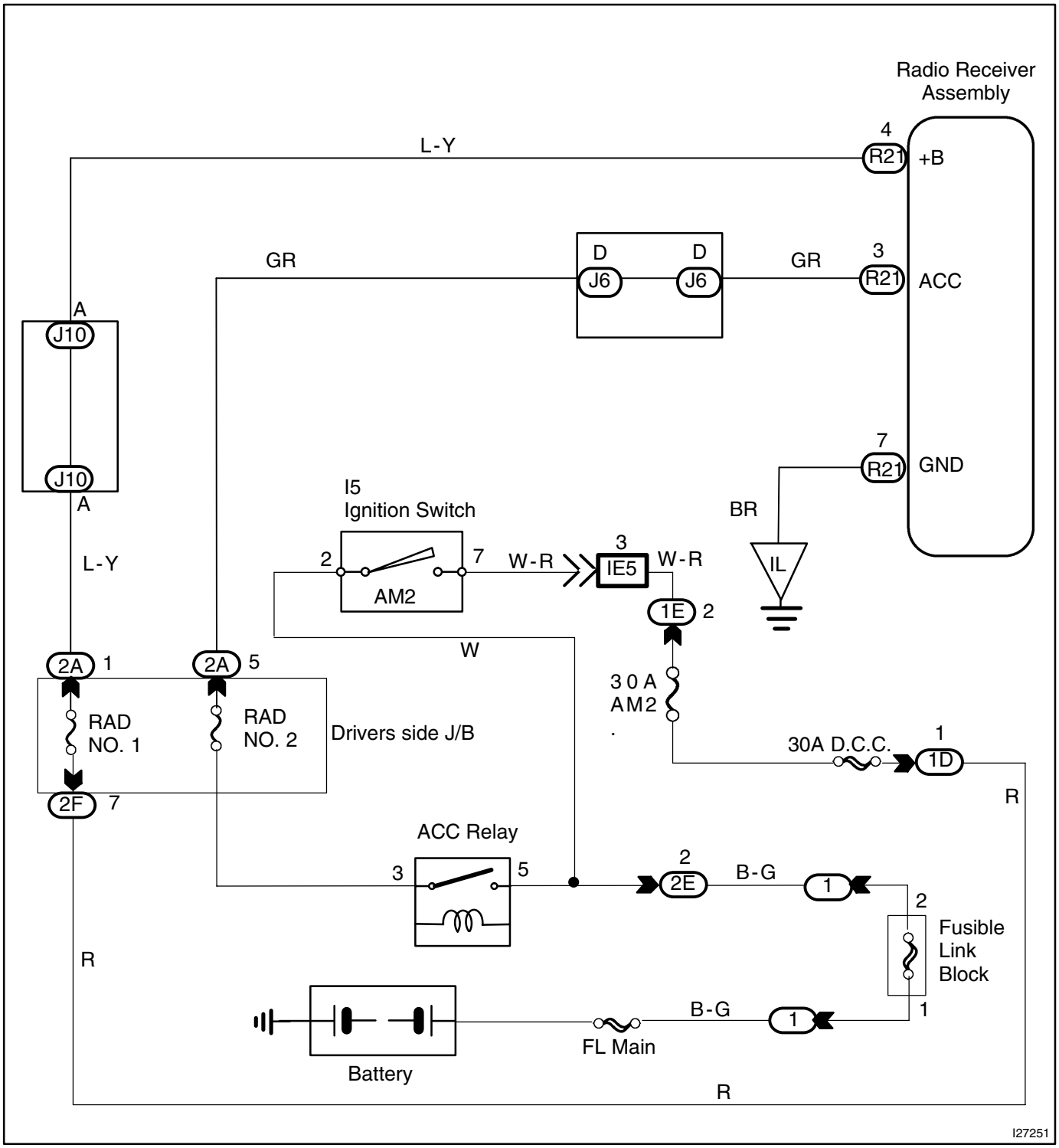
EXAMPLES OF MISUNDERSTANDING SYMPTOMS AS MALFUNCTIONS

Condition	Cause	Procedure to Recover
Screen displays “AUDIO OFF”, even when “PWR/VOL” switch is turned off.	“PWR/VOL” switch turns the audio off, but the screen is still on. To turn off the screen, “SCREEN OFF” switch must be pressed.	Press “DISPLAY” switch then press “SCREEN OFF” switch on screen
The screen is too dark or too bright, when the screen is changed between navigation and audio.	The contrast set up of the screen between navigation and audio is different. The contrast needs to be set up for each of the navigation and audio screen.	• Navigation: Press “DISPLAY” and adjust by “BRIGHTNESS” switch. • AUDIO: Press “DISPLAY” and adjust by “CONTRAST” switch.
Present position is not displayed even when “NAVI” switch is pressed.	Pressing “NAVI” switch displays the previous screen. For present position, “MAP/VOICE” switch must be pressed.	Press “NAVI” switch Press “MAP/VOICE” switch.
Even when pressing the panel switch, it does not function.	• This switch is pressure sensitive type. Press the switch securely. • The panel switch toned down does not work even if the panel switch is pressed.	Press the panel switch securely. If the pressure is weak or time is insufficient, the switch does not function.

WHEN PRESSING "PWR/VOL" SWITCH OR ANY AUDIO SWITCH IS PRESSED, THE SCREEN REMAINS BLACK

WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	Check screen mode.

CHECK:

Check the screen mode.

Press “AUDIO” or “NAVI” switch to check if the screen turns on.

HINT:

In the “SCREEN OFF” mode, the screen remains black but the sound is heard.

RESULT:

A	Screen remain black
B	Screen displays audio or navi mode

B → **Normal**

A

2	Check RAD NO. 1 and CIG/RADIO fuses.

PREPARATION:

(a) Remove the RAD NO. 1 fuse from the driver’s side J/B.

(b) Remove the RAD NO. 2 fuse from the driver’s side J/B.

CHECK:

Check the resistance.

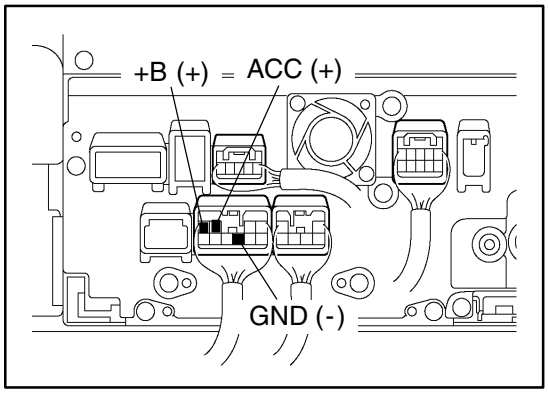
OK:

Below 1 Ω

NG → **Replace fuse.**

OK

3	Inspect radio receiver assembly (+B, ACC, GND).



PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Check the voltage and resistance of each terminal as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
+B - GND	Constant	10 to 14 V
ACC - GND	Ignition switch in ACC	10 to14 V
GND - Body ground	Constant	Below 1 Ω

NG → **Repair or replace harness and connector.**

OK

Replace radio receiver assembly.

PANEL SWITCH DOES NOT FUNCTION

INSPECTION PROCEDURE

1	Check switch.

CHECK:
Check for foreign objects that may be causing the radio receiver switch to jam.
OK:
No foreign objects.

NG → **Remove foreign object.**

OK

2	Display check mode

CHECK:
Enter the diagnosis system, and preform the “Inspection of Display Panel switch” to check if the function is normal.
OK:
The function is normal.

OK → **Normal**

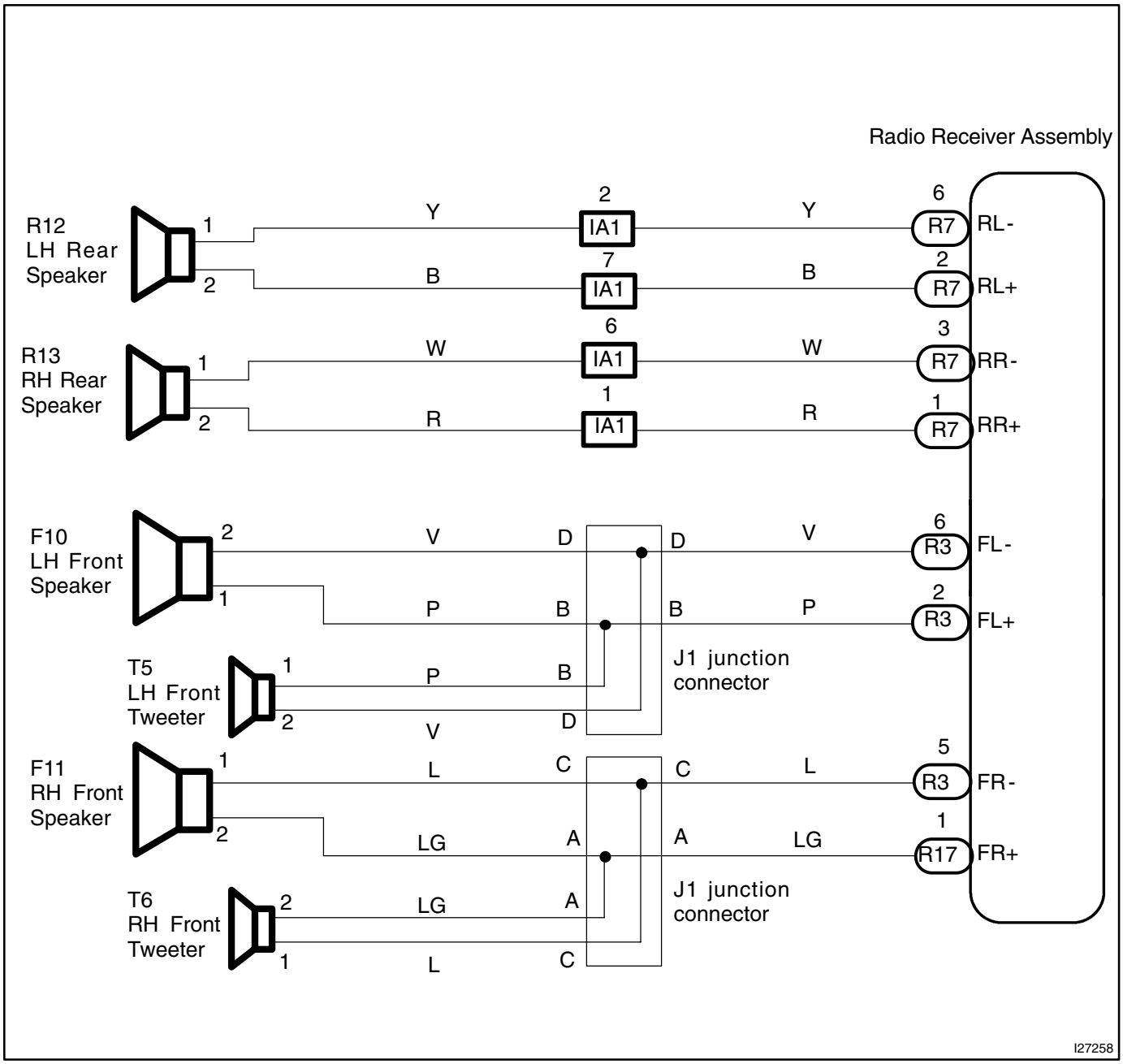
NG

Replace radio receiver assembly.

ALTHOUGH "PWR/VOL" SWITCH IS PRESSED, NO SOUND IS HEARD - DISPLAY AND SWITCH OPERATION ARE NORMAL

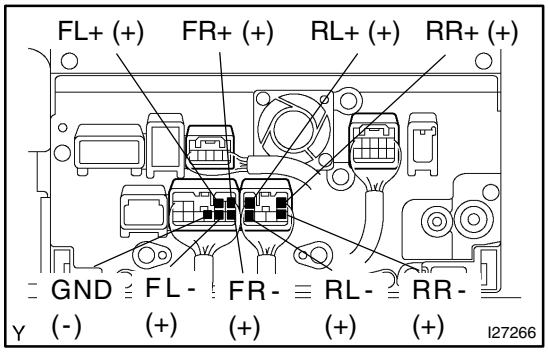
WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	Inspect radio receiver assembly (FL+, FL-, FR+, FR-, RL+, RL-, RR+, RR-).



PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Using an oscilloscope, check the signal waveform between the terminals of the radio receiver as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
FL+ - GND	Audio system is playing	A waveform synchronized with sounds is output
FL- - GND	Audio system is playing	A waveform synchronized with sounds is output
FR+ - GND	Audio system is playing	A waveform synchronized with sounds is output
FR- - GND	Audio system is playing	A waveform synchronized with sounds is output
RL+ - GND	Audio system is playing	A waveform synchronized with sounds is output
RL- - GND	Audio system is playing	A waveform synchronized with sounds is output
RR+ - GND	Audio system is playing	A waveform synchronized with sounds is output
RR- - GND	Audio system is playing	A waveform synchronized with sounds is output

NG → **Replace radio receiver assembly.**

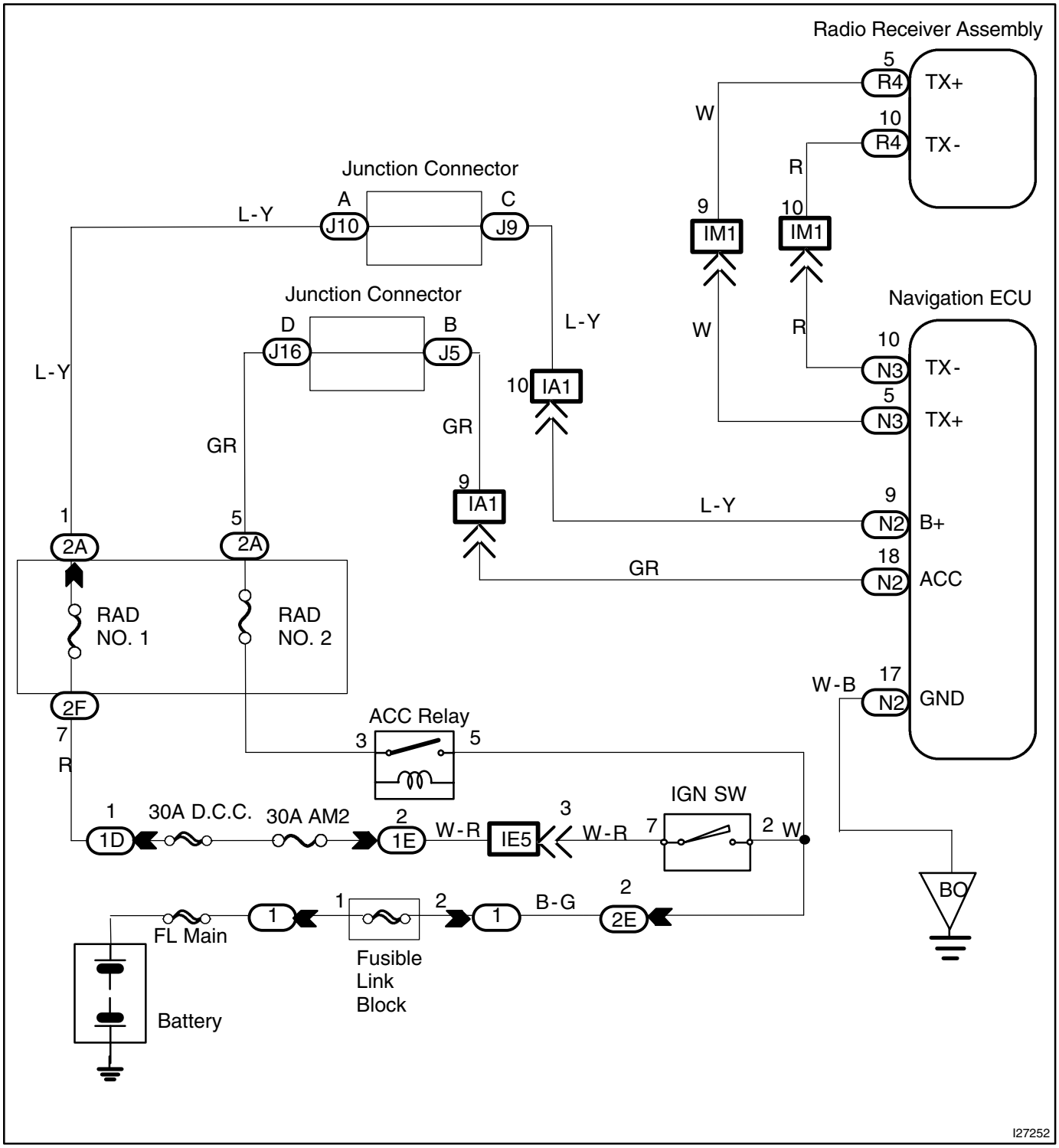
OK

Replace applicable parts (including wire harness).

NAVIGATION SCREEN IS NOT DISPLAYED WHEN "MAP/VOICE" "MENU" OR "DEST" SWITCH IS PRESSED -SCREEN CANNOT BE SWITCHED

WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	Service check mode (navigation ECU)

CHECK:

Start up the diagnosis system and read the check result of the navigation ECU in the service check mode.

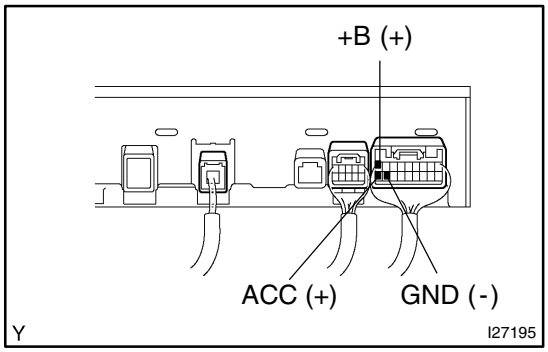
RESULT:

A	"NCON" is displayed or "NAVI" is not displayed
B	"NAVI: OK" is displayed

B → **Replace radio receiver assembly.**

A

2	Inspect navigation ECU (+B, ACC, GND).



PREPARATION:

Remove the navigation ECU with the connectors still connected.

CHECK:

Check the voltage and resistance of each terminal as shown in the chart.

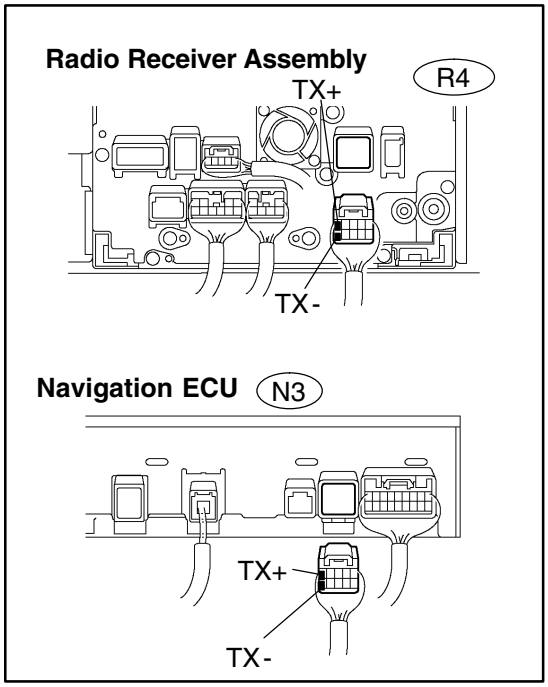
OK:

Tester Connection	Condition	Specified Condition
+B - GND1	Constant	10 to 14 V
ACC - GND	Ignition switch in ACC	10 to 14 V
GND - Body ground	Constant	Below 1 Ω

NG → **Repair or replace harness and connector.**

OK

3	Check harness and connector (radio receiver assembly to navigation ECU).



PREPARATION:

(a) Disconnect the N3 connector from the navigation ECU.

(b) Disconnect the R4 connector from the radio receiver.

CHECK:

Check the resistance of each terminal as shown in the chart.

OK:

Tester Connection	Specified Condition
TX+ - TX+	Below 1 Ω
TX- - TX-	Below 1 Ω
TX+ - Body ground	10 kΩ or higher
TX- - Body ground	10 kΩ or higher

NG → **Repair or replace harness and connector.**

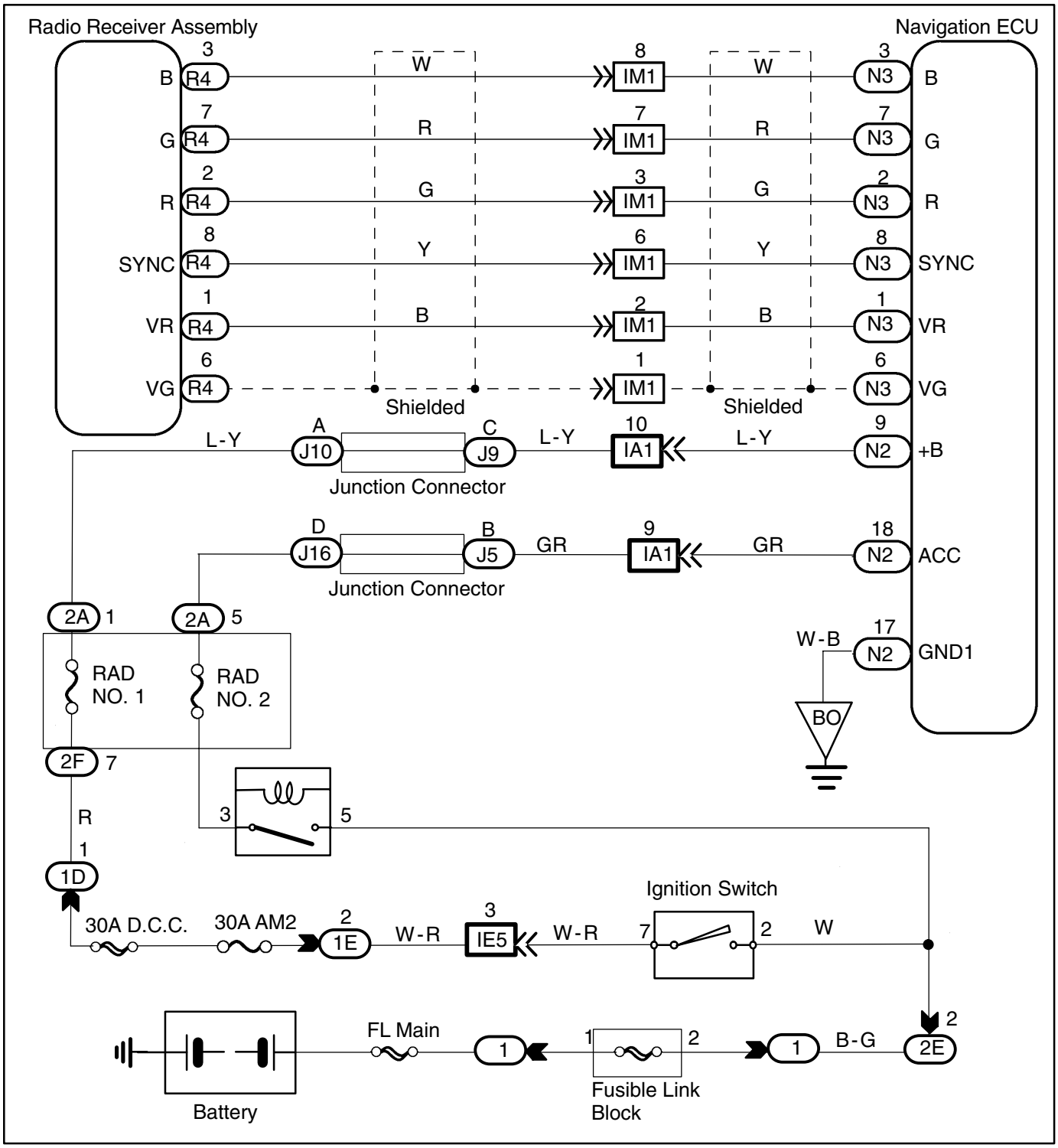
OK

Replace navigation ECU.

NAVIGATION SCREEN IS NOT STABILIZED (SYNCHRONOUS ERROR)

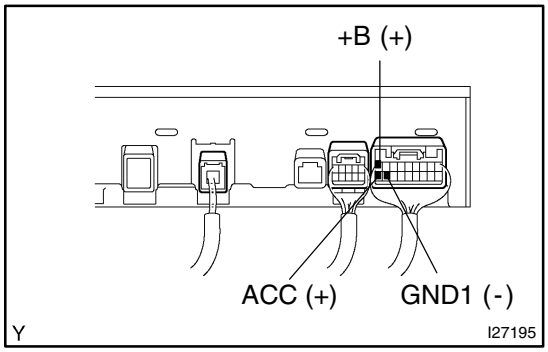
WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	Inspect navigation ECU (+B, ACC, GND1).



PREPARATION:

Remove the navigation ECU with the connectors still connected.

CHECK:

Check the voltage and resistance of each terminal as shown in the chart.

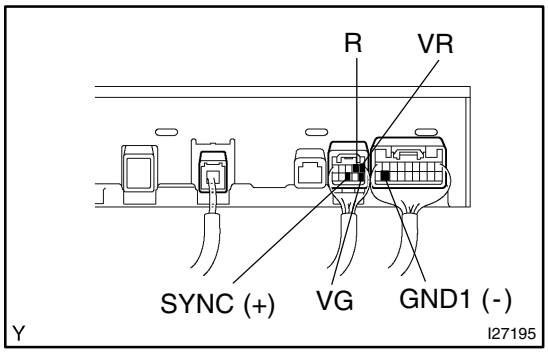
OK:

Tester Connection	Condition	Specified Condition
+B - GND1	Constant	10 to 14 V
ACC - GND1	Ignition switch in ACC	10 to 14 V
GND1 - Body ground	Constant	Below 1 Ω

NG → **Repair or replace harness and connector.**

OK

2	Inspect navigation ECU (SYNC, VR, VG).



CHECK:

Check the resistance of each terminal as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
VR - Body ground	Constant	Below 1 Ω
VG - Body ground	Constant	Below 1 Ω

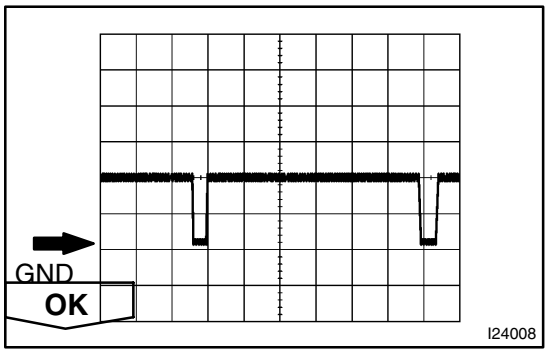
CHECK:

Using an oscilloscope, check the signal waveform between terminals SYNC and GND1 of the navigation ECU.

Item	Contents
Tool setting	500 mV/DIV, 10 µs/DIV
Condition	Navigation display is on

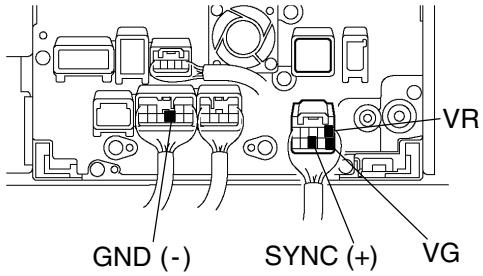
HINT:

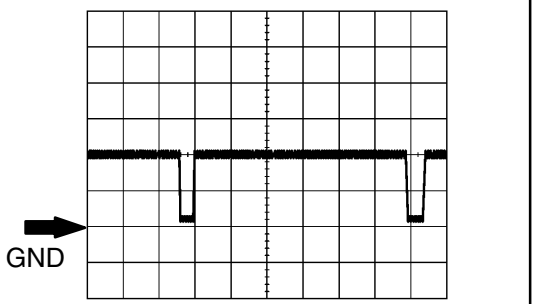
Signal waveform is shown in the illustration.



NG → **Replace navigation ECU.**

3	Inspect radio receiver assembly (SYNC, VR, VG).





PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Check the resistance of each terminal as shown in the chart.

OK:

Tester Connection	Condition	Specified condition
VR - Body ground	Constant	Below 1 Ω
VG - Body ground	Constant	Below 1 Ω

CHECK:

Using an oscilloscope, check the signal waveform between terminals SYNC and GND of the radio receiver.

Item	Contents
Tool setting	500 mV/ DIV, 10 μs/DIV
Condition	Navigation display is on

HINT:

Signal waveform is shown in the illustration.

NG → **Repair or replace harness and connector.**

OK

Replace radio receiver assembly.

COLOUR ON NAVIGATION SCREEN IS UNUSUAL (RGB SIGNAL ERROR)

WIRING DIAGRAM

EWD Manual

See page 05-171.

INSPECTION PROCEDURE

1	Display check mode (colour bar check)

CHECK:

Start up the diagnosis system and perform the display colour bar check in the display check mode.

OK:

Colour bar check is normal.

NG → **Replace radio receiver assembly.**

OK

2	Navigation check mode (colour bar check)

CHECK:

Start up the diagnosis system and perform the navigation colour bar check in the navigation check mode.

OK:

Colour bar check is normal.

NG → **Go to step 4.**

OK

3	Check setting (navigation setting)

CHECK:

Check the colour settings of the daytime screen and night screen at the “Navigation setting” on the menu.

OK:

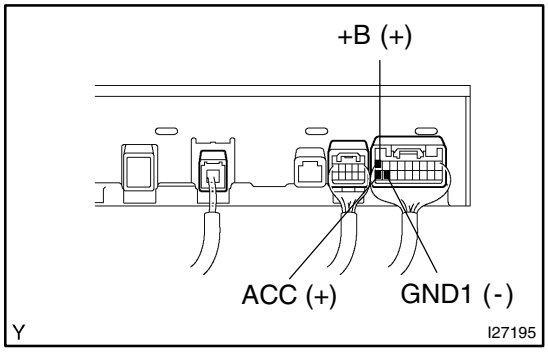
Each screen is as being set.

NG → **Replace navigation ECU.**

OK

Normal

4 Inspect navigation ECU (+B, ACC, GND1).



PREPARATION:

Remove the navigation ECU with the connectors still connected.

CHECK:

Measure the voltage of the terminals of the navigation ECU as shown in the chart.

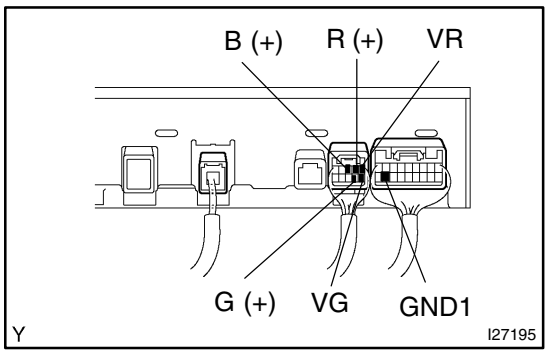
OK:

Tester Connection	Condition	Specified condition
+B - GND1	Constant	10 to 14 V
ACC - GND1	Ignition switch in ACC	10 to 14 V
GND1 - Body ground	Constant	Below 1 Ω

NG → **Repair or replace wire harness or connector.**

OK

5 Inspect navigation ECU (R, G, B, VR, VG).



CHECK:

Check that the resistance of the terminals of the navigation ECU.

OK:

Tester Connection	Condition	Specified condition
VR - Body ground	Constant	Below 1 Ω
VG - Body ground	Constant	Below 1 Ω

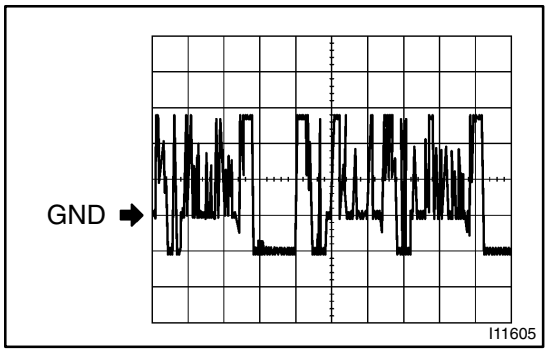
CHECK:

Using an oscilloscope, check the signal waveform between terminals R, G, B and GND1 of the navigation ECU.

Item	Contents
Tool setting	200 mV/ DIV, 10 μs/ DIV
Condition	Navigation display is on

HINT:

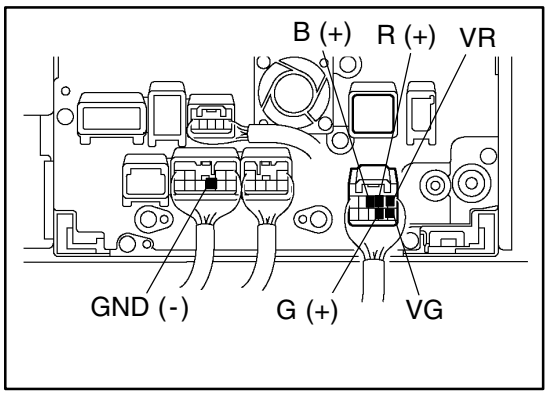
Signal waveform is shown in the illustration.



NG → **Replace navigation ECU.**

OK

6	Inspect radio receiver assembly (R, G, B, VR, VG).



PREPARATION:

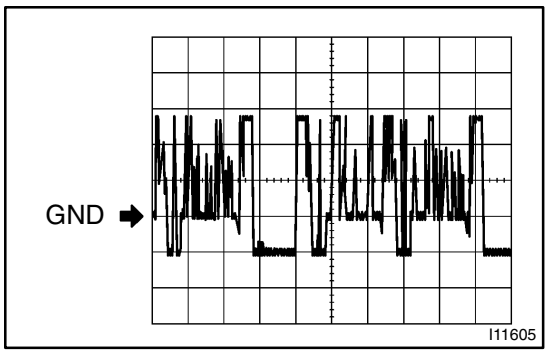
Remove the radio receiver assembly with the connectors still connected.

CHECK:

Check that the resistance exists between terminals VR, VG of the radio receiver assembly and the body ground.

OK:

Terminal	Condition	Specified condition
VR - Body ground	Constant	Below 1 Ω
VG - Body ground	Constant	Below 1 Ω



CHECK:

Using an oscilloscope, check the signal waveform between terminals R, G, B and GND of the radio receiver assembly.

Item	Contents
Tool setting	200 mV/ DIV, 10 μs/ DIV
Condition	Navigation display is on

HINT:

Signal waveform is shown in the chart.

NG → **Repair or replace harness or connector.**

OK

Replace radio receiver assembly.

BLACK SCREEN APPEARS WHEN "MAP", "MENU" OR "DEST" SWITCH IS PRESSED

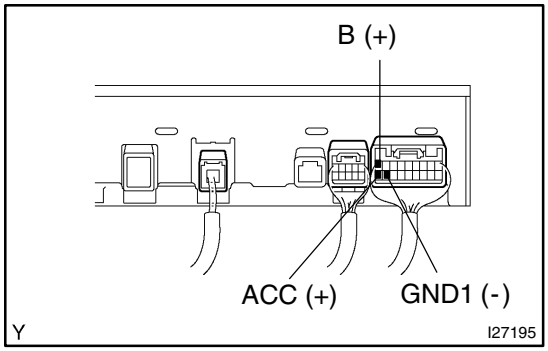
WIRING DIAGRAM

EWD Manual

See page 05-171.

INSPECTION PROCEDURE

1	Inspect navigation ECU (+B, ACC, GND1).



PREPARATION:

Remove the navigation ECU with the connectors still connected.

CHECK:

Check the voltage and resistance of each terminal, as shown in the chart.

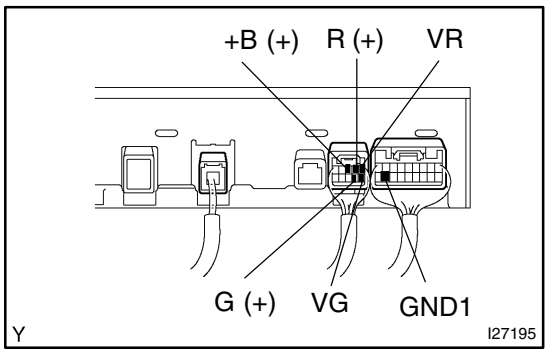
OK:

Tester Connection	Condition	Specified Condition
+B - GND1	Constant	10 to 14 V
ACC - GND1	Turn ignition switch ACC	10 to 14 V
GND1 - Body ground	Constant	Below 1 Ω

NG → **Repair or replace harness and connector.**

OK

2	Inspect navigation ECU (R, G, B, VR, VG).



CHECK:

Check the resistance of each terminal, as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
VR - Body ground	Constant	Below 1 Ω
VG - Body ground	Constant	Below 1 Ω

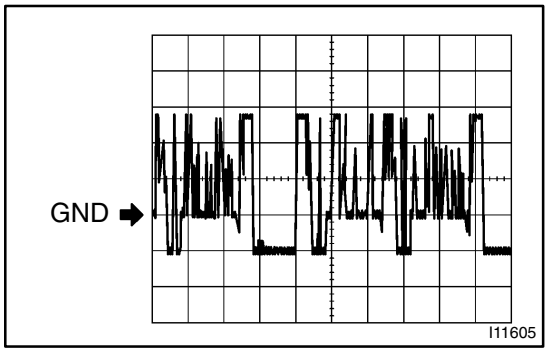
CHECK:

Using an oscilloscope, check the signal waveform between terminals R, G, B and GND1 of the navigation ECU.

Item	Contents
Tool setting	200 mV/DIV, 10 µs/DIV
Condition	Navigation display is on

HINT:

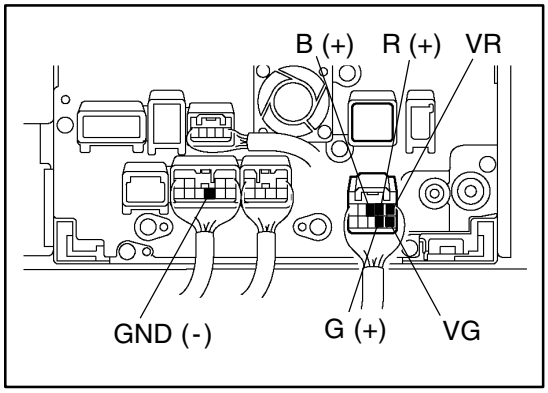
Signal waveform is shown in the chart.

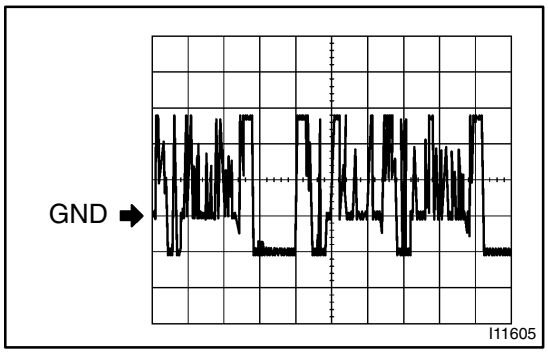


NG → **Replace navigation ECU.**

OK

3	Inspect radio receiver assembly (R, G, B, VR, VG).





PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Check the resistance of each terminal, as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
VR - Body ground	Constant	Below 1 Ω
VG - Body ground	Constant	Below 1 Ω

CHECK:

Using an oscilloscope, check the signal waveform between terminals R, G, B and GND of the radio receiver.

Item	Contents
Tool setting	200 mV/DIV, 10 μs/DIV
Condition	Navigation display is on

HINT:

Signal wavefrom is shown in the chart.

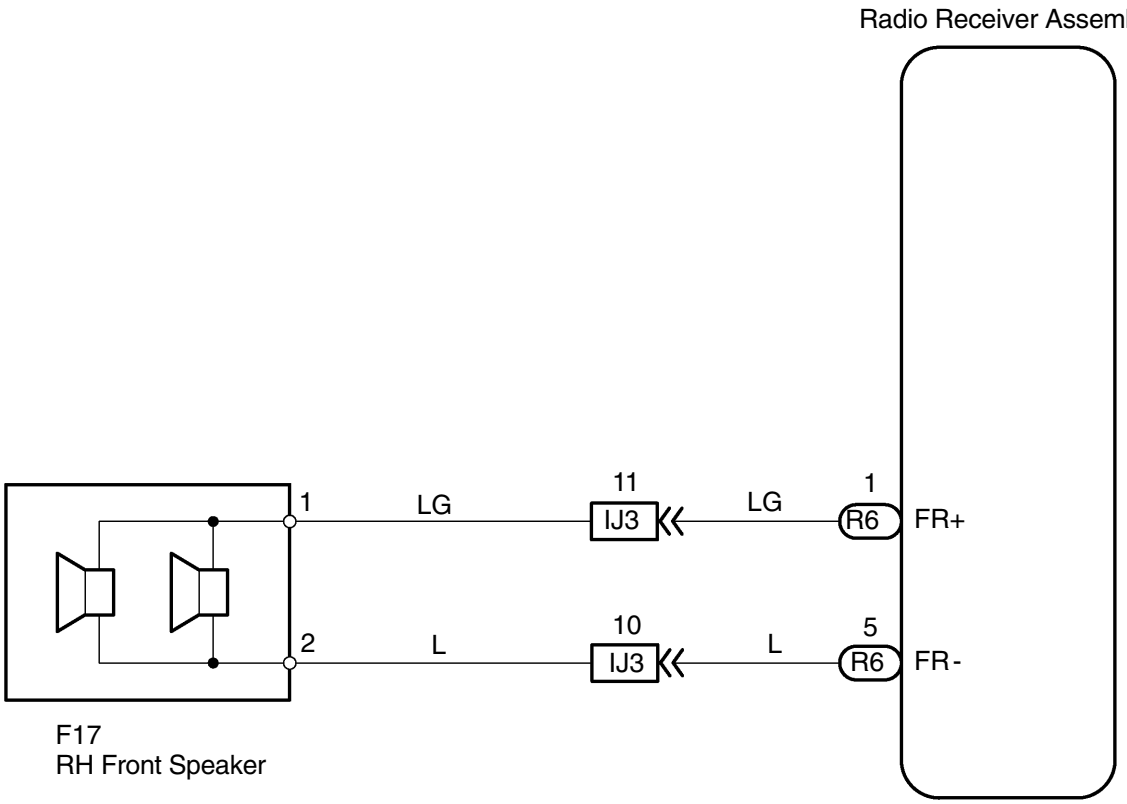
NG → **Repair or replace harness and connector.**

OK

Replace radio receiver assembly.

ONLY FRONT SPEAKER (DRIVER SIDE) IS NOT HEARD (RADIO, CASSETTE TAPE AND CD)

WIRING DIAGRAM EWD Manual



INSPECTION PROCEDURE

1	Check setting (volume of navigation voice sound).

CHECK:

Set the volume to MAXIMUM using the voice sound settings on the menu screen.

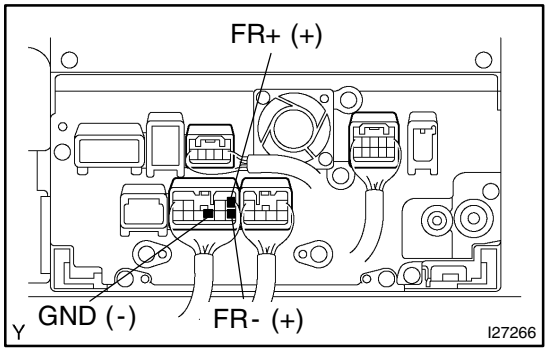
OK:

"This system will guide you in this volume" is heard.

NG → **Go to step 4.**

OK

2	Inspect radio receiver assembly (FR+, FR-).



PREPARATION:

Remove the radio receiver assembly with the connectors still connected.

CHECK:

Using an oscilloscope, check the signal waveform between terminals FR+, FR- and GND of the radio receiver, as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
FR+ - GND	Audio system is playing	A waveform synchronized with sounds is output
FR- - GND	Audio system is playing	A waveform synchronized with sounds is output

NG → **Replace radio receiver assembly.**

OK

3	Inspect RH front speaker assembly.

CHECK:

Check the resistance between the terminals of the RH front speaker.

OK:

Approximately 4 Ω

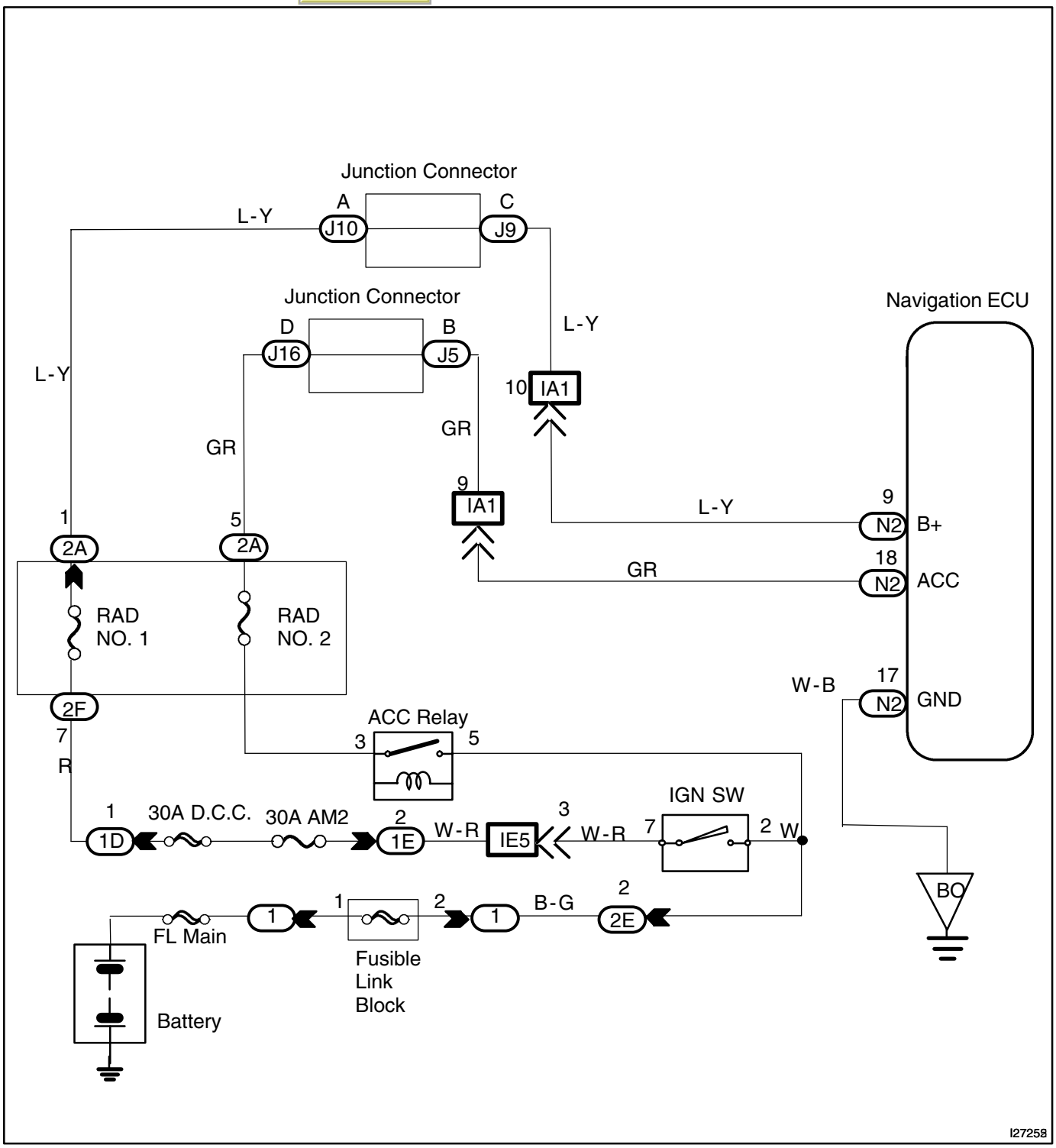
NG → **Replace RH front speaker assembly.**

OK

Repair or replace harness or connector.

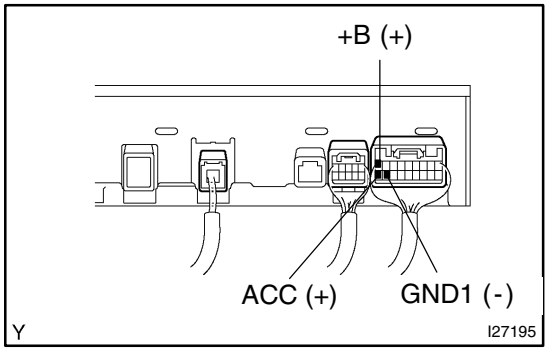
MAP DISC CANNOT BE INSERTED

WIRING DIAGRAM EWD Manual



INSPECTION PROCEDURE

1	Inspect navigation ECU (+B, ACC, GND1).



PREPARATION:

Remove the navigation ECU with the connectors still connected.

CHECK:

Check the voltage and resistance of each terminal, as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
+B - GND1	Constant	10 to 14 V
ACC - GND1	Ignition switch in ACC	10 to 14 V
GND1 - Body ground	Constant	Below 1 Ω

NG → **Repair or replace harness or connector.**

OK

Replace navigation ECU.

MAP SCREEN DOES NOT APPEAR (DISC CAUTION SCREEN DOES NOT CHANGE)

INSPECTION PROCEDURE

1	Take appropriate measures according to caution screen.

CAUTION SCREEN

CAUTION Message	Cause	Corrective Action
Cover is open. Please close disc cover before using system.	Map disc slot cover is open.	Close the cover.
No disc detected. Insert map disc.	No map disc is inserted.	Insert a proper map disc.
No disc detected. Insert map disc. Check flaw or dirt on disc.	Player cannot read correctly due to flaw or dirt.	Insert a correct map disc.
Disc read error. Check disc.	Something other than map disc is inserted.	Insert a correct map disc.
Disc read error due to high temperature.	Pick-up part of the player is heated to high temperature.	Stop the vehicle at a shaded cool place and turn the ignition switch OFF. When the temperature of the navigation ECU has cooled down, turn the ignition switch ON.
Disc read error. Consult dealer/shop.	Player cannot read map disc temporarily.	Turn the ignition switch from OFF to ON.*

HINT:

*: If the same “CAUTION MESSAGE” is displayed again even after turning the ignition switch ON, replace the navigation ECU.

OK:

Map display is normal.

OK → **Normal**

NG

2	Replace disc.

OK → **End**

NG

Replace navigation ECU.

MAP IS DISPLAYED IN WHITE OR BLUE SCREEN (SWITCH AND VEHICLE POSITION MARK ARE DISPLAYED)

INSPECTION PROCEDURE

1	**Check setting.**

CHECK:
Check that the map display is normal when the scale of the map is set in the widest area.
OK:
Map display is normal.

OK → **Normal**

NG

2	**Check operation again.**

CHECK:
After wiping the map disc in the circumferencal direction with a soft cloth, insert it again.
OK:
Map display is normal.

OK → **Normal**

NG

3	**Replace disc.**

OK → **End**

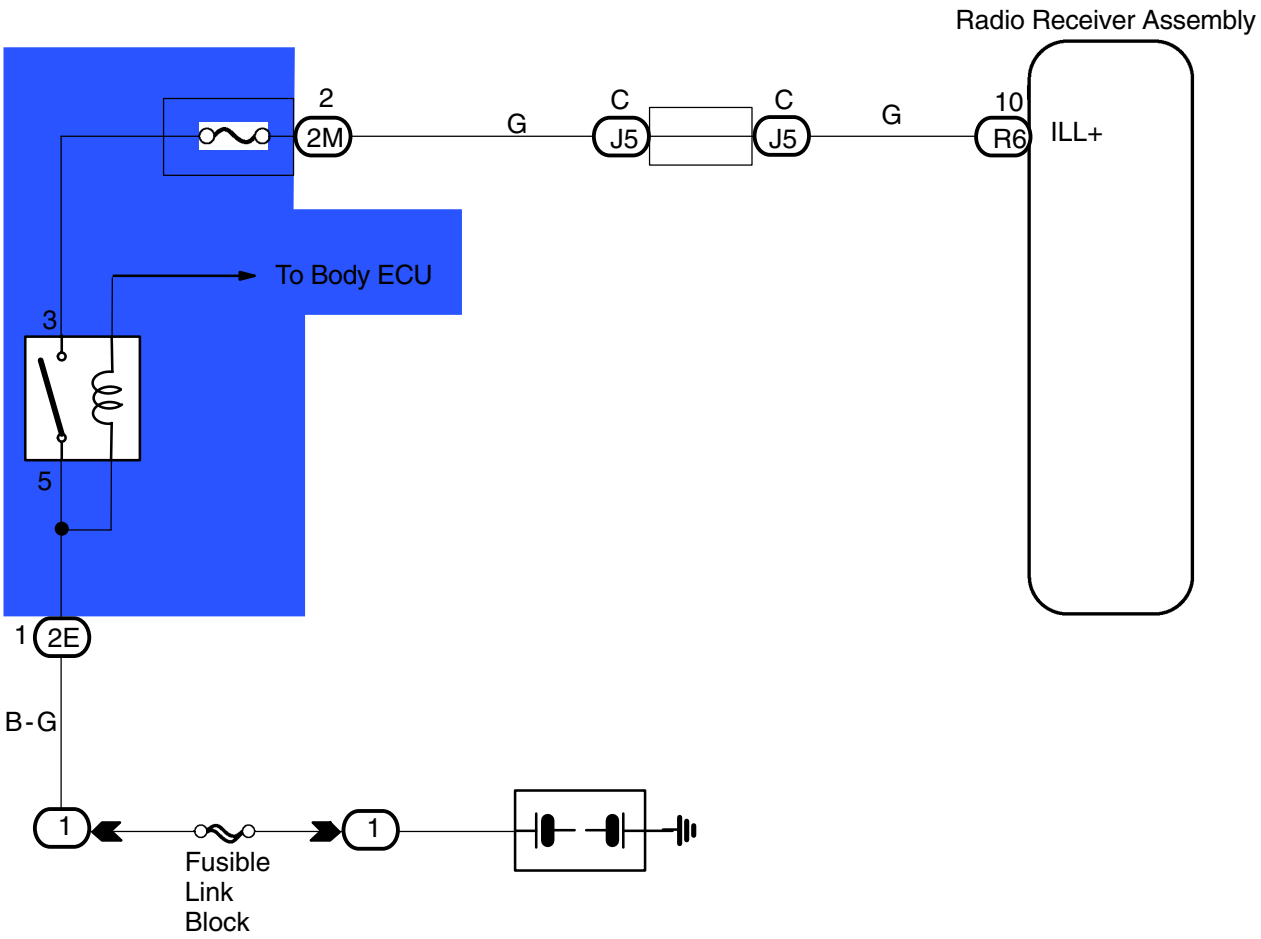
NG

Replace navigation ECU.

SCREEN CANNOT BE DIMMED WHEN LIGHT CONTROL SWITCH IS TURNED TO "TAIL" POSITION

WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	Perform display check.

CHECK:

Start up the diagnosis system and perform the display vehicle check in the display check mode.

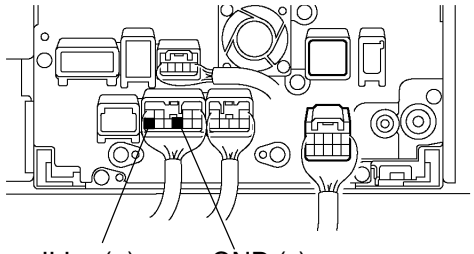
OK:

Input signal is normal (TAIL).

OK → **Go to step 3.**

NG

2	Inspect radio receiver assembly (ILL+).



PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Check the voltage between the terminals of the radio receiver as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
ILL+ - GND	Headlight dimmer switch position OFF	Below 1 V
ILL+ - GND	Headlight dimmer switch position TAIL or HEAD	10 to 14 V

OK → **Replace radio receiver assembly.**

NG

Repair or replace harness or connector.

3	Inspect screen display.

CHECK:

Turn the headlight dimmer switch to ON and check if the screen is dimmed.

OK:

The screen is dimmed normally.

NG → **Replace radio receiver assembly.**

OK

4	Check setting.

CHECK:

(a) Turn the ignition switch ON.
(b) Turn the power switch of the radio receiver ON to display the map.
(c) Operate the radio receiver and check if “The colour of night screen is standard” is set at the navigation condition setting.

OK:

The setting is normal.

NG → **Set “Night Screen”.**

OK

Replace navigation ECU.

TOUCH SWITCH DOES NOT FUNCTION (NAVIGATION SCREEN ONLY)

INSPECTION PROCEDURE

1	**Perform display check (display touch switch check).**

CHECK:
Enter the diagnosis system and perform the display touch switch check in the display check mode.
OK:

Touch switch is normal.

NG → **Replace radio receiver assembly.**

OK

2	**Check switch (beep sound).**

CHECK:
Touch the touch switches on the navigation screen and check that beep sounds are emitted with each touch.
OK:

Beep sound is emitted normally.

NG → **Repair or replace harness or connector.**

OK

Replace navigation ECU.

VEHICLE POSITION IS GREATLY DEVIATED FROM THE CORRECT POINT

INSPECTION PROCEDURE

1	Check display (GPS mark display).

PREPARATION:

Move the vehicle to a location where there is no satellite reception interference. The GPS mark is displayed on screen.

CHECK:

(a) Turn the ignition switch ON.

(b) Turn the power switch of the radio receiver assembly ON to display the map.

OK:

"GPS" mark is displayed.

NG → **Go to No. 15, "GPS" mark does not appear.**

OK

2	Check where problem happens.

CHECK:

Check where the problem occurs.

RESULT:

A	Problem occurs at any place
B	Problem occurs in a specific area

HINT:

In a difficult place to specify the vehicle position (on a by-pass road, a high-level road, a loop road, or several-storied car park), the vehicle position may be off the point due to the wrong matching.

B → **Normal (recheck operation.)**

A

3	Check display (automatic calibration).

CHECK:

Check the colour of "Automatic calibration" switch at the distance correction screen.

OK:

Green ("Automatic calibration" switch)

OK → **Normal (recheck operation.): observe until automatic calibration finishes (run the vehicle at more than 10 km/h).**

NG

4	Navigation check mode (vehicle signal check mode)

CHECK:
Start up the diagnosis system and read the result of SPD signal in the vehicle signal check mode.
OK:

Input signal is normal (SPD).

NG → **Go to step 6.**

OK

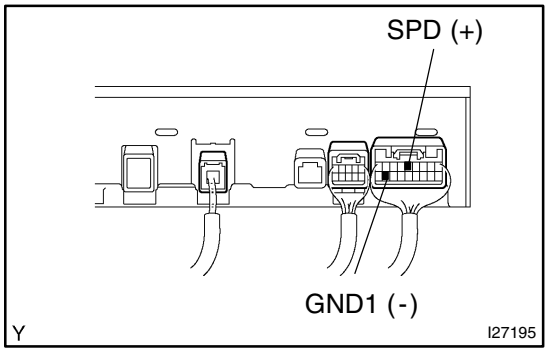
5	Check operation again.

OK → **End**

NG

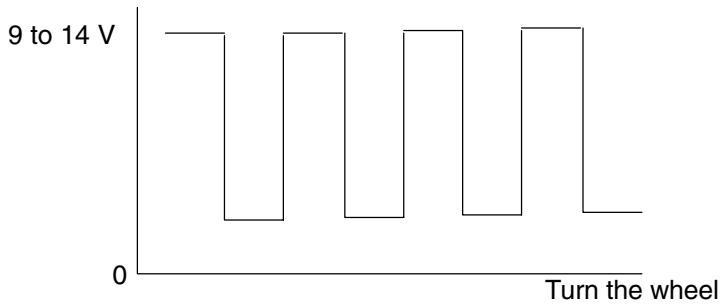
Replace navigation ECU.

6	Inspect navigation ECU (SPD).



PREPARATION:
Remove the navigation ECU with the connectors still connected.
CHECK:
(a) Move the shift lever to the neutral position.
(b) Jack up one of the front wheels.
(c) Turn the ignition switch ON.
(d) Turn the front wheel slowly and measure the voltage between terminals SPD and GND1 of the navigation ECU.
OK:

Voltage is generated intermittently.



OK → **Replace navigation ECU.**

NG

Repair or replace harness or connector.

GPS MARK DOES NOT APPEAR

INSPECTION PROCEDURE

1	Check mark display.

CHECK:

Move the vehicle to a location where there is no satellite reception interference. The GPS mark is displayed on screen.

OK:

“GPS” mark appears.

HINT:

If the vehicle is surrounded by buildings, the vehicle cannot receive the GPS radio signal.

OK	Normal

NG

2	Check navigation antenna.

CHECK:

Check if the antenna code is installed properly.

OK:

Antenna code is installed properly.

NG	Replace navigation antenna.

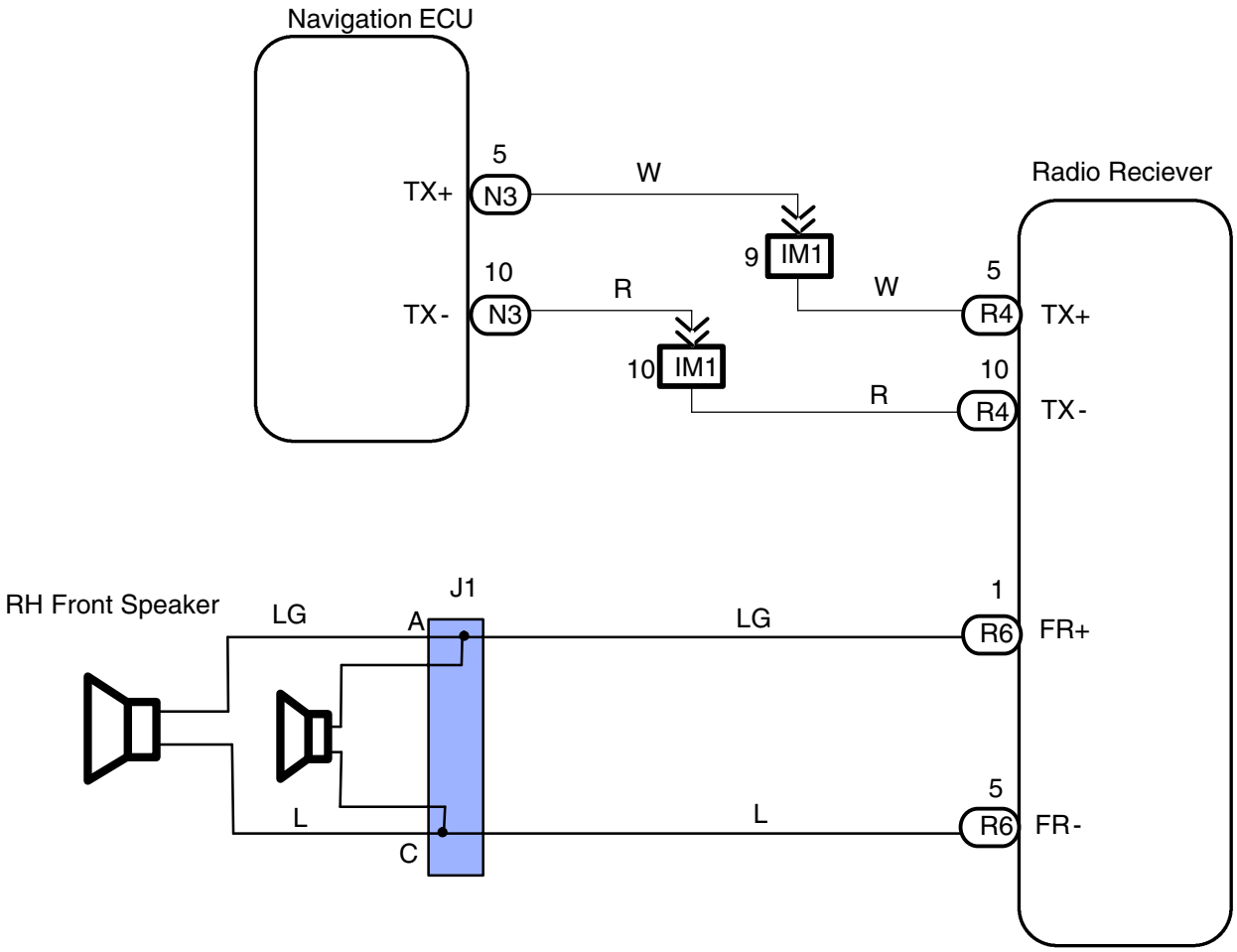
OK

Replace navigation ECU.

NO VOICE NAVIGATION

WIRING DIAGRAM

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INSPECTION PROCEDURE

1	Check setting (volume of navigation sound).

CHECK:

Set the volume to MAXIMUM using the voice sound settings on the menu screen.

OK:

"This system will guide you in this volume" is heard.

HINT:

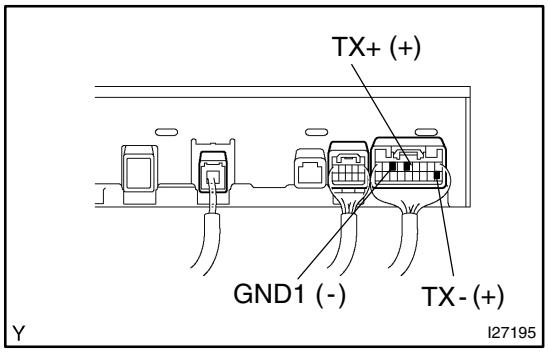
In the following cases, no voice guidance is made even if the system is normal:

- When the destination is not set.
- When not running on the route (the remaining distance is not displayed on the left bottom of the screen displaying the present point).
- When "other modes guidance" is set (voice sound guidance is made only on the map screen).

OK	Normal (recheck operation.)

NG

2	Inspect navigation ECU (AUO+, AUO-).



PREPARATION:

Remove the navigation ECU with the connectors still connected.

CHECK:

Using an oscilloscope, check the signal waveform between terminals TX+, TX- and GND1 of the navigation ECU.

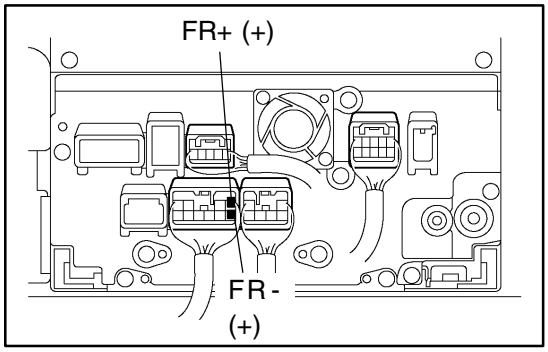
OK:

Tester Connection	Condition	Specified Condition
TX+ - GND1	Audio system is playing	A waveform synchronized with sounds is output
TX- - GND1	Audio system is playing	A waveform synchronized with sounds is output

NG	Replace navigation ECU.

OK

3	Inspect radio receiver assembly (FR+, FR-).



PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Using an oscilloscope, check the signal waveform between the terminals of the radio receiver as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
FR+ - GND	Audio system is playing	A waveform synchronized with sounds is output
FR- - GND	Audio system is playing	A waveform synchronized with sounds is output

NG → **Replace radio receiver assembly.**

4	Inspect RH front speaker assembly.

CHECK:

Check the resistance between the terminals of the RH front speaker.

OK:

Approximately 4 Ω

NG → **Replace RH front speaker assembly.**

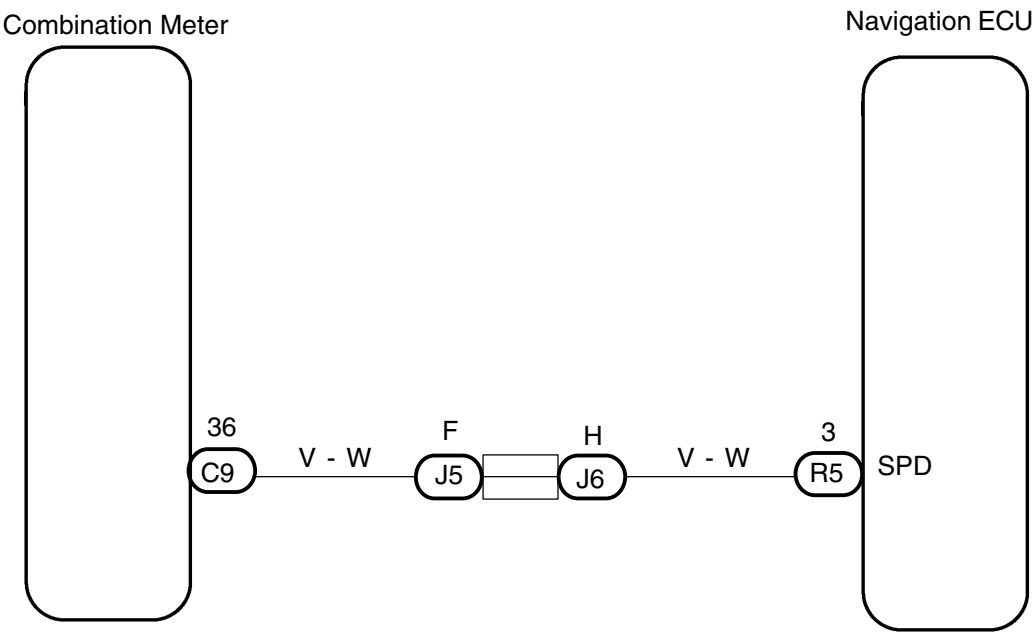
OK

Repair or replace harness or connector.

VEHICLE POSITION MARK TURNS WITHOUT CONTROL (MAP TURNS WITHOUT CONTROL)

WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	**Check operation again.**

CHECK:

Turn the ignition switch from OFF to ON, then check if the malfunction disappears.

OK:

Malfunction disappears.

HINT:

Even with the system working correctly, the vehicle position mark may turn, or the map turns without control. The navigation system stores the angular speed of the vehicle at that time the ignition switch is turned to the ACC or ON Therefore if the ignition switch is turned to the ACC or ON while the vehicle is turning on a turntable or similar device, the system will register this as a base criteria. If this happens, stop the vehicle, and then turn the ignition switch from OFF to ACC or ON and this will correct the function.

OK → **Normal (recheck operation.)**

NG

2	**Navigation check mode (vehicle signal check mode)**

CHECK:

Enter the diagnosis system and read the result of SPD signal in the vehicle signal check mode.

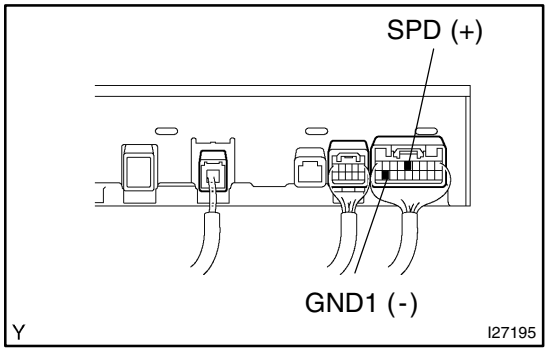
OK:

Input signal is normal (SPD).

OK → **Replace navigation ECU.**

NG

3	Inspect navigation ECU (SPD).



PREPARATION:

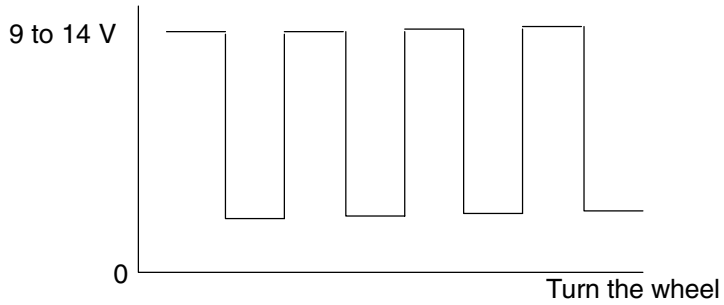
Remove the navigation ECU with the connectors still connected.

CHECK:

(a) Move the shift lever to the neutral position.
(b) Jack up one of the front wheels.
(c) Turn the ignition switch ON.
(d) Turn the front wheel slowly and measure the voltage between terminals SPD and GND1 of the navigation ECU.

OK:

Voltage is generated intermittently.



OK	Replace navigation ECU.

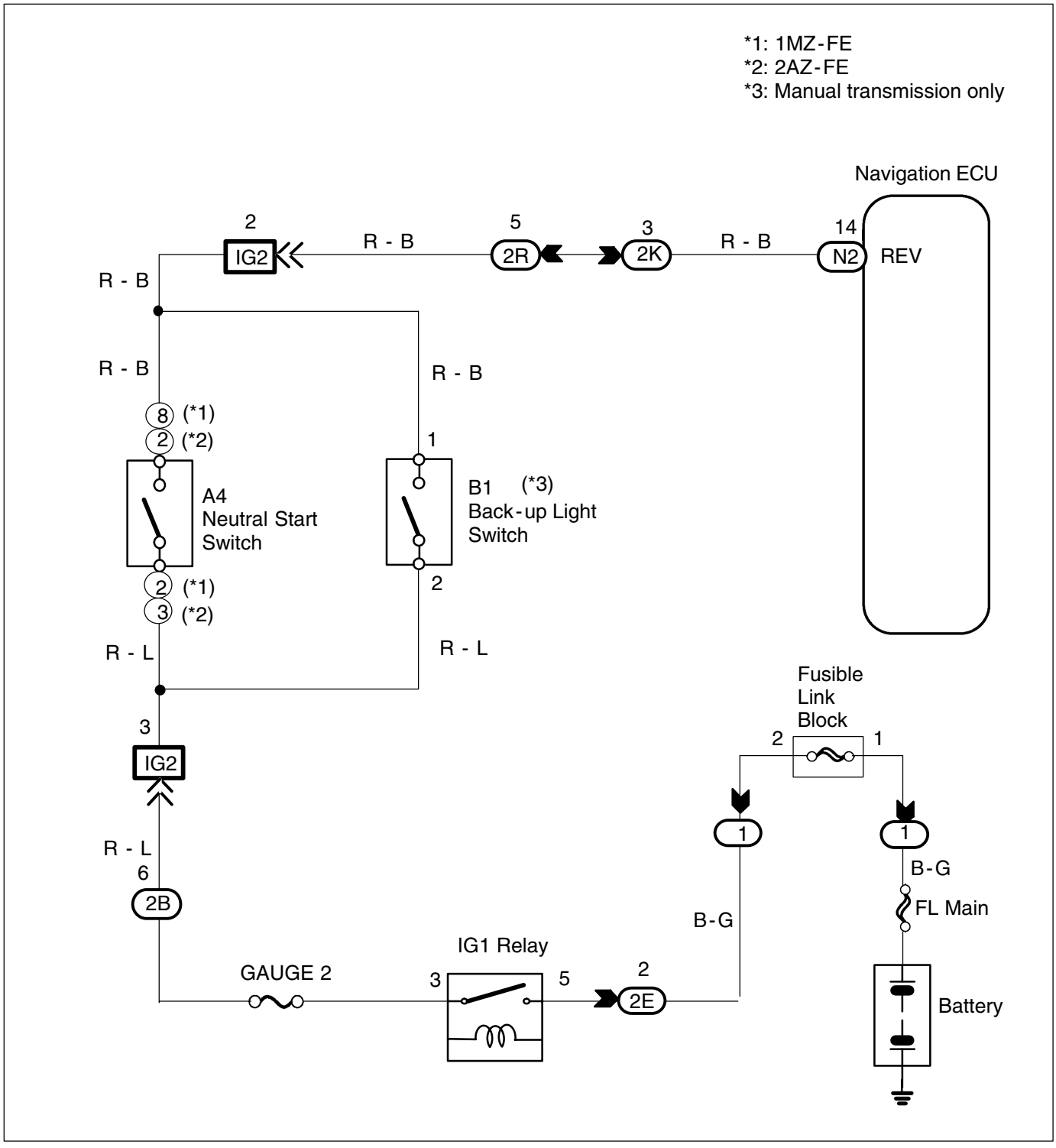
NG

Repair or replace harness or connector.

DRIVING DIRECTIONS ARE OPPOSITE TO THE MOVING DIRECTION OF VEHICLE POSITION MARK

WIRING DIAGRAM

EWD Manual



INSPECTION PROCEDURE

1	Navigation check mode (vehicle signal check mode)

CHECK:

Enter the diagnosis system and read the result of REV signal in the vehicle signal check mode.

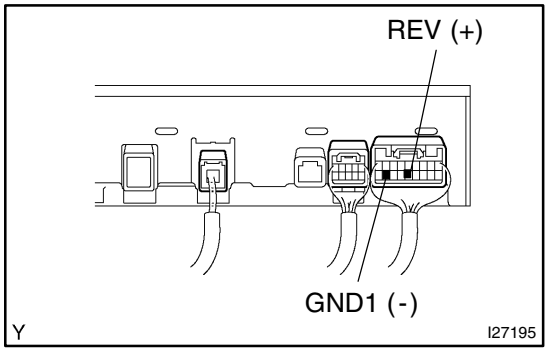
OK:

Input signal is normal (REV).

OK → **Replace navigation ECU.**

NG

2	Inspect navigation ECU (REV).



PREPARATION:

Remove the navigation ECU with the connectors still connected.

CHECK:

Check the voltage between the terminals of the navigation ECU.

Tester Connection	Condition	Specified Condition
REV - GND1	Turn ignition switch ON and shift lever into R position	10 to 14 V

OK → **Replace navigation ECU.**

NG

Repair or replace harness or connector.

CD CANNOT BE INSERTED/ IS EJECTED RIGHT AFTER INSERTION/ CANNOT BE PLAYED

INSPECTION PROCEDURE

1	Check if a proper CD is inserted.

CHECK:
Ensure that the CD is normal audio CD without deformation, flaw, stain, burr or any other defects.
OK:
Normal audio CD.
HINT:
- Translucent or different-shaped CD cannot be played.
- CD-ROM for personal computers (with music recorded in) and recorded CD-R may not be played.
- Playing an 8-cm CD does not require an adapter.

NG → **CD is faulty.**

OK

2	Check that a CD is inserted properly.

CHECK:
Check whether or not the CD is inserted upside down.
OK:
CD is inserted correctly.

NG → **Insert disc correctly.**

OK

3	Replace CD and check again.

CHECK:
Replace the faulty CD with a normal CD and check if the same malfunction occurs again.
OK:
Malfunction disappears.

OK → **CD is faulty.**

NG

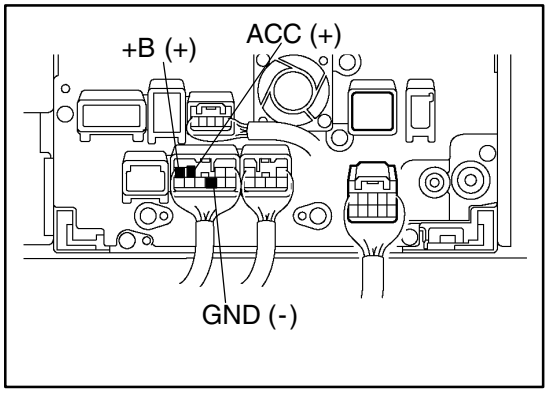
4	Check if radio station AUTO-SEARCH functions properly.

CHECK:
Perform a radio station AUTO-SEARCH and check if the function is normal.
OK:
AUTO-SEARCH functions properly.

OK → **Replace radio receiver assembly.**

NG

5	Inspect radio receiver assembly (+B, ACC, GND).



PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Check the voltage and resistance of each terminal as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
+B - GND	Constant	10 to 14 V
ACC - GND	Ignition switch in ACC	10 to 14 V
GND - Body ground	Constant	Below 1 Ω

OK → **Replace radio receiver assembly.**

NG

Repair or replace harness or connector.

CD CANNOT BE EJECTED

INSPECTION PROCEDURE

1	Check if radio station AUTO-SEARCH functions properly.

CHECK:
Perform a radio station AUTO-SEARCH and check if the function is normal.
OK:
AUTO-SEARCH functions properly.

NG → **Go to step 5.**

OK

2	Press “EJECT” and check operation.

CHECK:
Press the CD EJECT switch of the radio receiver assembly for 2 seconds or more to check the CD is ejected.
OK:
CD is ejected.
HINT:
- If the CD is not ejected, repair it.
- Do not try to draw it out forcibly.

NG → **Replace radio receiver assembly.**

OK

3	Check if a proper CD is inserted.

CHECK:
Check if the CD is a normal audio CD without deformation, flaw, stain, burr or any other defects.
OK:
Normal audio CD.
HINT:
- Translucent or different-shaped CD cannot be played.
- CD-ROM for personal computers (with music recorded in) and recorded CD-R may not be played.
- Playing an 8-cm CD does not require an adapter.

NG → **CD is faulty.**

OK

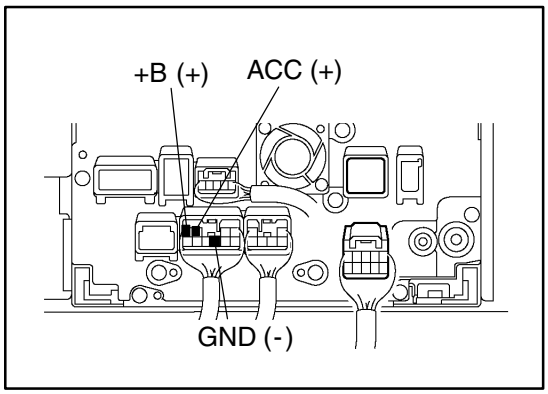
4	Replace CD check again.

CHECK:
Replace the faulty CD with a normal CD to check if the same malfunction occurs again.
OK:
Malfunction disappears.

OK → **CD is faulty.**

NG

5	Inspect radio receiver assembly (+B, ACC, GND).



PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Check the voltage and resistance of each terminal as shown in the chart.

OK:

Tester Connection	Condition	Specified Condition
+B - GND	Constant	10 to 14 V
ACC - GND	Ignition switch in ACC	10 to 14 V
GND - Body ground	Constant	Below 1 Ω

OK → **Replace radio receiver assembly.**

NG

Repair or replace harness or connector.

CD SOUND SKIPS

INSPECTION PROCEDURE

1	**Replace CD and recheck.**

CHECK:
Replace the faulty CD with a normal CD to check if the same malfunction occurs again.
OK:
Malfunction disappears.

OK → **CD is faulty.**

NG

2	**Check where CD sound skips.**

CHECK:
Check the location where the sound skips.
OK:
Driving on a bumpy road.

OK → **Go to step 4.**

NG

3	**Compare it with another vehicle of same model.**

CHECK:
Compare the vehicle with a normally functioning vehicle of the same type. Check if there is any difference in the condition when problem occurs.
OK:
No difference is found.

OK → **Normal**

NG

4	**Check radio receiver assembly installation.**

CHECK:
Check if the radio receiver assembly is installed properly.
OK:
Installed properly.

NG → **Install radio receiver assembly properly.**

OK

5	Check if temperature inside cabin changes rapidly.

CHECK:

Check whether or not rapid temperature change has occurred inside the cabin.

OK:

Rapid temperature change has occurred.

HINT:

Rapid temperature change may cause condensation inside the CD player, which may affect its normal operation.

OK	Condensation due to temperature change (leave it as is for a while before using).

NG

Replace radio receiver assembly.

CASSETTE TAPE CANNOT BE INSERTED OR PLAYED

INSPECTION PROCEDURE

1	**Check for any foreign object.**

CHECK:
Check for no foreign object and defect in the cassette tape player of the radio receiver assembly.
OK:

No foreign object and defect are detected.

NG → **Remove foreign object.**

OK

2	**Check cassette tape.**

CHECK:
Check that the cassette tape is a normal tape in which music or voice is recorded.
OK:

Proper cassette tape in which music or voice is recorded.

NG → **Cassette tape is faulty.**

OK

3	**Replace cassette tape and recheck.**

CHECK:
Replace the faulty cassette tape with the normal tape to check if the same malfunction occurs again.
OK:

Malfunction disappears.

OK → **Cassette tape is faulty.**

NG

4	Check if radio station AUTO-SEARCH functions properly.

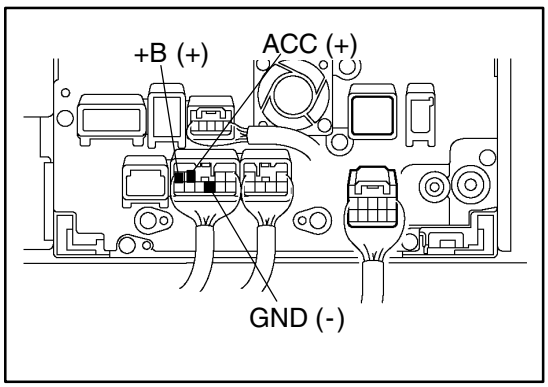
CHECK:
Perform a radio station AUTO-SEARCH and check if the operation is normal.
OK:

AUTO-SEARCH functions properly.

OK → **Replace radio receiver assembly.**

NG

5	Inspect radio receiver assembly (+B, ACC, GND).



PREPARATION:
Remove the radio receiver with the connectors still connected.
CHECK:
Check the voltage and resistance of each terminal as shown in the chart.
OK:

Tester Connection	Condition	Specified Condition
+B - GND	Constant	10 to 14 V
ACC - GND	Ignition switch in ACC	10 to 14 V
GND - Body ground	Constant	Below 1 Ω

OK → **Replace radio receiver assembly.**

NG

Repair or replace harness or connector.

CASSETTE TAPE CANNOT BE EJECTED

INSPECTION PROCEDURE

1	Check if radio station AUTO-SEARCH functions properly.

CHECK:
Perform a radio station AUTO-SEARCH and check if the operation is normal.
OK:
AUTO-SEARCH functions properly.

NG → **Go to step 5.**

OK

2	Press ”EJECT” and check operation.

CHECK:
Press the cassette tape EJECT switch of the radio receiver assembly for 2 seconds or more and check if the cassette tape is ejected.
OK:
Cassette tape is ejected.

NG → **Replace radio receiver assembly.**

OK

3	Check cassette tape.

CHECK:
Check if the ejected cassette tape does not have the label peeling, deformation and other defects on the cassette body.
OK:
No defects on the cassette tape.

NG → **Cassette tape is faulty.**

OK

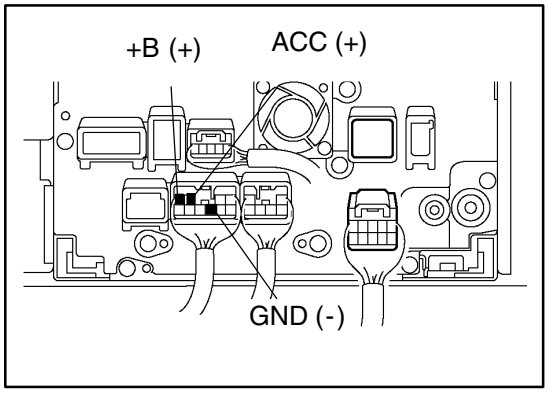
4	Replace cassette tape and recheck.

CHECK:
Replace the faulty cassette tape with a normal tape to check if the same malfunction occurs again.
OK:
Malfunction disappear.

OK → **Cassette tape is faulty.**

NG

5	Inspect radio receiver assembly (+B, ACC, GND).



PREPARATION:

Remove the radio receiver assembly with the connectors still connected.

CHECK:

Measure the voltage between the terminals of the radio receiver assembly as shown in the chart.

OK:

Tester Connection	Condition	Specified condition
+B - GND	Constant	10 - 14 V
ACC - GND	Ignition switch in ACC	10 - 14 V
GND - Body ground	Constant	Below 1 Ω

OK → **Replace radio receiver assembly.**

NG

Repair or replace harness or connector.

NOISE OCCURS

INSPECTION PROCEDURE

1	Check noise-included device.

CHECK:

Operate the radio receiver assembly and find the noise source.

RESULT:

A	B
Noise occurs in radio mode only.	Noise occurs in any mode.

B → Go to step 5.

A

2	Check where noise occurs.

CHECK:

Check in what location the noise occurs.

RESULT:

A	B
Noise occurs at any place.	Noise occurs at a particular place.

B → Wave disturbance

A

3	Remove antenna plug and recheck.

CHECK:

Remove the antenna plug from the radio receiver assembly, and operate the radio receiver assembly again to check if any noise occurs.

OK:

Noise occurs.

OK → Replace radio receiver assembly.

NG

4	Check antenna assembly.

CHECK:

Check if the antenna earth is securely attached to the body.

OK:

Attached securely.

NG → Installation failure.

OK

5	Check speaker installation.

CHECK:
Check if each speaker is securely installed.
OK:
Installed properly.

NG → **Install speaker properly.**

OK ↓

Find out noise source.

RADIO BROADCAST CANNOT BE RECEIVED (BAD RECEPTION)

INSPECTION PROCEDURE

1	Check if radio station AUTO-SEARCH functions properly.

CHECK:
Perform a radio station AUTO-RESEARCH and check if the function is normal.
OK:

AUTO-SEARCH functions properly.

OK → **Replace radio receiver assembly.**

NG

2	Check antenna for noise production.

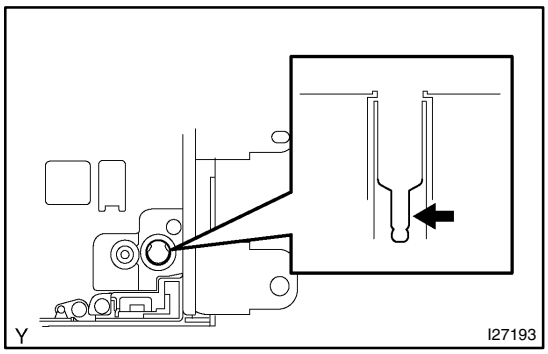
CHECK:
Operate the radio receiver to find out the noise source.
OK:

Noise occurs.

OK → **Replace radio receiver assembly.**

NG

3	Inspect radio receiver assembly (antenna).



PREPARATION:
Remove the antenna plug of the radio receiver.
CHECK:
(a) With the radio receiver connector connected, turn the ignition switch to ACC.
(b) Turn on the radio and choose the AM mode.
(c) Place a flat-head screwdriver or piece of metal such as a thin wire, on the antenna jack of the radio receiver and check that noise is heard from the speaker.

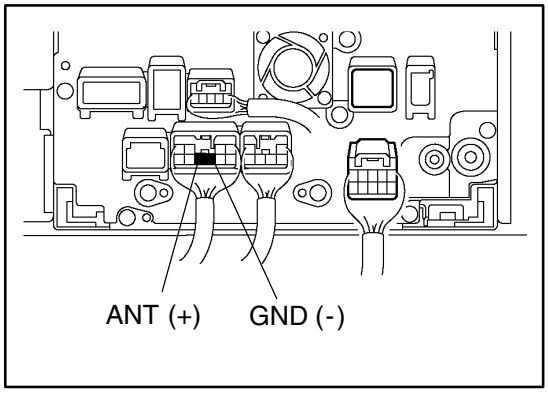
OK:

Noise occurs.

NG → **Replace radio receiver assembly.**

OK

4	Inspect radio receiver assembly (ANT).



PREPARATION:

Remove the radio receiver with the connectors still connected.

CHECK:

Check the voltage between terminals ANT and GND of the radio receiver.

OK:

Tester Connection	Condition	Specified Condition
ANT - GND	Constant	10 to 14 V

NG → **Replace radio receiver assembly.**

OK

Replace antenna.

TOYOTA LINK

PRECAUTIONS

The following requirements must be observed when working on vehicles equipped with Toyota Link:

(a) Before performing any Service Operation or other procedure described in this Supplement, refer to Introduction Section, see **Pub No. AC-RM033V1, page 01-1.**

(b) Disconnect the negative battery cable before removing any system component.

(c) Never start the engine without the battery being connected correctly.

(d) Never separate the battery from the on board electrical system while the engine is running.

(e) When charging the battery, disconnect it from the vehicle's electrical system.

(f) Never subject the Mayday ECU to temperatures above 80 °C, for instance in a paint oven. Always remove the Mayday ECU first, if this temperature is to be exceeded.

(g) Ensure that all cable harness plugs are connected firmly and that battery terminals are thoroughly clean.

(h) The harness connectors are designed to fit in only one way, forcing connectors into place is not necessary if it is being installed with the proper orientation. Failure to take care to match the indexing tabs and slots to ensure the connector is being installed correctly, can cause damage to the connector, the Mayday ECU, or other vehicle components or systems.

(i) Never connect or disconnect the Mayday ECU cable harness connectors when the ignition is switched on.

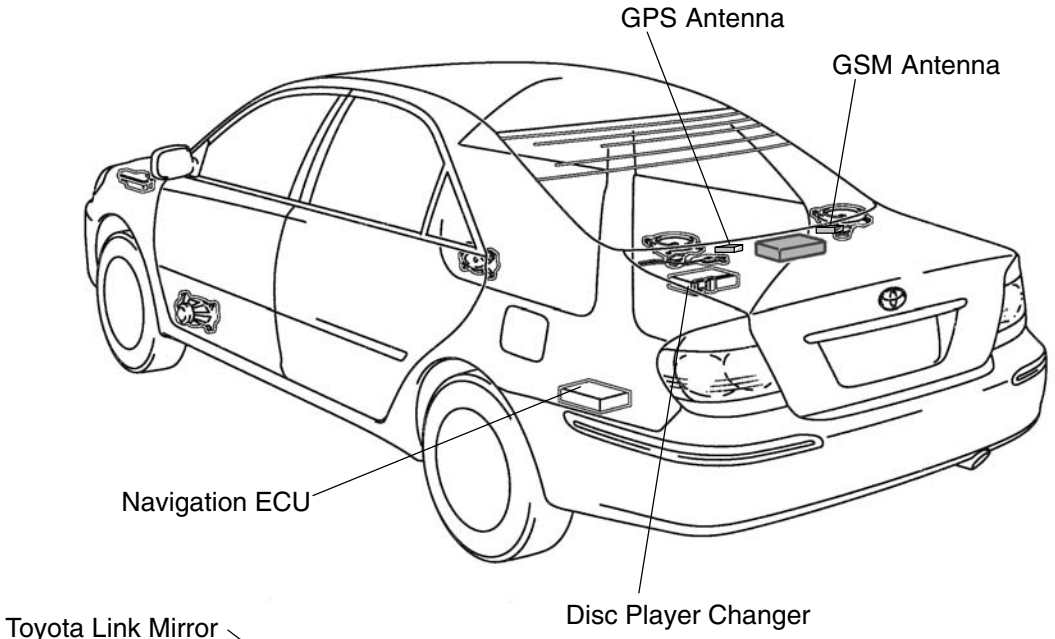
(j) Before attempting any electric arc welding on the vehicle, disconnect the battery leads and the Mayday ECU connectors.

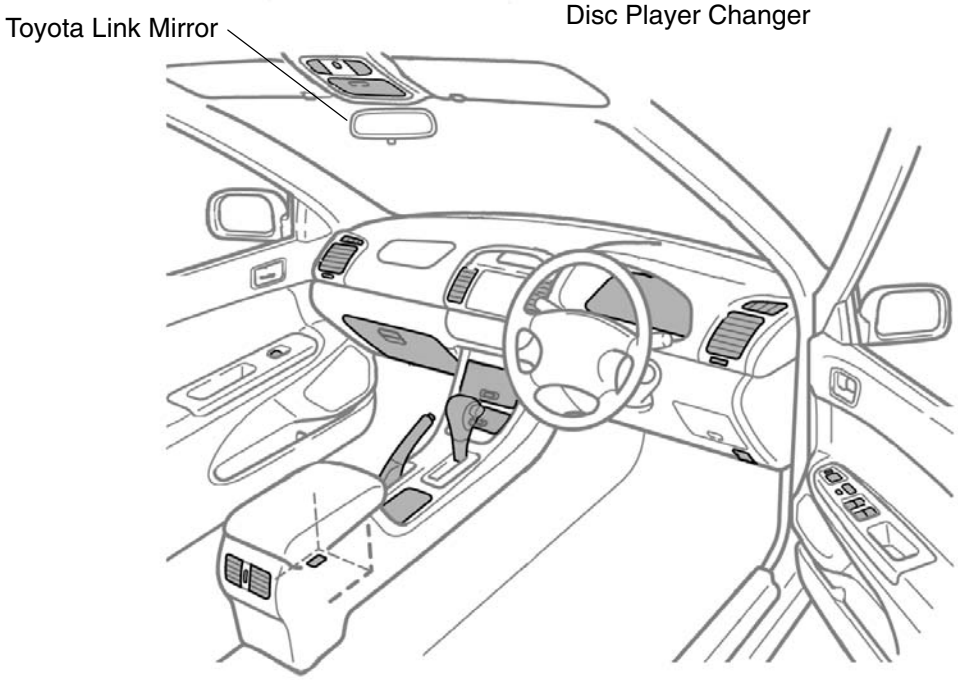
(k) Use only the test equipment specified in the diagnostic charts, since other test equipment may either give incorrect results or damage good components.

(l) All voltage measurements using a voltmeter, must use a digital voltmeter with an internal impedance rating of at least 10 million ohms per volt (10 meg ohms).

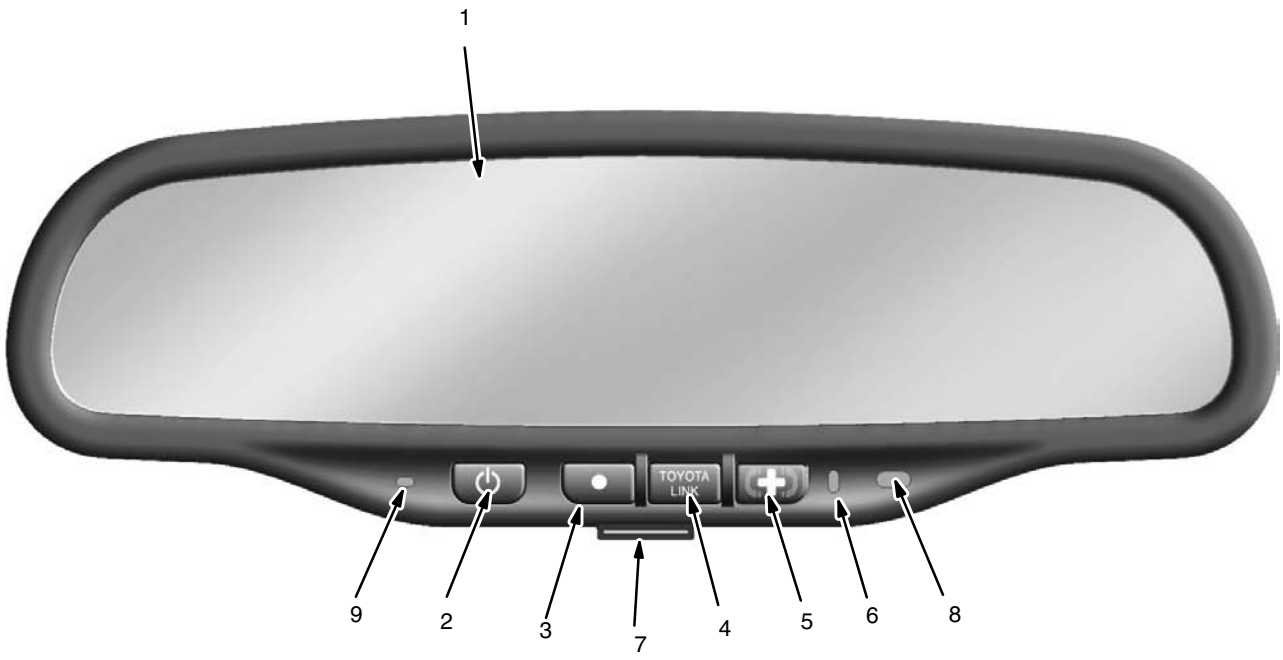
(m) When a test light is specified, a low-power test light must be used. Do not use a high - wattage test light. While a particular brand of test light is not suggested, a simple test on any test light will ensure it to be OK for circuit testing.
Connect an accurate ammeter (such as the high-impedance digital multi-meter) in series with the test light being tested, and power the test light-ammeter circuit with the vehicle battery.
If the ammeter indicates less than 3/10 amp current flow (0.3 A or 300 mA), the test light is **OK** to use.
If the ammeter indicates more than 3/10 amp current flow (0.3 A or 300 mA), the test light is **NOT OK** to use.

PARTS LOCATION

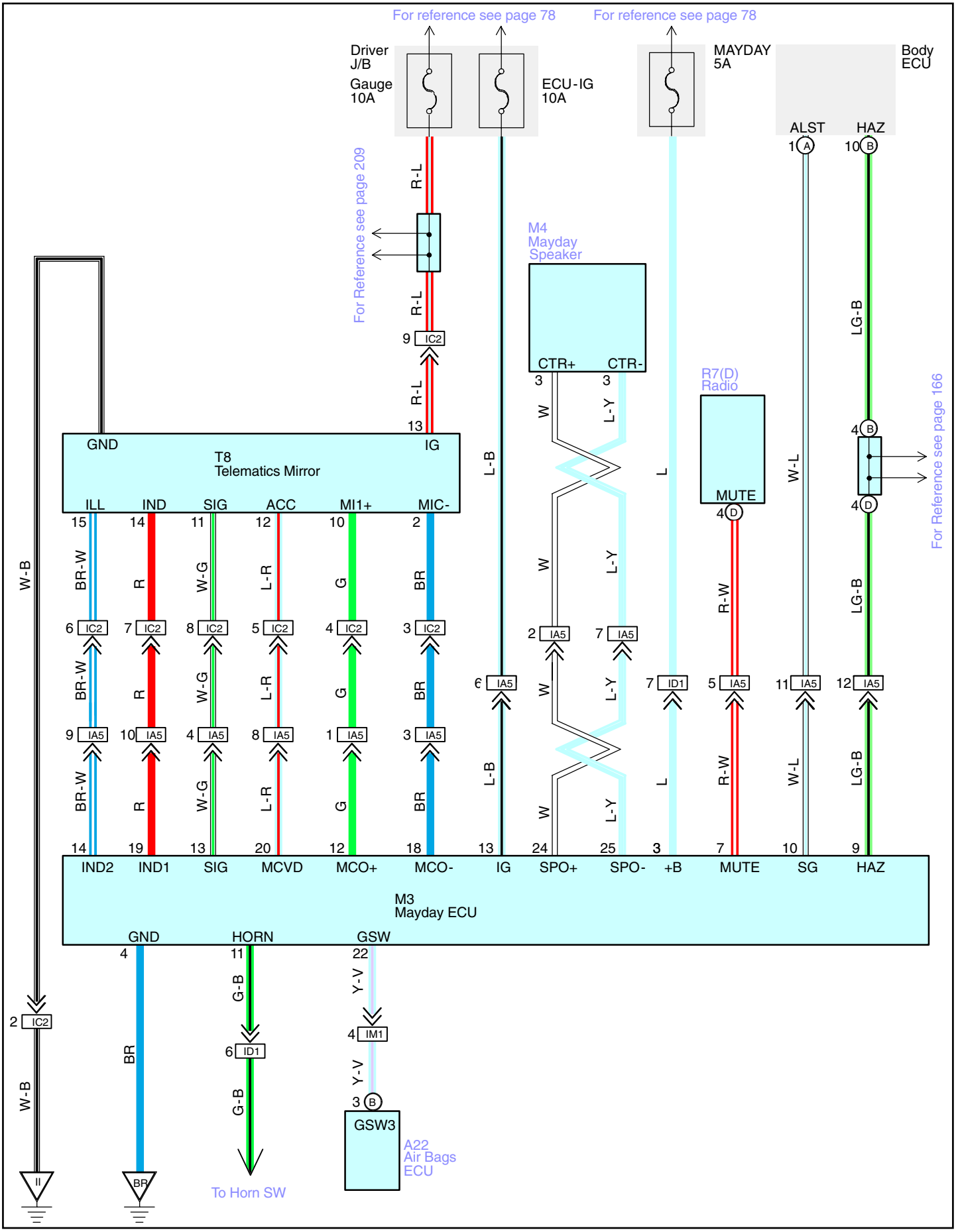




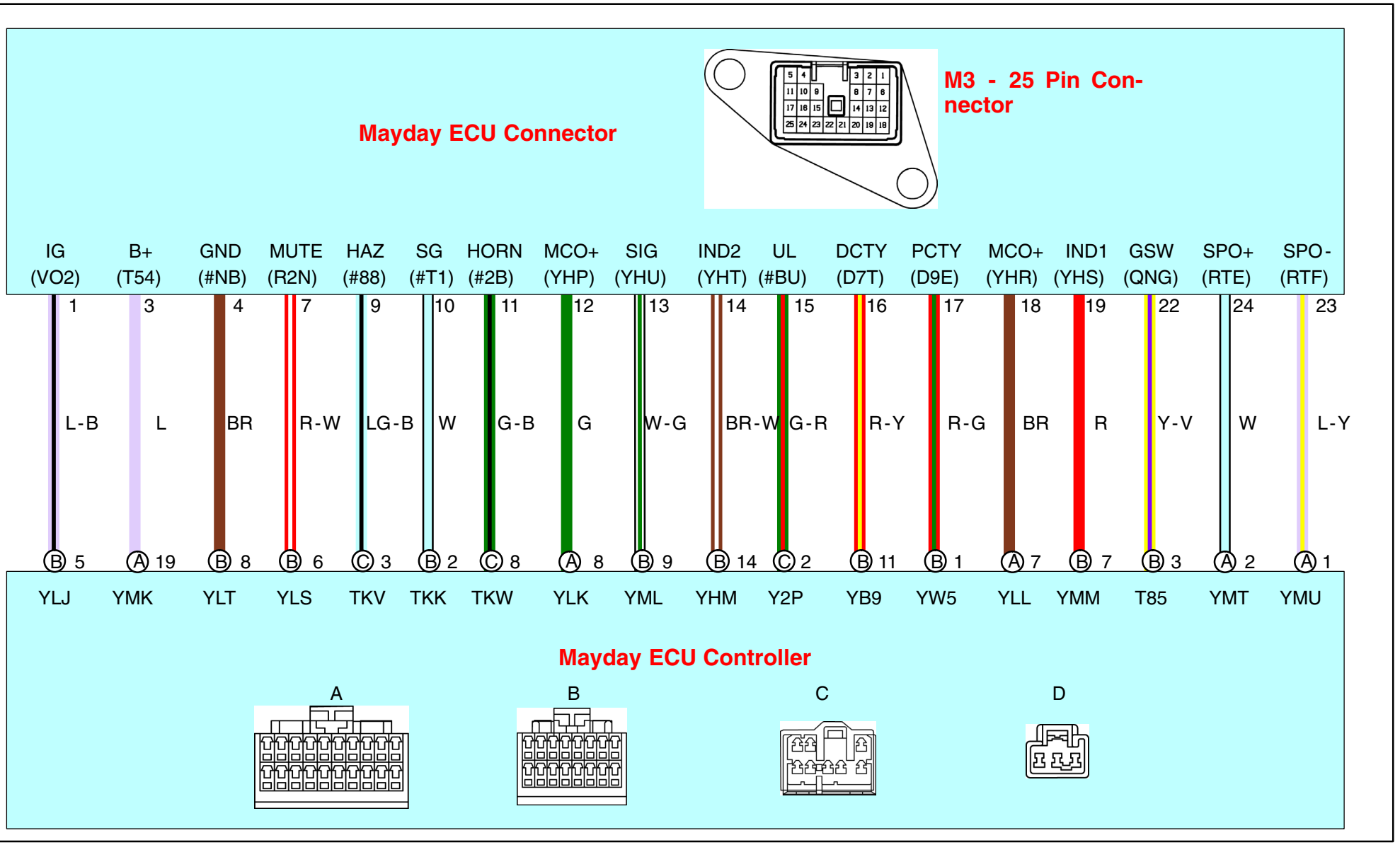
1. Electro-chromatic mirror
2. Day/Night on/off button.
3. End call button
4. Toyota Link button
5. Emergency call button
6. Status light
7. Microphone
8. Day/Night light sensor
9. Day/Night indicator light



WIRING DIAGRAM



INTERNAL WIRING DIAGRAM BETWEEN 25 PIN CONNECTOR AND MAYDAY ECU



GENERAL INFORMATION

The Toyota Link system consist of a number of components, these are:

- Toyota Link Mirror, including the system operational buttons, this is the interface between the vehicle and the Toyota Link call centre.
- Mayday ECU, controls the system and initiates or receives calls from the Toyota Link call centre.
- SRS Airbag ECU

The Toyota Link system has been developed using some of the most advanced Global Positioning System (GPS) and telecommunications technology and Global System for Mobile (GSM) Communications available. The Toyota Link system provides in-vehicle safety, security and information services by providing a two way, hands free communication to the Toyota Link Call Centre.

Toyota Link provides several services, such as remote door unlocking, connection to Roadside Assistance, Low Battery Alert and Accident Inquiry. In addition it will know if theft of the vehicle is attempted and can then track the vehicle. For a full list of services provided by Toyota Link, refer to the Toyota Link Owner's Manual or the Toyota Web site.

The link between the vehicle and the Toyota Link Call Centre uses GPS for vehicle location and tracking and the Australian digital mobile phone network to transmit and receive voice and SMS (Short Message Service) data. If the vehicle is outside the network coverage area, the link to and from the vehicle will not be available and services cannot be provided.

Signal strength may be affected in locations like basement car parks or tunnels. However, in most cases, as the vehicle emerges from the obstruction or re-enters the digital phone network area the signal will be available again.

A vehicle equipped with the Toyota Link system will be delivered from the vehicle assembly plant to the retail outlet with the system in Factory mode.

During the pre delivery service of the vehicle, the Mayday ECU ***Factory*** mode must be changed to ***Service*** mode using the Toyota Link Diagnostic Tool.

In ***Service*** mode, limited service will be provided until the customer has signed the terms and conditions document and the customer has set up the system by pressing the Toyota Link button located on the Toyota Link interior rear view mirror. The Toyota Link operator will then disable the ***Service*** mode and the system will be fully operational. The Mayday ECU has a built-in diagnostic system that identifies system operational problems and alerts the driver by illuminating the Red LED in the interior rear view mirror. If the LED is continuously illuminated with the ignition on, the Toyota Link system will not be functional and the cause of the illuminated lamp should be checked as soon as is reasonably possible.

PRINCIPLES OF OPERATION

Operating Modes

The Mayday system has seven operating modes, ***Factory, Pre-Delivery, Service, Active, Stand-by, Sleep*** and ***Deep Sleep***. The purpose of these different operating modes is to minimise the system current draw and allow features to be enabled or disabled depending on the operating mode.

FACTORY MODE

In ***Factory*** mode the system will not initiate Mayday calls. The ***Factory*** mode will permit all necessary factory programming, such as VIN, and allow any production line diagnostics to verify the assembly process. In this mode no audible signals will be output, and the LEDs are disabled in this mode, therefore the driver will be unaware of the operation status of the system.

PRE-DELIVERY MODE

In the pre delivery mode the system is not operational. The vehicle will be delivered from the assembly plant to the dealer with the Mayday ECU in ***Factory*** mode. Before the vehicle is delivered to the customer, the Mayday system must be taken out of ***Factory*** mode using the Diagnostic Tool. When in ***Factory*** mode the Mayday ECU will only communicate with the Diagnostic Tool and only when the ignition is ON.

SERVICE MODE

When the vehicle is scheduled to be serviced, the Mayday system ***Service*** mode should be activated. The customer may request the Toyota Link Call centre to remotely enable or disable service mode. A service technician can also activate or deactivate service mode with the Diagnostic Tool. When the ***Service*** mode is activated the Mayday ECU will ignore all button presses except for the Toyota Link button. In addition, the module will not transmit alert messages for unauthorised entry or low battery. However the module will transmit an airbag deployment alert.

ACTIVE MODE

This is the normal Toyota Link operating mode. In this mode the Toyota Link system is fully functional making and receive calls, and transmitting data via the GSM network. The current draw of the Mayday ECU in this mode will be approximately 150 mA.

SLEEP MODE

Stand-by

The Mayday ECU will enter ***Stand-by*** mode 2 minutes after the ignition switch is turned to the off position and a door is opened and closed; or 30 minutes after the ignition is turned to the off position. In this mode the mirror buttons will be inactive, the Mayday ECU will wake from this mode if:

- Any door is opened.
- The alarm is triggered.
- An “Unauthorised Entry Alert”.
- An incoming message.

A progressively deeper sleep behaviour is adopted after 8 hours in stand-by mode.

Sleep

The Mayday ECU will enter ***Sleep*** mode 8 hours of uninterrupted stand-by mode time after ignition off. In sleep mode the Mayday ECU only monitors the inputs required for it to be “woken” from ***Sleep*** mode. The system may be “woken” from ***Sleep*** mode by any of the following triggers:

- Any door is opened.
- The alarm is triggered.
- An “Unauthorised Entry Alert”.
- An incoming message.

In this mode the mirror buttons are inactive and the Mayday ECU will check the network for SMS messages for 2 minutes out of every 17 minutes.

Deep Sleep

The Mayday ECU enters a ***Deep Sleep*** behaviour after 5.5 days after the ignition switch has been turned to the off position and no other activity has occurred.

The customer may also have the Mayday ECU put into ***Deep Sleep*** mode by the Toyota Link Call Centre. In this mode the mirror buttons are inactive and the Mayday ECU will check the network for SMS messages for 2 minutes out of every 255 minutes.

SUMMARY OF FEATURE VS MODES

Mode	Features								
	Airbag Notification	Diagnostic	SOS Button	Toyota Link Button	Remote Unlock	Unauthorised Entry	Low Battery	Register Customer	Speaker Volume Adjust
Factory	X	○	X	X	X	X	X	X	X
Service	○	○	X	○	○	X	X	○	○
Active	○	○	○	○	○	○	○	X	○
Standby	X	● 1	X	X	○	● 2	○	X	X
Sleep	X	● 1	X	X	○	● 2	○	X	X

1: Diagnostic mode will wake the ECU.

2: Door open or ignition ON will wake the ECU.

Alerts

AIRBAG DEPLOYMENT ALERT

If the vehicle is involved in an accident where the airbags are activated, an “Airbag Deployed Alert” message will be transmitted to the Toyota Link Call Centre. If the Toyota Link Call centre operator is unable to contact the driver via two-way voice communication in the vehicle, or if the driver cannot respond, the operator will hand the call over to the Police. The Police may then contact the ambulance or other services.

LOW BATTERY VOLTAGE ALERT

If the vehicle battery voltage falls below a preset voltage for longer than 30 minutes, the Mayday ECU will transmit a “Low Battery Alert” message to the Toyota Link Call Centre. The low battery alert voltage is displayed in the Diagnostic Tool data list.

BATTERY DISCONNECT ALERT

If the vehicle battery is disconnected, (battery voltage less than one volt), the Mayday ECU will transmit a “Battery Disconnect Alert” message to the Toyota Link Call Centre.

UNAUTHORISED ENTRY ALERT

If the vehicle security system is triggered for longer than 20 seconds, the Mayday ECU will transmit an “Unauthorised Entry Alert” message to the Toyota Link Call Centre.

Toyota Link Remote Requests

REMOTE UNLOCKING

On receiving a “Remote Unlock” message from the Toyota Link Call Centre, the Mayday ECU will command the Body ECU to unlock the doors. The remote unlock command may take up to several hours to activate the door locks depending on the sleep state of the Mayday ECU.

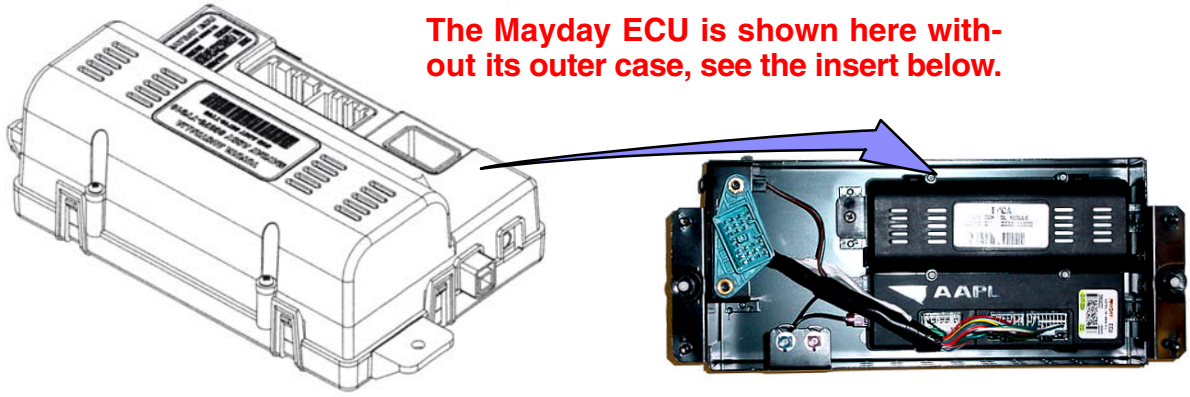
VOLUME ADJUSTMENT

Toyota Link Call Centre, can adjust the Speaker Volume of the Mayday ECU. A predetermined default volume setting is the first adjustment by the Toyota Link operator. A second Volume Adjustment can then be requested by the Customer up or down. Further adjustments can be made until the customer is comfortable with the volume setting.

NOTICE:

A Remote Unlock from the Toyota Link Call centre will not function while the Diagnostic Tool is accessing any module diagnostic information.

Mayday ECU



The Mayday ECU located under the rear parcel tray, controls the operation of the Toyota Link system. The Mayday ECU consists of a GPS and GSM engine. The Mayday ECU monitors vehicle operating conditions via discrete inputs and controls system outputs. The Mayday ECU also receives and transmits GSM information via the GSM antenna and receives GPS information via the GPS antenna. The Mayday ECU interfaces with other control modules in the vehicle.

NOTICE:

If at any time a new Mayday ECU is installed into the vehicle, then this new module must be registered with Toyota Link. To register this new module with Toyota Link see “Service Operations”, Mayday ECU Change-over Process, page .

Interior Rear View Mirror

The interior rear view mirror assembly contains the Mayday ECU button pad, microphone and the status LEDs, see page 05-217 for the illustration of the interior rear view mirror.

MAYDAY ECU BUTTON PAD

The Mayday ECU button pad is a resistor encoded switch, which means that each button has a separate and different value resistor connected to it. The Mayday ECU uses a voltage divider circuit to determine which button has been pressed. The Mayday ECU supplies a 12 volt signal voltage to the rear view mirror connector circuit YHU (White / Green). Whenever a button is pressed the corresponding switch is closed and the circuit YML (White / Green) at the Mayday ECU is connected to ground through a resistor, each switch having a different value resistor. The Mayday ECU monitors the voltage on the circuit YML (White / Green), which will change when any of the buttons are pressed.

Emergency Button

When the emergency button is pressed, the voltage on the circuit YML (White / Green), of the Mayday ECU will be approximately 3.8 Volts. The Mayday ECU determines this voltage at the circuit YML (White / Green), as an emergency button press. The Mayday ECU will initiate a voice call to an operator at the Toyota Link call centre and then send an SMS message containing status and location data. If the call cannot be connected, the Mayday ECU will immediately re-attempt to connect the call a second time. If the second attempt also fails, the unit shall wait for 60 seconds and make a third and final attempt. If the emergency button is pressed while a Toyota Link call is in progress then the status of the call shall be upgraded to an emergency call, and the Mayday ECU will not be permitted to terminate the call by pressing the “End Call button. If the emergency button is pressed while the vehicle is outside GSM network range, the Mayday ECU will enter “Emergency Call Mode” where by the emergency call request will be retained. When contact is re-established with the GSM network, the emergency call will be placed immediately.

Toyota Link Button

When the Toyota Link button is pressed, the voltage on circuit YML (White Green), of the Mayday ECU will be approximately 2.3 Volts, the Mayday ECU determines this voltage on circuit YML (White Green), as a Toyota Link Button press. The Mayday ECU will initiate a voice call to the call centre and then send an SMS message containing status and location data. If the call can not be connected, the Mayday ECU will immediately re-attempt to connect the call a second time. If the second attempt also fails, the unit shall wait for 60 seconds and make a third and final attempt.

End Call Button

When the End Call button is pressed, the voltage on circuit YML (White Green), of the Mayday ECU will be approximately 0.7 Volts, the Mayday ECU determines this voltage on circuit YML (White Green), as an end call button press.

Pressing this button while a call is connected will disconnect the call. It will not disconnect a call while the call is ringing the Toyota Link Call Centre number. It is not possible for the End Call button to disconnect an emergency call or a Toyota Link call that has been upgraded to an emergency call status.

Microphone

The active microphone in the interior rear view mirror provides a means for voice communication to the vehicle occupants and the Toyota Link Call Centre.

Wiring Diagram:
See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

Status Indicator LED's

The red and green status indicator LED's in the interior rear view mirror indicate the current status of the Toyota Link system.

The Mayday ECU activates the LED's by switching a 12volt power supply to each LED on or off. The brightness of the LED's is controlled by the interior rear view mirror electronics, which will vary the brightness of the LED's depending on the ambient light and the ignition switch position. If the ambient light is low the brightness of the LED's will be decreased when the ignition is on. If the ambient light is high there will be no change to the brightness of the LED's when the ignition is turned on.

LED	Condition	Current Status
Green	Continuous	Self-test pass, system OK (no current DTC logged).
	Flashing (0.5 sec ON / 0.75 sec OFF)	System OK (no current DTC logged), and • Call being connected, or • Call in progress, or • Emergency call mode
Red	Continuous	• Self-test failure (current DTC logged), or • System test in progress.
	Flashing (0.5 sec ON / 0.75 sec OFF)	Self-test failure (current DTC logged), and • Call being connected, or • Call in progress.
All LED's	OFF	• Performing power-up self-test • Stand-by mode or Sleep mode or • Service Contract Discontinued.
Orange (Red & Green)	Continuous	• Vehicle is not within GSM network range.
	Flashing	• Unit is in "Emergency Call Mode"
Red/Green	Alternate Flashing (0.5 second alternating) (30 second duration after ignition on)	• Unit in service mode.

The colour of the LED indicates the status of the system. If there is a system fault during a call the LED will flash red. If there are no system faults, and then the LED will flash green.

Radio Mute

Radio Mute

Whenever the Mayday ECU is activated, the radio mute signal is also activated and the Mayday ECU grounds the radio mute circuit YLS (Red / White) causing the circuit voltage to be pulled low, less than 2 Volts. This low voltage is detected by the radio as a mute request and when received, the audio system will mute. The Toyota Link operator can adjust the volume of the Mayday ECU call, see Toyota Link Remote Requests, Volume Adjustment, page 05-222.

Audible Tones

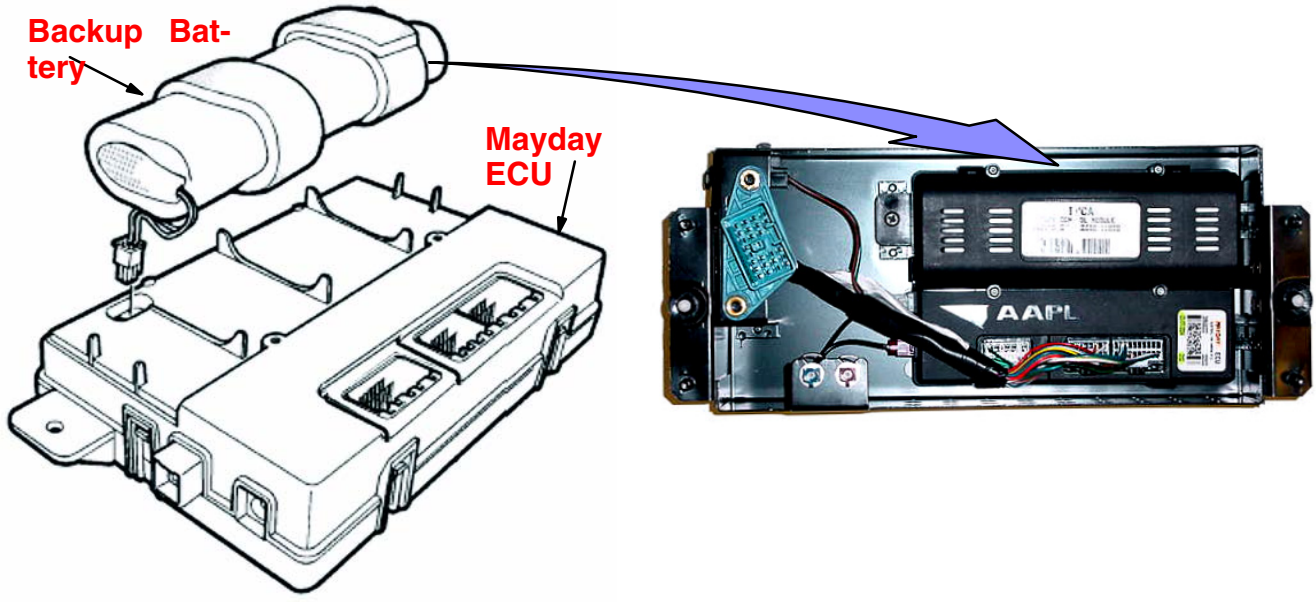
Audible tones are also provided to indicate the system status and are broadcast via the Toyota Link speaker to alert the customer to certain operating conditions.

Tone	Operating Condition
One Beep	• Confirms that the system is working correctly.
Two Beeps	• If the Toyota Link system is out of GSM range, 2 beeps will be heard when the ignition switch is turned to the off position.
Five Beeps	• Attempting to make call when vehicle is not within GSM network range, or if the five tones occur after the ignition is turned off, the vehicle is not within GSM network range. • Warning that Service Mode is active or a system malfunction has been detected and a Diagnostic Trouble Code has been stored in the Mayday ECU.

Wiring Diagram:
See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

Back-up Battery

The backup battery (1) is housed in the battery compartment of the Mayday ECU. The backup battery will provide power to the Mayday ECU for at least 30 minutes in the event of the vehicle battery being discharged or disconnected. The Mayday ECU has a backup battery charging circuit that maintains the backup battery state of charge. This circuit also includes an over current protection device. The Mayday ECU has a back up battery timer that monitors the time the back up battery has been in the vehicle. After the back up battery has been in the vehicle for 5 years, it has reached the end of its useful life (internal deterioration causing low charge acceptance) TL.14 will be set and the red status LED will be illuminated.



Battery Voltage

Battery voltage is applied to the Mayday ECU all times via circuit YMS (Blue wire) & FU.2 (E/JB).

Wiring Diagram:
See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

If the battery voltage falls below a preset voltage for longer than 30 minutes, the Mayday ECU will transmit a Low Battery Alert to the Toyota Link Call Centre. See ALERTS, Low Battery Voltage Alert on page 05-222 for further information.

If the battery is removed the Mayday ECU will transmit an “Unauthorised Entry Alert” to the Toyota Link Call Centre. See ALERTS, Low Battery Voltage Alert on page 05-222 for further information.

Back-up Battery Charger

The Mayday ECU constantly monitors both the vehicle battery and backup battery voltage. The charging circuit constantly monitors the backup battery voltage to determine if the backup battery needs to be charged at a maximum of up to 300mA.

Driver's Door Courtesy Switch

The Mayday ECU uses the driver's door courtesy switch input signal to determine if the driver's front door is opened or closed.

When the door is opened, the driver's door door courtesy switch grounds the Mayday ECU via circuit YB9 (Red / Yellow). This causes the voltage at circuit YB9 (Red / Yellow) to be low, less than 0.2 Volts (driver's door open). This low voltage at circuit YB9 (Red / Yellow) is detected by the Mayday ECU as the driver's door open input signal. This is one of the inputs the Mayday ECU uses to determine the system operating mode, refer to page 05-221 *"OPERATING MODES"* for more information.

Wiring Diagram:

See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

Passenger's Door Courtesy Switch

The Mayday ECU uses this passengers door courtesy switch input signal to determine if any of the passenger doors are opened or if all passenger doors are closed. If the right hand rear, left hand front or left hand rear door is open, the Mayday ECU is grounded via circuit YW5 (Red / Green). This causes the voltage at circuit YW5 (Red / Green) to be low, less than 0.2 Volts (if any one of the passenger doors is opened).

The Mayday ECU determines this low voltage at circuit YW5 (Red / Green) as the passengers door open input signal. This is one of the inputs the Mayday ECU uses to determine the system operating mode, refer to page 05-221 *"OPERATING MODES"* for more information.

Wiring Diagram:

See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

Alarm Input (Security Horn)

The Mayday ECU monitors the security horn circuit to determine if the alarm has been triggered. If the alarm has been triggered, the Body ECU pulses the vehicles horn once per second. To pulse the security horn the Body ECU supplies 12 Volts to the security horn circuit TKK (White wire). When the security horn circuit is activated, 12 volts is also applied to the Mayday ECU circuit TKK (White).

The Mayday ECU determines this high voltage at circuit TKK (White) as the security system having been triggered. If the vehicle security system is triggered for longer than 20 seconds, the Mayday ECU will transmit an "Unauthorised Entry Alert" message to the Toyota Link Call Centre.

Wiring Diagram:

See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

Mayday ECU Antenna

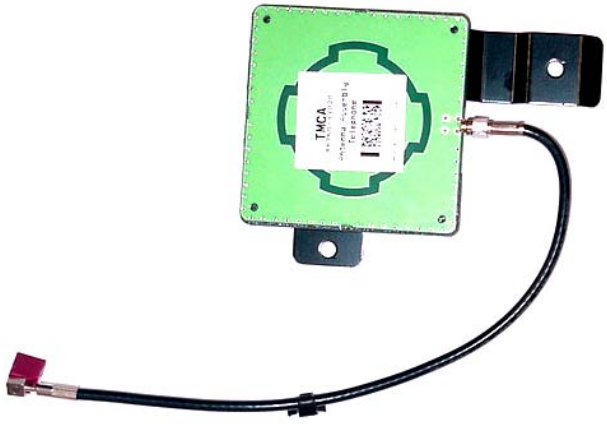
The Mayday ECU antenna contains both a GPS and GSM antenna, and is located on the rear parcel tray. Each antenna has one lead and a connector.

NOTICE:

The area directly above the Mayday ECU antenna should be free from obstructions as they may adversely affect the antenna operation and the system may not have full functionality. After market window tinting may also affect the antenna operation, refer to the Toyota Link Owner's Manual for more information.

GSM ANTENNA

The GSM antenna is capable of transmitting and receiving both voice and data signals via the GSM network. The Mayday ECU uses the GSM network to transmit and receive voice and data. Signal strength may be affected in locations like basement car parks or tunnels. However, in most cases, as the vehicle emerges from the obstruction or re-enters the digital phone network area the signal will be available again and any stored data will be transmitted. The GSM antenna is connected to the Mayday ECU by a plug in type connector.



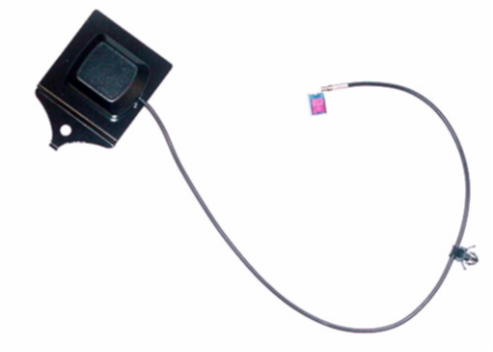
Wiring Diagram:

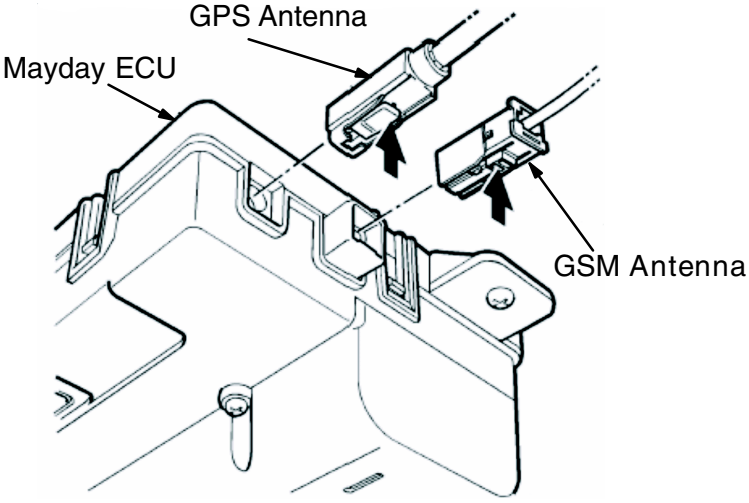
See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

GPS ANTENNA

The GPS antenna receives signals from the satellites orbiting the earth and transmits these to the Mayday ECU to determine the vehicles position. Signals from at least three GPS satellites must be received to accurately determine the vehicle's two dimensional (2D) position. Signals from at least four GPS satellites must be received to accurately determine the vehicle's three dimensional (3D) position. If signals from only three satellites are received, the Mayday ECU cannot determine the vehicles altitude.

Any objects must not obscure the GPS antenna, such as underground car parks, tunnels, bridges or buildings any of these may affect GPS reception. The GPS antenna is connected to the Mayday ECU by a plug in type connector.





The Mayday ECU uses a principle called triangulation to determine the location of the vehicle. This principle states that you can determine the location of an object if you know its distance from three known locations. GPS uses 24 satellites orbiting the earth. The location of each satellite is known at any given time. The satellites constantly broadcast radio signals and the Mayday ECU GPS module compares the amount of time it takes for the signals from at least three different satellites to reach the GPS module.

By converting time into distance, it can calculate the modules location on earth. The Mayday ECU receives GPS data, decodes it, and transmits the vehicles location via SMS when requested by the Toyota Link Call Centre.

Wiring Diagram:

See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

Wire Harness

2004 model year Camry with Toyota Link available only on Grande and Azura models, uses a specific wire harness and SRS ECU, these components are not interchangeable with other grades of the 2004 model year range.

Wiring Diagram:

See page 05-218 for the overall wiring diagram and page 05-219 for the internal wiring diagram between the 25 pin connector and the Mayday ECU.

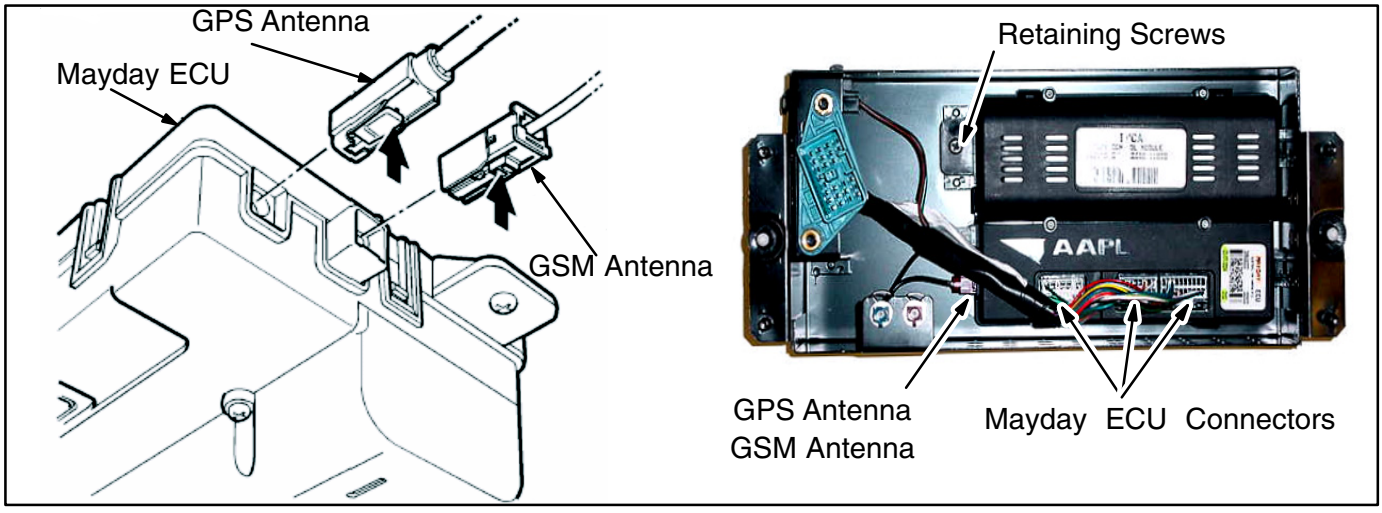
SERVICE OPERATIONS

When carrying out any service procedure on the vehicle that involves disconnecting the battery, battery cables or any procedure that may cause the battery voltage to fall below 12 Volts, the Mayday ECU ***Service Mode*** **MUST BE ENABLED**, refer to the Diagnostic Tool Test Modes, on page 05-346. If the Mayday ECU ***Service Mode*** is not enabled, an "Unauthorised Entry Alert" will be transmitted to the Toyota Link Call Centre whenever the battery is disconnected, or a "Low Battery Voltage Alert" when the battery voltage is low.

Mayday ECU

REMOVAL

(1) Using the Diagnostic Tool place the Mayday ECU into the ***Service Mode***. Refer to Diagnostic Tool Test, on page 05-346.
(2) Disconnect the negative battery cable from the battery.
(3) Remove the Mayday ECU Bracket from the rear parcel tray from inside the rear compartment.
(4) Disconnect Mayday ECU, GPS antenna connector, and the GSM antenna connector, from the Mayday ECU.



(5) Disconnect Mayday ECU harness connector from the Mayday ECU control module.
(6) Remove the Mayday ECU control module assembly retaining screw.
(7) Lift the front end of the module and slide the Mayday ECU out of the retaining bracket.

INSTALLATION

(1) Installation is in the reverse order of the removal procedure.
(2) Tighten the Mayday ECU assembly retaining screw to the correct torque specification.
Torque: 1 - 3 Nm
(3) Using the Diagnostic Tool place the Mayday ECU into the ***Active Mode***. Refer to Diagnostic Tool Test, on page 05-346.

NOTICE:
If the Mayday ECU *Service Mode* is not disabled, the system will not have full functionality.

Mayday ECU Changeover Process

If a new Mayday ECU has been installed into the vehicle, then this new module must be registered with Toyota Link.

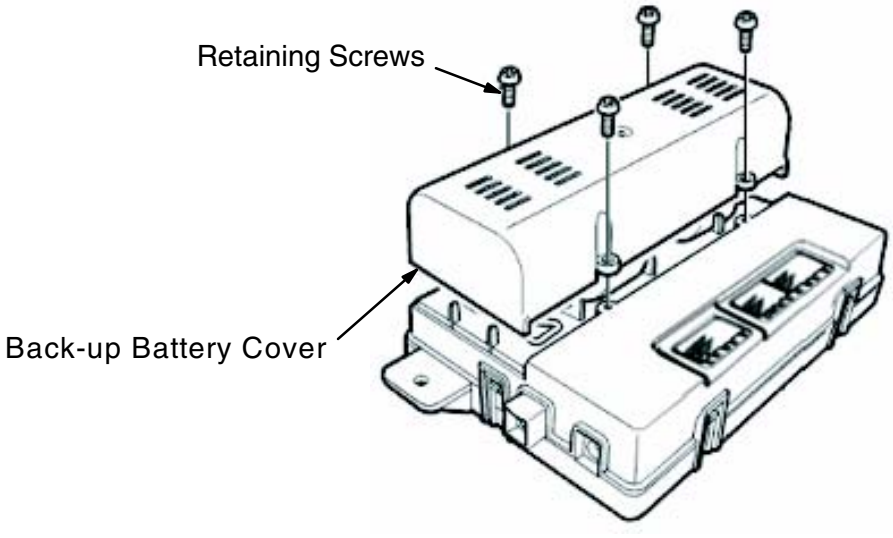
To register this new module with Toyota Link the following procedure must be performed.

(1) Once the new module has been installed into the vehicle turn the ignition on and make a call to Toyota Link by pressing the Toyota Link button.
(2) When the Toyota Link operator answers, inform the operator who you are and what retail dealer you are from, and that you have just installed a new Mayday ECU into the vehicle. You will also be required to provide the operator with the complete Vehicle Identification Number (VIN) and if the vehicle is registered, the registration number of the vehicle.
(3) Toyota Link will then call you back to verify that you are from a dealer; Toyota Link will then perform a device swap.
(4) The new Mayday ECU is now registered to this vehicle.

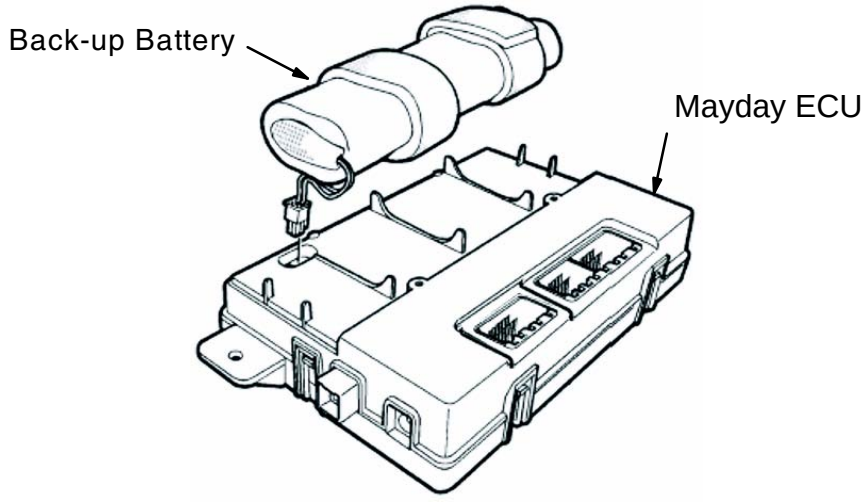
Back-up Battery

REMOVAL

(1) Using the Diagnostic Tool place the Mayday ECU into the ***Service Mode***. Refer to Diagnostic Tool Test, on page 05-346.
(2) Remove the Mayday ECU. Refer MAYDAY ECU, Removal on page 05-230
(3) Remove the four backup battery cover retaining screws and remove the backup battery.



(4) Disconnect the backup battery connector from the Mayday ECU.



INSTALLATION

(1) Installation is in the reverse order of the removal procedure.
(2) Tighten backup battery cover retaining screws to the correct torque specification.

Torque: 1 - 3 Nm

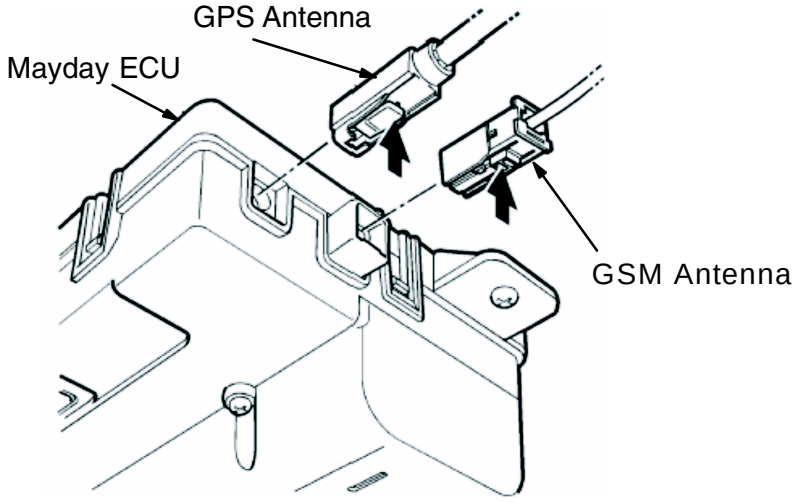
(3) Use the Diagnostic Tool to reset the Back Up Battery Timer, Refer to Diagnostic Tool Test, on page 05-346.
(4) Using the Diagnostic Tool place the Mayday ECU into the ***Active Mode***. Refer to Diagnostic Tool Test, on page 05-346.

NOTICE:
If the Mayday ECU *Service Mode* is not disabled, the system will not have full functionality.

Toyota Link Antenna

REMOVAL

(1) Using the Diagnostic Tool place the Mayday ECU into the ***Service Mode***. Refer to Diagnostic Tool Test, on page 05-346.
(2) Disconnect the negative battery cable.
(3) Remove the Mayday ECU Bracket from the rear parcel tray from inside the rear compartment.
(4) Disconnect the GSM and GPS antenna connectors from the Mayday ECU.



(5) Remove the Mayday ECU antenna lead retaining clips.
(6) Remove the Mayday ECU Antenna retaining screw.

INSTALLATION

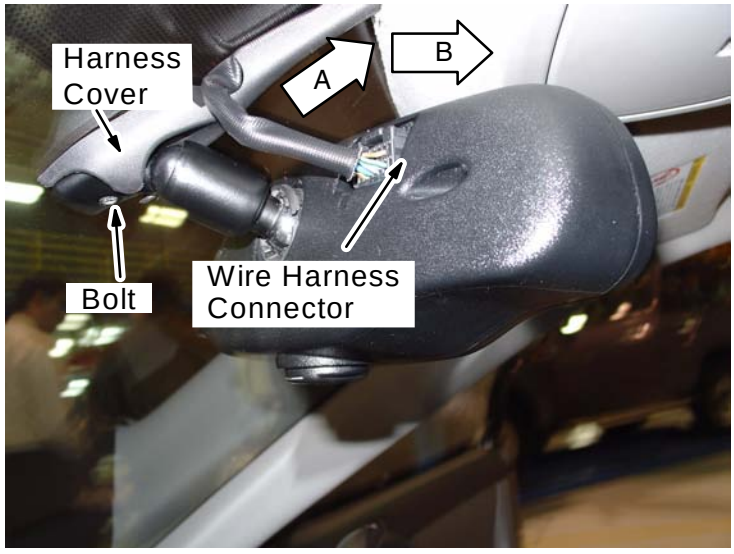
(1) Ensure the rear package tray to Mayday ECU antenna mating surface is clean.
(2) Reinstall the antenna to the package tray by aligning the antenna into the recess in the package tray.
(3) Reinstall the Mayday ECU antenna retaining screw.
(4) Reinstall the Mayday ECU antenna lead retaining clips.
(5) Reinstall the GSM and /or GPS antenna connectors to the Mayday ECU.
(6) Reinstall the Mayday ECU Bracket to the rear package tray from inside the rear compartment
(7) Reconnect the negative battery cable to the battery.
(8) Using the Diagnostic Tool place the Mayday ECU into the ***Active Mode***. Refer to Diagnostic Tool Test, on page 05-346.

NOTICE:
If the Mayday ECU *Service Mode* is not disabled, the system will not have full functionality.

Interior Rear-View Mirror

REMOVAL

(1) Remove mirror wiring harness cover by sliding the cover upwards slightly (direction A) and pull cover outwards (direction B).



(2) Disconnect the interior rear view mirror wiring harness connector.

(3) Remove the interior rear view mirror retaining screw and disengage the interior mirror from the boss on the windscreen by sliding the mirror in an upward direction.

INSTALLATION

(1) Installation is in the reverse order of the removal procedure.

(2) Tighten the retaining screw.

Torque: 2.5 - 4.5 Nm

(3) Using the Diagnostic Tool place the Mayday ECU into the ***Active Mode***. Refer to Diagnostic Tool Test, on page 05-346.

HOW TO PROCEED WITH TROUBLESHOOTING

The intelligent tester II can be used at step 3, 4, 6, 9 and 10.

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	CUSTOMER PROBLEM ANALYSIS, see Pub No. AC-RM033V1, page 05-463

NEXT

3	WARNING LIGHT CHECK, see page 05-4

NEXT

4	DTC CHECK (Present and Past DTC), see page 05-4

	DTC IS OUTPUT (INCLUDING NORMAL SYSTEM CODE): Go to step 5
	DTC IS NOT OUTPUT: SEE PROBLEM SYMPTOMS TABLE, see Pub No. AC-RM033V1, page 05-475

5	DTC CHART, see page 05-10

NEXT

6	CIRCUIT INSPECTION, see Pub No. AC-RM033V1, page 05-476 to 05-585 and 05-14 to 05-39)

NEXT

7	REPAIR

NEXT

8	CLEAR DTC (Present and Past DTCs), see page 05-4

NEXT

9	DTC CHECK, see page 05-4

- DTC IS NOT OUTPUT: Go to step 10
- WARNING LIGHT IS ON: Go to step 5

10	SYMPTOM SIMULATION, see Pub No. AC-RM033V1, page 05-476

- WARNING LIGHT REMAINS OFF: Go to step 11
- DTC IS OUTPUT: Go to step 5

11	CONFIRMATION TEST

NEXT

END

DIAGNOSTIC TROUBLE CODES

When the Mayday ECU detects an operating parameter that is outside its calibrated values it will set a DTC and store this DTC into its memory as a current DTC.

When a current DTC is set the Red Status LED may be illuminated whenever the ignition is on.

The six most recent DTC's that have occurred will be logged into the Mayday ECU memory in a table known as the "DTC List".

The DTC list can contain history data for the six most recent DTC's. Therefore, if more than six DTC's are set, only history data for the last six will be tracked. That is, the oldest DTC will be removed from the list regardless of its position within the list.

NOTICE:

Once a DTC has been removed from the "DTC List" it is maintained in the memory of the Mayday ECU as a History DTC, however there will be no DTC history data available for this DTC.

The DTC history data contained in the "DTC List" is as follows:

List Position	Position within the list numbered from 1 to 6.
DTC Number	The DTC number is the number used to identify a particular fault condition.
Occurrence Count (0 to 255)	The Occurrence Count is the number of times the particular fault condition has been detected.
History Count (0 to 255)	The History Count is the number of ignition cycles that have occurred since the fault was last detected. A count of 0 indicates the fault has occurred on the current ignition cycle, while a count of 255 indicates that the fault occurred 255 or more ignition cycles ago.

A particular DTC is only set once per ignition cycle. If the DTC does not exist in the DTC List, it is inserted into the list at the first vacant location, with the Occurrence Count set to 1 and the History Count set to 0. If the DTC List is full, the oldest DTC will be removed from the list; the History Count determines the age of a DTC List entry. The item in the list with the highest History Count will be removed to make space for the new DTC.

If the DTC already exists in the DTC List, then the Occurrence Count will be incremented, up to 255, at which point it is no longer incremented. Each time the DTC is set, the History Count is cleared. This ensures that the six most recent fault conditions are tracked. The Occurrence and History Counters provide a means of determining how often the fault has occurred and how long it has been since the fault last occurred. For instance, if the DTC Occurrence Count is 1, and the History Count is 201, then it can be determined that the fault condition existed only once, and it happened 201 ignition cycles ago, but has not been detected since. Another example would be an Occurrence Count of 4 and a History Count of 0; this would indicate that the fault has been detected a total of four times in the current ignition cycle.

The DTC's are not removed from the list, unless six newer fault conditions occur pushing the oldest fault off the list, or they are cleared using the TDT.

NOTICE:

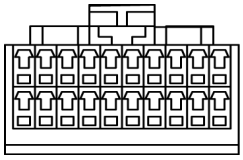
Once a DTC has been removed from the "DTC List" it is maintained in the memory of the Mayday ECU as a History DTC, however there will be no DTC history data available for this DTC.

DIAGNOSTIC TROUBLE CODE CHART

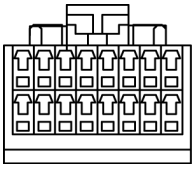
If a malfunction code is displayed during the DTC check, check the circuit listed for the code in the table below (Proceed to the page listed for that circuit).

TLDTC	TLDTC Description	Red Status Light Illumination
3	Airbag Fault	yes
5	Ignition Fault	yes
6	GPS Module Failed	yes
7	SIM Mismatch	yes
8	Vehicle Battery Too High	no
9	Vehicle Battery Too Low	yes
10	RAM Error	yes
11	EEprom Error	yes
12	Backup Battery Timer Expired	yes
13	Backup Battery Voltage Too High	yes
14	Backup Battery Voltage Too Low	yes
15	Backup Battery Not Detected	yes
16	Microphone Not Detected	yes
17	Microphone Circuit Voltage Too Low	yes
18	Microphone Circuit Voltage Too High	yes
19	Speaker Not Detected	yes
20	Speaker Circuit Voltage Too Low	yes
21	Speaker Circuit Voltage Too High	yes
27	Keypad Not Detected	yes
28	Keypad Circuit Voltage Too Low	yes
29	Keypad Circuit Voltage Too Low	yes
34	GPS Antenna Circuit Voltage Too Low	yes
38	Telephone Number Mismatch	yes
39	Vehicle Identification Number Mismatch	yes
43	GSM Not Logged With Signal Strength Present	yes
44	End Call Button Stuck	yes
45	Toyota Link Button Stuck	yes
46	Emergency Button Stuck	yes

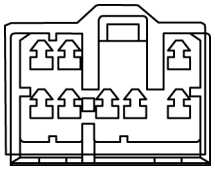
TERMINALS OF THE MAYDAY ECU



A



B



C

Terminal No.	Circuit No.	Wire Colour	Terminal Identification	Description	Circuit Type
A1	YMU	Blue / Yellow	SPO-	Speaker Negative	Output
A2	YMT	White	SPO+	Speaker Positive	Output
A4	YX5	Black	SIL	Diagnostics Data	Output
A7	YLL	Brown	MCO-	Microphone Negative	Ground
A8	YLK	Green	MCO+	Microphone Positive	Input
A19	21	Blue / White	FPOUT	Diagnostic B+	Output
B1	YW5	Red / Green	SIG2	Passenger Door Switches	Input
B2	TKK	White	SG	Security Horn	Input
B3	T85	Yellow / White	GSW	Airbag ECU	Input
B5	YLJ	Blue / Black	IG	Ignition Switch	Input
B6	YLS	Red / White	MUTE	Radio Mute	Output
B7	YMM	Red	IND1	Mirror Red LED	Output
B8	YLT	White / Black	GND	Ground	Ground
B9	YML	White / Green	SIG	Mirror Key Pad Signal	Input
B11	YB9	Red / Yellow	SIG1	Driver's Door Switch	Input
B14	YHM	Brown / White	IND2	Mirror Green LED	Output
B15	YMG	Blue / Red	MCVD	Mirror Key Pad Voltage	B+
B16	YMS	Blue	B+	Battery Positive	Input
C2	Y2P	Green / Red	CLK	Remote Door Unlock	Output
C3	TKV	Light Green / Black	HAZ	Hazard Lights	Output
C8	TKW	Green / Black	HORN	Security Horn	Output
D1	N/A	N/A	GPS-1	GPS Antenna Signal	Input
D2	N/A	N/A	GPS-G	GPS Antenna Ground	Ground
E1	N/A	N/A	GSM-1	GSM Antenna Signal	Input
E2	N/A	N/A	GSM-G	GSM Antenna Ground	Ground
F1	N/A	N/A	BATT+	Back-up Battery Positive	7.2 Volts
F2	N/A	N/A	BATT-	Back-up Battery Negative	Ground

SYSTEM DTC CHECK

1	Confirm system operation.

(1) Turn ignition switch to the on position.

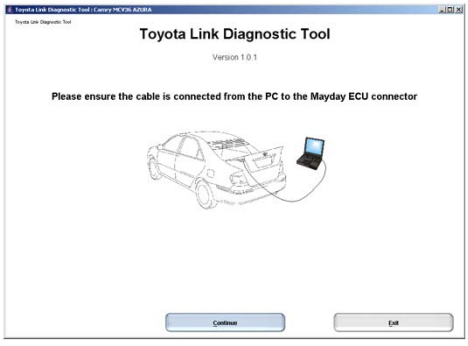
Standard:

Are the red, green or orange LED's on the interior mirror are illuminated?

NG → **Go to "Status indicator LED's do not illuminate", on page 05-300.**

OK

2	Confirm Toyota Link Diagnostic Tool (TDT) operation.



(1) Turn the ignition switch to the off position.
(2) Connect the TDT to the diagnostic connector.
(3) Turn the ignition switch and the TDT on.

Standard:

Does the TDT display the introduction screen?

NG → **Go to "TDT for Mayday ECU", on page 05-343**

OK

3	Confirm VIN.



(1) Select Continue.
(2) Select either "New Vehicle" or "Last Vehicle".
(3) If "New Vehicle" selected, select either Azura or Grande.
(4) Confirm selection.
(5) Confirm VIN.

NG → **Go to "No Communication with SST", on page 05-343**

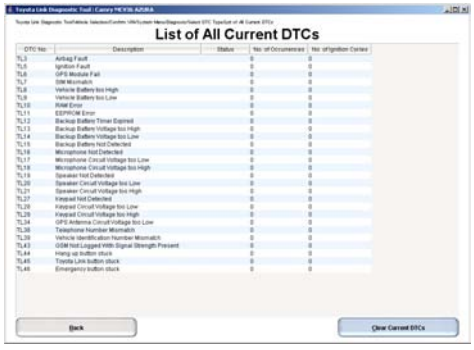
OK

4	Does the vehicle VIN match the displayed VIN?

NG → Go to “Mismatch VIN”, on page 05-291.

OK

5	Read the DTC information.



(1) Select continue.
(2) In “System Menu”, select Diagnosis.
(3) In “Diagnosis”, select DTC List, then select Current DTC.

Are there any DTC’s listed?

YES → Got to the DTC chart, on page 05-238.

NO

6	Check operating Mode.



(1) Select Back—Back—Bsck, then select Mode.
(2) Check the operating Mode.

Standard:

The operating mode should be set to ***Service Mode***.

NO → Set the operating mode to *Service*.

YES

7	Perform the System Active Tests



(1) Select Back—Active tests.
(2) Perform all the system active tests.

Standard:

Were all of the active test successfull?

NO → **Refer to the DTC chart on page 05-238**

YES

8	Check GPS Position

(1) Position the vehicle so that the GSM signal strength is greater than -90dbm and the GPS data list parameter “Time of Last Known Fix” is updating.
(2) Perform a “Mayday ECU Test”, refer to “Toyota Link Mayday ECU System Test”, **on page 05-342**

YES → **Go to step 10**

NO

9	Check Mayday ECU Terminals.

(1) Remove the Mayday ECU from the rear parcel tray.
(2) Check the Mayday ECU control terminals A, B, C.

Standard:

Are the terminals loose?

NO → **Repair the terminals.**

YES

Replace the Mayday ECU

10	The Toyota Link system is operating correctly.

(1) Re-check the problem symptoms.
(2) Ensure that other systems are not interfering with the Toyota Link system.

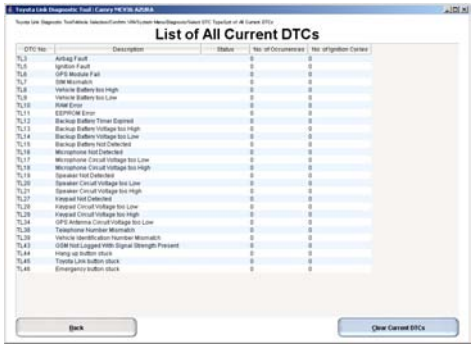
CLEAR DTC's

After all repair procedures the DTC's should be cleared.

1	Clear DTC's.



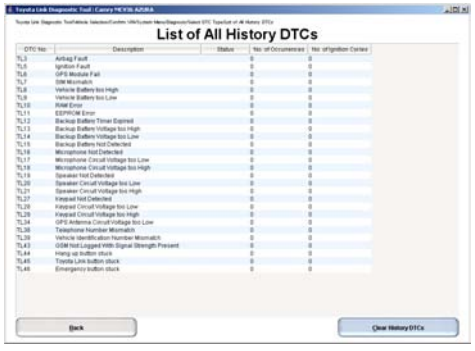
(1) Connect the TDT.
(2) Turn the ignition switch on.
(3) Navigate to the Systems Menu, for more information refer to page 05-345.
(4) Select Diagnosis



(5) Select DTC List
(6) Select Current DTC
(7) Select Clear Current DTC's.



(8) Select Back



(9) Select History DTC
(10) Select Clear Current DTC's.

DTC	TL3	AIRBAG FAULT

CIRCUIT DESCRIPTION

The Mayday ECU monitors the ignition signal, terminal IG, and the Airbag ECU (SRS), terminal GSW. The Mayday ECU will only monitor the ignition signal, sixty seconds after the ignition switch is turned to the on position. The Mayday ECU will then monitor the ignition signal until the ignition switch is turned to the off position. If the Mayday ECU is able to monitor the ignition signal and the Airbag signal successfully, the Airbag (SRS) is considered healthy. If the Mayday ECU is unable to monitor the Airbag signal but can monitor the ignition signal successfully, the Airbag (SRS) is considered unhealthy.

TL 3 will set if the Mayday ECU is unable to monitor both the ignition signal and the Airbag signal. This will be considered by the Mayday ECU as an Airbag Unhealthy or Airbag Fault. When the start-up self test runs and fails, the Mayday ECU stores the DTC and activates the red status LED.

1	Does the TDT display the ignition system ON?

(1) Turn the ignition switch on.
(2) Select Diagnosis ⇒ Data List ⇒ Refresh.
(3) Scroll to display the ignition status.

Standard

Is the gintion ON?

YES ⇒ **Diagnose the airbag system, see page 05-1**

NO

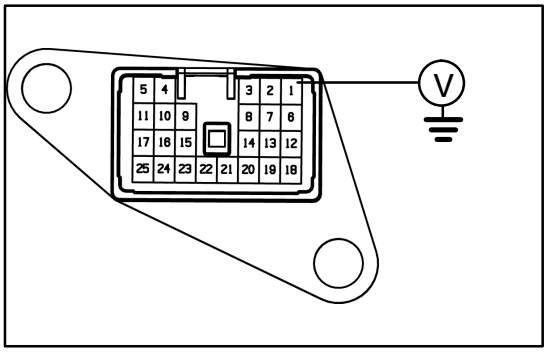
2	Check main power circuit.

(1) Check the AM1 fuse for continuity.
(2) Check the ECU-1 fuse for continuity.
(3) Check the IG1 relay for correct operation.

NO ⇒ **Replace the fuse or relay.**

YES

3	Check voltage at Mayday ECU.



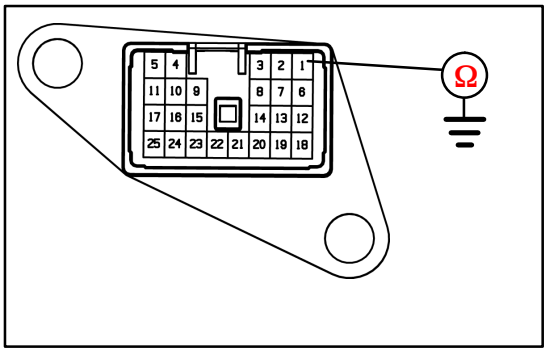
(1) Turn the ignition switch off.
(2) Disconnect the Mayday ECU connector.
(3) Connect a digital Multi-meter between terminal 1 of the wire harness and ground and check the Battery voltage.

Standard:
12V - 14V

NG → **Diagnose the ignition switch voltage supply circuit, refer to AC-RM033 V2, page 80-1.**

OK

4	Check continuity of Mayday ECU and wire harness.



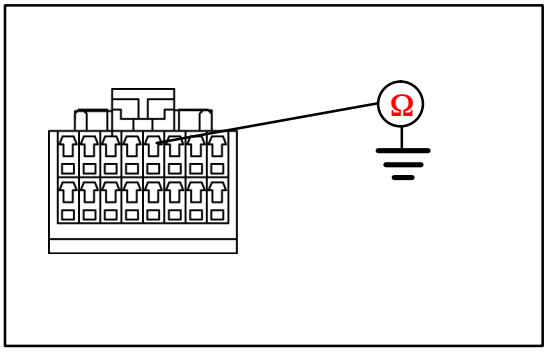
(1) Connect a digital Multi-meter between terminal 1 of the Mayday ECU and ground.

Standard:
Less than 1 Ω

OK → **Go to step 7**

NG

5	Check continuity of Mayday ECU.



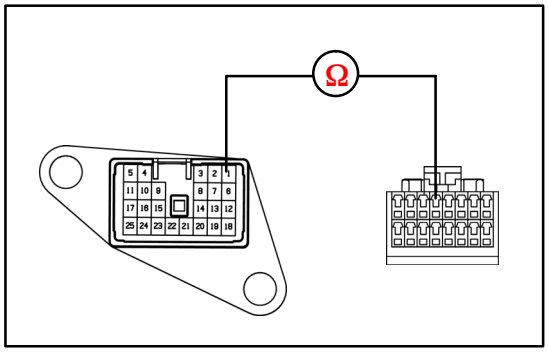
(1) Disconnect the B5 connector from the Mayday ECU control.
(2) Connect a digital Multi-meter between terminal B5 and ground.

Standard:
Less than 1 Ω

NG → **Replace the Mayday ECU.**

OK

6	Check the Mayday ECU wire harness.



(1) Connect a digital Multi-meter between terminal 1 of the 25 pin connector and terminal B5.

Standard:
Less than 1 Ω

NG → **Replace the Mayday ECU wire harness.**

OK

7	Replace Mayday ECU.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL5	IGNITION FAULT

CIRCUIT DESCRIPTION

The Mayday ECU monitors the ignition signal, terminal IG, and the Airbag ECU (SRS), terminal GSW. The Mayday ECU will monitor the ignition signal, sixty seconds after the ignition switch is turned to the off position. If the Mayday ECU monitors an off signal from the airbag ECU but the ignition signal is present the Mayday ECU then considers the Airbag (SRS) healthy but assumes a possible ignition fault.
TL 5 will set if the Mayday ECU is unable to monitor both the ignition and the Airbag off signal.

1	Check TDT display.

(1) Turn the ignition switch on.
(2) Select Diagnosis ⇒ Data List ⇒ Refresh.
(3) Scroll to display the ignition status.

Standard
On

YES ▷ **Got to step 3.**

NO

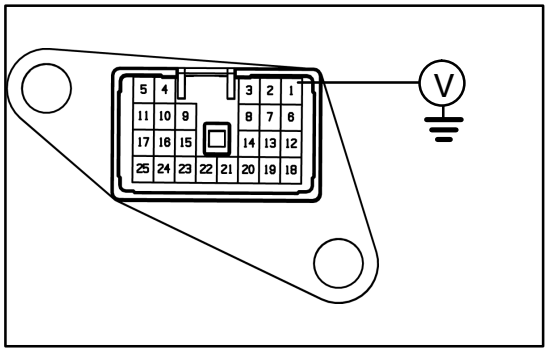
2	Check main power circuit.

(1) Check the AM1 fuse for continuity.
(2) Check the ECU-1 fuse for continuity.
(3) Check the IG1 relay for correct operation.

NO ▷ **Replace the fuse or relay.**

YES

3	Check voltage at Mayday ECU.



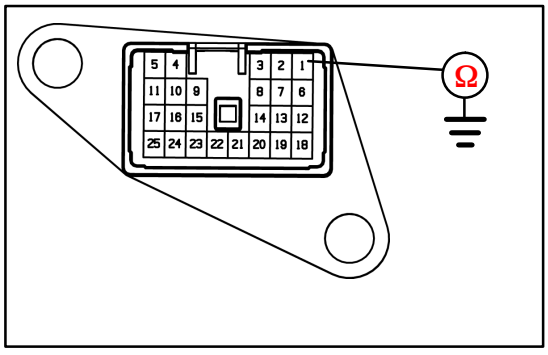
(1) Turn the ignition switch off.
(2) Disconnect the Mayday ECU connector.
(3) Connect a digital Multi-meter between terminal 1 of the wire harness and ground and check the Battery voltage.

Standard:
12V - 14V

NG → **Diagnose the ignition switch voltage supply circuit, refer to AC-RM033 V2, page 80-1.**

OK

4	Check continuity of Mayday ECU and wire harness.



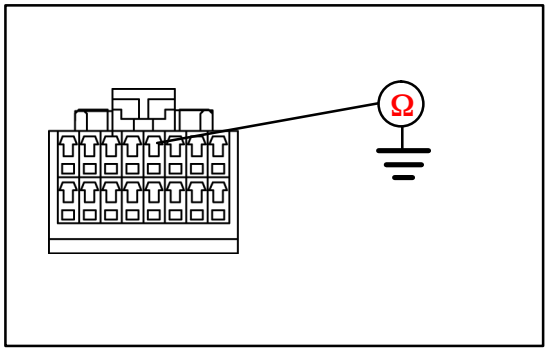
(1) Connect a digital Multi-meter between terminal 1 of the Mayday ECU and ground.

Standard:
Less than 1 Ω

OK → **Go to step 7**

NG

5	Check continuity of Mayday ECU.



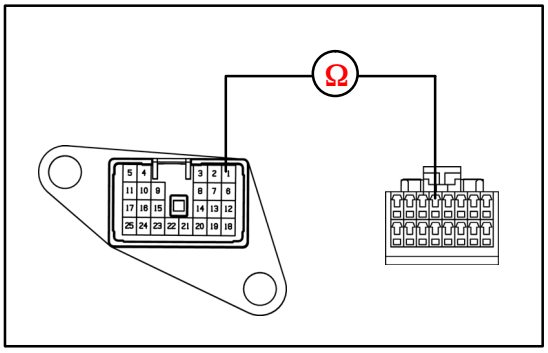
(1) Disconnect the B5 connector from the Mayday ECU control.
(2) Connect a digital Multi-meter between terminal B5 and ground.

Standard:
Less than 1 Ω

NG → **Replace the Mayday ECU.**

OK

6	Check the Mayday ECU wire harness.



(1) Connect a digital Multi-meter between terminal 1 of the 25 pin connector and terminal B5.

Standard:
Less than 1 Ω

NG → **Replace the Mayday ECU wire harness.**

OK

7	Replace Mayday ECU.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL6	GPS MODULE FAILURE

CIRCUIT DESCRIPTION

The Mayday ECU controls both the GPS and GSM antennas, which are located on the rear parcel tray. The GPS antenna receives signals from satellites orbiting the earth and transmits these to the Mayday ECU to determine the vehicles position.

Signals from at least three GPS satellites must be received to accurately determine the vehicle's two-dimensional (2D) position.

Signals from at least four GPS satellites must be received to accurately determine the vehicle's three-dimensional (3D) position. If signals from only three satellites are received, the Mayday ECU cannot determine the vehicles altitude.

The GPS antenna must not be obscured by any objects such as, underground car parks, tunnels, bridges, buildings, objects on the rear parcel tray or some window tints; any of these may affect GPS reception.

The GPS antenna is connected to the Mayday ECU by a push on type connector.

To determine the vehicles position this GPS information is transmitted via SMS to the Toyota Link Call Centre whenever a call is made from the vehicle by pushing the rear view mirror keypad. The Toyota Link Call Centre is also able to track the vehicle using this GPS information.

TL 6 is set if the Mayday ECU detects that the antenna circuit input voltage is less than 1 Volt.

1	Check display show GPS module active.

(1) Turn the ignition switch on.
(2) Select Diagnosis ⇒ Data List ⇒ Refresh.
(3) Scroll to display the GPS module status.

Standard
GPS module "Active"

NO ⇒ **Go to step 5.**

YES

2	Check time of "Last Know GPS Fix".

(1) Scroll to display the "Time of Last Known GPS Fix".
(2) Is the time incrementing.

YES ⇒ **GPS Antenna is OK.**

NO

3	Check Antenna Connection.

(1) Check the antenna connection at the Mayday ECU.
(2) Is the connection installation secure?

NO ⇒ **Repair or replace connection.**

YES

4	Check GPS Antenna

(1) Temporarily replace the GPS antenna with a known good one.
(2) Re-check the “Time Last known Fix” on the TDT.

Standard
Time of Last Know Fix, should be incrementing.

YES → **Replace GPS antenna.**

NO

5	Check Mayday ECU.

(1) Check the GPS connectors of the Mayday ECU control.

Standard
Connectors should be tight and secure.

NG → **Repair or replace the GPS connectors.**

OK

Replace the Mayday ECU.

Clear all DTC’s, refer to page 05-243 for more information, and then verify operation.

DTC	TL7	SIM MIS-MATCH

CIRCUIT DESCRIPTION

If during the start-up self test the Mayday ECU detects an incorrect or faulty SIM; the Mayday ECU will store the DTC and activate the red LED.

1	Check Mayday ECU Diagnostic System.



(1) Turn the ignition switch on.
(2) Connect the TDT.
(3) Confirm the VIN.

Does the Mayday ECU and vehicle VIN match.

Standard

VIN should match the actual vehicle VIN.

YES → **Check the Mayday ECU diagnostic system, see page 05-240.**

NO

Replace the Mayday ECU

Clear all DTC's and verify operation.

DTC	TL8	VEHICLE BATTERY VOLTAGE TOO HIGH

CIRCUIT DESCRIPTION

Battery voltage is applied to the Mayday ECU terminal B16 at all times via circuit YMS (Blue).

1	Check DTC's.

(1) Turn the ignition switch on.
(2) Select Diagnosis ⇒ DTC List ⇒ Current DTC ⇒ Clear Current DTC's.
(3) Select Back ⇒ History DTC ⇒ Clear Current DTC's.
(4) Start the engine, increase the engine speed to 1 000 rpm for at least 1 minute.
(5) Does TL8 reappear?

NO ⇒ **Check charging system for an intermittent fault, see AC-RM033V2 for more information.**

YES

2	Check battery voltage.

(1) Turn the ignition switch on.
(2) Select Diagnosis ⇒ Data List.
(3) Scroll to the battery voltage item.
(4) Start the engine, increase the engine speed to 1 000 rpm for at least 1 minute.
(5) Read the voltage display.

Standard

Battery voltage should be 16 V or less.

NO ⇒ **Check charging system for an intermittent fault, see AC-RM033V2 for more information.**

YES

3	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ⇒ **Repair or replace the Mayday ECU wire harness.**

YES

4	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → Repair or replace the connectors.

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL9	VEHICLE BATTERY VOLTAGE TOO LOW

CIRCUIT DESCRIPTION

Battery voltage is applied to the Mayday ECU terminal B16 at all times via circuit YMS (Blue).

1	Check DTC's.

(1) Turn the ignition switch on.
(2) Select Diagnosis ⇒ DTC List ⇒ Current DTC ⇒ Clear Current DTC's.
(3) Select Back ⇒ History DTC ⇒ Clear Current DTC's.
(4) Start the engine, increase the engine speed to 1 000 rpm for at least 1 minute.
(5) Does TL9 reappear?

NO ⇒ **Check charging system for an intermittent fault, see AC-RM033V2 for more information.**

YES

2	Check battery voltage.

(1) Turn the ignition switch on.
(2) Select Diagnosis ⇒ Data List.
(3) Scroll to the battery voltage item.
(4) Start the engine, increase the engine speed to 1 000 rpm for at least 1 minute.
(5) Read the voltage display.

Standard

Battery voltage:

less than 10 V for 3 minutes
less than 9 V for 1 mintue
less than 6 V for 10 seconds

YES ⇒ **Check charging system, see AC-RM033V2 for more information.**

NO

3	Mayday ECU voltage.

(1) Connect a digital Multi-meter between between terminal B16 and ground.
(2) Check the voltage.

Standard

Battery voltage:

less than 10 V for 3 minutes
less than 9 V for 1 mintue
less than 6 V for 10 seconds

NO ⇒ **Got to step 6.**

YES

4	Check ground continuity.

(1) Connect a digital Multi-meter between terminal B8 and ground.
(2) Check the resistance reading

Standard
Resistance should be less than 1 Ω.

NO → **Repair ground circuit..**

YES

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

6	Check Mayday ECU connectors.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL10	RAM ERROR

CIRCUIT DESCRIPTION

TL 10 RAM Error is set if the Mayday ECU detects a fault with the internal memory (RAM) during the Mayday ECU self test.

1	**Check DTC's.**

NO → **Check the Mayday ECU diagnostic system, see page 05-240.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL11	EEPROM ERROR

CIRCUIT DESCRIPTION

TL 11 EEPROM Error is set if the Mayday ECU detects a fault with the EEPROM during the Mayday ECU self test.

1	**Check DTC's.**

NO → **Check the Mayday ECU diagnostic system, see page 05-240.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL12	BACKUP BATTERY TIMER EXPIRED

CIRCUIT DESCRIPTION

The back up battery is housed in the battery compartment of the Mayday ECU module. The back up battery will provide power to the Mayday ECU for at least 30 minutes in the event of the vehicle battery being discharged or disconnected.

The Mayday ECU has a back up battery charging circuit that maintains the back up battery state of charge. This circuit also includes an over current protection device.

After the back up battery has been in the vehicle for 5 years it has reached the end of its useful life; at this time TL 12 will be set and the red status LED will be illuminated, alerting the driver to the need for the battery to be changed.

1	Replace the back up battery.

(1) Replace the back up battery, refer to page 05-231 for information on the replacement procedure.

Has the back up battery been replaced?

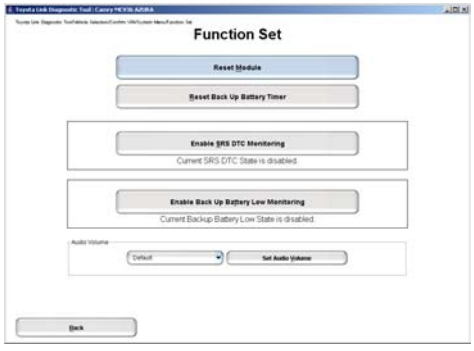
NO ⇒ **Replace the back up battery.**

YES

2	Reset the back up battery timer.



(1) Select Systems Menu ⇒ Function Set.



(2) Select Reset Back up Battery Timer.
(3) A Prompt will appear requesting confirmation, select YES.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

3	**Check Back up battery timer set.**

(1) Navigate to the Data List, refer to page 05-348 for more information.
(2) Scroll to Back up battery time in vehicle item.

Is the Back up battery timer rest?

YES → **Reassemble Mayday ECU**

NO

Go to Step 1 and repeat the steps.

DTC	TL13	BACK UP BATTERY VOLTAGE TOO HIGH

CIRCUIT DESCRIPTION

The backup battery is housed in the battery compartment of the Mayday ECU. The backup battery will provide power to the Mayday ECU for at least 30 minutes, in the event of the vehicle battery being discharged or disconnected.

The Mayday ECU has a backup battery charging circuit that maintains the backup battery state of charge. This circuit also includes an over current protection device.

TL 13 is set if the backup battery voltage is greater than 9.8 Volts for more that one second.

1	Check DTC

(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Start engine and increase engine speed to 1 000 rpm for at least five minutes.
(4) Recheck the DTC's.

Is TL13 reset?

NO ⇒ **The problem is intermittent, check items suc as Mayday ECU, Wire Harness, Connectors.**

YES

2	Monitor back up battery voltage.

(1) Select Systems Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Back up battery voltage.
(3) Start the engine and increase the speed to 1 000 rpm for 5 minutes.
(4) Monitor the back up battery voltage during this time.

Does the back up battery voltage exceed the specified value?

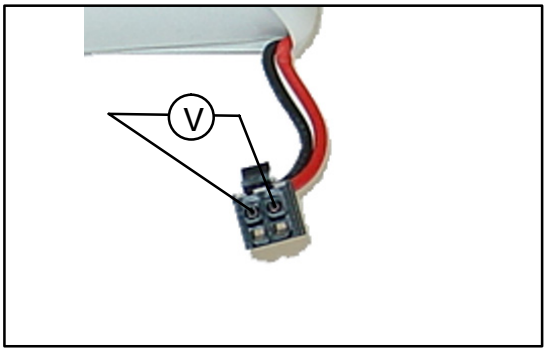
Standard

Greater than 9.8 V

NO ⇒ **Got to Step 5**

YES

3	Check the back up battery voltage.



(1) Disconnect the back up battery connector from the Mayday ECU.
(2) Connect a digital Multi-meter between the terminals as shown in the illustration.
(3) Does the voltage meet the specified value?

Standard
Greater than 9.8 V

NO ⇒ **Go to Step 5**

YES

4	Check Back up battery terminal retention.

(1) Are the back up battery terninals tight?

NO ⇒ **Repair terminal connection**

YES

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ⇒ **Repair or replace the Mayday ECU wire harness.**

YES

6	Replace the Mayday ECU.

DTC	TL14	BACK UP BATTERY VOLTAGE TOO LOW

CIRCUIT DESCRIPTION

The backup battery is housed in the battery compartment of the Mayday ECU. The backup battery will provide power to the Mayday ECU for at least 30 minutes in the event of the vehicle battery being discharged or disconnected.
The Mayday ECU has a backup battery charging circuit that maintains the backup battery state of charge. This circuit also includes an over current protection device.
TL 14 is set if the backup battery voltage is less than 5.5 Volts for more than three minutes.

1	Check DTC

(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Start engine and increase engine speed to 1 000 rpm for at least five minutes.
(4) Recheck the DTC's.

Is TL14 reset?

NO ⇒ **The problem is intermittent, check items suc as Mayday ECU, Wire Harness, Connectors.**

YES

2	Monitor back up battery voltage.

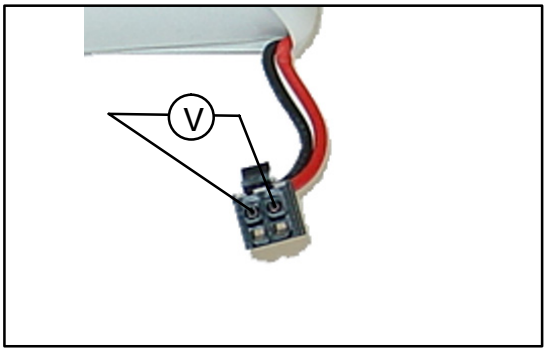
(1) Select Systems Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Back up battery voltage.
(3) Start the engine and increase the speed to 1 000 rpm for 5 minutes.
(4) Monitor the back up battery voltage during this time.

Does the back up battery voltage exceed the specified value?
Standard
Less than 5.5 V

NO ⇒ **Got to Step 5**

YES

3	Check the back up battery voltage.



(1) Disconnect the back up battery connector from the Mayday ECU.
(2) Connect a digital Multi-meter between the terminals as shown in the illustration.
(3) Does the voltage meet the specified value?

Standard
Less than 5.5 V

NO ▷ **Go to Step 5**

YES

4	Check Back up battery terminal retention.

(1) Are the back up battery terninals tight?

NO ▷ **Repair terminal connection**

YES

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ▷ **Repair or replace the Mayday ECU wire harness.**

YES

6	Replace the Mayday ECU.

DTC	TL15	BACK UP BATTERY NOT DETECTED

CIRCUIT DESCRIPTION

The backup battery is housed in the battery compartment of the Mayday ECU. The backup battery will provide power to the Mayday ECU for at least 30 minutes in the event of the vehicle battery being discharged or disconnected.
The Mayday ECU has a backup battery charging circuit that maintains the backup battery state of charge. This circuit also includes an over current protection device.
TL 15 is set if the backup battery voltage is less than one volt.

1	Check DTC

(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Start engine and increase engine speed to 1 000 rpm for at least five minutes.
(4) Recheck the DTC's.

Is TL15 reset?

NO ⇒ **The problem is intermittent, check items suc as Mayday ECU, Wire Harness, Connectors.**

YES

2	Monitor back up battery voltage.

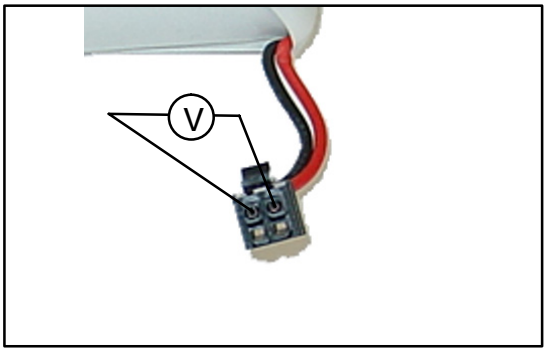
(1) Select Systems Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Back up battery voltage.
(3) Start the engine and increase the speed to 1 000 rpm for 5 minutes.
(4) Monitor the back up battery voltage during this time.

Does the back up battery voltage exceed the specified value?
Standard
Less than 1.0 V

NO ⇒ **Got to Step 5**

YES

3	Check the back up battery voltage.



(1) Disconnect the back up battery connector from the Mayday ECU.
(2) Connect a digital Multi-meter between the terminals as shown in the illustration.
(3) Does the voltage meet the specified value?

Standard
Less than 1.0 V

NO ▶ **Go to Step 5**

YES

4	Check Back up battery terminal retention.

(1) Are the back up battery terninals tight?

NO ▶ **Repair terminal connection**

YES

5	Replace the Mayday ECU.

DTC	TL16	MICROPHONE NOT DETECTED

CIRCUIT DESCRIPTION

The active microphone in the interior rear-view mirror provides a means for two way voice communication between the vehicle occupants and Toyota Link Call Centre. During the system self test the microphone and circuit are tested to determine if there is a microphone or microphone circuit malfunction.
TL 16 is set if the microphone circuit YLK (Green) input voltage is greater than 2.5 Volts.

1	Check DTC

(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

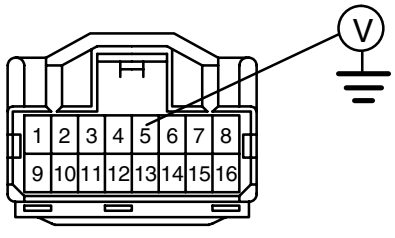
Is TL16 reset?

NO → **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check Mirror Voltage.





(1) Disconnect the interior rear-view mirror connector.
(2) Turn the ignition on.
(3) Connect a digital Multi-meter between terminal MI1+ (G) and ground.
(4) Measure the voltage.

Standard
5V

Does the voltage meet specified value?	**A**
Is the voltage greater than specified?	**B**
Is the voltage less than specified?	**C**

A → **Go to Step 4**

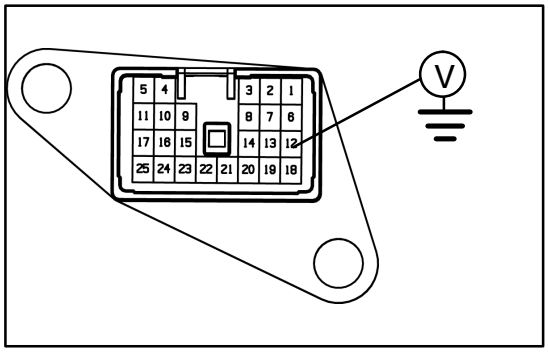
B → **Repair Short circuit to battery in the wire harness.**

C → **Go to Step 3**

NO

Got to Step 4

3	Check for short to ground.



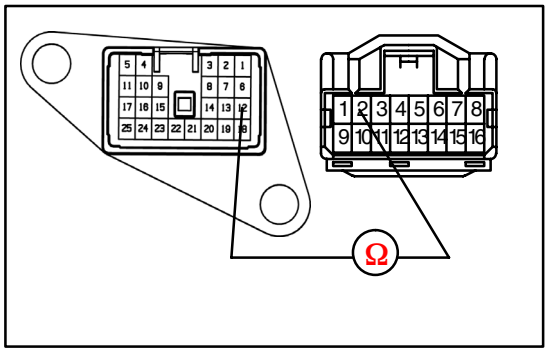
(1) Turn the ignition on.
(2) With the interior rear-view mirror still disconnected.
(3) Measure the voltage at terminal 12.

Standard
5V
Does the voltage meet the specified value?

NO ⇒ **Go to Step 6**

YES ⇒ **Repair the open or short circuit to ground.**

4	Check interior mirror wire harness.



(1) Connect an ohmmeter between terminal 2 of the interior rear-view mirror and terminal 18 of the Mayday ECU.
(2) Measure the resistance.

Standard
Less than 1 Ω

NO ⇒ **Repair open circuit.**

YES

5	Check interior rear-view mirror connector retention.

(1) Check the interior rear-view mirror connector retention.

Is the retention OK?

NO ⇒ **Repair or replace the connectors.**

YES

Replace interior rear-view mirror.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

6	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

7	Check Mayday ECU terminal retention.

(1) Are the back up battery terminals tight?

NO > **Repair terminal connection**

YES

Replace the Mayday ECU.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL17	MICROPHONE CIRCUIT VOLTAGE TOO LOW

CIRCUIT DESCRIPTION

The active microphone in the interior rear-view mirror provides a means for two way voice communication between the vehicle occupants and Toyota Link Call Centre. During the system self test the microphone and circuit are tested to determine if there is a microphone or microphone circuit malfunction.
TL 17 is set if the Mayday ECU detects that the microphone circuit YLK (Green) input voltage is less than 1.8 Volts.

1	Check DTC

(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

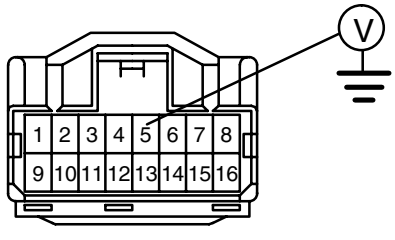
Is TL17 reset?

NO → **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check Mirror Voltage.





(1) Disconnect the interior rear-view mirror connector.
(2) Turn the ignition on.
(3) Connect a digital Multi-meter between terminal MI1+ (G) and ground.
(4) Measure the voltage.

Standard
5V

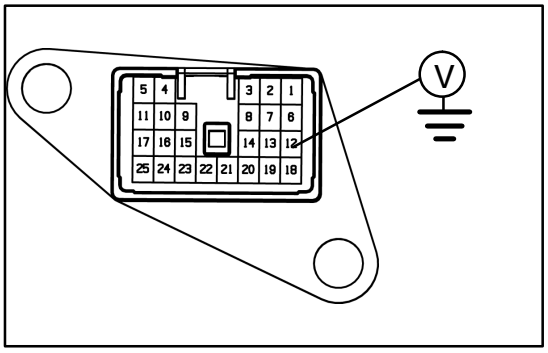
Does the voltage meet specified value?	**A**
Is the voltage less than specified?	**B**

A → **Go to Step 4**

B → **Go to Step 3**

NO → **Go to Step 4**

3	Check for short to ground.



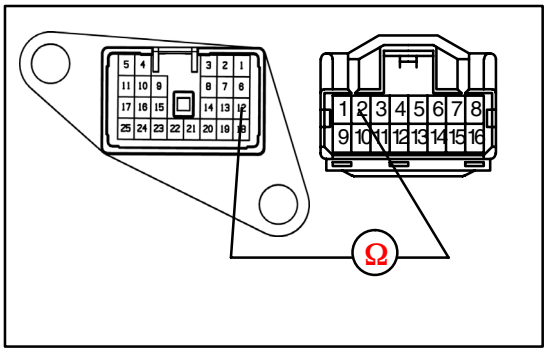
(1) Turn the ignition on.
(2) With the interior rear-view mirror still disconnected.
(3) Measure the voltage at terminal 12.

Standard
5V
Does the voltage meet the specified value?

NO ⇒ **Go to Step 6**

YES ⇒ **Repair the open or short circuit to ground.**

4	Check interior mirror wire harness.



(1) Connect an ohmmeter between terminal 2 of the interior rear-view mirror and terminal 18 of the Mayday ECU.
(2) Measure the resistance.

Standard
Less than 1 Ω

NO ⇒ **Repair open circuit.**

YES

5	Check interior rear-view mirror connector retention.

(1) Check the interior rear-view mirror connector retention.

Is the retention OK?

NO ⇒ **Repair or replace the connectors.**

YES

Replace interior rear-view mirror.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

6	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

7	Check Mayday ECU terminal retention.

(1) Are the back up battery terminals tight?

NO > **Repair terminal connection**

YES

Replace the Mayday ECU.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL18	MICROPHONE CIRCUIT VOLTAGE TOO HIGH

CIRCUIT DESCRIPTION

The active microphone in the interior rear-view mirror provides a means for two way voice communication between the vehicle occupants and Toyota Link Call Centre. During the system self test the microphone and circuit are tested to determine if there is a microphone or microphone circuit malfunction.
TL 16 is set if the microphone circuit YLK (Green) input voltage is greater than 2.5 Volts.

1 Check DTC

(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

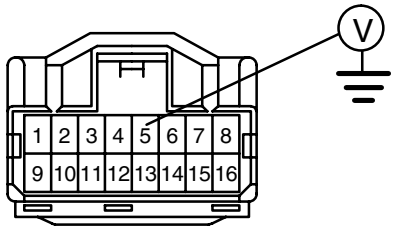
Is TL18 reset?

NO → **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2 Check Mirror Voltage.





(1) Disconnect the interior rear-view mirror connector.
(2) Turn the ignition on.
(3) Connect a digital Multi-meter between terminal MI1+ (G) and ground.
(4) Measure the voltage.

Standard
5V

Does the voltage meet specified value?	**A**
Is the voltage greater than specified?	**B**
Is the voltage less than specified?	**C**

A → **Go to Step 4**

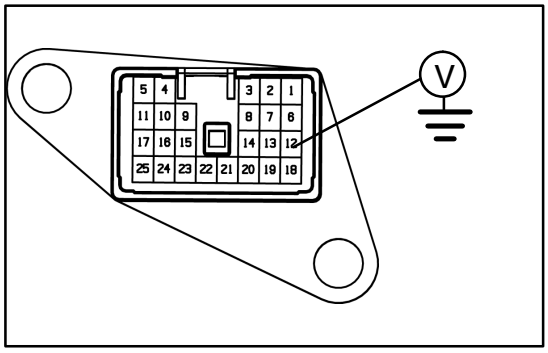
B → **Repair Short circuit to battery in the wire harness.**

C → **Go to Step 3**

NO

Got to Step 4

3	Check for short to ground.



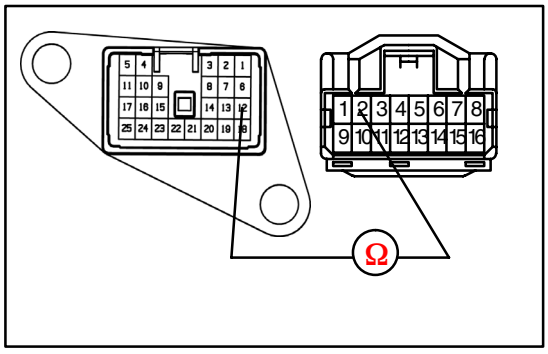
(1) Turn the ignition on.
(2) With the interior rear-view mirror still disconnected.
(3) Measure the voltage at terminal 12.

Standard
5V
Does the voltage meet the specified value?

NO ⇒ **Go to Step 6**

YES ⇒ **Repair the open or short circuit to ground.**

4	Check interior mirror wire harness.



(1) Connect an ohmmeter between terminal 2 of the interior rear-view mirror and terminal 18 of the Mayday ECU.
(2) Measure the resistance.

Standard
Less than 1 Ω

NO ⇒ **Repair open circuit.**

YES

5	Check interior rear-view mirror connector retention.

(1) Check the interior rear-view mirror connector retention.

Is the retention OK?

NO ⇒ **Repair or replace the connectors.**

YES

Replace interior rear-view mirror.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

6	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

7	Check Mayday ECU terminal retention.

(1) Are the back up battery terminals tight?

NO > **Repair terminal connection**

YES

Replace the Mayday ECU.

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL20	SPEAKER CIRCUIT VOLTAGE TOO LOW

CIRCUIT DESCRIPTION

The Mayday ECU system uses a speaker system to provide a means for voice communication from the Toyota Link Call Center. Audible tones are also provided to indicate the system status and are broadcast via the speaker to alert the customer to certain operating conditions.

Whenever the Mayday ECU system is activated the radio mute signal is also activated and the Mayday ECU grounds the radio mute circuit YLS (Red / White) causing the circuit voltage to be pulled low, less than two Volts. This low voltage is detected by the radio as a mute request and when received, the audio system will mute.

Whilst the Mayday ECU system is not on a call, the mute request from the cellular telephone connector will be passed through the Mayday ECU to the audio system. When a Toyota Link call is active, the Mayday ECU will ignore the phone audio and transmit the Mayday ECU audio to the speaker.

Light Status	Audible Beeps	Description
All lights flash momentarily (when the ignition is turned to the ON position)	1	Confirms that the system is working correctly.
Flashing red and green light (for 30 sec.)	5	Toyota Link is in service mode. The beeps will occur every time the ignition switch is turned ON or OFF. Press the Toyota Link button to request this mode be disabled.
—	2	If the Toyota Link system is out of GSM range, 2 beeps will be heard when the ignition switch is turned to the OFF position.

The output voltage of the audio amplifier circuit is measured to detect if the speaker is shorted to ground. This test is performed whenever the ignition is turned on and only if the audio system is off, and the Toyota Link system audio output is muted. TL 20 will set if the speaker circuit voltage is less than 1.8 Volts.

1	Check DTC

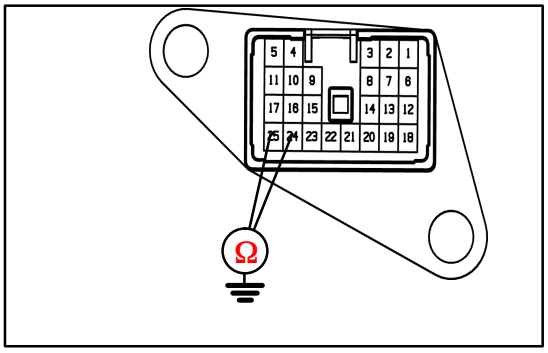
(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

Is TL20 reset?

NO → **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check for Mayday ECU to Audio wire harness ground.



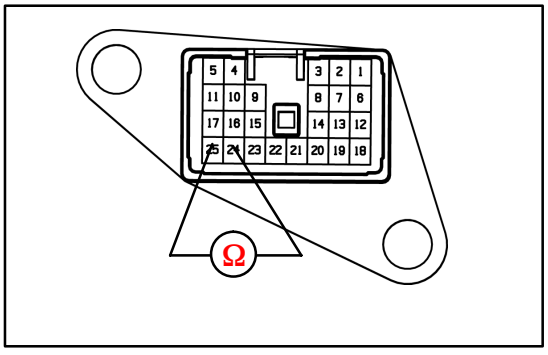
(1) Disconect the Mayday ECU connector and the Toyota Link speaker connector.
(2) Connect a digital Multi-meter between terminal 25 and ground.
(3) Measure the resistance.
(4) Connect a digital Multi-meter between terminal 24 and ground.
(5) Measure the resistance.

Standard
Greater than 1M Ω
Does the resistance as specified?

NO → **Repair or Replace the wire harness to the Toyota Link speaker.**

YES

3	Measure the speaker resistance at Mayday ECU.



(1) Disconnect the Mayday ECU connector.
(2) Connect a digital Multi-meter between terminal 24 and 25.
(3) Measure the resistance.

Standard
Resistance should be approximately 4 Ω.

OK → **Go to Step**

NG

4	Measue the speaker resistance.

(1) Disconnect the Toyota Link speaker connector.
(2) Connect a digital Multi-meter between the Toyota Link speaker terminals.
(3) Measire the resistance.

Standard
Resistance should be approximately 4 Ω.

NG → **Replace the Toyota LInk speaker.**

OK

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

6	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL21	SPEAKER CIRCUIT VOLTAGE TOO HIGH

CIRCUIT DESCRIPTION

The Mayday ECU system uses a speaker system to provide a means for voice communication from the Toyota Link Call Center. Audible tones are also provided to indicate the system status and are broadcast via the speaker to alert the customer to certain operating conditions.

Whenever the Mayday ECU system is activated the radio mute signal is also activated and the Mayday ECU grounds the radio mute circuit YLS (Red / White) causing the circuit voltage to be pulled low, less than two Volts. This low voltage is detected by the radio as a mute request and when received, the audio system will mute.

Whilst the Mayday ECU system is not on a call, the mute request from the cellular telephone connector will be passed through the Mayday ECU to the audio system. When a Toyota Link call is active, the Mayday ECU will ignore the phone audio and transmit the Mayday ECU audio to the speaker.

Light Status	Audible Beeps	Description
All lights flash momentarily (when the ignition is turned to the ON position)	1	Confirms that the system is working correctly.
Flashing red and green light (for 30 sec.)	5	Toyota Link is in service mode. The beeps will occur every time the ignition switch is turned ON or OFF. Press the Toyota Link button to request this mode be disabled.
—	2	If the Toyota Link system is out of GSM range, 2 beeps will be heard when the ignition switch is turned to the OFF position.

The output voltage of the audio amplifier circuit is measured to detect if the speaker is shorted to ground. This test is performed whenever the ignition is turned on and only if the audio system is off, and the Mayday ECU audio output is muted.

TL 21 will set if the speaker circuit voltage is greater than 2.5 Volts.

1	Check DTC

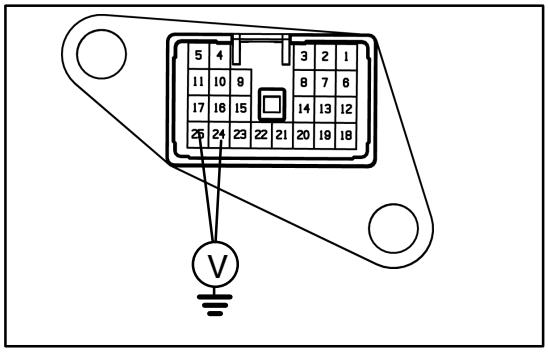
(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

Is TL21 reset?

NO → **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check speaker voltage at Mayday ECU.



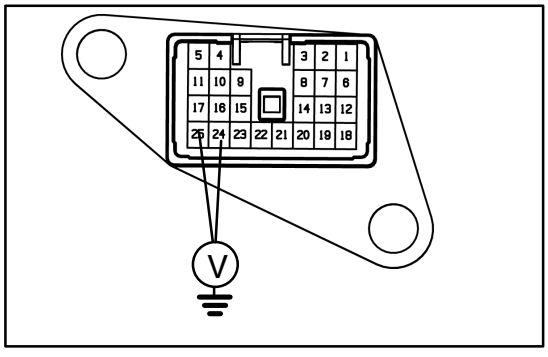
(1) Connect a digital Multi-meter between M3 terminal 24 and ground.
(2) Turn the ignition switch on.
(3) Measure the voltage.
(4) Connect a digital Multi-meter between M3 terminal 25 and ground.
(5) Measure the voltage.

Standard
2.5 V
Are either or both voltage greater than specified?

NO ▶ **Go to Step 4**

YES

3	Check speaker voltage at Toyota Link speaker.



(1) Connect a digital Multi-meter between M4 terminal 1 and ground.
(2) Turn the ignition switch on.
(3) Measure the voltage.
(4) Connect a digital Multi-meter between M4 terminal 2 and ground.
(5) Measure the voltage.

Standard
2.5 V
Are either or both voltage greater than specified?

NO ▶ **Replace the Toyota LInk speaker.**

YES

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ▶ **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL27	KEYPAD NOT DETECTED

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it. The Mayday ECU uses a voltage divider circuit to determine which button has been pressed.

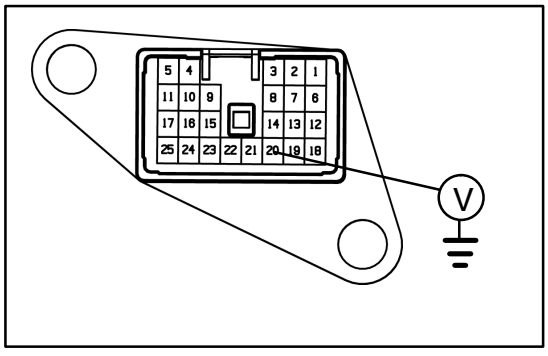
The Mayday ECU supplies a 12 volt signal voltage to the rear-view mirror connector on circuit YMG (Red/Blue). Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor.

The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.

During the Mayday ECU self test, the keypad circuit voltage is measured to detect voltage on circuit YML (White/Green). This self-test is only performed once whenever the Mayday ECU is powered up, at this time the power to the keypad is off.

TL 27 will set if the keypad circuit voltage is not detected for greater than ten seconds.

1	Check mirror key pad voltage.



(1) With the ignition off, disconnect the Mayday ECU connector.
(2) Turn the ignition switch to the on positiion.
(3) Connect a digital Multi-meter between between terminal 20 and ground.
(4) Measure the voltage.

Standard
10-14 V

YES ⇒ **Go to Step 3**

NO

2	Check Mayday ECU

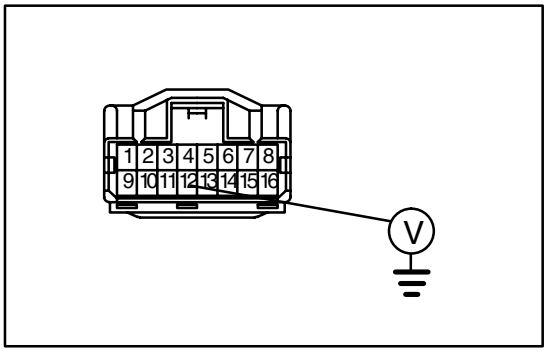
(1) Reconnect the Mayday ECU.
(2) Using the TDT, navigate to the Systems Menu.
(3) Select Diagnosis ⇒ Data List, then scroll to Keypad voltage.
(4) Connect a digital Multi-meter between connector M3, terminal 13.
(5) Monitor the Keypad voltage whilst operating the keypad.

Does the voltage change when a button is pressed?

NO ⇒ **Got to Step 5**

YES ⇒ **Go to Step 4**

3	Check mirror voltage



(1) Diconnect the mirror connector.
(2) Turn the ignition switch on.
(3) Connect a digital Multi-meter between terminal 12 and ground.
(4) Measure the voltage.

Standard
0.2 V
Is the voltage greater than the specified value?

NO ⇒ **Replace the interior rea-view mirror.**

YES ⇒ **Repair short circuit to battery.**

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

4	Check mirror connector retension.

(1) Check the mirror connector retension.
Are the connectors tight?

NO ⇒ **Repair or replace the connectors.**

YES ⇒ **Replace the Toyota Link mirror.**

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.
Is there continuity?

NO ⇒ **Repair or replace the Mayday ECU wire harness.**

YES

6	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO ⇒ **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL28	KEY PAD VOLTAGE TOO LOW

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it. The Mayday ECU uses a voltage divider circuit to determine which button has been pressed.

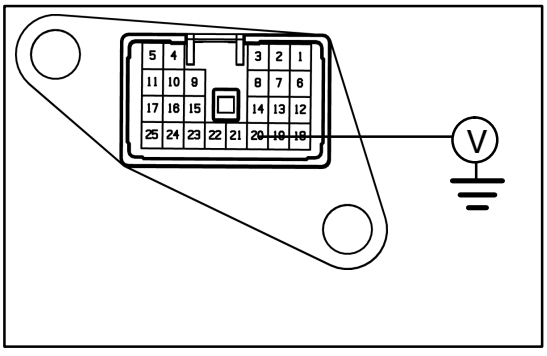
The Mayday ECU supplies a 12 volt signal voltage to the rear-view mirror connector on circuit YMG (Red/Blue).

Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor, each switch having a different value resistor. The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.

During the Mayday ECU self test, the keypad circuit voltage is measured to detect voltage on circuit YML (White/Green). This self-test is only performed once whenever the Mayday ECU is powered up, at this time the power to the keypad is off.

TL 28 will set if the keypad circuit voltage is not detected for greater than ten seconds.

1	Check Mayday ECU voltage.



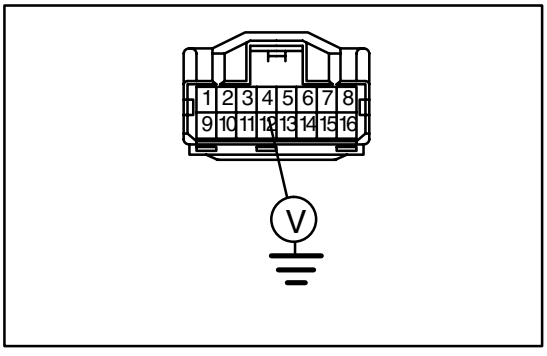
(1) Turn the ignition off
(2) Disconnect the connector M3.
(3) Connect a digital Multi-meter between terminal 20 and ground.
(4) Turn the ignition switch to the on position.
(5) Measure the voltage.

Standard
12-14V
Is the voltage lower than specified?

NO ▶ **Go to Step 3**

YES

2	Check the Toyota Link mirror.



(1) Disconnect the mirror connector T8.
(2) Connect a digital Multi-meter between terminal 12 and ground.
(3) Turn the ignition switch to the on position.
(4) Measure the voltage.

Standard
12-14V
Is the voltage lower than specified?

NO ▶ **Replace the Toyota Link mirror.**

YES

3	Check Wire harness.

(1) Disconnect the connector M3 and the connector T8.
(2) Connect a digital Multi-meter between connector M3, terminal 20 and ground.
(3) Measure the resistance.

Standard
Greater than 1 M Ω

(4) Connect a digital Multi-meter between connector M3, terminal 20 and connector T8, terminal 12.
(5) Measure the resistance.

Standard
Less than 1 Ω

NG → **Repair or replace the wire harness.**

OK

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL29	KEY PAD CIRCUIT VOLTAGE TOO HIGH

CIRCUIT DESCRIPTION

When the emergency button is pressed, the voltage on circuit YML (White/Green) of the Mayday ECU will be approximately 3.8 Volts. The Mayday ECU determines this voltage on circuit YML (White/Green) as an emergency button press.

The Mayday ECU will initiate a voice call to an operator at the Toyota Link Call Centre and then send an SMS message containing status and location data. If the call cannot be connected, the Mayday ECU will immediately re-attempt to connect the call a second time. If the second attempt also fails, the unit shall wait for 60 seconds and make a third and final attempt.

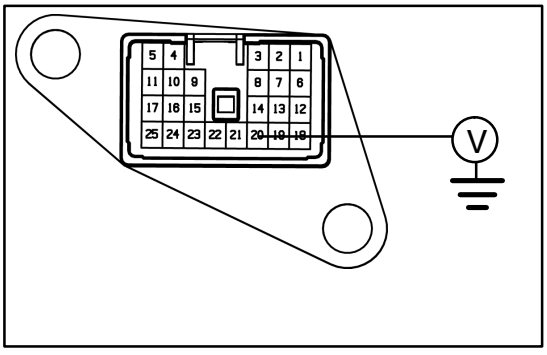
If the emergency button is pressed while a Toyota Link call is in progress then the status of the call shall be upgraded to an emergency call, and the Mayday ECU will not be permitted to terminate the call by pressing the “End Call” button.

If the emergency button is pressed while the vehicle is outside GSM network range, the Mayday ECU will enter “Emergency Call Mode” where by the emergency call request will be retained. When contact is re-established with the GSM network, the emergency call will be placed immediately.

During the Mayday ECU self test, the keypad circuit voltage is measured to detect if the circuit voltage is too high. This self-test is only performed once whenever the Mayday ECU is powered up, at this time the power to the keypad is off.

TL 29 will set if the keypad circuit voltage is high during the self-test.

1	Check Mayday ECU voltage.



(1) Turn the ignition off
(2) Disconnect the connector M3.
(3) Connect a digital Multi-meter between terminal 20 and ground.
(4) Turn the ignition switch to the on position.
(5) Measure the voltage.

Standard
0.2V
Is the voltage greater than the specified value?

YES → **Go to Step 3**

NO

2	Check Mayday ECU

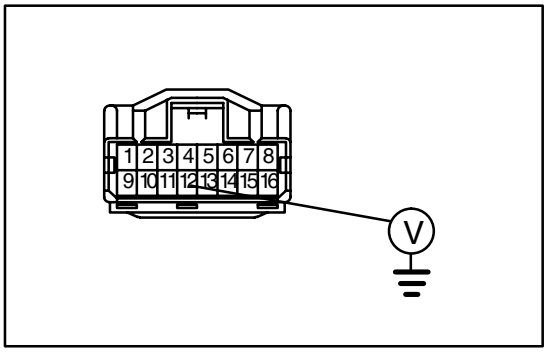
(1) Reconnect the Mayday ECU.
(2) Using the TDT, navigate to the Systems Menu.
(3) Select Diagnosis ⇒ Data List, then scroll to Keypad voltage.
(4) Connect a digital Multi-meter between connector M3, terminal 20.
(5) Monitor the Keypad voltage whilst operating the keypad.

Standard
0.2 V
In the Data List is the key pad voltage greater than the specified value?

NO → **Intermittent fault, check wire harness and connectors.**

YES → **Go to Step 4**

3	Check mirror voltage



(1) Disconnect the mirror connector.
(2) Turn the ignition switch on.
(3) Connect a digital Multi-meter between terminal 12 and ground.
(4) Measure the voltage.

Standard
0.2 V
Is the voltage greater than the specified value?

NO → **Replace the interior rear-view mirror.**

YES → **Repair short circuit to battery.**

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL34	GPS ANTENNA CIRCUIT VOLTAGE TOO LOW

CIRCUIT DESCRIPTION

The Mayday ECU controls both the GPS and GSM antennas, which are located on the rear parcel tray. The GPS antenna receives signals from satellites orbiting the earth and transmits these to the Mayday ECU to determine the vehicles position.

Signals from at least three GPS satellites must be received to accurately determine the vehicle's two-dimensional (2D) position.

Signals from at least four GPS satellites must be received to accurately determine the vehicle's three-dimensional (3D) position.

If signals from only three satellites are received, the Mayday ECU cannot determine the vehicles altitude.

The GPS antenna must not be obscured by any objects such as, underground car parks, tunnels, bridges, buildings, objects on the parcel tray or after market window tinting; any of these may affect GPS reception.

The GPS antenna is connected to the Mayday ECU by a push on type connector. To determine the vehicles position this GPS information is transmitted via SMS to the Toyota Link Call Centre whenever a call is made from the vehicle by pushing the rear-view mirror key pad. The Toyota Link Call Centre is also able to track the vehicle using this GPS information.

TL 34 is set if the Mayday ECU detects that the antenna circuit is less than 1 Volt.

1	Check DTC

(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

Is TL34 reset?

NO → **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check GPS antenna operation.

(1) Connect a known good GPS antenna to the Mayday ECU.
(2) Clear all Current DTC's, refer to page 05-243 for more information.
(3) Clear all History DTC's, refer to page 05-243 for more information.
(4) Turn the ignition off for 1 minute, then on again.
(5) Recheck the DTC's.

Is TL34 reset?

NO → **Replace the GPS antenna.**

YES

3	Check the RF harness.

(1) Disconnect the blue GPS connector from the Mayday ECU.
(2) Measure the continuity of the GPS wire.

Standard
Less than 1 Ω

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL38	TELEPHONE NUMBER MISMATCH

CIRCUIT DESCRIPTION

TL 38 will set when during the Mayday ECU self test if an incorrect phone number is detected.

1	Recheck on-board diagnosis system.

(1) Recheck the on-board diagnosis system, refer to page 05-240 for more information.

NO → **Refer to the On-board diagnostic system chart on page 05-240.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL39	VEHICLE IDENTIFICATION NUMBER MISMATCH

CIRCUIT DESCRIPTION

TL 39 will set when during the Mayday ECU self test if an incorrect vehicle identification number is detected.

1	Recheck on-board diagnosis system.

(1) Recheck the on-board diagnosis system, refer to page 05-240 for more information.

NO → **Refer to the On-board diagnostic system chart on page 05-240.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL43	GSM NOT LOGGED WITH SIGNAL STRENGTH PRESENT

CIRCUIT DESCRIPTION

The Mayday ECU contains both the GPS and GSM antennas, which are situated on the rear parcel tray. The GSM antenna is capable of transmitting and receiving both voice and data signals via the GSM network.

The GSM antenna must not be obscured by any objects such as, underground car parks, tunnels, bridges, buildings, objects on the parcel tray or after market window tinting; any of these may affect GSM signal strength.

However, in most cases, as the vehicle emerges from the obstruction or re-enters the digital phone network area the signal will be available again and any stored data will be transmitted.

The GSM antenna is connected to the Mayday ECU by a push on type connector.

TL 43 will set if the GSM has a valid GSM signal (of any signal strength), and the GSM module is active but unable to gain GSM registration for five minutes.

Possible causes are:

SIM Card not valid (not registered).
SIM Card faulty.
GSM module is faulty.

1	Request assistance

(1) Ring TSO help desk on, PH 1800 802 726
(2) Explain fault code.

Has TSO arranged for the SIM card registration?

YES ⇒ **Follow TSO directions.**

NO

Has TSO advised that the Mayday ECU be replaced.

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL44	END CALL BUTTON STUCK

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it.

The Mayday ECU uses a voltage divider circuit to determine which button has been pressed. The Mayday ECU supplies a 12 volt signal voltage to the rear-view mirror connector on circuit YMG (Red/Blue). Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor.

The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.

When the End call button is pressed, the voltage on circuit YML (White/Green) of the Mayday ECU will be approximately 0.7 Volts. The Mayday ECU determines this voltage on circuit YML (White/Green) as an End call button press. If End call button is pressed to make a call, you will be connected to the Toyota Link Call Centre.

Pressing this button while a call is connected will disconnect the call. It however will not disconnect a call while the call is ringing the Toyota Link phone number.

It is not possible for this button to disconnect an emergency call or a Toyota Link call that has been upgraded to an emergency call status.

1	Check DTC

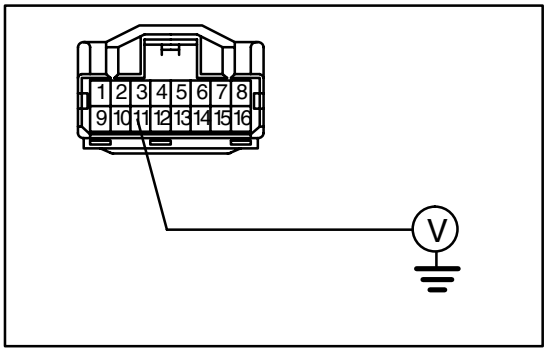
(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

Is TL44 reset?

NO ▶ **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check mirror button signal voltage.



(1) Connect a digital Multi-meter between terminal 11 and ground.
(2) Turn the ignition switch to the on position.
(3) Press the End call button.
(4) Measure the voltage.

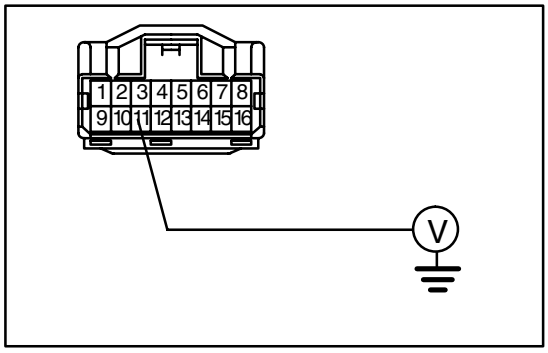
Standard
0.7 V

Does the voltage equal the specified value?

NO ▶ **Go to Step 4**

YES

3	Check button supply voltage



(1) Disconnect the rear-view mirror T8 connector.
(2) Connect a digital Multi-meter between terminal 11 and ground.
(3) Turn the ignition switch to the on position.
(4) Measure the voltage.

Standard
12 -14 V

Does the voltage equal the specified value?

NO → **Replace the Toyota Link mirror.**

YES

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL45	TOYOTA LINK BUTTON STUCK

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it.

The Mayday ECU uses a voltage divider circuit to determine which button has been pressed. The Mayday ECU supplies a 12 volt signal voltage to the rear-view mirror connector on circuit YMG (Red/Blue). Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor.

The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.

When the Toyota Link button is pressed, the voltage on circuit YML (White/Green) of the Mayday ECU will be approximately 2.3 Volts. The Mayday ECU determines this voltage on circuit YML (White/Green) as an Toyota Link button press. If Toyota Link button is pressed to make a call, you will be connected to the Toyota Link Call Centre.

1	Check DTC

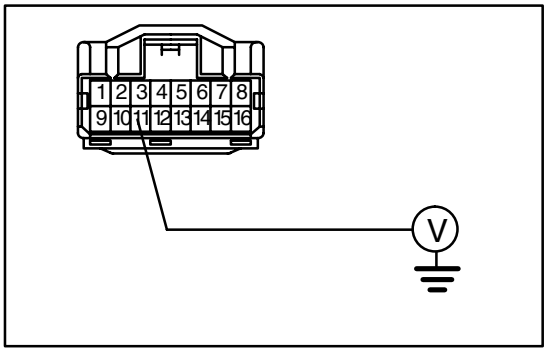
(1) Clear all Current DTC's, refer to page 05-243 for more information.
(2) Clear all History DTC's, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC's.

Is TL45 reset?

NO ▶ **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check mirror button signal voltage.



(1) Connect a digital Multi-meter between terminal 11 and ground.
(2) Turn the ignition switch to the on position.
(3) Press the Toyota Link button.
(4) Measure the voltage.

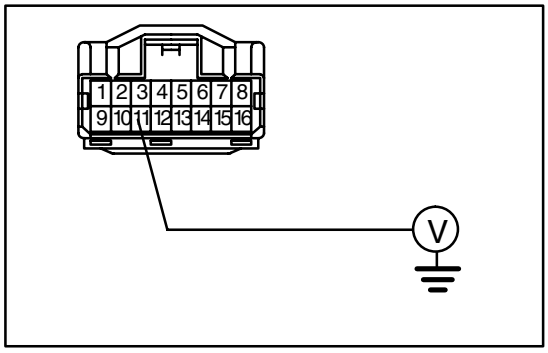
Standard
2.3 V

Does the voltage equal the specified value?

NO ▶ **Go to Step 4**

YES

3	Check button supply voltage



(1) Disconnect the rear-view mirror T8 connector.
(2) Connect a digital Multi-meter between terminal 11 and ground.
(3) Turn the ignition switch to the on position.
(4) Measure the voltage.

Standard
12 -14 V

Does the voltage equal the specified value?

NO ▶ **Replace the Toyota Link mirror.**

YES

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ▶ **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO ▶ **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DTC	TL46	EMERGENCY BUTTON STUCK

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it. The Mayday ECU uses a voltage divider circuit to determine which button has been pressed.

The Mayday ECU supplies a 12 volt signal voltage to the rear view mirror connector on circuit YMG (Red/Blue). Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor, each switch having a different value resistor.

The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.

When the Emergency button is pressed, the voltage on circuit YML (White/Green) of the Mayday ECU will be approximately 3.8 Volts.

The Mayday ECU determines this voltage on circuit YML (White/Green) as an Emergency button press.

The Mayday ECU will initiate a voice call to an operator at the Toyota Link Call Center and then send an SMS message containing status and location data. If the call cannot be connected, the Mayday ECU will immediately re-attempt to connect the call a second time. If the second attempt also fails, the unit shall wait for 60 seconds and make a third and final attempt.

If the Emergency button is pressed while a Toyota Link call is in progress then the status of the call shall be upgraded to an Emergency call, and the Mayday ECU will not be permitted to terminate the call by pressing the End call button.

If the Emergency button is pressed while the vehicle is outside GSM network range, the Mayday ECU will enter “Emergency Call Mode” where by the emergency call request will be retained. When contact is re-established with the GSM network, the Emergency call will be placed immediately.

1	Check DTC

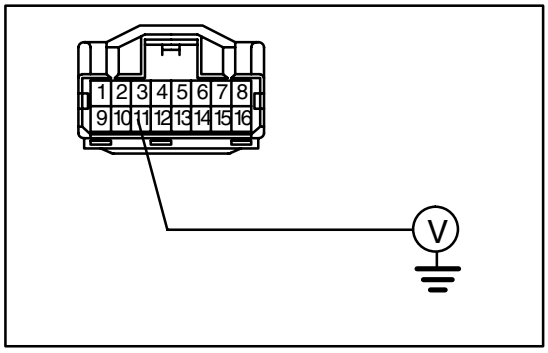
(1) Clear all Current DTC’s, refer to page 05-243 for more information.
(2) Clear all History DTC’s, refer to page 05-243 for more information.
(3) Turn the ignition off for 1 minute, then on again.
(4) Recheck the DTC’s.

Is TL46 reset?

NO → **The problem is intermittent, check items such as Mayday ECU, Wire Harness, Connectors.**

YES

2	Check mirror button signal voltage.



(1) Connect a digital Multi-meter between terminal 11 and ground.
(2) Turn the ignition switch to the on position.
(3) Press the Toyota Link button.
(4) Measure the voltage.

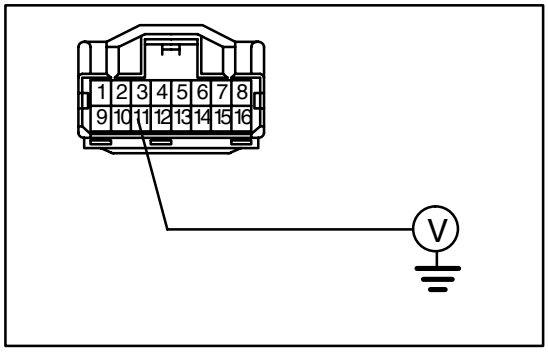
Standard
3.8 V

Does the voltage equal the specified value?

NO ▶ **Go to Step 4**

YES

3	Check button supply voltage



(1) Disconnect the rear-view mirror T8 connector.
(2) Connect a digital Multi-meter between terminal 11 and ground.
(3) Turn the ignition switch to the on position.
(4) Measure the voltage.

Standard
12 -14 V

Does the voltage equal the specified value?

NO ▶ **Replace the Toyota Link mirror.**

YES

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO > **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

STATUS INDICATOR LEDS DO NOT ILLUMINATE

CIRCUIT DESCRIPTION

The red and green status indicator LED's in the interior rear view mirror indicate the current status of the Mayday ECU system.

The Mayday ECU activates the LED's by switching a 12volt power supply to each LED on or off. The brightness of the LED's is controlled by the interior rear view mirror electronics, which will vary the brightness of the LED's depending on the ambient light and the ignition switch position. If the ambient light is low the brightness of the LED's will be decreased when the ignition is on. If the ambient light is high there will be no change to the brightness of the LED's when the ignition is turned on.

The color of the LED indicates the status of the system. If there is a system fault during a call the LED will flash red; if there are no system faults, then the LED will flash green.

1	Select Active Mode.



(1) Select systems Menu ⇒ Mode.

Does the TDT display the Operating Mode, "Active"?

NO ⇒ **Select, Select Mode ⇒ "Active".**

YES

2	Perform Active Tests



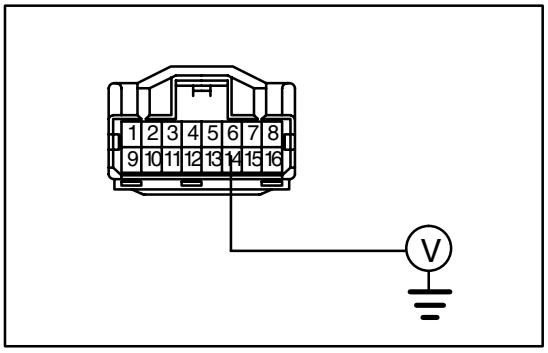
(1) Select Systems Menu ⇒ Diagnosis ⇒ Active Tests ⇒ Red LED on.
(2) Using the TDT, turn the red LED on and off.
(3) Observe the LED.

Does the red LED turn on and off?

YES ⇒ **Red LED OK, Go to Step 5**

NO

3	Check the mirror voltage.



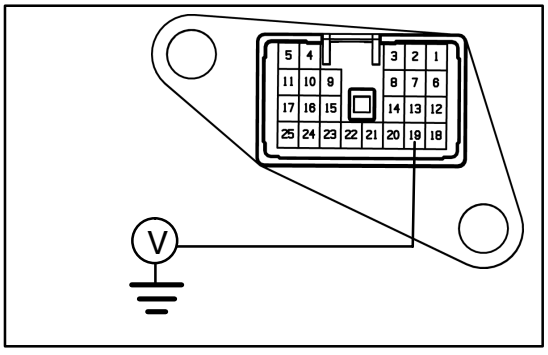
(1) Connect a digital Multi-meter between connector T8, terminal 14 and ground.
(2) Turn the red LED on and off as in the previous step.
(3) Measure the voltage.

Standard
12 - 14 V
Is the voltage as specified?

YES ⇒ **Go to Step 8**

NO

4	Check the Mayday ECU voltage.



(1) Connect a digital Multi-meter between connector M3, terminal 19 and ground.
(2) Turn the red LED on and off as in the previous step.
(3) Measure the voltage.

Standard
12 - 14 V
Is the voltage as specified?

YES ⇒ **Repair open circuit in the wire harness.**

NO ⇒ **Go to Step 9**

5	Perform Active Tests



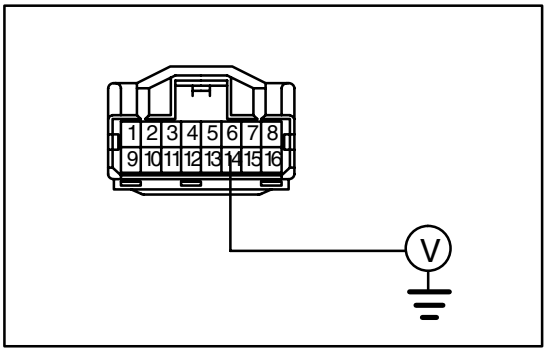
(1) Select Systems Menu ⇒ Diagnosis ⇒ Active Tests ⇒ Green LED on.
(2) Using the TDT, turn the green LED on and off.
(3) Observe the LED.

Does the green LED turn on and off?

YES ⇒ **Green LED OK, Go to Step 9**

NO

6	Check the mirror voltage.



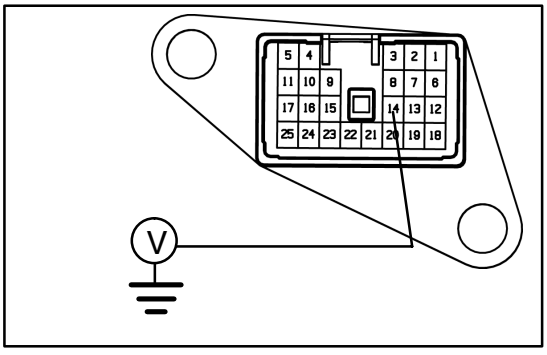
(1) Connect a digital Multi-meter between connector T8, terminal 15 and ground.
(2) Turn the red LED on and off as in the previous step.
(3) Measure the voltage.

Standard
12 - 14 V
Is the voltage as specified?

YES ⇒ **Go to Step 8**

NO

7	Check the Mayday ECU voltage.



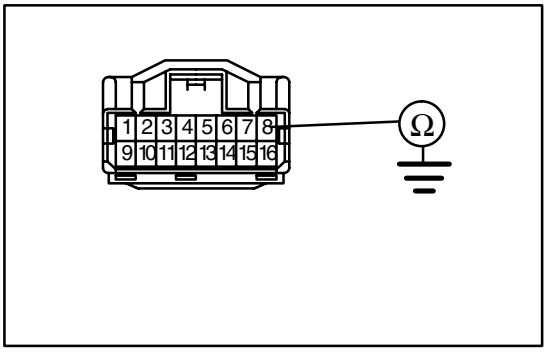
(1) Connect a digital Multi-meter between connector M3, terminal 14 and ground.
(2) Turn the red LED on and off as in the previous step.
(3) Measure the voltage.

Standard
12 - 14 V
Is the voltage as specified?

YES ⇒ **Repair open circuit in the wire harness.**

NO ⇒ **Go to Step 9**

8	Check mirror ground.



(1) Disconnect the mirror connector T8.
(2) Connect a digital Multi-meter between terminal 8 and ground
(3) Measure the continuity.

Standard
Less than 1 Ω.

Is the resistance as specified?

YES ⇒ **Replace the rear-view mirror.**

NO ⇒ **Repair ground circuit..**

9	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

10	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO > **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

VEHICLE BATTERY VOLTAGE

CIRCUIT DESCRIPTION

Battery voltage is applied to the Mayday ECU circuit YMS (Blue Wire). If the battery voltage falls below a preset voltage for longer than 30 minutes, the Mayday ECU will transmit a Low Battery Alert to the Toyota Link Call Centre, refer ALERTS, Low Battery Voltage Alert, on page 05-222 for further information.
If the battery is removed, the Mayday ECU will transmit a Battery Removal Alert to the Toyota Link Call Centre, refer ALERTS, Battery Removal Alert, on page 05-222 for further information.

1	Check battery voltage

(1) Using a digital multi-meter measure the vehicle battery voltage.

Standard
12 - 14 V
Is the vehicle battery voltage as specified?

NO ⇒ **Faulty battery or charging system, diagnosis as per AC-RM033V2, section 19.**

YES

2	Check battery voltage using the TDT.

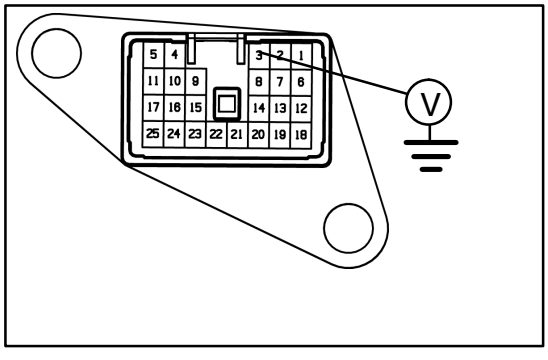
(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Vehicle battery voltage.

Standard
12 - 14 V
Is the vehicle battery voltage as specified?

YES ⇒ **Vehicle battery OK.**

NO

3	Check Battery voltage at the Mayday ECU.



(1) Connect a digital Multi-meter between connector M3, terminal 3 and ground.
(2) Measure the voltage.

Standard
12 -14 V
Is the voltage as specified?

YES ⇒ **Go to Step 5**

NO

4	Check the voltage at the Mayday Fuse.

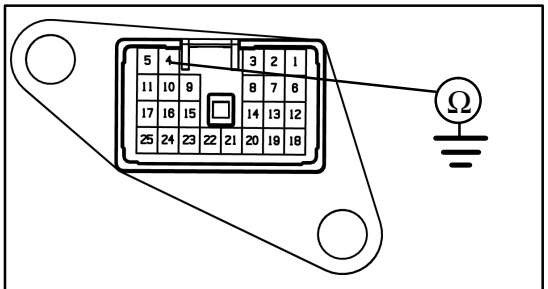
(1) Connect a digital Multi-meter between the 5A Mayday ECU fuse and ground.
(2) Measure the voltage.

Standard
12 -14 V
Is the voltage as specified?

YES ▷ **Repair open circuit in the wire harness to the Mayday ECU.**

NO ▷ **Diagnose fuse circuit.**

5	Check Mayday ECU ground.



(1) Connect a digital Multi-meter between connector M3, terminal 4 and ground.
(2) Measure the resistance.

Standard
Less than 1 Ω
Is the resistance as specified?

NO ▷ **Repair open circuit in ground circuit.**

YES

6	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ▷ **Repair or replace the Mayday ECU wire harness.**

YES

7	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO ▷ **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

BACKUP BATTERY

CIRCUIT DESCRIPTION

The backup battery is housed in the battery compartment of the Mayday ECU. The backup battery will provide power to the Mayday ECU for at least 30 minutes in the event of the vehicle battery being discharged or disconnected.
The Mayday ECU has a backup battery charging circuit that maintains the backup battery state of charge. This circuit also includes an over current protection device.

1	Check vehicle battery voltage.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Vehicle battery voltage.

Standard
12 - 14 V
Is the vehicle battery voltage as specified?

NO ⇒ **Faulty battery or charging system, diagnosis as per AC-RM033V2, section 19.**

YES

2	Check backup battery voltage.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Backup battery voltage.

Standard
Between 7.5 V and 9.8 V
Is the voltage as specified?

NO ⇒ **Go to Step 6**

YES

3	Check battery charger.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Backup battery Charger.

Standard
Is the Backup battery charger display “Active”?

YES ⇒ **Go to Step 5**

NO

4	Check battery charger, engine running.

(1) Start the engine and increase the engine speed to 2 000 rpm.
(2) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(3) Scroll to Backup battery Charger.

Standard
Does the Backup battery charger display “Active”?

NO ⇒ **Go to Step 6**

YES

5	Check battery charger, engine stationary.

(1) turn the ignition switch to the on position.
(2) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(3) Scroll to Backup battery Charger.

Standard
Between 7.5 V and 9.8 V
Is the voltage as specified?

YES ⇒ **Backup battery and charging circuit OK.**

NO

6	Check backup battery voltage.

(1) Remove the Mayday ECU.
(2) Remove the back up battery.
(3) Connect a digital Multi-meter between the terminals of the back up battery.
(4) Measure the voltage.

Standard
Between 7.5 V and 9.8 V
Is the voltage as specified?

YES ⇒ **Go to Step 8**

NO

7	Check back up battery connector.

(1) Check the back up connector retention.
Is the connector tight?

NO ⇒ **Repair or replace the connectors.**

YES

8	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

9	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

NO GPS SIGNAL

CIRCUIT DESCRIPTION

The Mayday ECU contains both the GPS and GSM antennas, and are located on the rear parcel tray. The GPS antenna receives signals from satellites orbiting the earth and transmits these to the Mayday ECU to determine the vehicles position.

Signals from at least three GPS satellites must be received to accurately determine the vehicle's two dimensional (2D) position. Signals from at least four GPS satellites must be received to accurately determine the vehicles three dimensional (3D) position.

If signals from only three satellites are received, the Mayday ECU cannot determine the vehicles altitude.

The GPS antenna must not be obscured by any objects, such as underground car parks, tunnels, bridges, buildings, object on the rear parcel tray or after market window tints, any of these may affect GPS reception.

The GPS antenna is connected to the Mayday ECU by a push on type connector. To determine the vehicles position this GPS information is transmitted via SMS to the Toyota Link Call Centre whenever a call is made via a button press on the rear view mirror.

The Toyota Link Call Centre is also able to track the vehicle using this GPS information.

1	Check GPS module.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to GPS module.

Standard

Is the GPS module display "Active"?

NO ⇒ **Go to Step 5**

YES

2	Check last known fix.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to "Time of last known fix".

Standard

Is the Time of last known fix display Incrementing?

YES ⇒ **GPS antenna OK.**

NO

3	Check GPS antenna connection.

(1) Check the connector retention of the GPS connector.

Is the connector retention OK?

NO ⇒ **Repair or replace the connectors.**

YES

4	Check GPS module.

(1) Temporarily install a known good GPS antenna.
(2) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(3) Scroll to “Time of last known fix”.

Standard
Is the Time of last known fix display Incrementing?

YES ⇒ **Replace GPS antenna.**

NO

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ⇒ **Repair or replace the Mayday ECU wire harness.**

YES

6	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO ⇒ **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC’s, refer to page 05-243 for more information, and then verify operation.

NO GSM SIGNAL

CIRCUIT DESCRIPTION

The Mayday ECU contains both the GSM and GSM antennas, which are situated on the rear parcel tray. The GSM antenna is capable of transmitting and receiving both voice and data signals via the GSM network.
The GSM antenna must not be obscured by any objects such as, underground car parks, tunnels, bridges, buildings, objects on the parcel tray or after market window tinting; any of these may affect GSM signal strength.
However, in most cases, as the vehicle emerges from the obstruction or re-enters the digital phone network area the signal will be available again and any stored data will be transmitted.
The GSM antenna is connected to the Mayday ECU by a push on type connector.

1	Check GSM module.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to GSM module.

Standard
Is the GSM module display “Active”?

NO ⇒ **Go to Step 4**

YES

2	Check GSM antenna connection.

(1) Check the connector retention of the GSM connector.

Is the connector retention OK?

NO ⇒ **Repair or replace the connectors.**

YES

3	Check GSM antenna.

(1) Temporarily install a known good GSM antenna.
(2) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(3) Scroll to “GSM signal strength”.

Standard
Is the Does the GSM show active?

YES ⇒ **Replace GSM antenna.**

NO

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

EMERGENCY BUTTON

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it. The Mayday ECU uses a voltage divider circuit to determine which button has been pressed.
The Mayday ECU supplies a 12 volt signal voltage to the rear view mirror connector on circuit YMG (Red/Blue). Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor, each switch having a different value resistor.
The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.
When the Emergency button is pressed, the voltage on circuit YML (White/Green) of the Mayday ECU will be approximately 3.8 Volts.
The Mayday ECU determines this voltage on circuit YML (White/Green) as an Emergency button press.
The Mayday ECU will initiate a voice call to an operator at the Toyota Link Call Centre and then send an SMS message containing status and location data. If the call cannot be connected, the Mayday ECU will immediately re-attempt to connect the call a second time. If the second attempt also fails, the unit shall wait for 60 seconds and make a third and final attempt.
If the Emergency button is pressed while a Toyota Link call is in progress then the status of the call shall be upgraded to an Emergency call, and the Mayday ECU will not be permitted to terminate the call by pressing the End call button.
If the Emergency button is pressed while the vehicle is outside GSM network range, the Mayday ECU will enter “Emergency Call Mode” where by the emergency call request will be retained. When contact is re-established with the GSM network, the Emergency call will be placed immediately.

1	**Check key pad illumination.**

(1) Turn the ignition on.
(2) Does the key pad back lighting illuminate?

YES > **Go to Step**

NO

2	**Check TDT connection.**

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Key pad supply voltage.

Does the TDT display “Key pad supply voltage” on?

YES > **Go to Step 12**

NO

3	Check key pad voltage.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Key pad supply voltage.

Does the TDT display “Key pad supply voltage on?

Standard
0.0 V

NO ⇒ **Go to Step 12**

YES

4	Check key pad operation.

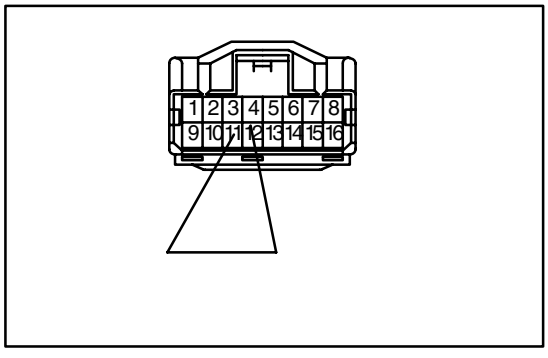
(1) Ensure the Toyota Link system is in Service Mode.
(2) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(3) Scroll to Key pad supply voltage.
(4) Press the emergency button.

Standard
3.8 V
Is the voltage as specified?

YES ⇒ **Emergency button OK. Check for intermittent fault in SIG circuit.**

NO

5	Check key pad.



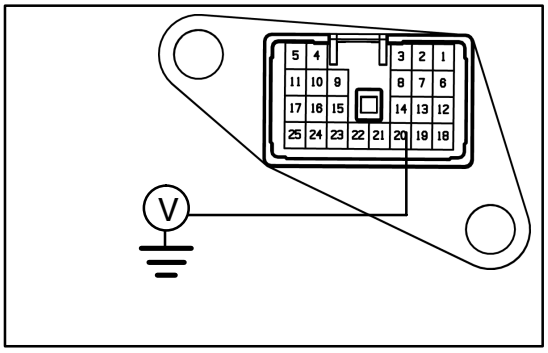
(1) Turn the ignition off.
(2) Disconnect the rear-view mirror connector T8.
(3) Bridge terminals 11 and 12 together.
(4) Turn the ignition on.
(5) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(6) Scroll to Key pad supply voltage.

Standard
12 V
Is the voltage as specified?

YES ⇒ **Go to Step 10**

NO

6 Check Mayday ECU voltage.



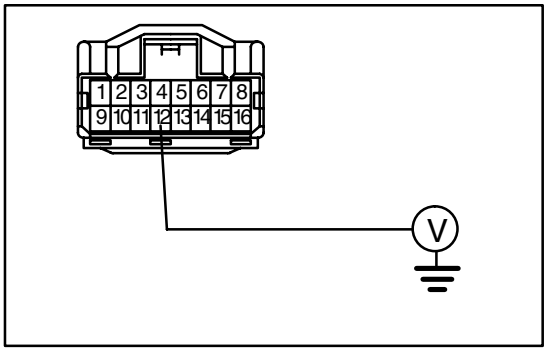
(1) Disconnect the Mayday ECU connector M3.
(2) Connect a digital Multi-meter between terminal 20 and ground.
(3) Turn the ignition switch on.
(4) Measure the voltage.

Standard
12 - 14 V
Is the voltage as specified?

NO > **Go to Step 12**

YES

7 Check button supply voltage



(1) Disconnect the rear-view mirror T8 connector.
(2) Connect a digital Multi-meter between terminal 12 and ground.
(3) Turn the ignition switch to the on position.
(4) Measure the voltage.

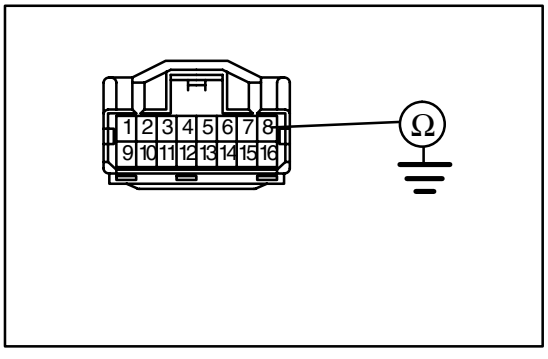
Standard
12 -14 V

Does the voltage equal the specified value?

NO > **Repair open circuit in voltage circuit.**

YES

8 Check mirror ground.



(1) Disconnect the mirror connector T8.
(2) Connect a digital Multi-meter between terminal 8 and ground
(3) Measure the continuity.

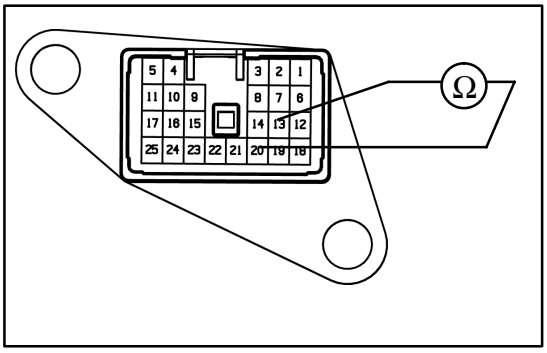
Standard
Less than 1 Ω..

Is the resistance as specified?

NO > **Repair ground circuit..**

YES

9	Check key pad resistance from Mayday ECU.



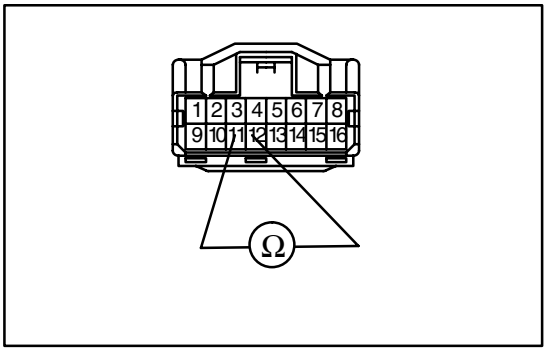
(1) Reconnect the rear-view connector T8.
(2) Disconnect the Mayday ECU connector M3.
(3) Connect a digital Multi-meter between terminals 20 and 13.
(4) Measure the resistance.

Standard
1.5 K Ω
Does the resistance meet the specification.

YES ⇒ **Go to Step 12**

NO

10	Check Key pad resistance from rear-view mirror.



(1) Disconnect the rear-view mirror connector T8.
(2) Connect a digital Multi-meter between terminals 11 and 12.
(3) Measure the resistance.

Standard
1.5 K Ω
Does the resistance meet the specification.

YES ⇒ **Repair open circuit in SIG circuit.**

NO

11	Check mirror connector.

(1) Is the mirror connector tight?

NO ⇒ **Repair connector.**

YES ⇒ **Replace the rear-view mirror.**

12	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO ⇒ **Repair or replace the Mayday ECU wire harness.**

YES

13	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

TOYOTA LINK BUTTON

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it.

The Mayday ECU uses a voltage divider circuit to determine which button has been pressed. The Mayday ECU supplies a 12 volt signal voltage to the rear-view mirror connector on circuit YMG (Red/Blue). Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor.

The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.

When the Toyota Link button is pressed, the voltage on circuit YML (White/Green) of the Mayday ECU will be approximately 2.3 Volts. The Mayday ECU determines this voltage on circuit YML (White/Green) as an Toyota Link button press. If Toyota Link button is pressed to make a call, you will be connected to the Toyota Link Call Centre.

1	**Check key pad illumination.**

(1) Turn the ignition on.
(2) Does the key pad back lighting illuminate?

YES ⇒ **Go to Step**

NO

2	**Check TDT connection.**

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Key pad supply voltage.

Does the TDT display “Key pad supply voltage on?

YES ⇒ **Go to Step 12**

NO

3	Check key pad voltage.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Key pad supply voltage.

Does the TDT display “Key pad supply voltage on?

Standard
0.0 V

NO ⇒ **Go to Step 12**

YES

4	Check key pad operation.

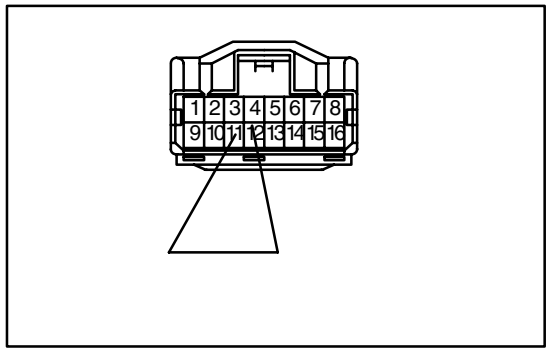
(1) Ensure the Toyota Link system is in Service Mode.
(2) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(3) Scroll to Key pad supply voltage.
(4) Press the emergency button.

Standard
2.3 V
Is the voltage as specified?

YES ⇒ **Emergency button OK. Check for intermittent fault in SIG circuit.**

NO

5	Check key pad.



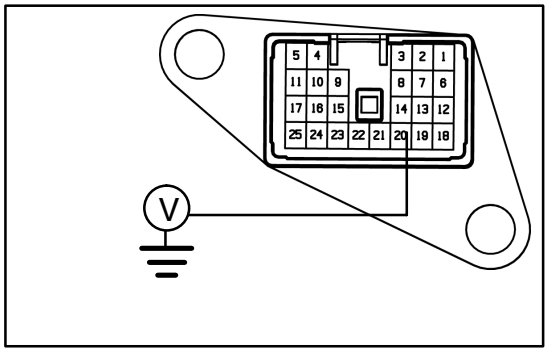
(1) Turn the ignition off.
(2) Disconnect the rear-view mirror connector T8.
(3) Bridge terminals 11 and 12 together.
(4) Turn the ignition on.
(5) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(6) Scroll to Key pad supply voltage.

Standard
12 V
Is the voltage as specified?

YES ⇒ **Go to Step 10**

NO

6 Check Mayday ECU voltage.



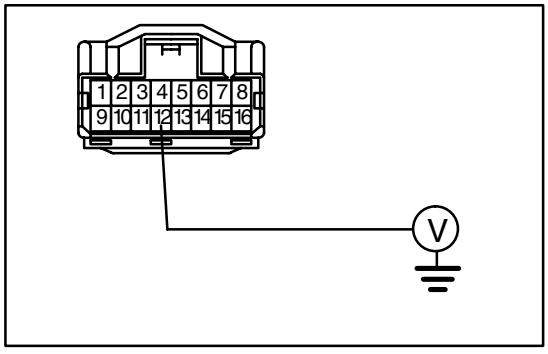
(1) Disconnect the Mayday ECU connector M3.
(2) Connect a digital Multi-meter between terminal 20 and ground.
(3) Turn the ignition switch on.
(4) Measure the voltage.

Standard
12 - 14 V
Is the voltage as specified?

NO ⇒ **Go to Step 12**

YES

7 Check button supply voltage



(1) Disconnect the rear-view mirror T8 connector.
(2) Connect a digital Multi-meter between terminal 12 and ground.
(3) Turn the ignition switch to the on position.
(4) Measure the voltage.

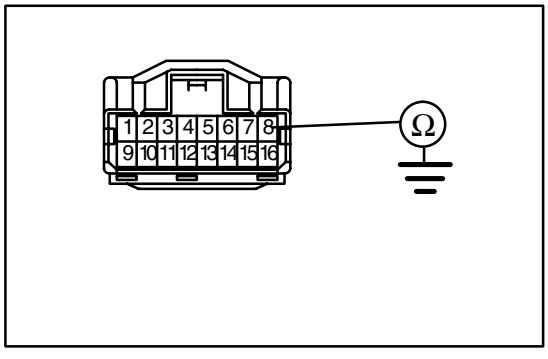
Standard
12 -14 V

Does the voltage equal the specified value?

NO ⇒ **Repair open circuit in voltage circuit.**

YES

8 Check mirror ground.



(1) Disconnect the mirror connector T8.
(2) Connect a digital Multi-meter between terminal 8 and ground
(3) Measure the continuity.

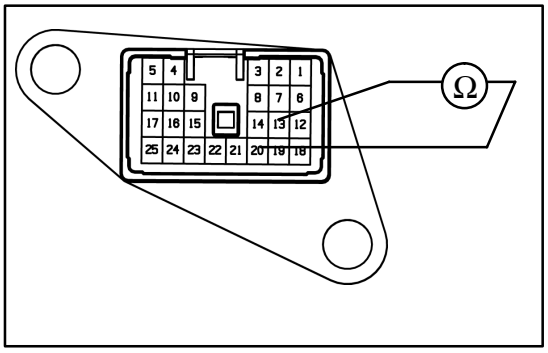
Standard
Less than 1 Ω.

Is the resistance as specified?

NO ⇒ **Repair ground circuit..**

YES

9	Check key pad resistance from Mayday ECU.



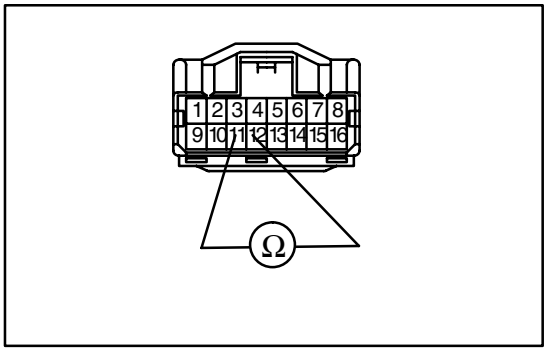
(1) Reconnect the rear-view connector T8.
(2) Disconnect the Mayday ECU connector M3.
(3) Connect a digital Multi-meter between terminals 20 and 13.
(4) Measure the resistance.

Standard
3 K Ω
Does the resistance meet the specification.

YES > **Go to Step 12**

NO

10	Check Key pad resistance from rear-view mirror.



(1) Disconnect the rear-view mirror connector T8.
(2) Connect a digital Multi-meter between terminals 11 and 12.
(3) Measure the resistance.

Standard
3 K Ω
Does the resistance meet the specification.

YES > **Repair open circuit in SIG circuit.**

NO

11	Check mirror connector.

(1) Is the mirror connector tight?

NO > **Repair connector.**

YES > **Replace the rear-view mirror.**

12	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

13	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

END BUTTON

CIRCUIT DESCRIPTION

The Mayday ECU key pad is a resistor-encoded switch, which means that each button has a separate and different value resistor connected to it.

The Mayday ECU uses a voltage divider circuit to determine which button has been pressed. The Mayday ECU supplies a 12 volt signal voltage to the rear-view mirror connector on circuit YMG (Red/Blue). Whenever a button is pressed the corresponding switch is closed and circuit YML (White/Green) is connected to ground through a resistor.

The Mayday ECU monitors the voltage on circuit YML (White/Green), this will change when any of the buttons are pressed.

When the End call button is pressed, the voltage on circuit YML (White/Green) of the Mayday ECU will be approximately 0.7 Volts. The Mayday ECU determines this voltage on circuit YML (White/Green) as an End call button press. If End call button is pressed to make a call, you will be connected to the Toyota Link Call Centre.

Pressing this button while a call is connected will disconnect the call. It however will not disconnect a call while the call is ringing the Toyota Link phone number.

It is not possible for this button to disconnect an emergency call or a Toyota Link call that has been upgraded to an emergency call status.

1	**Check key pad illumination.**

(1) Turn the ignition on.
(2) Does the key pad back lighting illuminate?

YES ⇒ **Go to Step**

NO

2	**Check TDT connection.**

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Key pad supply voltage.

Does the TDT display “Key pad supply voltage on?

YES ⇒ **Go to Step 12**

NO

3	Check key pad voltage.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Key pad supply voltage.

Does the TDT display “Key pad supply voltage on?

Standard
0.0 V

NO ⇒ **Go to Step 12**

YES

4	Check key pad operation.

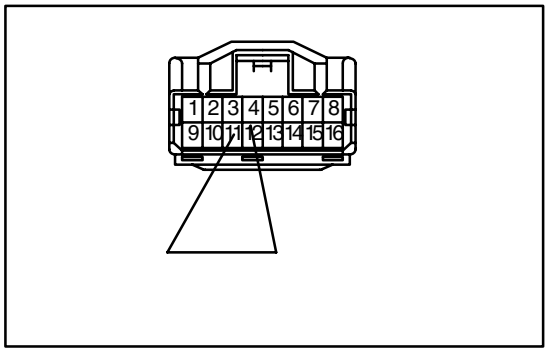
(1) Ensure the Toyota Link system is in Service Mode.
(2) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(3) Scroll to Key pad supply voltage.
(4) Press the emergency button.

Standard
0.7 V
Is the voltage as specified?

YES ⇒ **Emergency button OK. Check for intermittent fault in SIG circuit.**

NO

5	Check key pad.



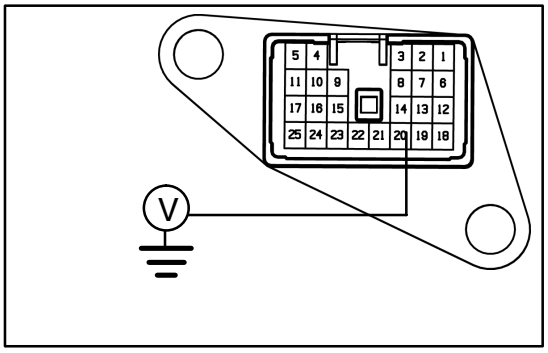
(1) Turn the ignition off.
(2) Disconnect the rear-view mirror connector T8.
(3) Bridge terminals 11 and 12 together.
(4) Turn the ignition on.
(5) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(6) Scroll to Key pad supply voltage.

Standard
12 V
Is the voltage as specified?

YES ⇒ **Go to Step 10**

NO

6 Check Mayday ECU voltage.



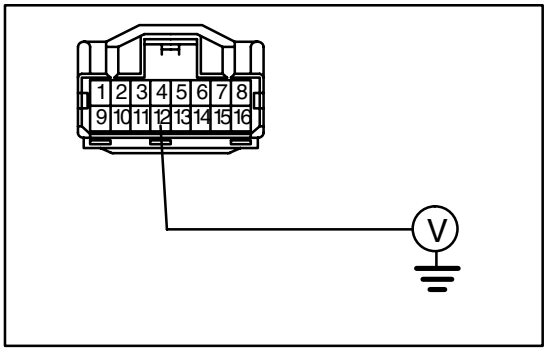
(1) Disconnect the Mayday ECU connector M3.
(2) Connect a digital Multi-meter between terminal 20 and ground.
(3) Turn the ignition switch on.
(4) Measure the voltage.

Standard
12 - 14 V
Is the voltage as specified?

NO > **Go to Step 12**

YES

7 Check button supply voltage



(1) Disconnect the rear-view mirror T8 connector.
(2) Connect a digital Multi-meter between terminal 12 and ground.
(3) Turn the ignition switch to the on position.
(4) Measure the voltage.

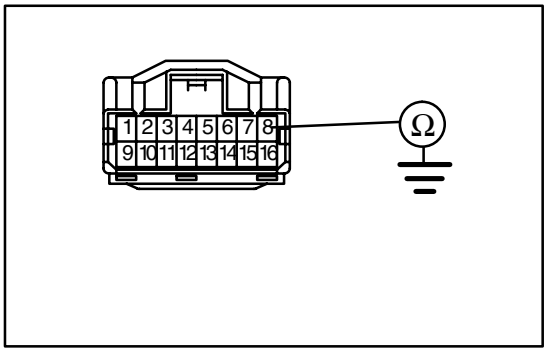
Standard
12 -14 V

Does the voltage equal the specified value?

NO > **Repair open circuit in voltage circuit.**

YES

8 Check mirror ground.



(1) Disconnect the mirror connector T8.
(2) Connect a digital Multi-meter between terminal 8 and ground
(3) Measure the continuity.

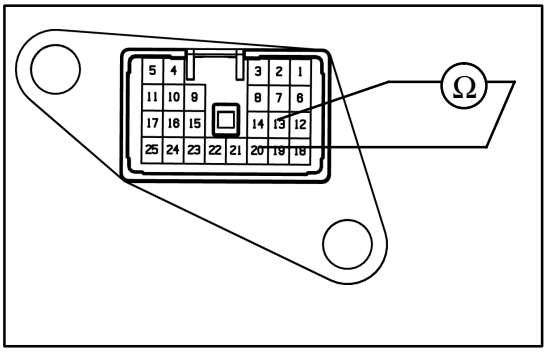
Standard
Less than 1 Ω..

Is the resistance as specified?

NO > **Repair ground circuit..**

YES

9	Check key pad resistance from Mayday ECU.



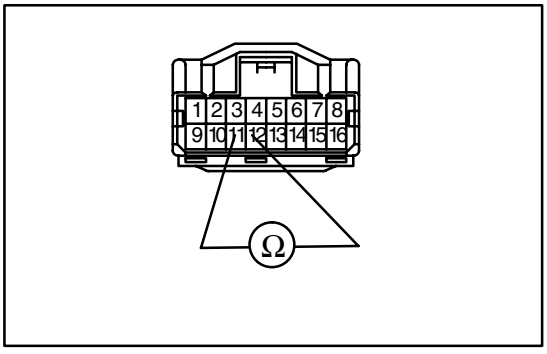
(1) Reconnect the rear-view connector T8.
(2) Disconnect the Mayday ECU connector M3.
(3) Connect a digital Multi-meter between terminals 20 and 13.
(4) Measure the resistance.

Standard
13 K Ω
Does the resistance meet the specification.

YES > **Go to Step 12**

NO

10	Check Key pad resistance from rear-view mirror.



(1) Disconnect the rear-view mirror connector T8.
(2) Connect a digital Multi-meter between terminals 11 and 12.
(3) Measure the resistance.

Standard
13 K Ω
Does the resistance meet the specification.

YES > **Repair open circuit in SIG circuit.**

NO

11	Check mirror connector.

(1) Is the mirror connector tight?

NO > **Repair connector.**

YES > **Replace the rear-view mirror.**

12	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

13	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

SECURITY HORN CIRCUIT

CIRCUIT DESCRIPTION

The Mayday ECU monitors the security horn circuit to determine if the alarm has been triggered.
If the alarm has been triggered, the CIR pulses the vehicles horns at a rate of once per second.
To pulse the security horn the CIR supplies 12 Volts to the security horn circuit. When the security horn circuit is activated, the voltage at terminal 10 of the Mayday ECU is pulled high.
The Mayday ECU determines this high voltage at terminal 10 as the security system having been triggered. If the vehicle security system is triggered for longer than 20 seconds, the Mayday ECU will transmit an “Unauthorised Entry Alert” message to the Toyota Link Center. For further information regarding the unauthorised entry alert, refer to Alerts on page 05-222.

1	Check the security horn system.

(1) Ensure that the Toyota Link system is in Service Mode.
(2) Open the driver’s window.
(3) Close all the doors.
(4) Using the remote control, lock the vehicle.
(5) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(6) Select Horn.
(7) Trigger the alarm ssytem by opening the driver’s door.

Does the TDT display the Horn on and off in time with the audible horn?

YES ⇒ **Disarm the alarm system and diagnose for an intermittent fault in the alarm circuit.**

NO

Disarm the alarm system.

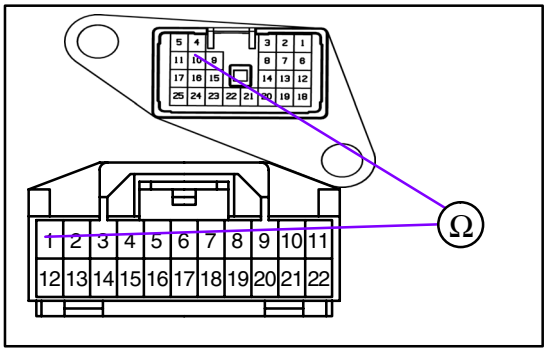
2	Check audible horn.

(1) In test 1 did the horn sound when the alarm was triggered?

NO ⇒ **Diagnose the Body ECU, refer to AC-RM033V1.**

YES

3	Check wire harness to Body ECU.



(1) Connect a digital Multi-meter between connector M3, terminal 10 and connector B7 of the Body ECU, terminal 1.
(2) Measure the resistance.

Standard
Less than 1 Ω
Is there continuity?

NO > **Repair open circuit in the wire harness.**

YES

4	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

5	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO > **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

DRIVER'S DOOR COURTESY SWITCH

CIRCUIT DESCRIPTION

The Mayday ECU uses this input signal to determine if the driver's front door is opened or closed. When the door is opened, the door courtesy switch grounds the circuit YB9 (Red / Yellow).
This causes the voltage at YB9 (Red / Yellow) to be pulled low, less than 0.2 Volts (driver's door open). The Mayday ECU determines this low voltage at YB9 (Red / Yellow) as the driver's door open input signal.
When a driver's door open input signal is received, the Mayday ECU will switch from its current operating mode to active mode.

1	Check driver's door circuit using the TDT.

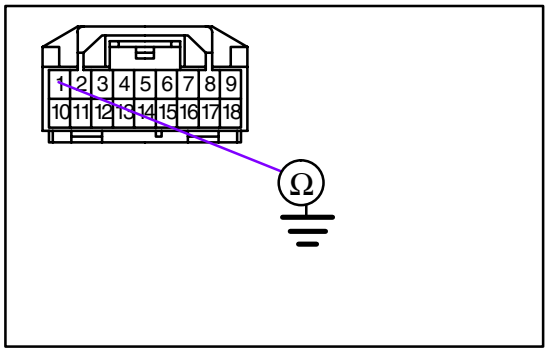
(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Driver Door.

Does the TDT display "Driver Door" open, when the driver's door is open, and closed when the driver's door is closed?

YES ⇒ **Door courtesy switch is operating correctly.**

NO

2	Check door courtesy switch.



(1) Disconnect the connector B9 of the Body ECU.
(2) Connect a digital Multi-meter between terminal 1 and ground.
(3) Measure the resistance.
(4) Open and closed the driver's door.

Standard
Greater than 1 M Ω when driver's door closed.
Less than 1 Ω when driver's door open.
Does the continuity change when the driver's door is opened and closed?

NO ⇒ **Diagnose the Body ECU system.**

YES

3	Check driver's door with TDT

(1) Did the TDT display driver's door open, when the driver's door is closed.

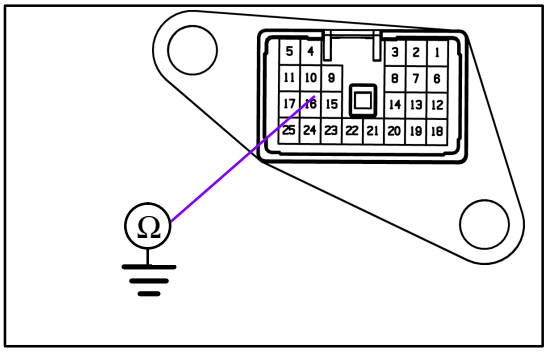
YES ⇒ **Go to Step 4**

(2) Did the TDT display driver's door closed, when the driver's door is open.

YES ⇒ **Go to Step 5**

NO

4	Check for short to ground.



(1) Disconnect the Mayday ECU connector M3, driver's door closed.
(2) Connect a digital Multi-meter between terminal 16 and ground.
(3) Measure the resistance.

Standard
Greater than 1 M Ω.
Is the resistance as specified?

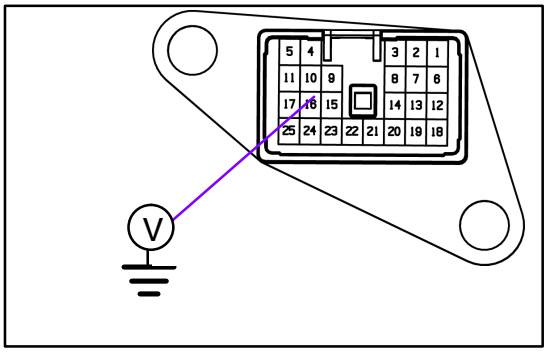
NO → **Go to Step 6**

YES

Repair the short to ground

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

5	Check for open circuit.



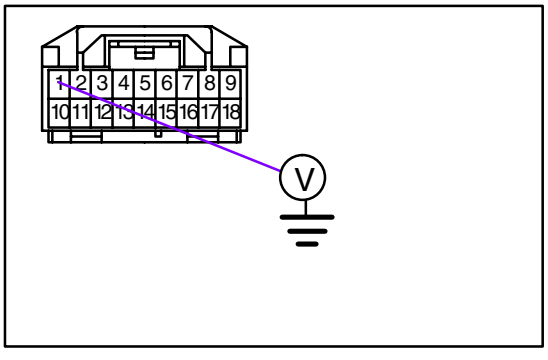
(1) Disconnect the Mayday ECU connector M3, driver's door open.
(2) Connect a digital Multi-meter between terminal 16 and ground.
(3) Turn the ignition switch on.
(4) Measure the voltage.

Standard
Less than 1 V
Is the voltage as specified?

NO → **Repair open circuit or short to battery voltage in door courtesy switch.**

YES

6	Check driver's door courtesy switch voltage.



(1) Disconnect the connector B9 of the Body ECU.
(2) Connect a digital Multi-meter between terminal 1 and ground.
(3) close the driver's door.
(4) turn the ignition on.
(5) Measure the voltage.

Standard
Greater than 5.0 V
Is the voltage as specified?

YES → **Check for intermittent fault in door courtesy switch circuit.**

NO

7	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

8	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

PASSENGER'S DOOR COURTESY SWITCH

CIRCUIT DESCRIPTION

The Mayday ECU uses this input signal to determine if the Passenger's front door is opened or closed. When the door is opened, the door courtesy switch grounds the circuit YB9 (Red / Green).
This causes the voltage at YB9 (Red / Green) to be pulled low, less than 0.2 Volts (Passenger's door open). The Mayday ECU determines this low voltage at YB9 (Red / Green) as the Passenger's door open input signal.
When a Passenger's door open input signal is received, the Mayday ECU will switch from its current operating mode to active mode.

1	Check Passenger's door circuit using the TDT.

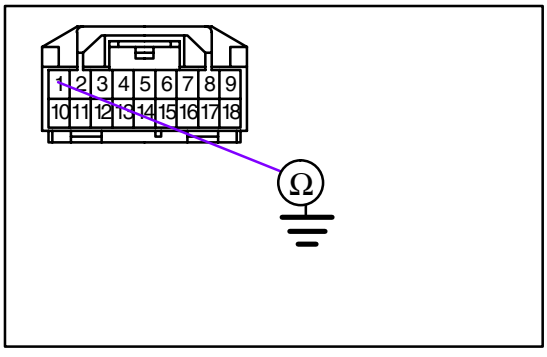
(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to Passenger Door.

Does the TDT display "Passenger Door" open, when the Passenger's door is open, and closed when the Passenger's door is closed?

YES ⇒ **Door courtesy switch is operating correctly.**

NO

2	Check door courtesy switch.



(1) Disconnect the connector B9 of the Body ECU.
(2) Connect a digital Multi-meter between terminal 1 and ground.
(3) Measure the resistance.
(4) Open and closed the Passenger's door.

Standard
Greater than 1 M Ω when Passenger's door closed.
Less than 1 Ω when Passenger's door open.
Does the continuity change when the Passenger's door is opened and closed?

NO ⇒ **Diagnose the Body ECU system.**

YES

3	Check Passenger's door with TDT

(1) Did the TDT display Passenger's door open, when the Passenger's door is closed.

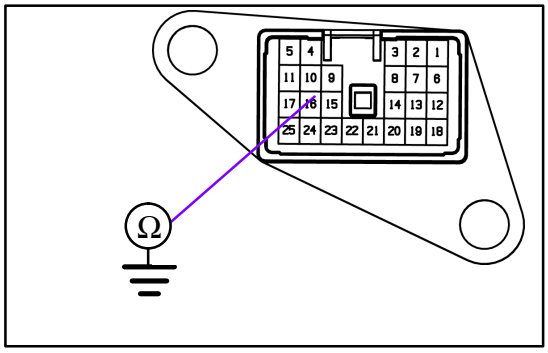
YES ⇒ **Go to Step 4**

(2) Did the TDT display Passenger's door closed, when the Passenger's door is open.

YES ⇒ **Go to Step 5**

NO

4	Check for short to ground.



(1) Disconnect the Mayday ECU connector M3, Passenger's door closed.
(2) Connect a digital Multi-meter between terminal 16 and ground.
(3) Measure the resistance.

Standard
Greater than 1 M Ω.
Is the resistance as specified?

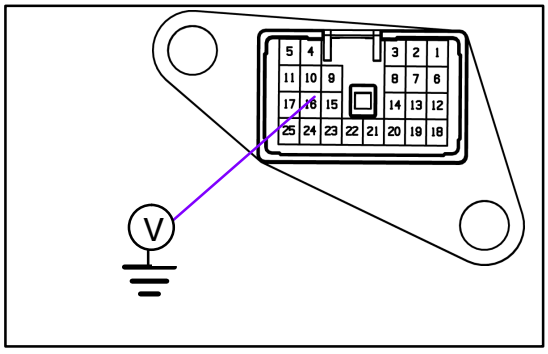
NO → **Go to Step 6**

YES

Repair the short to ground

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

5	Check for open circuit.



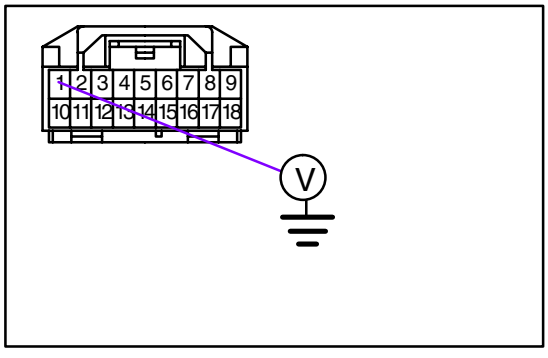
(1) Disconnect the Mayday ECU connector M3, Passenger's door open.
(2) Connect a digital Multi-meter between terminal 16 and ground.
(3) Turn the ignition switch on.
(4) Measure the voltage.

Standard
Less than 1 V
Is the voltage as specified?

NO → **Repair open circuit or short to battery voltage in door courtesy switch.**

YES

6	Check Passenger's door courtesy switch voltage.



(1) Disconnect the connector B9 of the Body ECU.
(2) Connect a digital Multi-meter between terminal 1 and ground.
(3) close the Passenger's door.
(4) turn the ignition on.
(5) Measure the voltage.

Standard
Greater than 5.0 V
Is the voltage as specified?

YES → **Check for intermittent fault in door courtesy switch circuit.**

NO

7	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → **Repair or replace the Mayday ECU wire harness.**

YES

8	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → **Repair or replace the connectors.**

YES

Replace the Mayday ECU

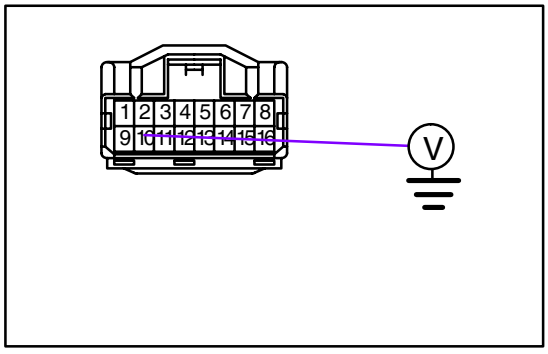
Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

MICROPHONE

CIRCUIT DESCRIPTION

The active microphone in the interior rear-view mirror provides a means for two way voice communication between the vehicle occupants and Toyota Link Call Centre.

1	Check microphone voltage.



(1) Disconnect the rear-view connector T8.
(2) Connect a digital Multi-meter between terminal 10 and ground.
(3) Turn the ignition switch on.
(4) Measure the voltage.

Standard
5.0 V
Is the voltage as specified?

YES ▷ **Go to Step 5**

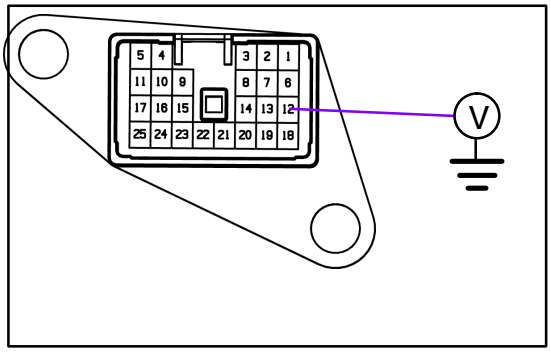
NO

(5) Is the voltage greater than specified?

YES ▷ **Repair short voltage in the microphone circuit.**

NO

2	Check microphone voltage at the Mayday ECU.



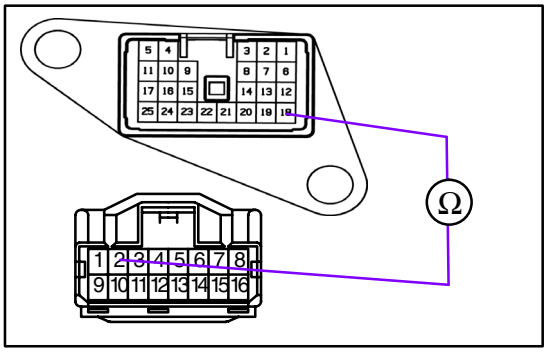
(1) Disconnect the Mayday ECU connector M3.
(2) Connect a digital Multi-meter between terminal 12 and ground.
(3) Turn the ignition on.
(4) Measure the voltage.

Standard
5.0 V
Is the voltage as specified?

NO ▷ **Go to Step**

YES ▷ **Repair the open circuit or short to ground in the microphone circuit.**

3	Check the continuity of the wire harness.



(1) Disconnect the rear-view mirror connector T8 and the Mayday ECU connector M3.
(2) Connect a digital Multi-meter between connector T8, terminal 2 and connector M3, terminal 18.
(3) Measure the resistance.

Standard
Less than 1 Ω
Is the resistance as specified?

NO > **Repair open circuit in the wire harness.**

YES

4	Check mirror connector.

(1) Is the mirror connector tight?

NO > **Repair connector.**

YES > **Replace the rear-view mirror.**

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

6	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO > **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

AUDIO MUTE CIRCUIT

CIRCUIT DESCRIPTION

Whenever the Mayday ECU speaker is activated the audio system (radio) mute signal is also activated and the Mayday ECU grounds the audio system mute circuit YLS (Red / White) causing the circuit voltage to be pulled low, less than 0.2 Volts.
This low voltage is detected by the audio system as a radio mute request. When received, the radio will mute.

1	Perform Active Tests



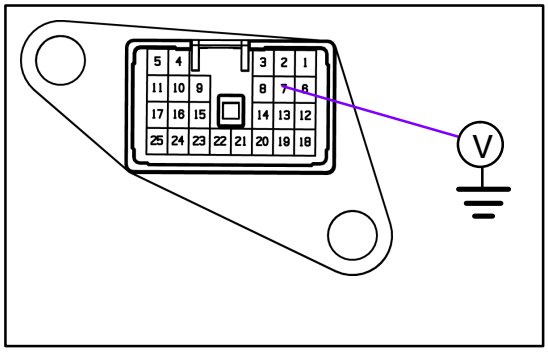
(1) Select Systems Menu ⇒ Diagnosis ⇒ Active Tests.
(2) Turn the audio on.
(3) Using the TDT, turn the audio mute on.

Does the audio mute when the mute function is activated?

YES ▷ **Audio system OK, check for intermittent fault.**

NO

2	Check the mute signal voltage.



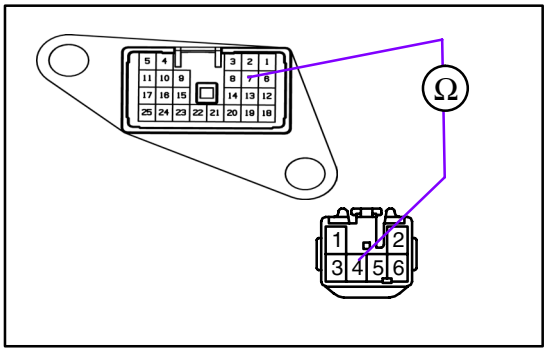
(1) Disconnect the Mayday ECU connector, M3.
(2) Turn the audio on.
(3) Connect a digital Multi-meter between terminal 7 and ground.
(4) Measure the voltage.

Standard
5 V
Is the voltage as specified?

YES ▷ **Go to Step 4**

NO

3	Check wire harness.



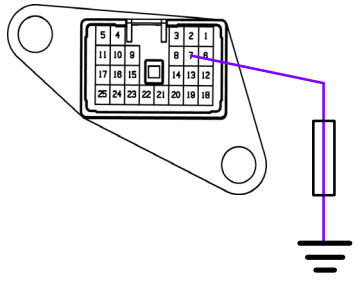
(1) Disconnect the Mayday ECU connector M3 and the audio connector R7.
(2) Connect a digital Multi-meter between M3 terminal 7 and R7 termianl 4.
(3) Measure the resistance.

Standard
Less than 1 Ω
Is the resistance as specified?

NO > **Repair open circuit.**

YES > **Replace audio unit.**

4	Check Mayday ECU.



(1) Disconnect the Mayday ECU connector M3.
(2) Turn the audio on.
(3) Using a fused jumper wire, connect terminal 7 to ground.

Does the audio mute operate when the jumper wire is connected to ground?

NO > **Replace audio unit.**

YES

5	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO > **Repair or replace the Mayday ECU wire harness.**

YES

6	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO > **Repair or replace the connectors.**

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

UNABLE TO MAKE OR RECEIVE A CALL

CIRCUIT DESCRIPTION

The link between the vehicle and the Toyota Link Call Center uses GPS for vehicle location and tracking and the Australian digital mobile phone network to transmit and receive voice and SMS (Short Message Service) data.

If the vehicle is outside network coverage, the link to and from the vehicle will not be available and no services can be provided.

The GSM antenna must not be obscured by any objects such as, underground car parks, tunnels, bridges, buildings, objects on the parcel tray or after market window tinting; any of these may affect GSM signal strength.

However, in most cases, as the vehicle emerges from the obstruction or re-enters the digital phone network area the signal will be available again and any stored data will be transmitted.

1	Check VIN



(2) Select Continue.
(3) Select either “New Vehicle” or “Last Vehicle”.
(4) If “New Vehicle” selected, select either Azura or Grande.
(5) Confirm selection.
(6) Confirm VIN.

NO ⇒ **Go to Step 5**

YES

2	Check GSM module.

(1) Using the TDT, select System Menu ⇒ Diagnosis ⇒ Data List.
(2) Scroll to GSM module.

Standard

Is the GSM module display “Active”?

NO ⇒ **Go to Step 6**

YES

3	Audible signal.

(1) Did you hear 2 beeps when a key pad button is pressed?
(2) Is the red LED on all the time when the ignition switch is in the on position?

YES ⇒ **Refer to the “No GSM signal” chart, on page 05-311.**

NO

4	Connecting to the Network.

(1) When making a call, does the Mayday ECU connect to the network, but only a recorded message saying that the number is not available from this service?

NO → Go to Step 6

YES

5	Call Help Desk

(1) Ring TSO help desk on, PH 1800 802 726.
(2) TSO will confirm VIN

6	Check Mayday ECU harness.

(1) Disconnect the Mayday ECU connectors A, B and C.
(2) Check the continuity between the M3 - 25 pin connector and the Mayday ECU connectors A, B and C.

Is there continuity?

NO → Repair or replace the Mayday ECU wire harness.

YES

7	Check Mayday ECU.

(1) Are the Mayday ECU connectors tight.

NO → Repair or replace the connectors.

YES

Replace the Mayday ECU

Clear all DTC's, refer to page 05-243 for more information, and then verify operation.

TOYOTA LINK SYSTEM TEST

This Toyota Link Mayday ECU System Test should only be carried out as the final steps in the Mayday ECU On-Board Diagnostic System Check. All other steps in the On-Board Diagnostic System Check must be completed and have been successful before performing this Toyota Link Mayday ECU System Test.

(1) Ignition on.

(2) Using the Mayday ECU TDT System Menu/Diagnosis/Data List, Scroll to Time of Last Known GPS Fix. Check that the Time of Last Known GPS Fix is current.

(3) Scroll to GSM Signal Strength, note the current GSM signal strength.

(4) Position the vehicle where the Time of Last Known GPS Fix display is updating and the GSM Signal Strength is greater than -90 dbm.

(5) Select the System Menu/Mode/Select Mode. Program the Mayday ECU into Active Mode. Disconnect the TDT from the vehicle.

(6) Press the Toyota Link Button.

(7) When the call is answered, identify yourself and your retail outlet and request a Toyota Link Mayday ECU System Test. (ie “Hello, this is Robert Smith from Jonestown Toyota, could you please carry out a Toyota Mayday ECU System Test“).

(8) The Toyota Link operator will then carry out a Toyota Mayday ECU System Test. During the test the operator will inform you that you pressed the Toyota Link button and they have received a vehicle location.

(9) Depending on the current Toyota Link Mayday ECU system status the operator will be able to either remotely unlock the doors or enable the Mayday ECU service mode. The operator will inform you which functions they are going to perform.
If they are going to perform a Remote unlock go to step (10), if the are going to enable service mode go to step (11).

(10) Lower the driver’s window. Close and lock all doors. The operator will then send a remote unlock request, the doors should then unlock within 30 seconds (this time to unlock will vary depending on SMS traffic). On receiving a verification message that the doors have unlocked, the operator will inform you that the system has passed the Toyota Link Mayday ECU Test. Thank the Toyota Link operator.
Press the End call button to end the call.

(11) The operator will send a remote request to enable service mode. On receiving a verification message that the service mode has been enabled, the operator will inform you that that the system has passed the Toyota Link Mayday ECU Test. Thank the Holden Assist operator. Press the End call button to end the call.
From the Mayday ECU TDT System Menu, Select Mode/Select Mode. The operating mode should display Service.
Program the Mayday ECU into the Active Mode.

(12) Press the Emergency Button.

(13) When the call is answered, identify yourself and your retail outlet and request a Toyota Link Mayday ECU System Test. (ie “Hello, this is Robert Smith from Jonestown Toyota, could you please carry out a Toyota Link Mayday ECU System Test“).

(14) The Toyota Link operator will then carry out a Toyota Link Mayday ECU System Test. During the test the operator will inform you that you pressed the emergency button and they have received a vehicle location. The operator will then end the call.

(15) If all the above steps have been completed successfully the system has passed the Toyota Link Mayday ECU System Test.

TOYOTA LINK DIAGNOSTIC TOOL (TDT) DIAGNOSIS FOR THE MAYDAY ECU

CONNECTING THE TOYOTA LINK DIAGNOSTIC TOOL (TDT)

The TDT, with the appropriate software, cables and adaptors, when connected to the Mayday ECU Diagnostic Connector is capable of reading the Mayday ECU parameters. The Diagnostic Connector is connected to the Mayday ECU bracket, under the parcel tray in the rear compartment, see “Parts Location”, on page 05-216 for more information.

Introduction

PC REQUIREMENTS

The following PC requirements are recommended for the operation of the Toyota Link Diagnostic Tool.

Computer: . . . . . Pentium 4, 2.8 GHz
RAM . . . . . 256 Mb.
Operating System . . . . . Windows XP
CD ROM . . . . . CD Reader
Serial Port . . . . . 9 Pin RS-232 Serial Port

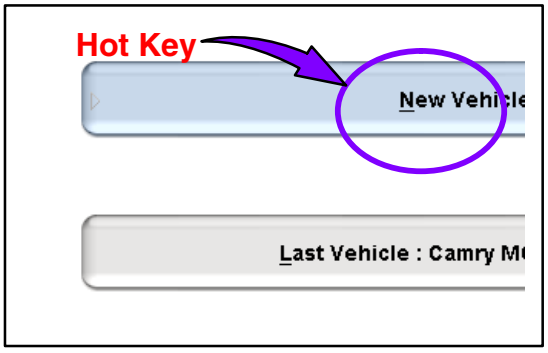
PC NAVIGATION

The following methods maybe used to navigate through the TDT.

Mouse

Use the mouse to point and click on the required buttons.

Keyboard Hot Key Navigation



(a) You can navigate using the hot keys, to use these keys press the ALT key plus the letter that is underlined. In the illustration opposite to use the hot key, you would press ALT + N.

(b) Use the TAB and ARROW keys to scroll through the information lists.

(c) The TAB and ENTER keys may also be used to highlight and select the required buttons.

Note:

For Audio volume adjust, Snapshot trigger set up and com port set up when the TAB key is used to navigate from button to button, the colour of the drop down button does not change. Ensure that the number of times the TAB button is pressed is countered; then use the ENTER key to open the required dropdown menu.

STAND-BY MODE

The Mayday ECU will adopt the stand-by mode, 2 minutes after the ignition switch is turned to the off position and a door is opened and closed or 30 minutes after the ignition switch is turned to the off position. Once the stand-by mode is adopted, the TDT will not be able to communicate with the Mayday ECU.

If communication is with the Mayday ECU is lost whilst the TDT is being used, open a door and cycle the ignition switch to the on position to force the Mayday ECU to exit from the stand-by mode.

EXPORT TO CSV

For the “Data List” and “Snapshot” items, an “Export to CSV” button is provided at the bottom of the screen; this allows the data to be exported to c:\TDT Exports as a comma separated values (CSV) file. This file maybe emailed as a CSV file or imported into Microsoft Excel for analysis.

TDT System Functions

As a prerequisite to this diagnostic section the user must be familiar with the proper use of the TDT. The following information illustrates only the Mayday ECU TDT screen displays and provides an explanation of their function for diagnosing the Mayday ECU.

TDT UNLOCKING KEY

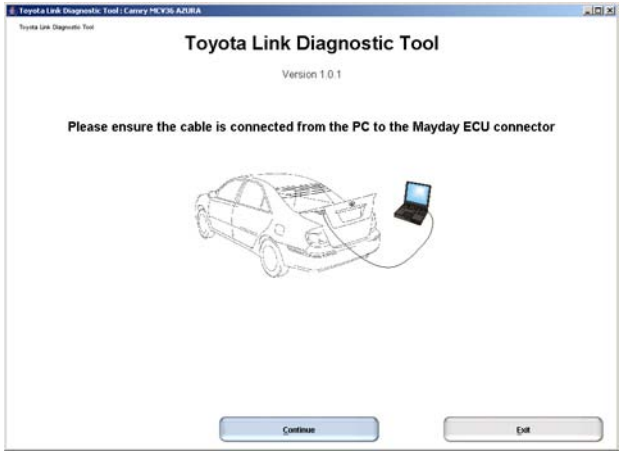
With the TDT loaded onto your PC / Laptop, Start the program by double clicking on the icon on your Desktop.

Phone Toyota Services on the 1800 number provided on the TDT Screen to generate the Unlocking Code for your TDT.

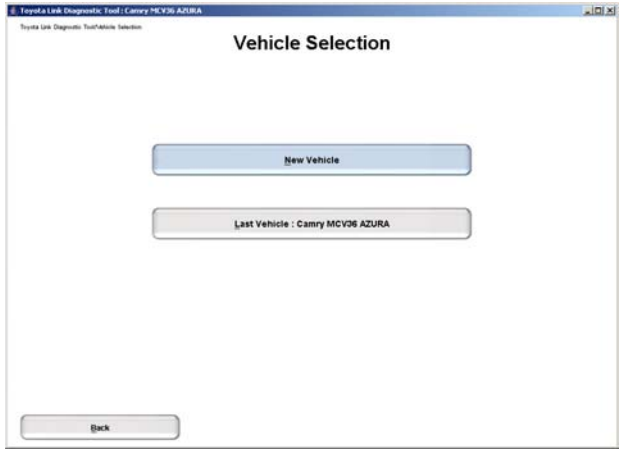
Once you have your Unlocking Code, you now have access to the Toyota Link Diagnostic Tool.

TOYOTA LINK DIAGNOSTIC TOOL

Ensure the Diagnostic Cable is connected correctly from your PC to the Mayday ECU Diagnostic Connector located in the vehicle trunk.



While in the opening screen, Select, **Continue**.



VEHICLE SELECTION

Select the Vehicle required

(a) New Vehicle or

(b) Continue with the last Vehicle diagnosed with the TDT.



CONFIRM VIN

The TDT will confirm the VIN read directly from the Mayday ECU.

Select:

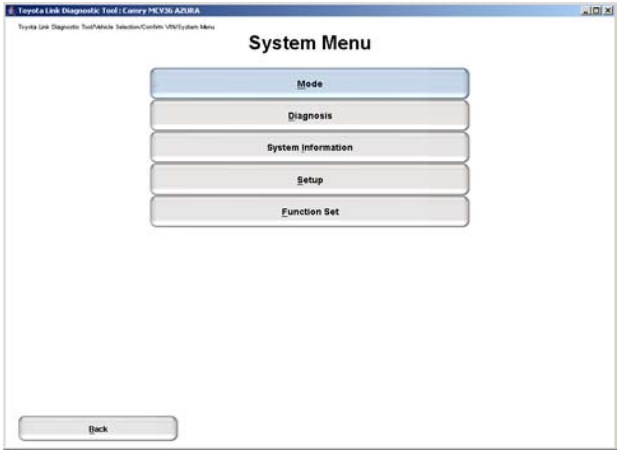
(a) Back to return to the Vehicle Selection menu, or

(b) Continue

Note:

If the VIN read is not the same as the actual vehicle VIN, the VIN maybe updated for the TDT records.

Updating the records here only changes the VIN registered for saved snapshots, it does not update the VIN stored in the Mayday ECU. If the incorrect VIN is store, the Mayday ECU will need to be replaced, refer to page 05-230 for more information.



SYSTEM MENU

The TDT has five system functions for diagnosing the Mayday ECU. The five systems functions are:

Mode:

Display's the vehicles current operating mode, and can re-program the Mayday ECU operating mode.

Diagnosis:

Display's the status of inputs and outputs of the Mayday ECU. including DTC's, Data List, Snapshot, Active Tests and Telephone Activity Log.

System Information:

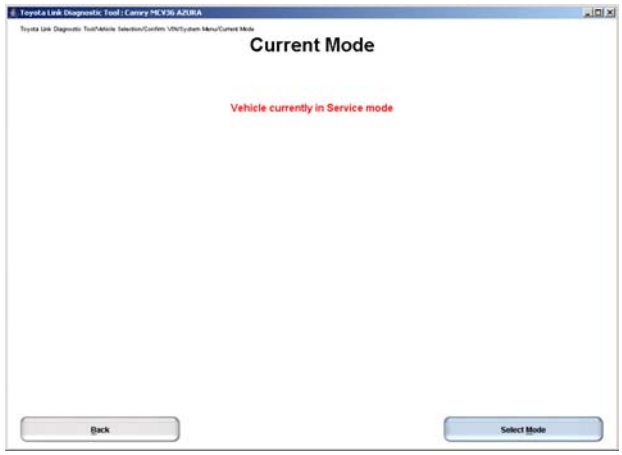
Display's the Mayday ECU System Information.

Setup:

Display's the Serial Com. Port in use.

Function Set:

Performs system functions, such as Module Reset, Back-up Battery Timer Reset, Enable SRS Monitoring, Backup Battery Low Monitoring and Audio Volume Setting.

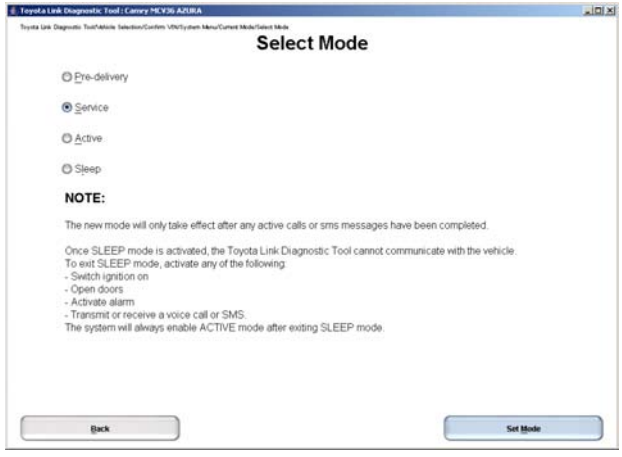


MODE

The operating mode can be re-programmed in this screen.

(a) Select Mode

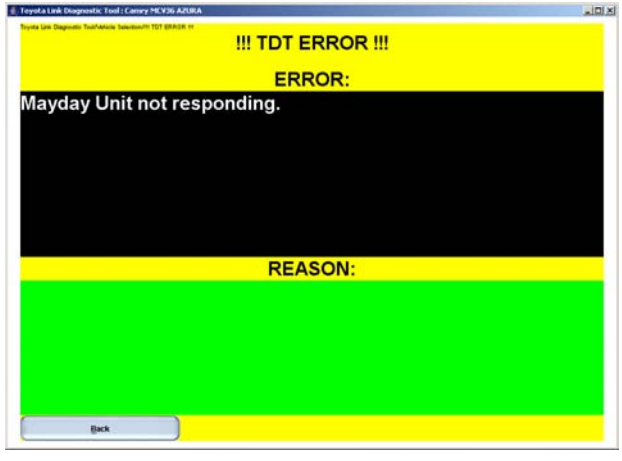
(b) Press Select Mode to re-program the operating mode.



(c) Click on the desired operating mode; the click Set Mode. This will re-program the operating mode.

The TDT will then return to the Current Mode screen and verify that the operating mode has been changed.

(d) Select Back to return to the Systems Menu.



TDT ERROR

The TDT has the ability to recognise an anomaly in the system when attempting to diagnose the Mayday ECU.

When this occurs the TDT will highlight the TDT ERROR screen with the description for the current error.

To return to the System Menu, select **Back.**

DIAGNOSIS

The TDT Diagnosis Menu has five diagnostic functions for diagnosing the Toyota Link system. The five diagnosis functions are:

DTC List:
The TDT displays and clears current and history DTC's.

Data List:
The TDT displays the status of inputs and outputs of the Mayday ECU.

Snapshot:
The TDT captures Mayday ECU data before and after a forced manual trigger.

Active Test:
The TDT performs system function tests to assist in problem isolation during troubleshooting.

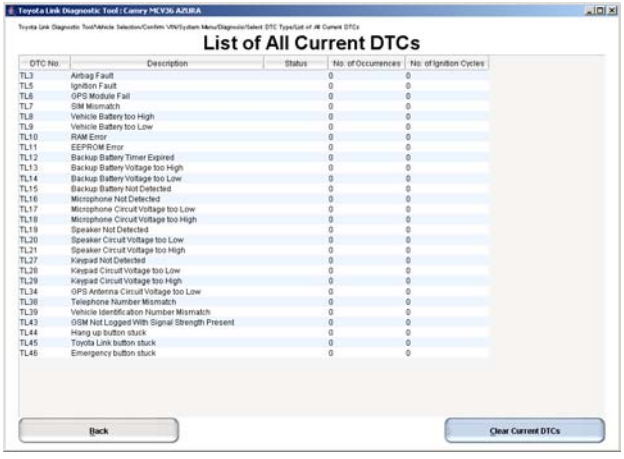
Activity Log:
The TDT records all incoming and outgoing message activity, including phone calls and SMS messages.



DTC LIST

In this Diagnosis Function, DTC's stored by the Mayday ECU can be displayed or cleared.

When Toyota Link Diagnostic Trouble Codes DTC List is selected the following two modes are available:



Current DTC's

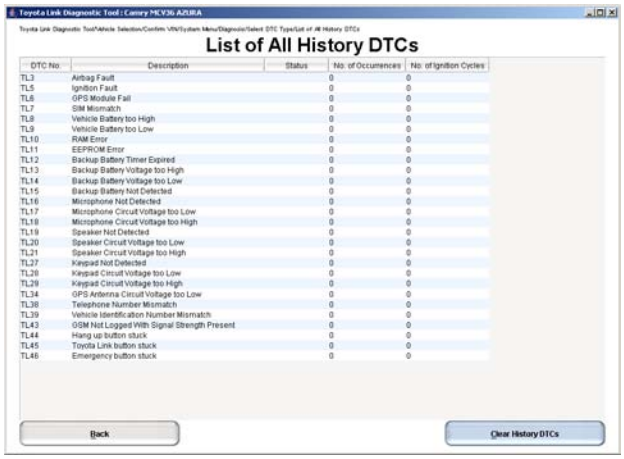
All current DTC's will be displayed as **"List of all Current DTC's".**

When this function is selected the TDT will display the following information:

The DTC number
The DTC description
The DTC status
The number of occurrences
The number of ignition cycles since the DTC last reset

Note:

- If a DTC is present, "DTC Present" will be displayed in the status column.
- Even if DTC's have been cleared, the information will still show in the "No. of Occurrences" and the "No. of Ign Cycles" columns.



History DTC's

All current DTC's will be displayed as **"List of all History DTC's".**

When this function is selected the TDT will display the following information:

The DTC number
The DTC description
The DTC status
The number of occurrences
The number of ignition cycles since the DTC last reset

- If a DTC is present, "DTC Present" will be displayed in the status column.
- Even if DTC's have been cleared, the information will still show in the "No. of Occurrences" and the "No. of Ign Cycles" columns.

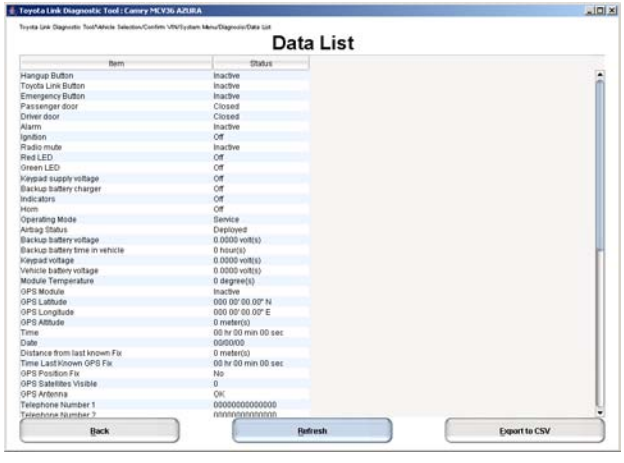


CLEARING THE DTC LIST

When either Clear Current DTC's or Clear History DTC's is selected the TDT will display, **"You are about to clear the DTC list". Do you wish to continue?**

If the **Yes** button is pressed the TDT will clear all DTC information and automatically return to the "List of All Current DTC's" or "List of All History DTC's" depending on which screen you were first in.

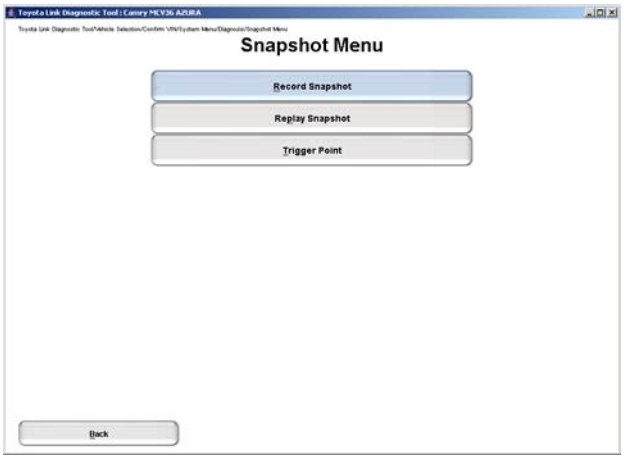
If the **No** button is pressed the TDT will exit to the "List of All Current DTC's" or "List of All History DTC's" depending on which screen was originally referenced.



DATA LIST

When this Diagnosis Function is selected the TDT will check if the Mayday ECU is actually receiving an input or inputs from the various sensor/s, switches or antenna/s. If the sensor or antenna inputs are not being received, the TDT will then carry out the relevant system diagnosis as defined in diagnostic section in this Service Manual.

The data list information is not real-time information; to update the information **select** the refresh button.



SNAPSHOT

When this Diagnosis Function is selected the TDT captures data before and after a forced manual trigger.

The purpose of the **"Snapshot"** function is to help isolate an intermittent or transient problem by storing Mayday ECU data parameters just before and just after a problem occurs.

Snapshot Menu

The TDT can "Record Snapshot" data parameters from a selected "Trigger Point", enabling a stored memory under the heading "Replay Snapshot" to be read.



Snapshot Trigger

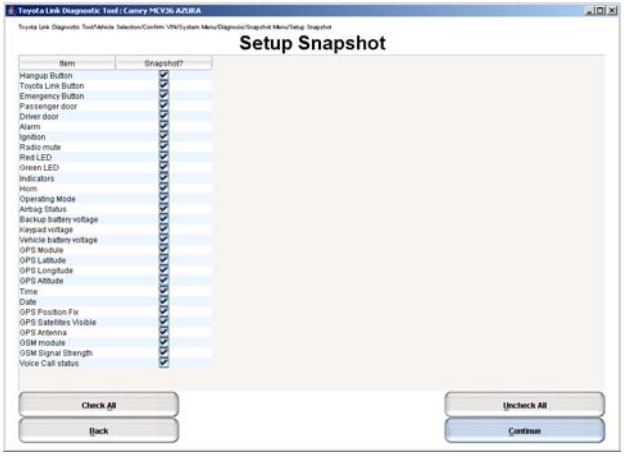
There are three parameters that must be set for the "Snapshot Trigger":

Snapshot Duration: The time duration for the snapshot recording can be set between 30 to 60 seconds in 5 second increments.

Snapshot Sampling Period: The time of each recorded sample within the Snapshot Duration.

Trigger point: The percentage time period of the snapshot duration prior to or after a selected trigger point.

Select **Back** to return to the Snapshot Menu.

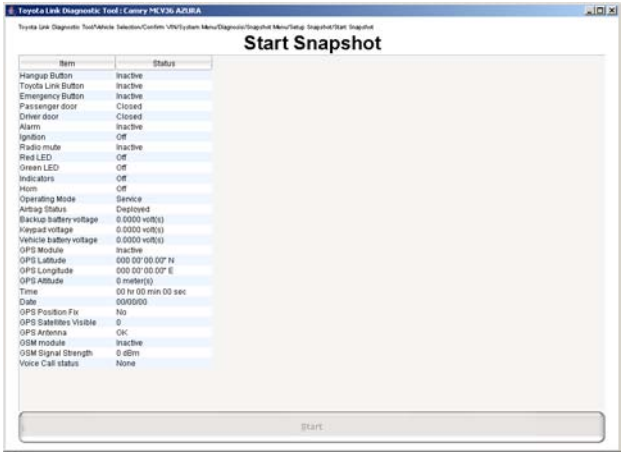


Record Snapshot

Data List items need to be selected from the "Setup Snapshot" list, by checking or unchecking the relevant boxes.

Select **Back** to return to the Snapshot Menu.

Select **Continue** to proceed with snapshot recording.



Start Snapshot

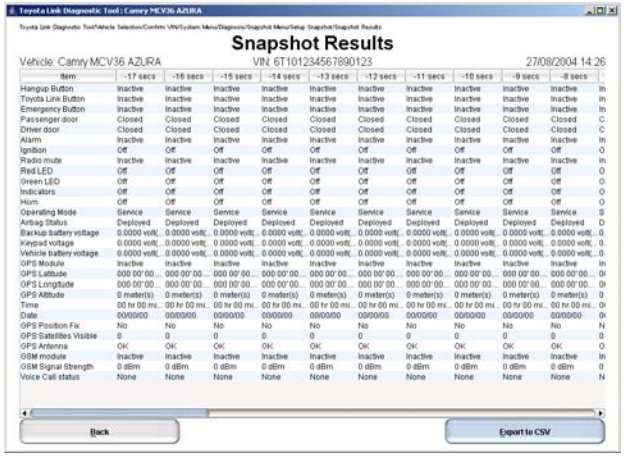
Prior to activating the "Start Snapshot" button ensure that the checked data list function are displayed on the Start Snapshot screen.



Confirm Save

Select **No** to return to the Setup Snapshot screen and lose the current snapshot data.

Select **Yes** to save the current Snapshot data and VIN.

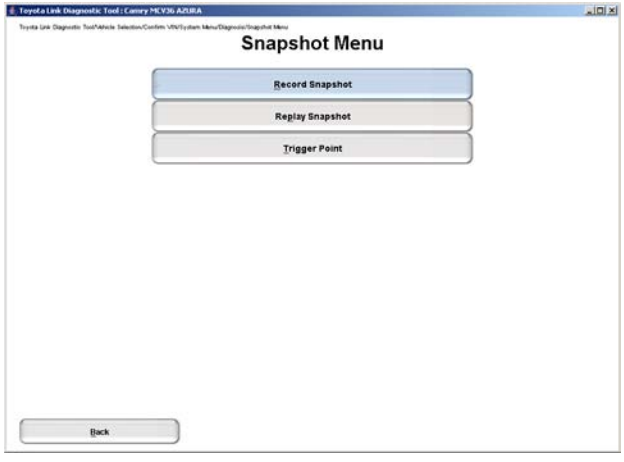


Snapshot Results

After saving the snapshot data in the **"Confirm Save"** screen, the **"Snapshot Results"** will be recorded within the snapshot duration selected.

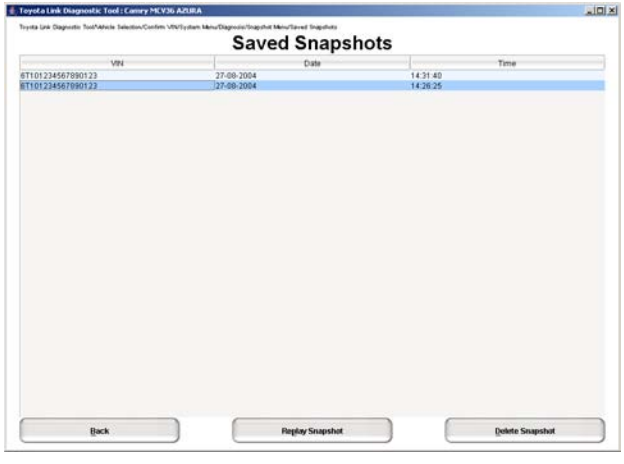
Viewing the entire snapshot is available via the scroll bar at the bottom of the screen.

Select **"Export to CSV",** to save the data list parameter recording; this file can now be printed or emailed.



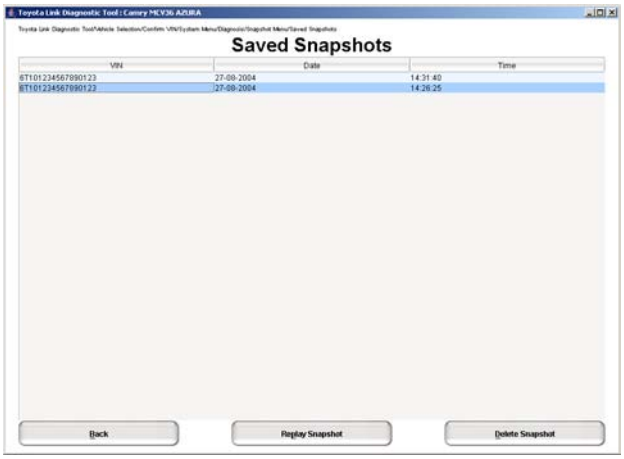
Replay Snapshot

(a) Select "Replay Snapshot" from the Snapshot menu screen.



(b) Highlight the saved snapshot, on the saved snapshot screen, that you wish to replay.

(c) Click the **"Replay Snapshot"** button, this will return you to the snapshots results screen where you can review the selected snapshot recording.



Delete Snapshot

(a) Highlight the saved snapshot recording that you wish to delete.

(b) Select **"Delete Snapshot"** button.



(c) The **"Confirm Delete"** screen appears, requesting confirmation for the saved record to be deleted. Select either **Yes** or **No**.
Yes: Will return you to the saved snapshot screen, where the saved record has been deleted.
No: Will return you to the saved snapshot screen.



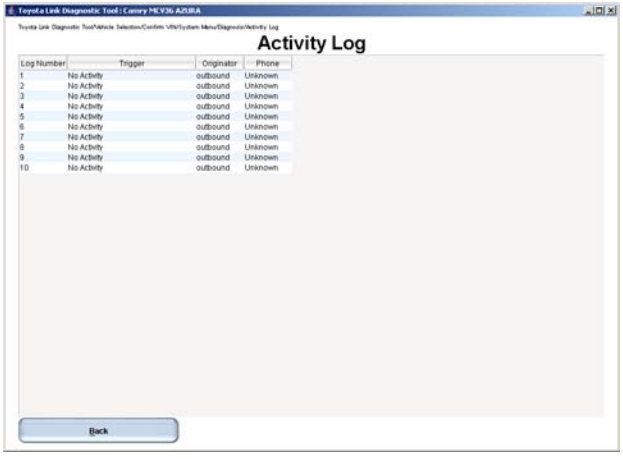
ACTIVE TEST

The active tests allows for the testing of various components of the Toyota Link system, such as the status LED's and radio mute circuit to assist in problem isolation during troubleshooting.

Once the Active tests have been selected, the following **"List of Active Test Items"** will be available.

Radio Mute.
Red LED.
Green LED.
Door Unlock.
Indicators.
Horn.

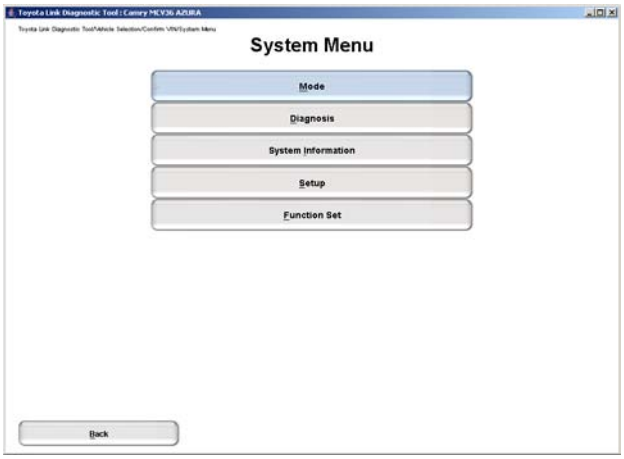
Note: After **"Active Tests"** have been completed, Select **"Reset"** to return to the default settings then you will be able to select **"Back"** to return to the **"Diagnosis"** menu.



ACTIVITY LOG

The Mayday ECU displays the last ten GSM calls that have been inbound or outbound. This function will also display whether the activity is a phone call or an SMS Message.

Select **"Back"** to return to the **"Diagnosis"** Menu.



SYSTEM INFORMATION

The Mayday ECU will display the system identification information.

(a) Select “System Information” from the system menu screen;



(b) The following information will be available.
Vehicle Isovin Number.
Module Serial Number.
SIM Serial Number.
Part Number.
Manufacture Date.
Software Version.
Code Index File.
Modem SIM Number.



SETUP

The option of a particular Serial Port can be selected for the TDT in the “Setup” System function.

Serial Port Change Procedure

(a) Connect to COM port 1 or use the TDT stand alone function without connection to a vehicle.

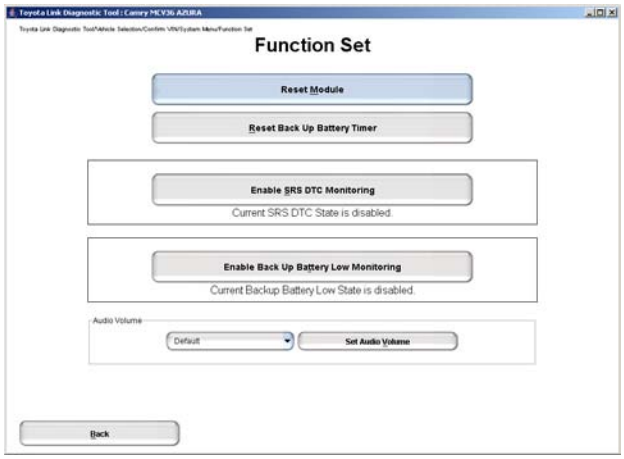
(b) Start the TDT and navigate to the Setup screen.

(c) Change the SERIAL port to the desired COM port.

(d) Shut the TDT down.

(e) Change the cable from COM port 1 to the chosen COM port.
Note if the stand alone version is used this step is not necessary.

(f) Restart the TDT.



FUNCTION SET

When "Function Set" has been selected the following Mayday ECU functions will be available:

Reset Module
Reset Backup Battery Timer.
Enable SRS DTC Monitoring.
Enable Backup Battery Low Monitoring
Set Audio Volume.

Reset Module

This will allow you to reset the Mayday ECU.

When selected the TDT will display **"The Module is about to be Reset. Do you wish to continue?"**

Selecting the **"Yes"** button will reset the Mayday ECU, then return the screen to the "Function Set" menu, with all the Mayday ECU functions reset to their default setting.

Selecting the **"No"** button will return the screen to the "Function Set" menu, with all Mayday ECU functions current.

On completion of the reset, select **"Back"** to return to the "System Menu".



Reset Battery Backup Timer

This allows you to reset the Backup Battery Timer. This should only be performed after the backup battery has been replaced. When selected the TDT will display "The Backup Battery Timer is about to be Reset. Do you wish to continue?"

Selecting the **"Yes"** button will reset the Backup Battery Timer to zero, then return the screen to the "Function Set" Menu, with the Backup Battery Timer Function reset to zero seconds.

Selecting the **"No"** button will return the screen to the "Function Set" Menu, with the Backup Battery Timer Function current.

On completion of the reset, select 'Back' to return to the "System Menu".

Enable SRS DTC Monitoring

The Toyota Link system monitors the SRS accident sensing circuit for any related faults. The DTC fault code TL3 will set if the Mayday ECU detects a fault in the SRS sensing circuit. This will be considered by the Mayday ECU as an airbag fault and the SRS system as unhealthy.

As well as setting a DTC the Mayday ECU will emit five quick beeps and send an SMS alert message to the Toyota Link Call Centre — every time the ignition switch is turned to the on position, unless an arrangement with the Toyota Link Call Centre has been made, to suspend airbag monitoring.

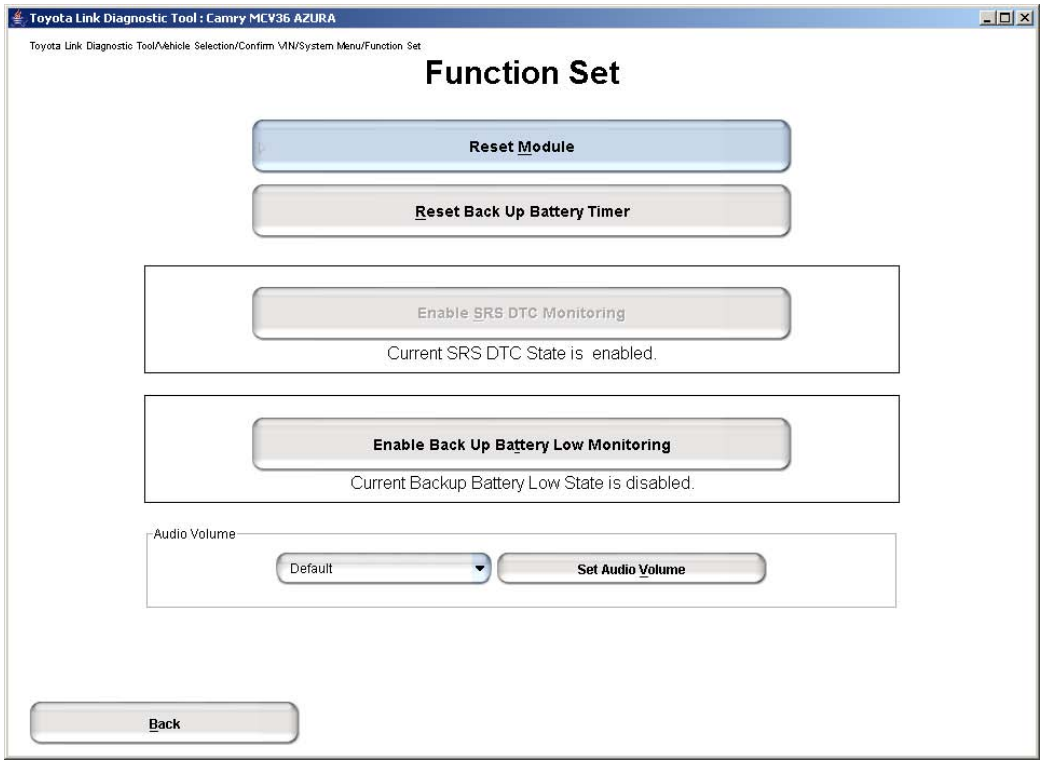
Every time an airbag alert message is received by the Toyota Link Call Centre the Toyota Link Call Centre will attempt to contact the vehicle an advise the owner that a concern has been detected and the vehicle will need to be taken to a Toyota Dealer for repair. At this time the Toyota Link Call Centre will ask the driver when they will present the vehicle to a Dealer for inspection and arrange to suspend system monitoring.

If the customer presents the vehicle for repair with the SRS monitoring suspended, monitoring will need to be enabled once the repairs have been completed.

The TDT will display the Current status of the “SRS DTC Monitoring” as “Current SRS DTC State is Enabled” during normal vehicle operation and / or after a Toyota Dealership Service Centre has Enabled the “SRS DTC Monitoring” with the TDT upon repair.

The TDT will display the Current status of the “SRS DTC Monitoring” as “Current SRS DTC State is Enabled” during normal vehicle operation and / or after a Toyota Dealership Service Centre has Enabled the “SRS DTC Monitoring” with the TDT upon repair.

During normal operation with the **“Current SRS DTC State is Enabled”, the “Enable SRS DTC Monitoring”** button will be blanked out as shown in the illustration.



Enable Backup Battery Low Monitoring

The Mayday ECU has a backup battery charging circuit that maintains the Backup Battery state of charge. This circuit also includes an over current protection device.

DTC. TL 14 will set if the backup battery voltage is less than 5.5 Volts for more than three minutes. As well as setting a DTC the Mayday ECU will emit five quick beeps and send an SMS alert message to the Toyota Link Call Centre — every time the ignition switch is turned to the on position, unless an arrangement with the Toyota Link Call Centre has been made, to suspend system monitoring.

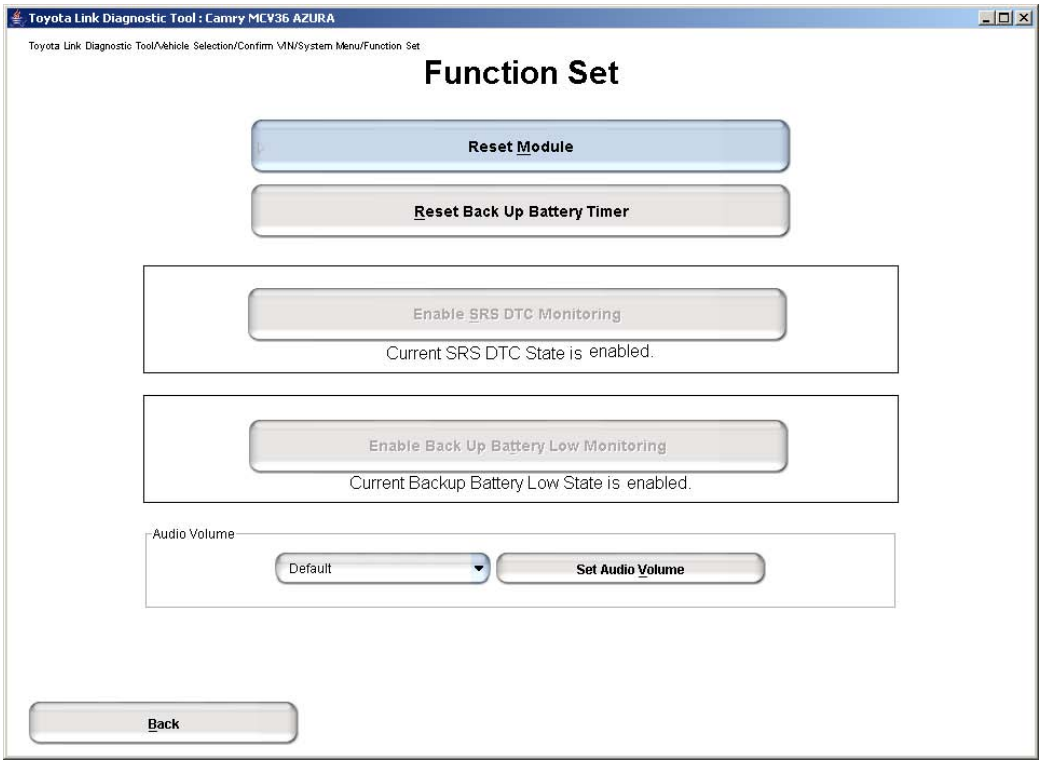
When a message is received by the Toyota Link Call Centre, the call centre will attempt to contact the vehicle driver and advise them that a low backup battery voltage has been detected and the vehicle should be taken to a Toyota Dealer for repair. At this time the Toyota Link Call Centre will ask the driver when they will present the vehicle to Toyota Dealer for inspection and arrange to suspend monitoring until this time.

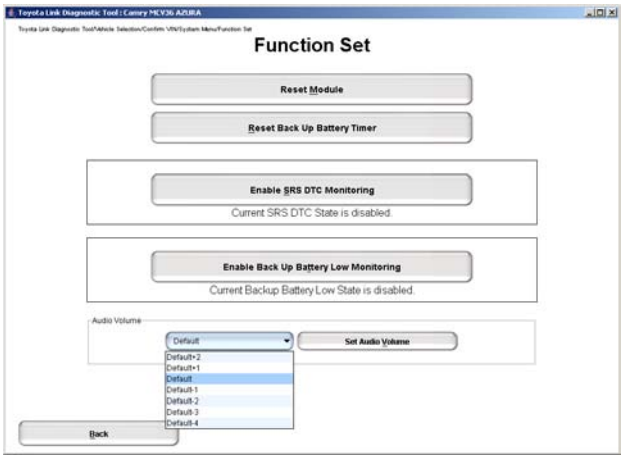
If the customer presents the vehicle for repair with backup battery monitoring suspended, monitoring will need to be enabled once the repairs have been completed.

The TDT will display the Current status of the “Backup Battery Low Monitoring” as “Current Backup Battery Low State is Enabled” during normal vehicle operation and / or after a Toyota Dealership Service Centre has Enabled the “Backup Battery Low Monitoring” with the TDT upon repair.

During normal operation with the “Current Backup Battery Low State is Enabled”, the “Enable Backup Battery Low Monitoring” button will be blanked out as per the illustration.

Note: Only the Toyota Link Call Centre has the ability to “Disable Backup Battery Low Monitoring”.





Set Audio Volume

Within the “Function Set” menu the TDT can adjust the Mayday ECU “Audio Volume”.

The TDT will display a Default Setting, with the option to raise the volume by selecting “Default+1” or “Default+2”.

(a) To lower the volume, select between “Default-1” and “Default-4”.

(b) Then select “Set Audio Volume“ to program the required setting.

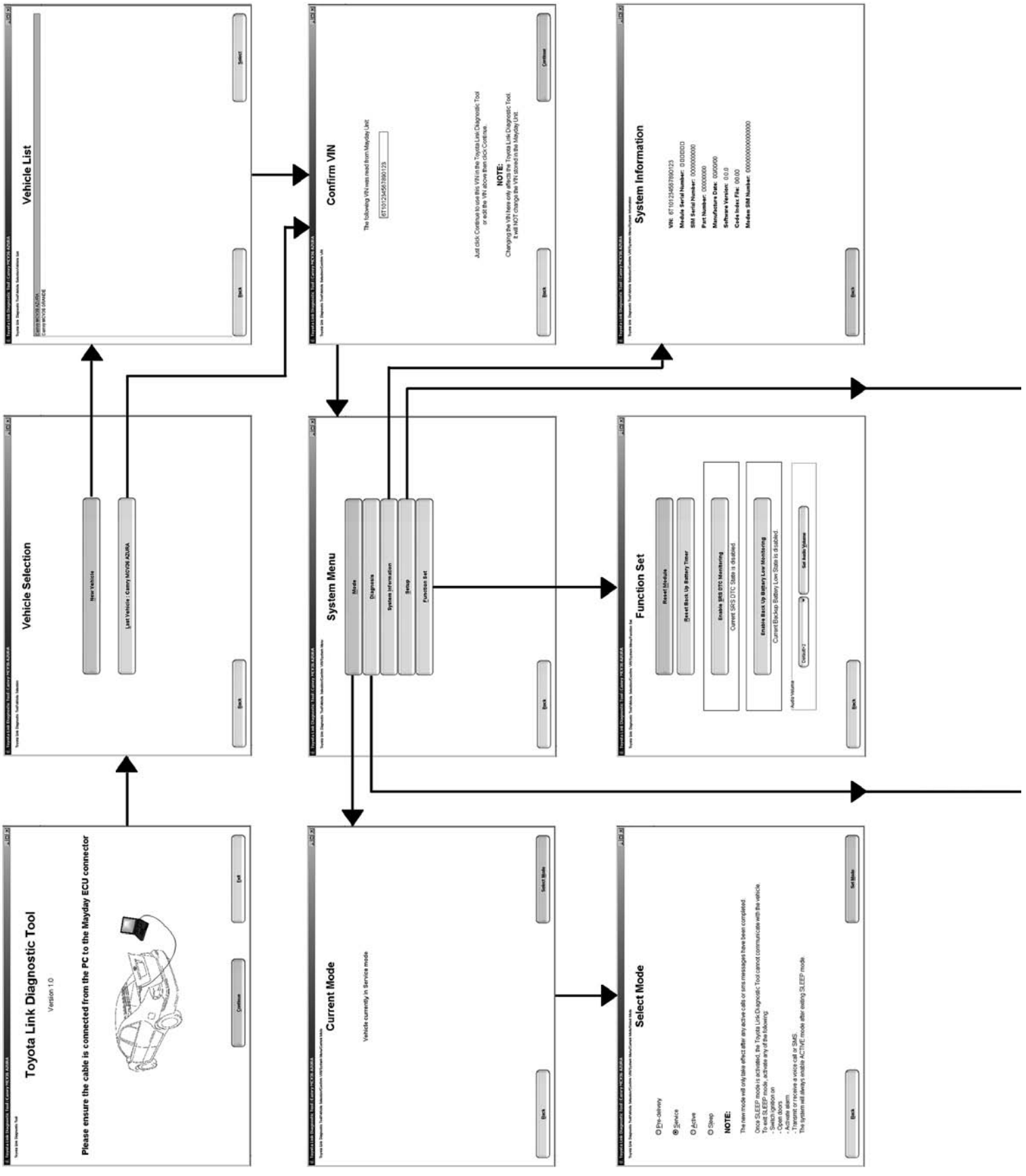
(c) Select **“Back”** to return to the “System Menu”.

The Toyota Link Call Centre also has the ability to raise and lower the volume setting by sending further SMS Messages to raise or lower the volume until the customer is satisfied the volume is at the level required.

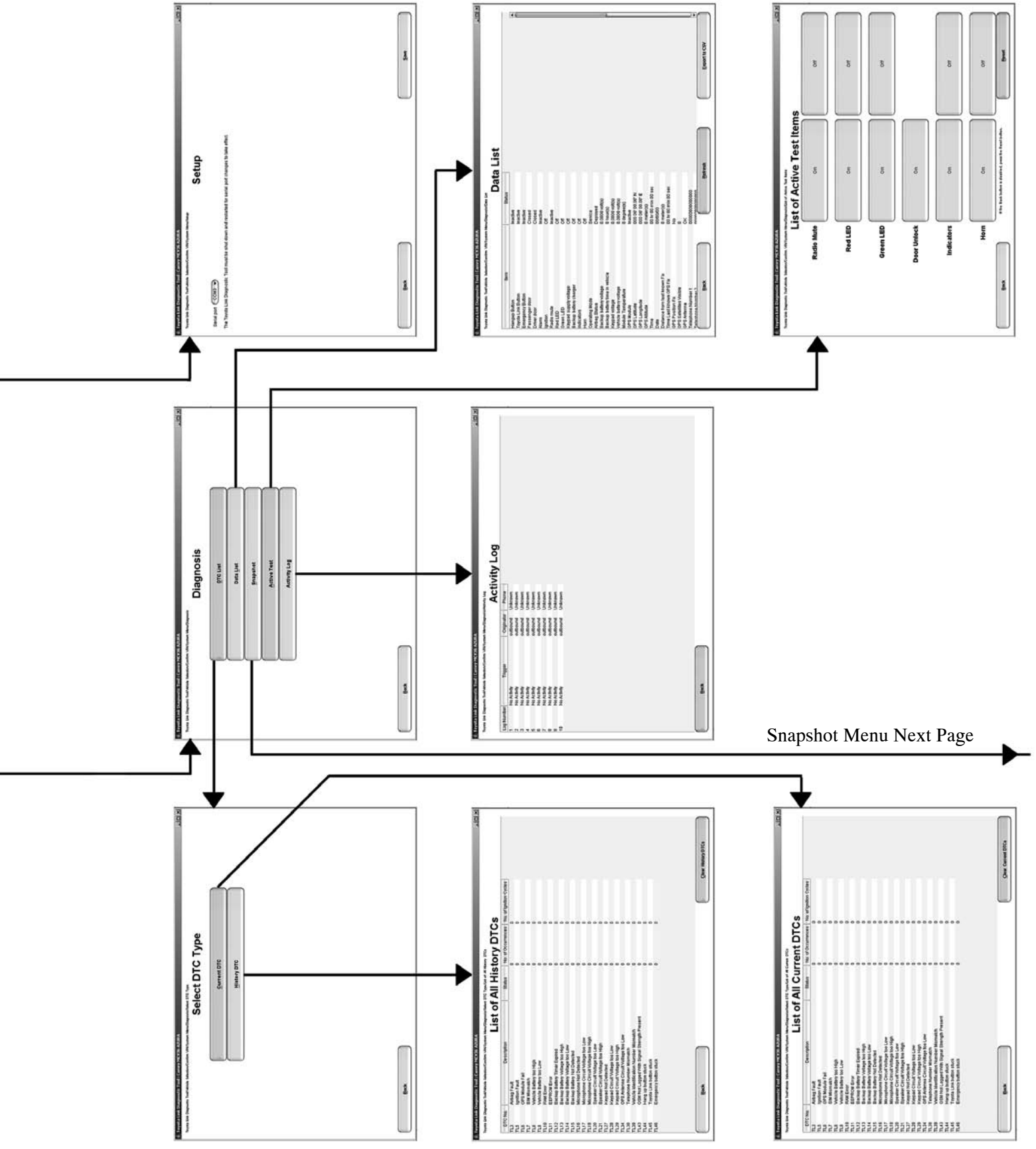
TORQUE WRENCH SPECIFICATIONS

Component	Specification (Nm)
Mayday ECU assmbly retaining screews	1 - 3
Myday ECU back up battery cover retaining screws	1 - 3
Interior rear-view mirror retaining screws	2.5 - 4.5

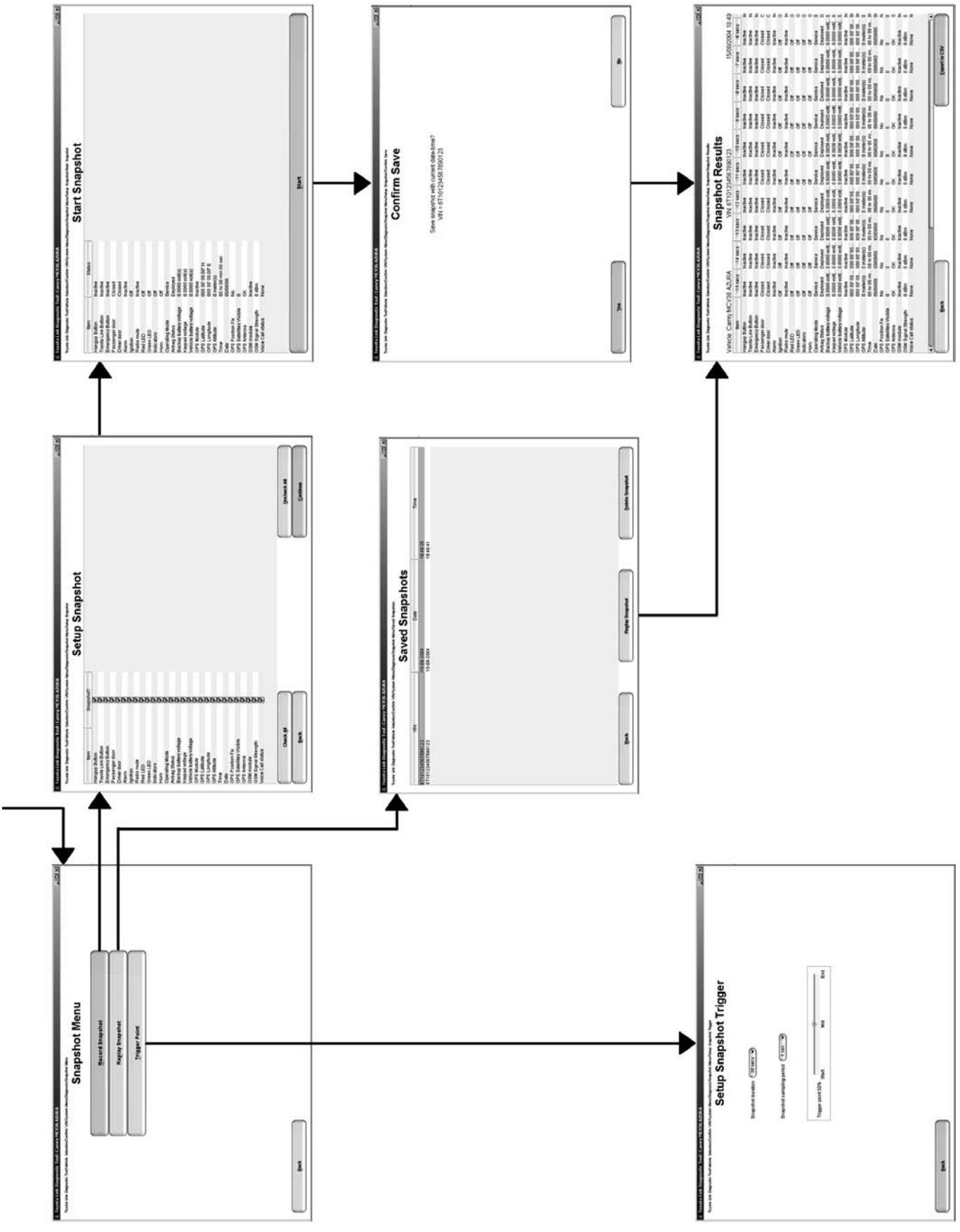
Diagnostic Tool Summary



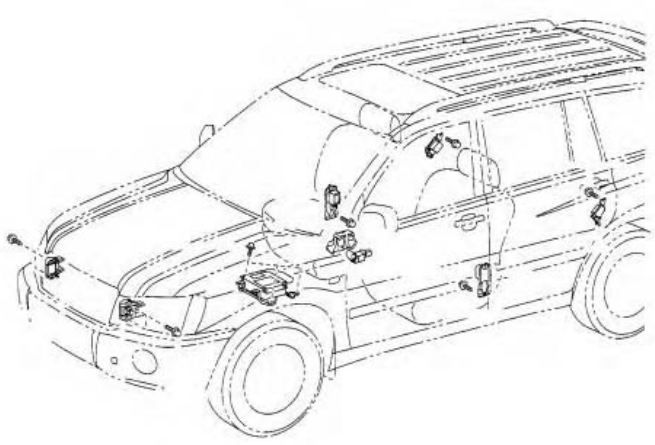
Diagnostic Tool (Cont.)



Diagnostic Tool (Cont.)



Section 60 – Supplemental Restraint System



SUPPLEMENTAL RESTRAINT SYSTEM

PRECAUTION

CAUTION:

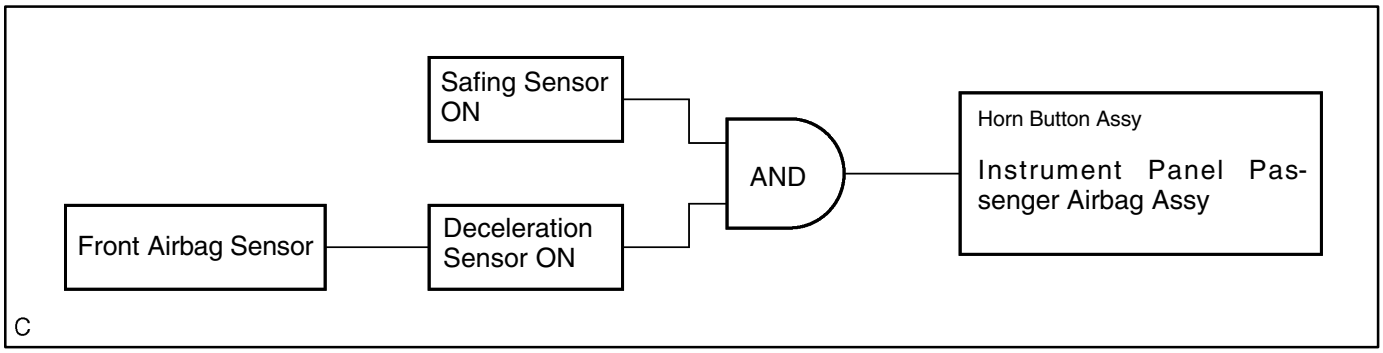
- **The CAMRY is equipped with a supplemental restraint system (SRS). The system is composed of a driver airbag, front passenger airbag and side airbags. Failure to carry out service operations in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Further, if a mistake is made in servicing the SRS, it is possible that the SRS may fail to operate when required. Before performing servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully, then follow the correct procedures described in the repair manual.**
- **Work must not be started within 90 seconds of the ignition switch being turned to the "LOCK" position and the negative (-) terminal cable being disconnected from the battery.**
  (The SRS is equipped with a back-up power source so that if work is started within 90 seconds of disconnecting the negative (-) terminal cable of the battery, the SRS may be deployed.)
- **Do not expose the horn button assembly, instrument panel passenger airbag assembly, airbag sensor assembly centre, airbag front sensor, front seat airbag assembly or side airbag sensor assembly directly to hot air or flames.**

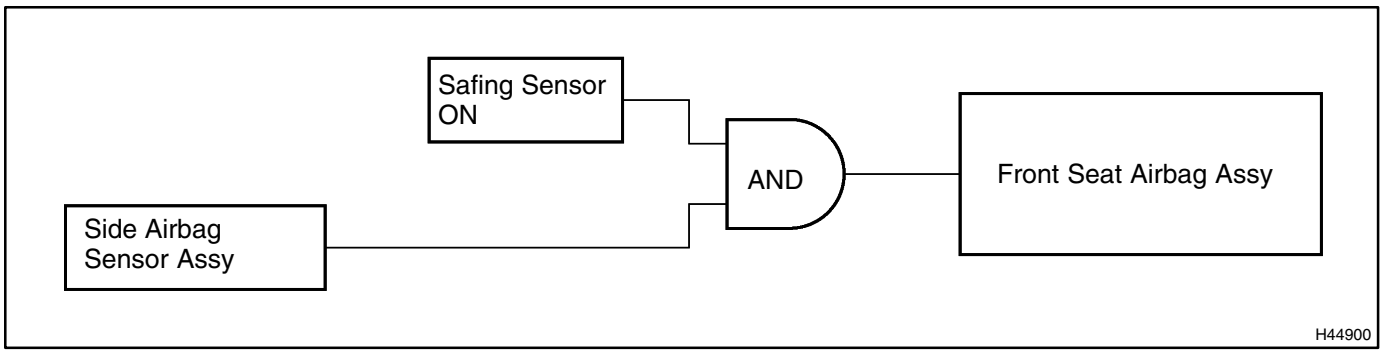
NOTICE:

- **Malfunction symptoms of the SRS are difficult to confirm, so the DTCs become the most important source of information when troubleshooting. When troubleshooting the SRS, always inspect the DTCs before disconnecting the battery.**
- **Even in cases of a minor collision where the SRS does not deploy, the horn button assembly, instrument panel passenger airbag assembly, airbag sensor assembly centre, airbag front sensor, front seat airbag assembly and side airbag sensor assembly should be inspected (See page 60-10).**
- **Before repairs, remove the airbag sensor if impact vibrations are likely to be applied to the sensor during repairs.**
- **Never use SRS parts from another vehicle. When replacing parts, replace them with new parts.**
- **Never disassemble and repair the horn button assembly, instrument panel passenger airbag assembly, airbag sensor assembly centre, airbag front sensor, front seat airbag assembly or side airbag sensor assembly in order to reuse it.**
- **If the horn button assembly, instrument panel passenger airbag assembly, airbag sensor assembly centre, airbag front sensor, front seat airbag assembly or side airbag sensor assembly has been dropped, or if there are cracks, dents or other defects in the case, bracket or connector, replace it with a new one.**
- **Use a volt/ohmmeter with high impedance (10 kΩ/V minimum) for troubleshooting the system's electrical circuits.**
- **Information labels are attached to the periphery of the SRS components. Follow the instructions on the notices.**
- **After work on the SRS is completed, perform an SRS warning light check (See page 05-4).**
- **When the negative (-) terminal cable is disconnected from the battery, the memory of the clock and audio system will be cancelled. Therefore before starting work, make a record of the contents memorised in the audio memory system. When work is finished, reset the audio systems as they were before and adjust the clock. To avoid erasing the memory in each memory system, never use a back-up power supply from outside the vehicle.**
- **If the vehicle is equipped with a mobile communication system, refer to the precaution in the INTRODUCTION section.**

1. DEPLOYMENT CONDITION

(a) If the vehicle is involved in an accident and the shock is greater than a specified value, the SRS system is activated automatically. The airbag sensor assembly centre includes the safing sensor and the deceleration sensor. The safing sensor is designed to be turned on at a smaller deceleration rate than the deceleration sensor. The deceleration sensor determines whether or not to ignite the front airbag squibs based on signals from the front airbag sensor. Current flows to the squib to deploy the airbag when the conditions shown in the illustrations below are met.

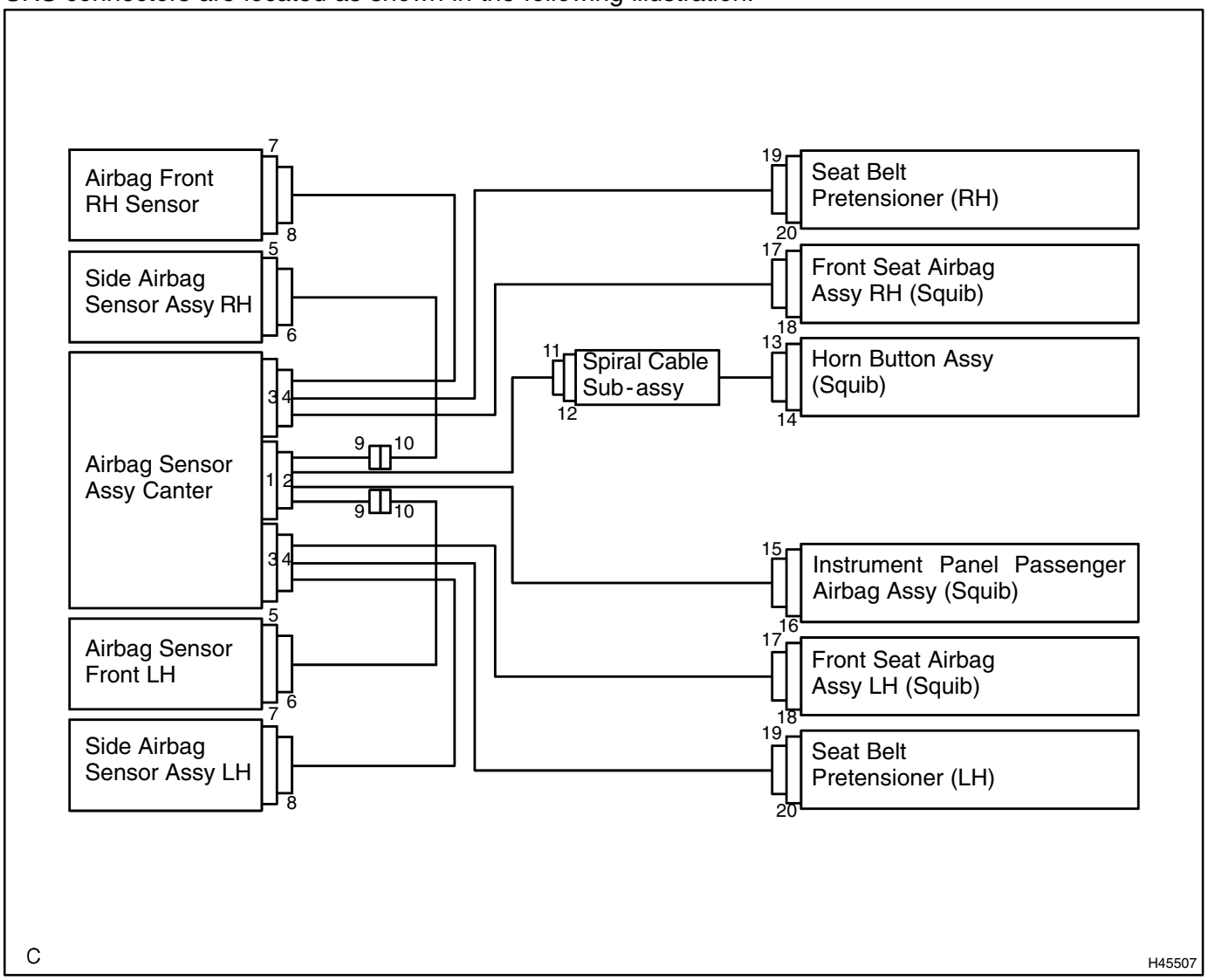




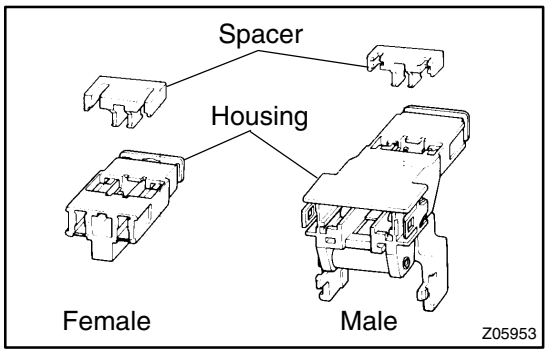
2. SRS CONNECTORS

HINT:

SRS connectors are located as shown in the following illustration.



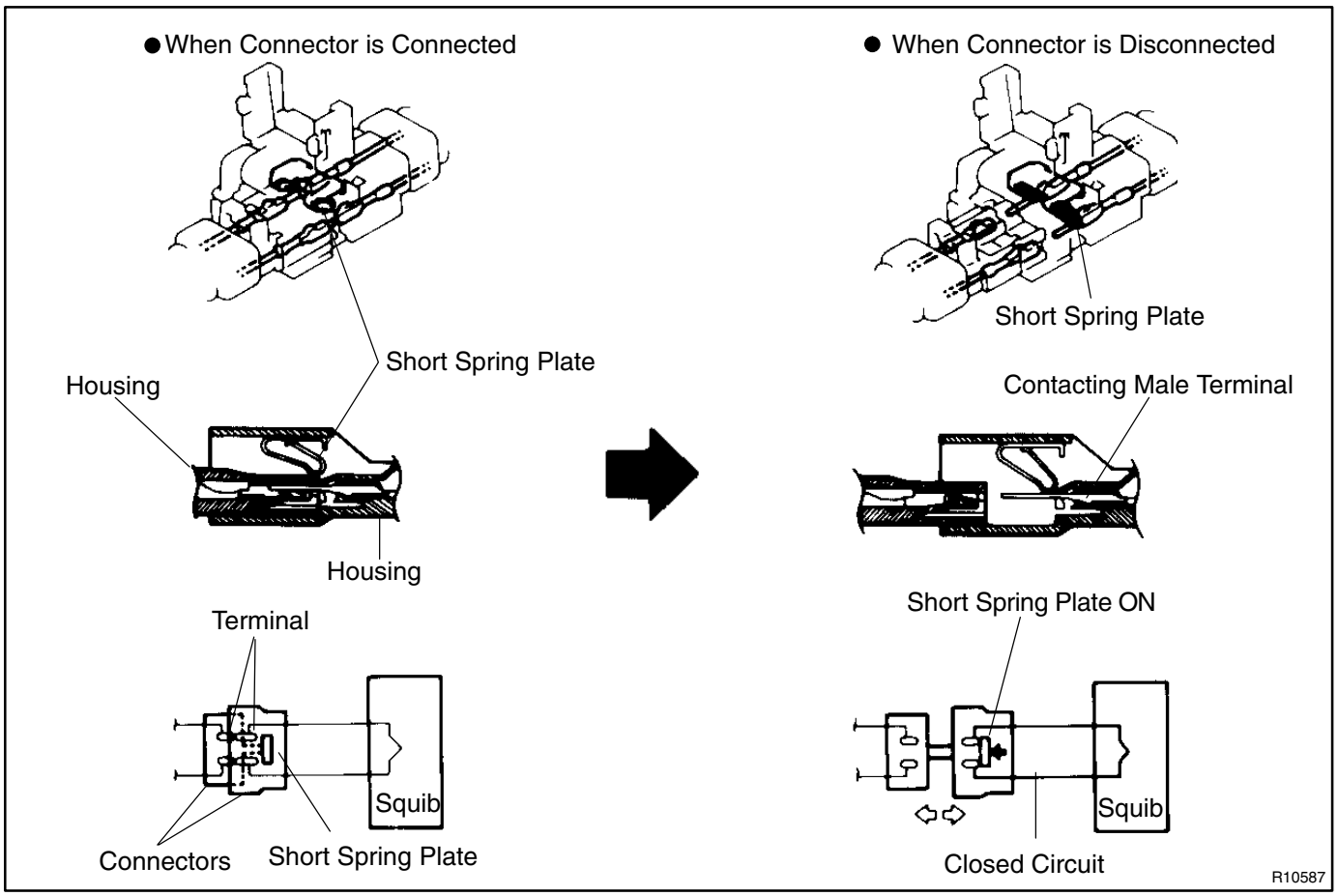
No.	Item	Application
(1)	Terminal Twin-Lock Mechanism	Connectors 6, 8, 11, 12, 17, 18
(2)	Airbag Activation Prevention Mechanism	Connectors 4, 12, 14, 16, 18
(3)	Electrical Connection Check Mechanism	Connectors 1, 2
(4)	Half Connection Prevention Mechanism	Connectors 6, 8, 11, 17
(5)	Connector Lock Mechanism	Connectors 13, 15



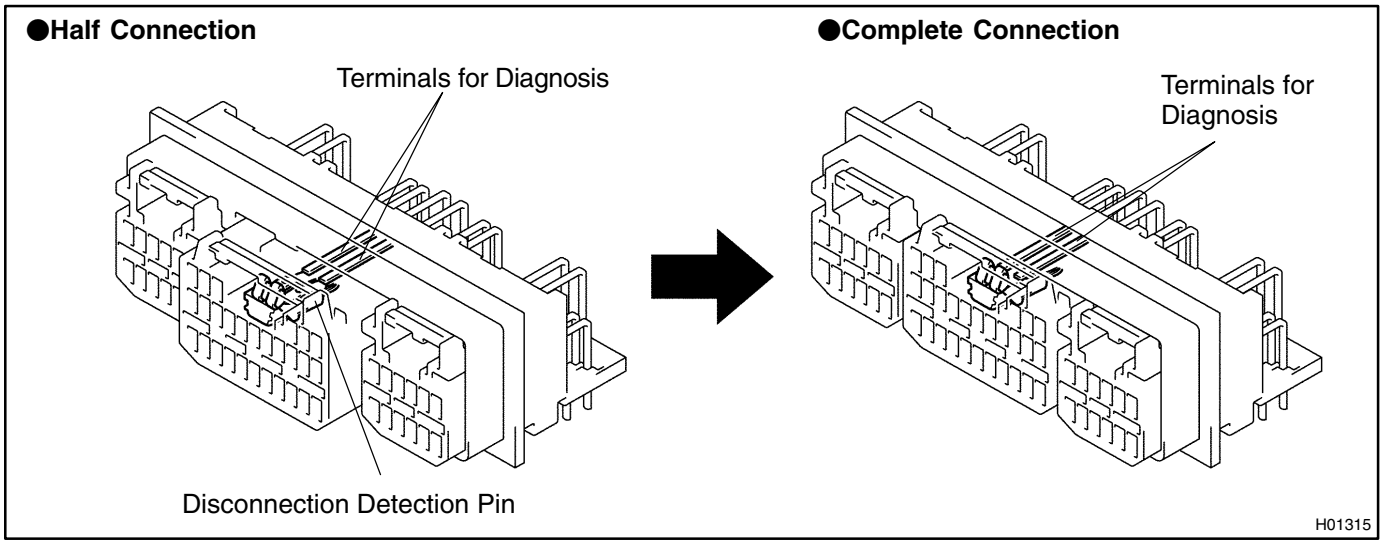
(a) All connectors in the SRS are coloured yellow to distinguish them from other connectors. Some connectors have special functions, and are specially designed for the SRS. These connectors use durable gold-plated terminals, and are placed in the locations shown on the previous page to ensure high reliability.

(1) Terminal twin-lock mechanism:
Each connector has a two-piece component consisting of a housing and a spacer. This design enables the terminal to be locked securely by two locking devices (the retainer and the lance) to prevent the terminals from coming out.

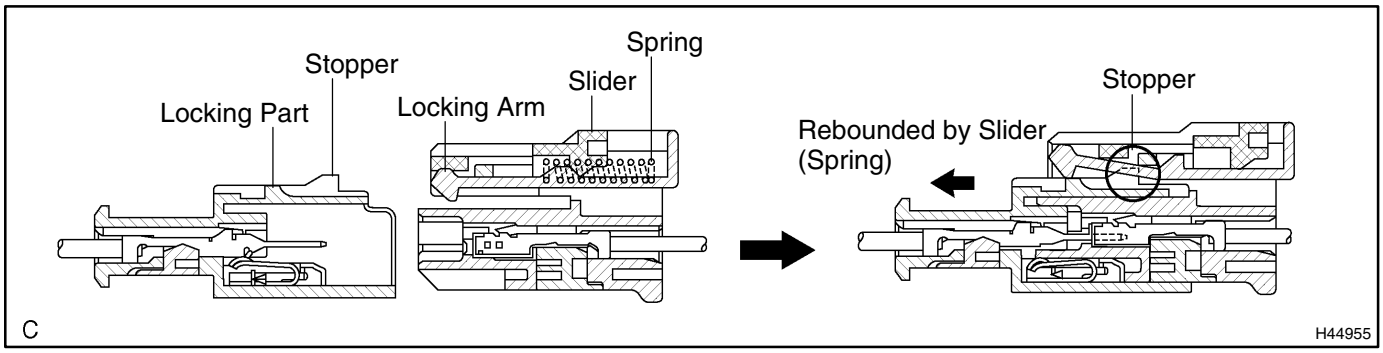
(2) Activation prevention mechanism:
Each connector contains a short spring plate. When the connector is disconnected, the short spring plate automatically connects the positive (+) terminal and the negative (-) terminal of the squib.



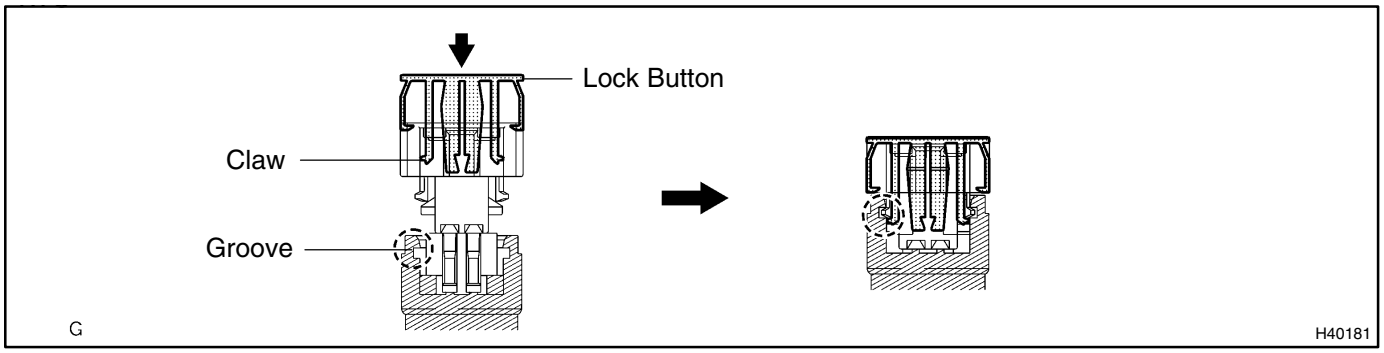
(3) Electrical connection check mechanism:
This mechanism electrically checks that connectors are connected correctly and completely. The electrical connection check mechanism is designed so that the disconnection detection pin connects with the diagnosis terminals when the connector housing lock is locked.



(4) Half connection prevention mechanism:
If the connector is not completely connected, the connector is disconnected due to the spring operation so that no continuity exists.



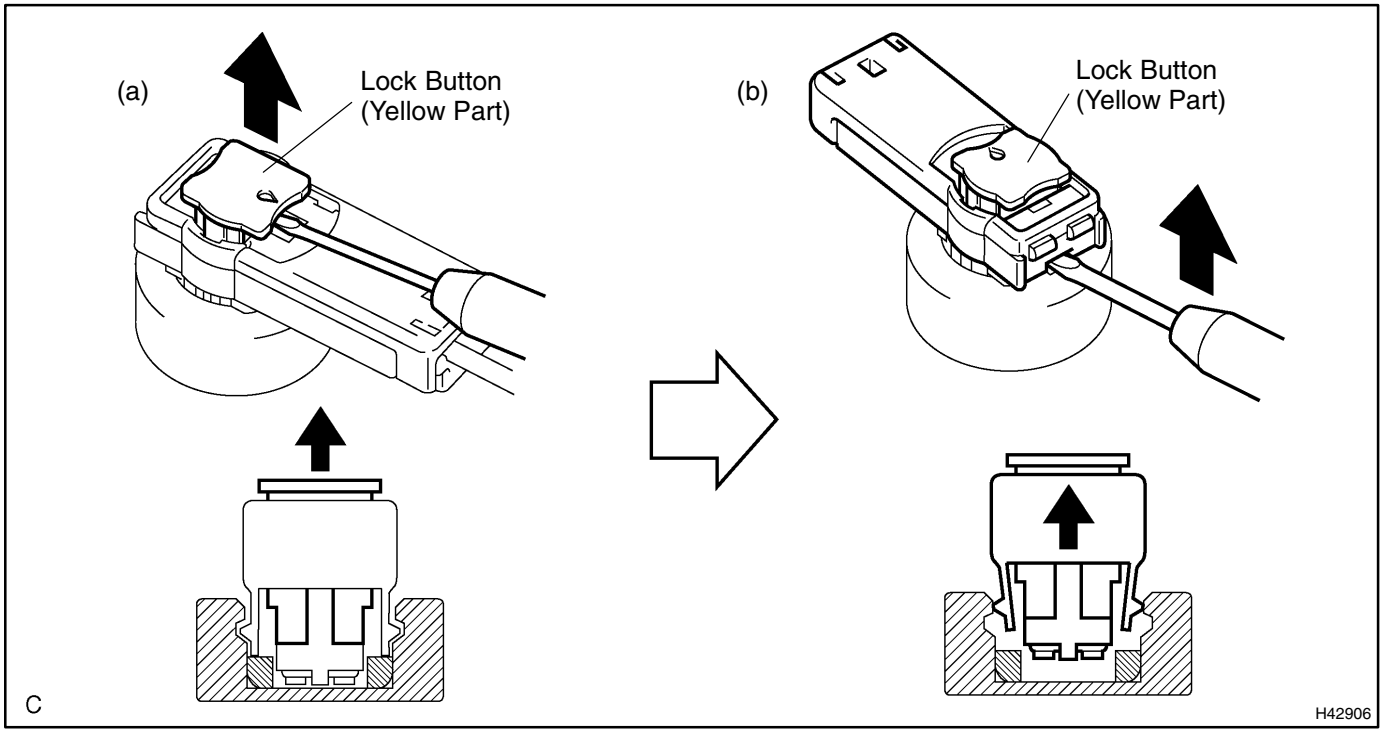
(5) Connector lock mechanism:
Locking the connector lock button connects the connector securely.



3. DISCONNECTION OF CONNECTORS FOR THE HORN BUTTON ASSEMBLY AND INSTRUMENT PANEL PASSENGER AIRBAG ASSEMBLY

(a) Release the lock button (yellow part) of the connector using a screwdriver.

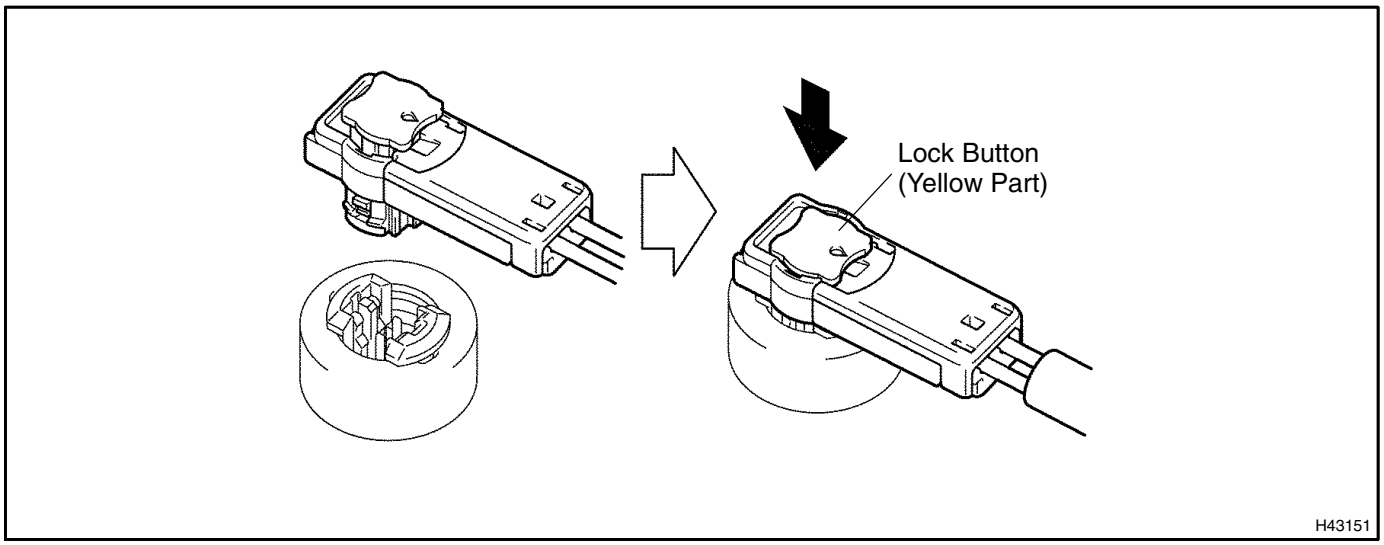
(b) Insert the screwdriver tip between the connector and the base, and then raise the connector.



4. CONNECTION OF CONNECTORS FOR THE HORN BUTTON ASSEMBLY AND PASSENGER INSTRUMENT PANEL AIRBAG ASSEMBLY

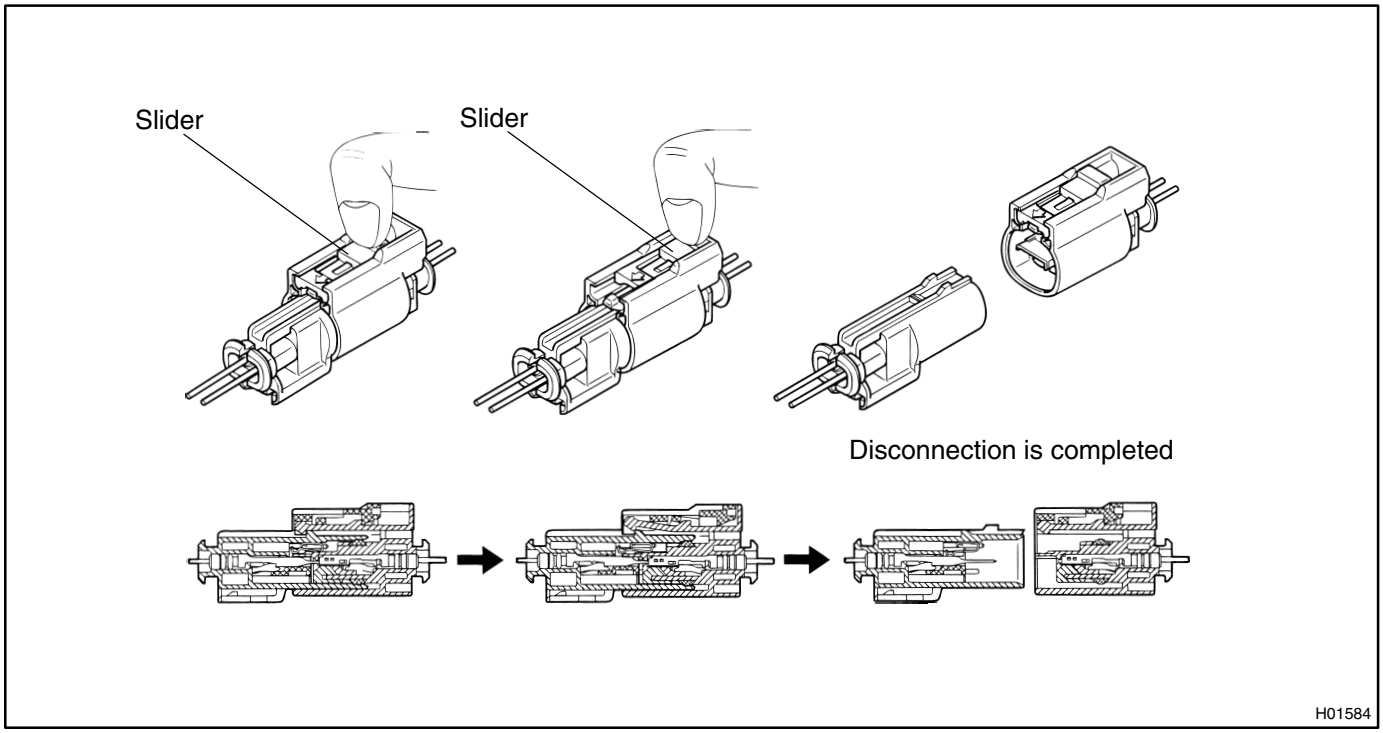
(a) Connect the connector.

(b) Push down securely on the lock button (yellow part) of the connector. When locking, a click sound can be heard.



5. DISCONNECTION OF CONNECTOR FOR FRONT SEAT AIRBAG ASSEMBLY

(a) Place a finger on the slider, slide the slider to release the lock, and then disconnect the connector.

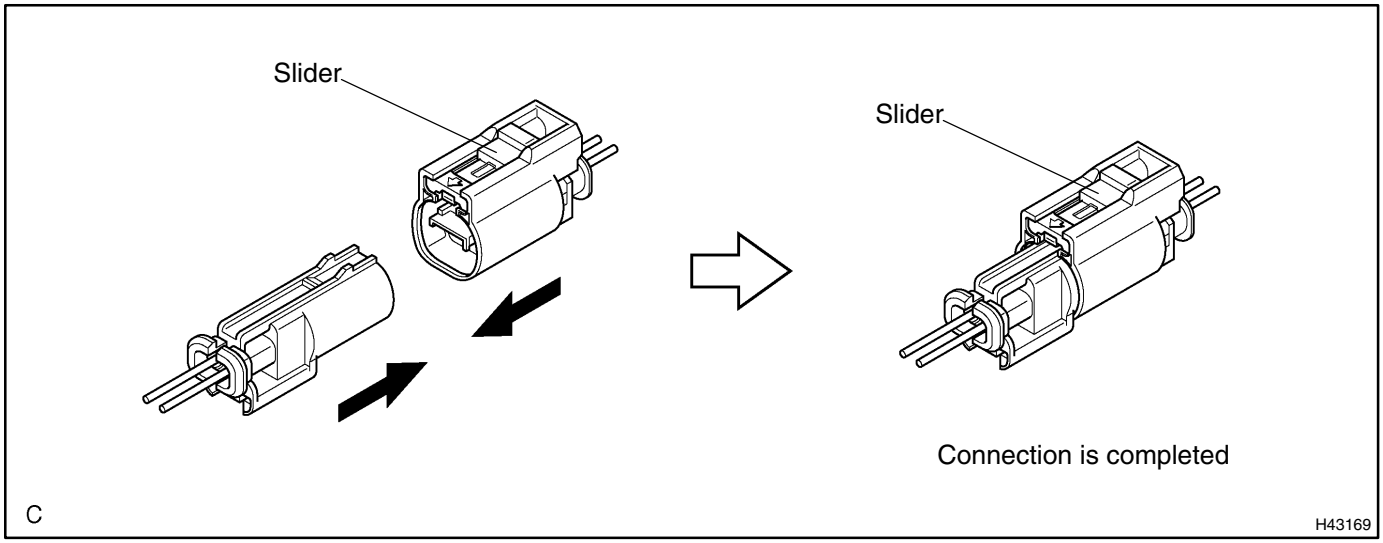


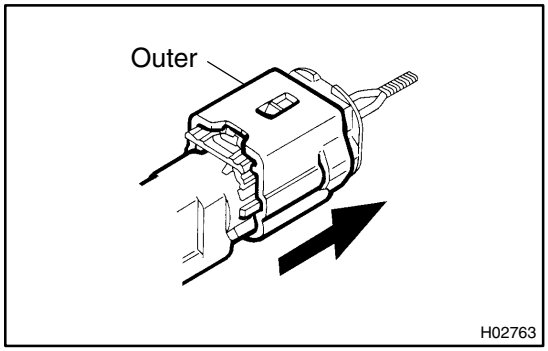
6. CONNECTION OF CONNECTOR FOR FRONT SEAT AIRBAG ASSEMBLY

(a) Connect the connector as shown in the illustration below. When locking, make sure that the slider returns to its original position and a click sound can be heard.

HINT:

When connecting, the slider will slide. Be sure not to touch the slider while connecting, as it may result in an insecure fit.





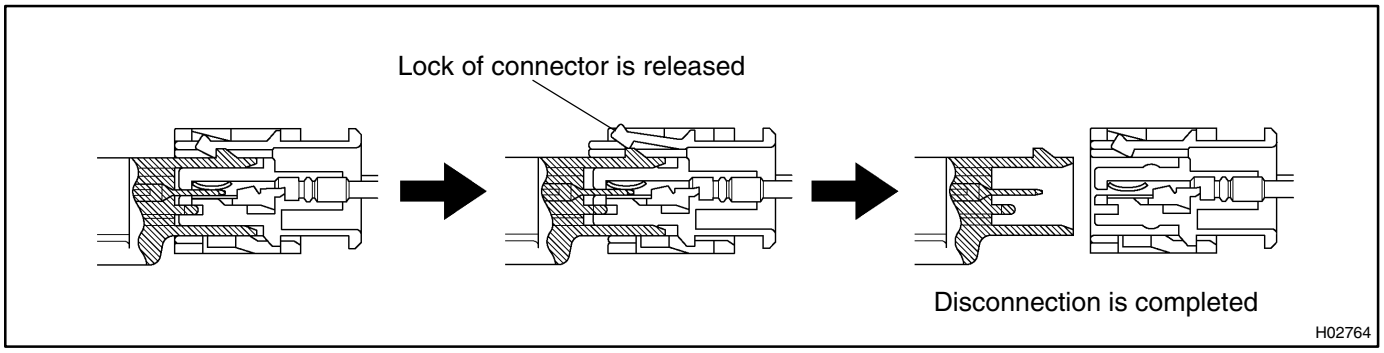
7. DISCONNECTION OF THE CONNECTOR FOR THE FRONT AND SIDE AIRBAG SENSOR ASSEMBLY

(a) While holding both outer flanks, slide the outer part of the connector in the direction shown by the arrow.

(b) When the connector lock is released, the connectors are disconnected.

HINT:

Be sure to hold both outer flanks. Holding the top and bottom sides will make disconnection difficult.

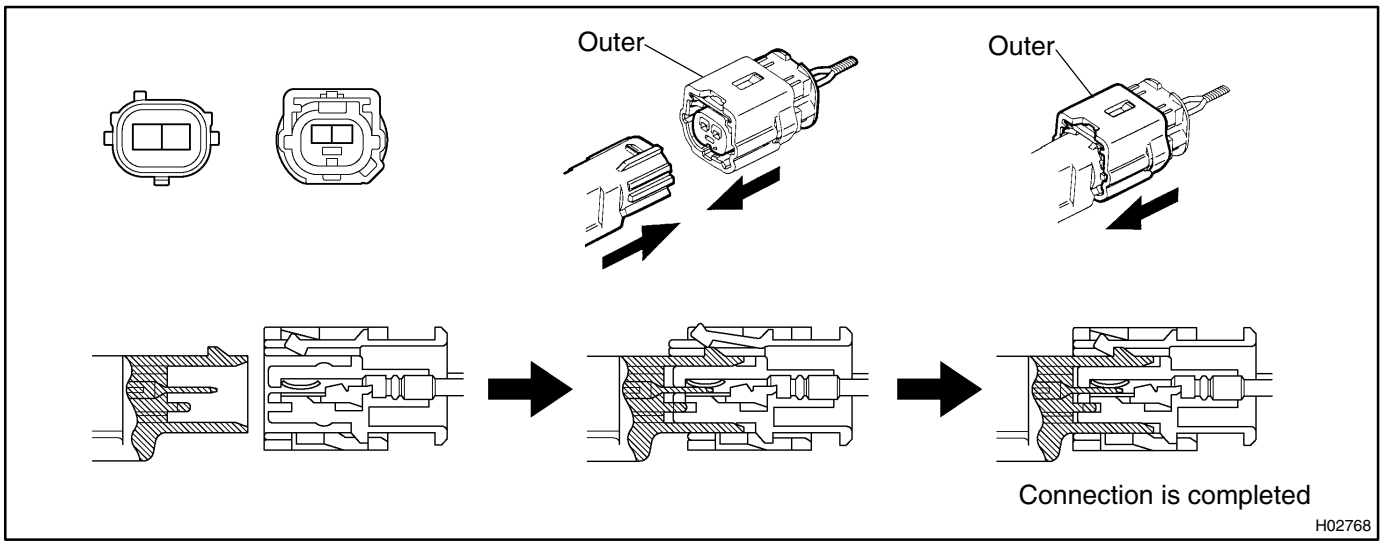


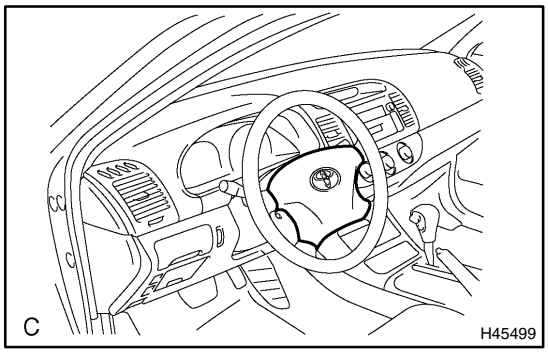
8. CONNECTION OF CONNECTOR FOR FRONT AND SIDE AIRBAG SENSOR ASSEMBLY

(a) Connect the connector as shown in the illustration below. When locking, make sure that the outer returns to its original position and a click sound can be heard.

HINT:

When connecting, the outer part of the connector will slide. Be sure not to hold the outer while connecting, as it may result in an insecure fit.





ON-VEHICLE INSPECTION

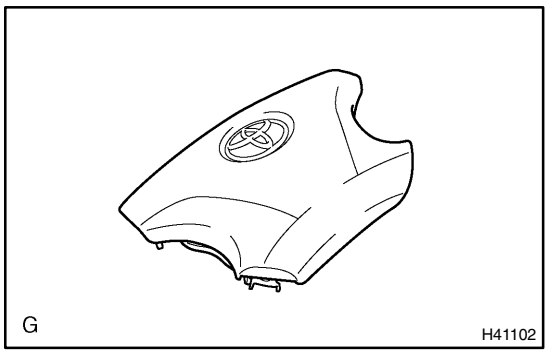
HINT:

There are two types of horn button assembly:
One is used with 3-spoke steering wheel assembly and the other is used with 4-spoke steering wheel assembly.

1. HORN BUTTON ASSEMBLY (VEHICLE NOT INVOLVED IN COLLISION)

(a) Perform a diagnostic system check, see page 05-4.

(b) With the horn button assembly installed on the vehicle, perform a visual check. If there are any defects, such as cuts, minute cracks or marked discolouration on the horn button assembly top surface or in the grooved portion, replace the horn button assembly with a new one.

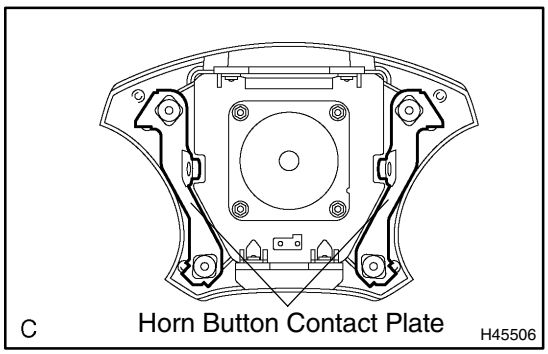


2. HORN BUTTON ASSEMBLY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)

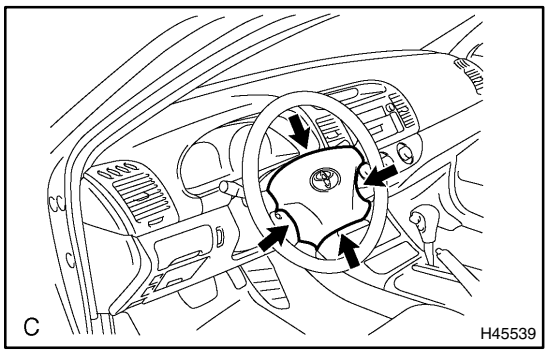
(a) Perform a diagnostic system check, see page 05-4.

(b) With the horn button assembly removed from the vehicle, perform a visual check. If there are any defects (listed below), replace the horn button assy or steering wheel assembly with a new one:

- Cuts, minute cracks or marked discolouration on the horn button assembly top surface or in the grooved portion.
- Cracks or other damage to the connector.
- Deformation of the steering wheel assembly.



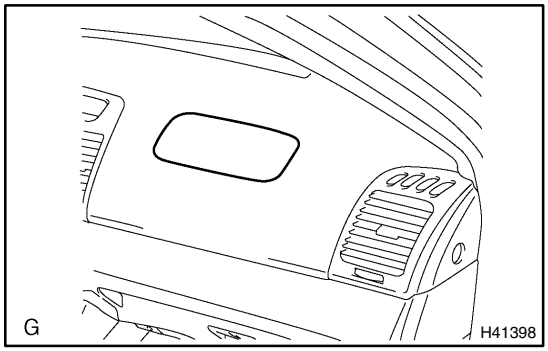
- Deformation of the horn button contact plate of the horn button assembly.



- There should be no interference between the horn button assembly and the steering wheel assembly, and the clearance should be uniform all the way around when the new horn button assembly is installed on the steering wheel assembly.

CAUTION:

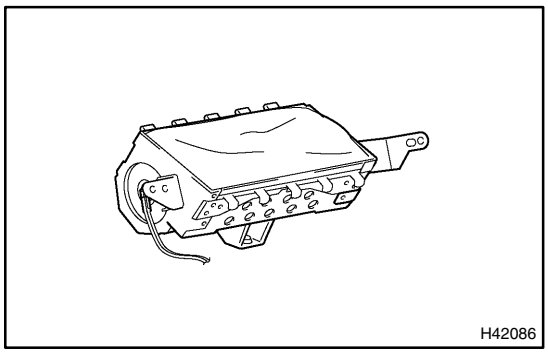
For removal and installation procedures of the horn button assembly, see page 60-16, and be sure to follow the correct procedure.



3. PASSENGER INSTRUMENT PANEL AIRBAG ASSEMBLY (VEHICLE NOT INVOLVED IN COLLISION)

(a) Perform a diagnostic system check ,see page 05-4.

(b) With the front passenger instrument panel airbag assembly installed on the vehicle, perform a visual check. If there are any defects such as cuts, minute cracks or marked discolouration on the instrument panel around the passenger instrument panel airbag assembly, replace the instrument panel with a new one.

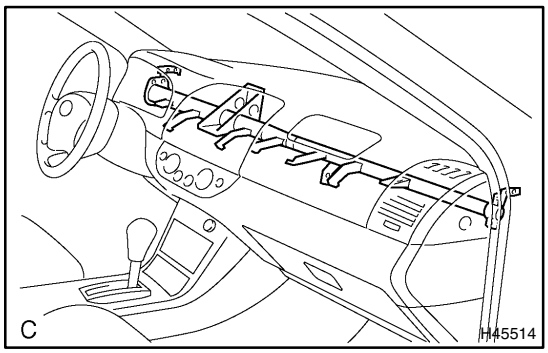


4. PASSENGER INSTRUMENT PANEL AIRBAG ASSEMBLY (VEHICLE INVOLVED IN COLLISION AND THE AIRBAG IS NOT DEPLOYED)

(a) Perform a diagnostic system check, see page 05-4.

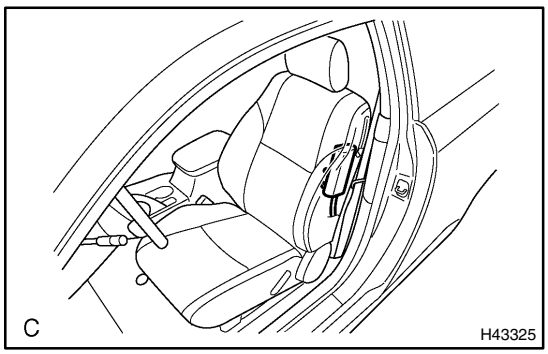
(b) With the passenger instrument panel airbag assembly removed from the vehicle, perform a visual check. If there are any defects as listed below, replace the passenger instrument panel airbag assembly, instrument panel or instrument panel reinforcement with a new one:

- Cuts, minute cracks or marked discolouration on the front passenger airbag assembly.
- Cracks or other damage to the connectors.
- Deformation or cracks on the instrument panel or instrument panel reinforcement.



CAUTION:

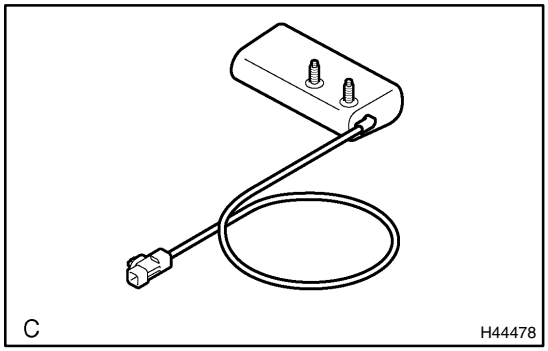
For the removal and installation procedures of the passenger instrument panel airbag assembly, see Pub. No. AC-RM033V2, page 60-26 ensuring that the correct procedure is followed.



5. FRONT SEAT AIRBAG ASSEMBLY (VEHICLE NOT INVOLVED IN A COLLISION)

(a) Perform a diagnostic system check ,see page 05-4.

(b) With the front seat airbag assembly installed on the vehicle, perform a visual check. If there are any defects such as cuts, minute cracks or marked discolouration on the front seatback assembly around the front seat airbag assembly, replace the front seatback assembly with a new one.



6. FRONT SEAT AIRBAG ASSEMBLY (VEHICLE INVOLVED IN COLLISION AND THE AIRBAG IS NOT DEPLOYED)

(a) Perform a diagnostic system check, see page 05-4.

(b) With the front seat airbag assembly removed from the vehicle, perform a visual check. If there are any defects such as cuts, minute cracks or marked discolouration on the front seat airbag assembly, cracks or other damage to the wire harness or connector, replace the front seat airbag assembly with a new one.

CAUTION:

For the removal and installation procedures of the front seat airbag assembly, see Pub. No. AC-RM033V2, page 72-4 (power seat type) or Pub. No. AC-RM033V2, page 72-8 (manual seat type), and be sure to follow the correct procedure.

7. CENTRE AIRBAG SENSOR ASSEMBLY (VEHICLE NOT INVOLVED IN A COLLISION)

(a) Perform a diagnostic system check, see page 05-4.

8. CENTRE AIRBAG SENSOR ASSEMBLY (VEHICLE INVOLVED IN A COLLISION AND THE AIRBAG IS NOT DEPLOYED)

(a) Perform a diagnostic system check, see page 05-4.

9. CENTRE AIRBAG SENSOR ASSEMBLY (VEHICLE INVOLVED IN COLLISION AND THE AIRBAG IS DEPLOYED)

(a) Replace the airbag sensor assembly centre, see page 05-4.

CAUTION:

For the removal and installation procedures of the airbag sensor assembly centre, see page 60-27, and be sure to follow the correct procedure.

HINT:

The centre airbag sensor assembly should be replaced after any of the airbags have been deployed, as the system has been subjected to an impact.

10. FRONT AIRBAG SENSOR (VEHICLE NOT INVOLVED IN A COLLISION)

(a) Perform a diagnostic system check, see page 05-4.

11. FRONT AIRBAG SENSOR (VEHICLE INVOLVED IN A COLLISION AND THE AIRBAG IS NOT DEPLOYED)

(a) Perform a diagnostic system check, see page 05-4.

(b) When the front bumper of the vehicle or its periphery is damaged, check if there is any damage to the front airbag sensor. If any of the front airbag sensors have defects such as cracks, dents or chips in the case, cracks or other damage to the connector, peeling off of the label or damage to the serial number, replace it with a new one.

CAUTION:

For the removal and installation procedures of the airbag sensor front, see page 60-29, and ensure that the correct procedure is followed.

12. FRONT AIRBAG SENSOR (VEHICLE INVOLVED IN A COLLISION AND THE AIRBAG IS DEPLOYED)

(a) Replace the front airbag sensor, see page 60-29.

CAUTION:

For the removal and installation procedures of the front airbag sensor, see page 60-29, and ensure that the correct procedure is followed.

HINT:

The front airbag sensor on the impacted side should be replaced after the horn button assembly or passenger instrument panel airbag assembly.

13. SIDE AIRBAG SENSOR ASSEMBLY (VEHICLE NOT INVOLVED IN A COLLISION)

(a) Perform a diagnostic system check, see page 05-4.

14. SIDE AIRBAG SENSOR ASSEMBLY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)

(a) Perform a diagnostic system check, see page 05-4.

(b) When the centre pillar of the vehicle or its periphery is damaged, check if there is any damage to the side airbag sensor assembly. If there are any defects such as cracks, dents or chips in the case, cracks or other damage to the connector, peeling off of the label or damage to the serial number, replace the side airbag sensor assembly with a new one.

CAUTION:

For removal and installation procedures of the side airbag sensor assembly, see Pub. No. AC-RM033V2, page 60-47, and ensure that the correct procedure is followed.

15. SIDE AIRBAG SENSOR ASSEMBLY (VEHICLE INVOLVED IN A COLLISION AND THE AIRBAG IS DEPLOYED)

(a) Replace the side airbag sensor assembly, see **Pub. No. AC-RM033V2, page 60-47**.

CAUTION:

For removal and installation procedures of the side airbag sensor assembly, see Pub. No. AC-RM033V2, page 60-47, and ensure that the correct procedure is followed.

HINT:

The side airbag sensor assembly on the impacted side should be replaced after the front seat airbag assembly has deployed.

16. WIRE HARNESS AND CONNECTOR (VEHICLE NOT INVOLVED IN A COLLISION)

(a) Perform a diagnostic system check, see page 05-4.

17. WIRE HARNESS AND CONNECTOR (VEHICLE INVOLVED IN A COLLISION)

(a) Perform a diagnostic system check, see page 05-4.

(b) Check for breaks in all wires of the SRS wire harness and exposed conductors.

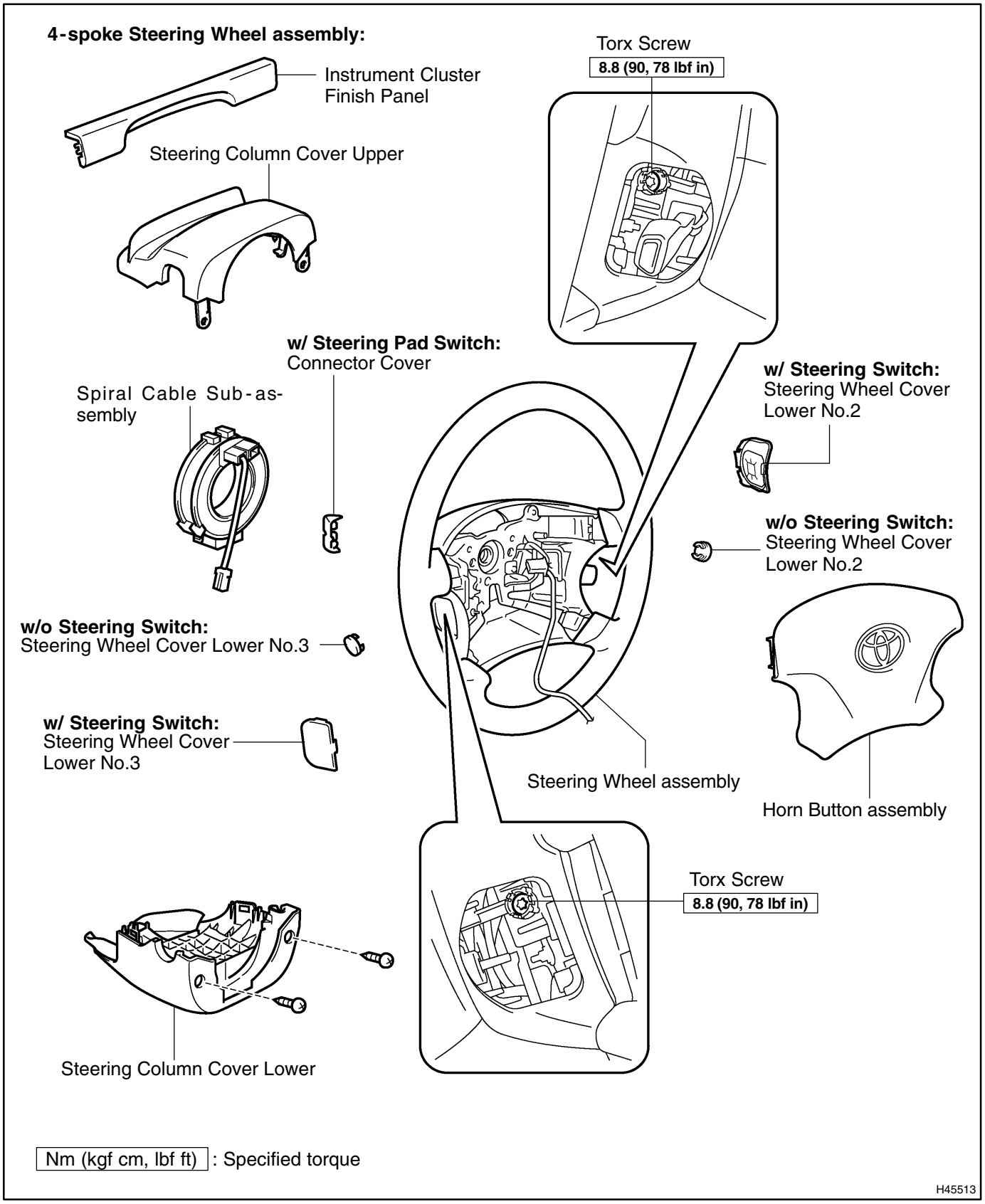
(c) Check to see if the SRS wire harness connectors are cracked or chipped.

HINT:

The SRS wire harness is integrated with the engine room main wire, instrument panel wire and floor wire.

HORN BUTTON ASSEMBLY

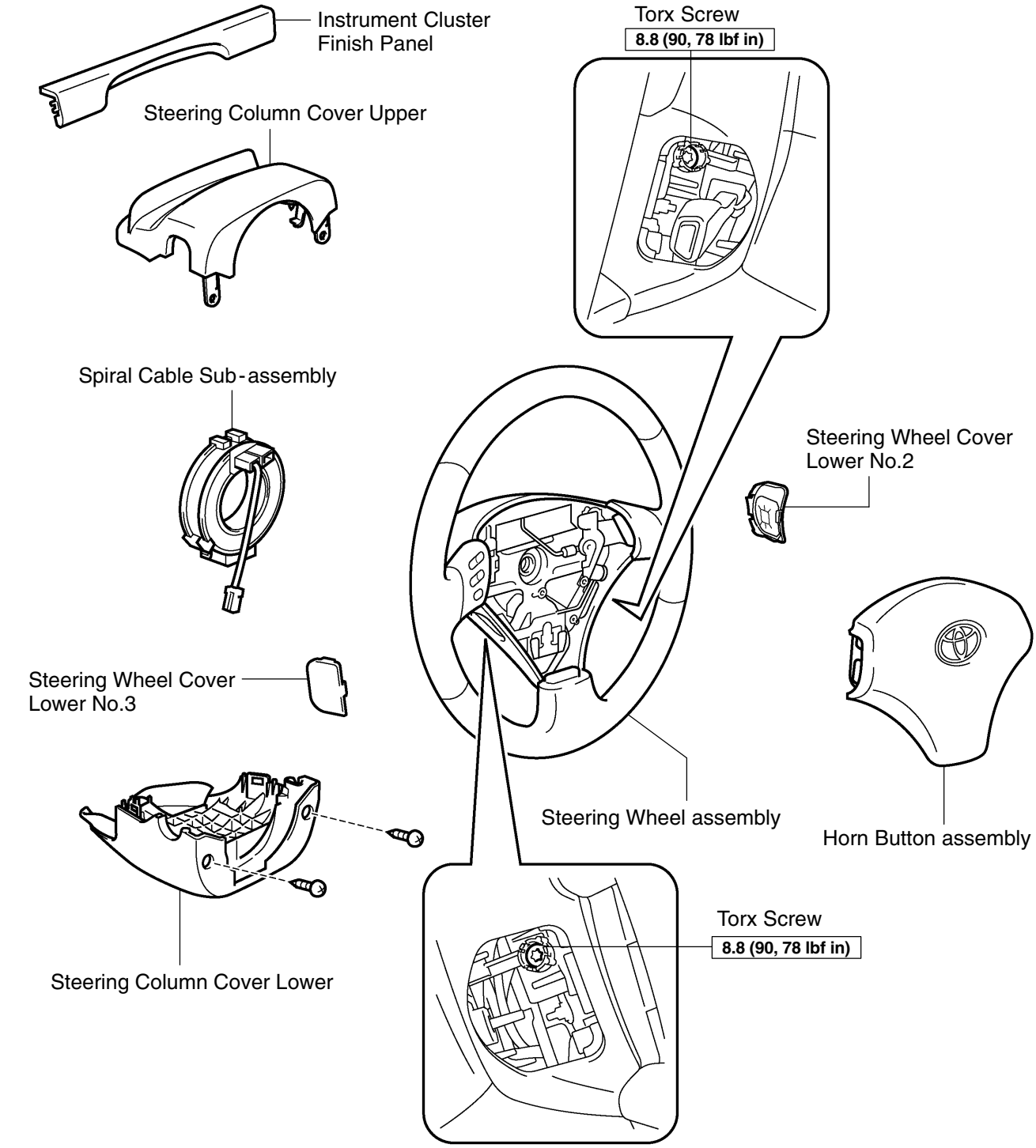
COMPONENTS



Nm (kgf cm, lbf ft) : Specified torque

H45513

3-spoke Steering Wheel assembly:



N·m (kgf·cm, ft·lbf) : Specified torque

H45512

REPLACEMENT

HINT:

- Installation is in the reverse order of removal.
- There are two types of horn button assembly:
  One is used with 3-spoke steering wheel assembly and the other is used with 4-spoke steering wheel assembly.

1. PRECAUTION , see page 60-1

2. DISCONNECT THE BATTERY NEGATIVE TERMINAL

CAUTION:

After removing the terminal, wait for at least 90 seconds before starting the operation.

3. REMOVE THE STEERING WHEEL COVER LOWER NO.2

(a) w/ Steering Switch and w/o Steering Switch
Using a screwdriver, remove the steering wheel cover lower No.2.

HINT:

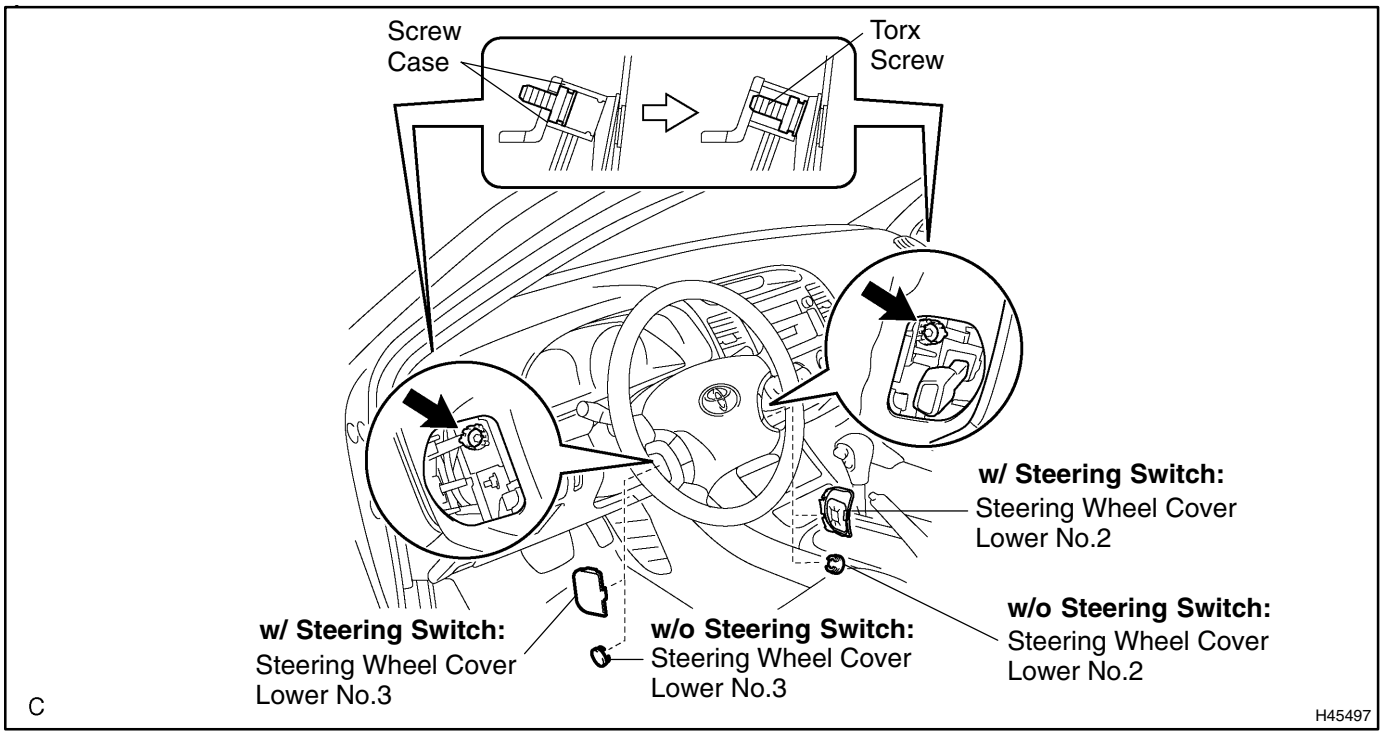
Tape up the screwdriver tip before use.

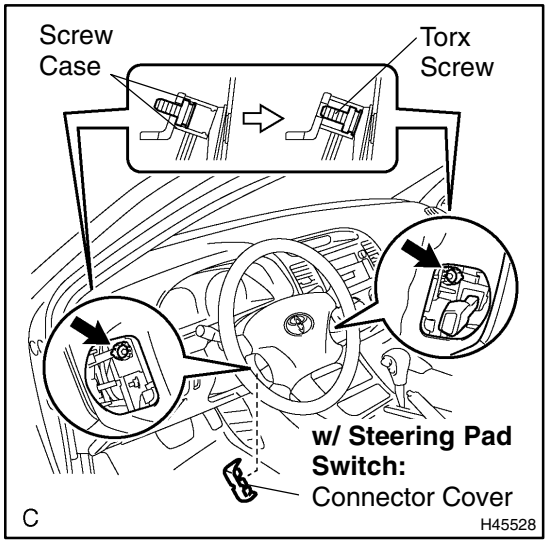
4. REMOVE THE STEERING WHEEL COVER LOWER NO.3

(a) w/ Steering Switch and w/o Steering Switch
Using a screwdriver, remove the steering wheel cover lower No.3.

HINT:

Tape up the screwdriver tip before use.



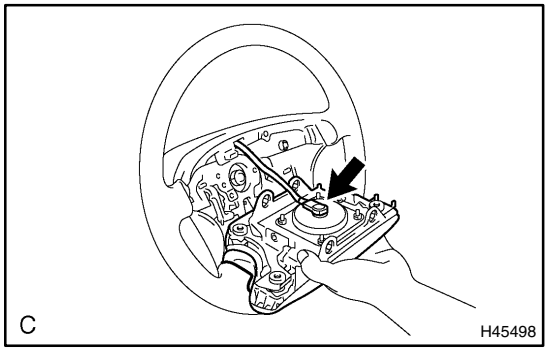


5. REMOVE CONNECTOR COVER

(a) w/ Steering Pad Switch:
Remove the connector cover.

6. REMOVE HORN BUTTON ASSEMBLY

(a) Using a torx socket wrench (T30), loosen the 2 torx screws until the groove along the screw circumference catches on the screw case.



(b) Pull out the horn button assembly from the steering wheel assembly and support the horn button assembly with one hand as shown in the illustration.

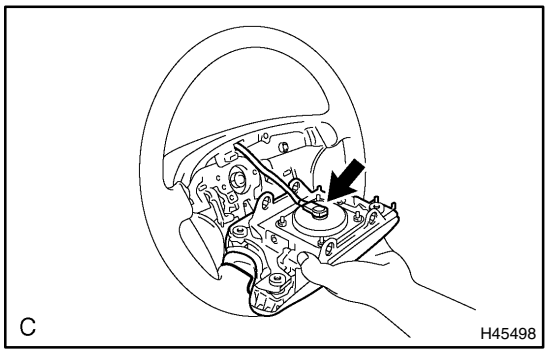
NOTICE:
When removing the horn button assembly, do not pull-on the airbag wire harness.

(c) Disconnect the horn connector.

(d) Disconnect the connector from the horn button assembly.

NOTICE:
When handling the airbag connector, take care not to damage the airbag wire harness.

(e) Remove the horn button assembly.



7. INSTALL HORN BUTTON ASSEMBLY

(a) Support the horn button assembly with one hand as shown in the illustration.

(b) Connect the connector to the horn button assembly.

NOTICE:
When handling the airbag connector, take care not to damage the airbag wire harness.

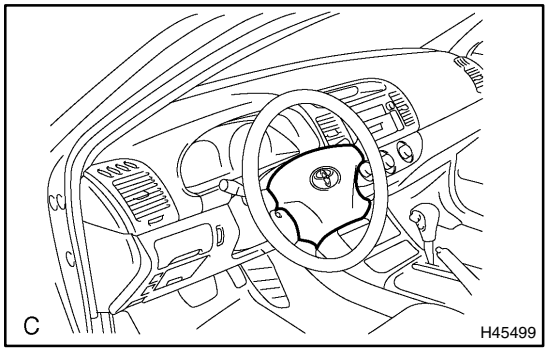
(c) Connect the horn connector.

(d) Confirm that the circumference groove of the torx screw fits into the screw case; place the horn button assembly onto the steering wheel assembly.

(e) Using a torx socket wrench (T30), tighten the 2 torx screws.

Torque: 8.8 N m (90 kgf cm, 78 lbf in)

8. CONNECT BATTERY NEGATIVE TERMINAL



9. INSPECT HORN BUTTON ASSEMBLY

(a) With the horn button assembly installed on the vehicle, perform a visual check. If there are any defects such as, cuts, minute cracks or marked discolouration on the horn button assembly top-surface or in the grooved portion, replace the horn button assembly with a new one.

(b) Make sure that the horn operates correctly.

HINT:

If the horn does not sound, inspect the horn system, see Pub. No. AC-RM033V2, page 69-3.

10. INSPECT SRS WARNING LIGHT (SEE PAGE 05-4)

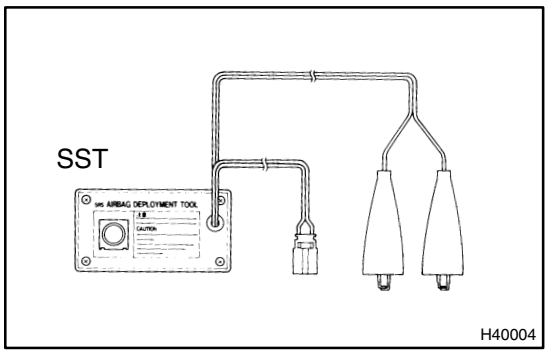
DISPOSAL

HINT:

- There are two types of horn button assembly:
  One is used with 3-spoke steering wheel assembly and the other is used with 4-spoke steering wheel assembly.
- The procedures listed below are for the 4-spoke steering wheel assembly.
- When scrapping a vehicle equipped with an SRS system or disposing of the horn button assembly, be sure to deploy the airbag first in accordance with the procedure described below. If any abnormality occurs with the airbag deployment, contact the SERVICE DEPARTMENT of a TOYOTA DEALERSHIP.

CAUTION:

- **Never dispose of a horn button assembly that has an undeployed airbag.**
- **The airbag produces an exploding sound when it is deployed, so perform the operation outdoors and where it will not create a nuisance to nearby residents.**
- **When deploying the airbag, always use the specified SST (SRS Airbag Deployment Tool). Perform the operation in a place away from electrical noise.**
- **When deploying the airbag, perform the operation at least 10 m (33 ft) away from the horn button assembly.**
- **The horn button assembly becomes extremely hot when the airbag is deployed, so do not touch it for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a horn button assembly with a deployed airbag.**
- **Do not apply water, etc. to a horn button assembly with a deployed airbag.**
- **Always wash your hands with water after completing the operation.**



1. DISPOSE OF A HORN BUTTON ASSEMBLY (WHEN INSTALLED IN VEHICLE)

HINT:

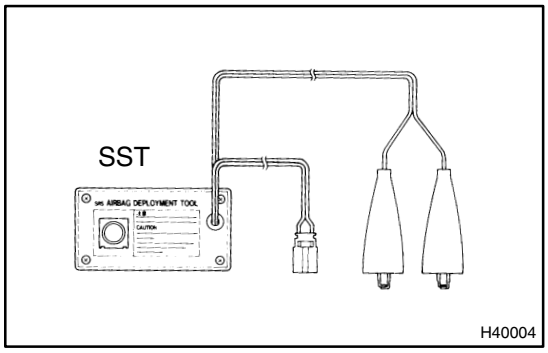
Prepare a battery as the power source to deploy the airbag.

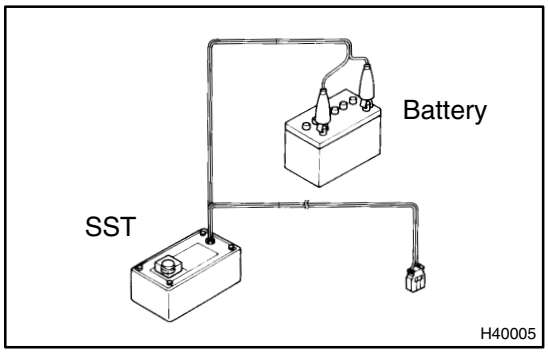
(a) Check the functioning of the SST.

HINT:09082-00700

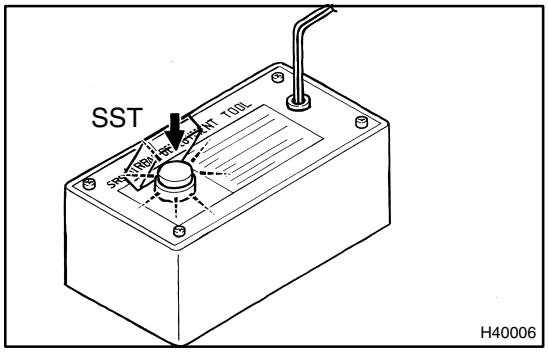
CAUTION:

When deploying the airbag, always use the specified SST: SRS Airbag Deployment Tool.





(1) Connect the SST to the battery.
Connect the red clip of the SST to the battery positive (+) terminal and the black clip of the SST to the battery negative (-) terminal.



(2) Check the functioning of the SST.
Press the SST activation switch, and check that the LED of the SST activation switch comes on.

CAUTION:

- **Do not connect the SST connector (yellow coloured connector) to the airbag.**
- **If the LED comes on when the activation switch is not being pressed; an SST malfunction is possible, therefore replace the SST with a new one.**

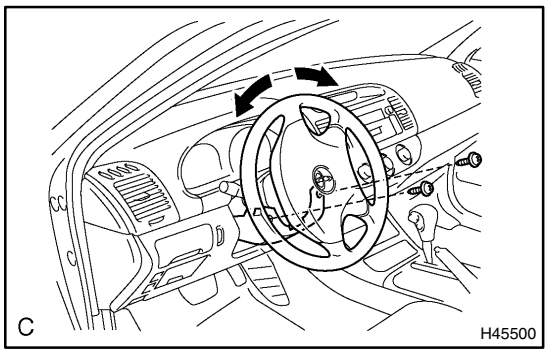
(3) Disconnect the SST from the battery.

(b) Precaution (see page 60-1).

(c) Disconnect the battery negative terminal.

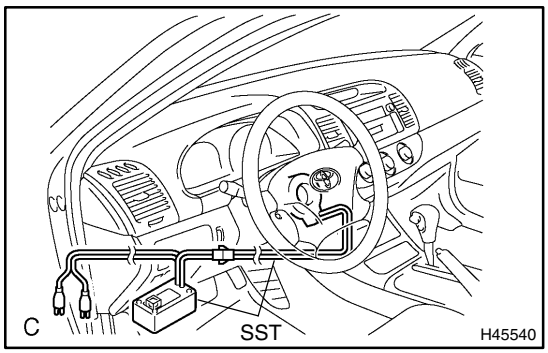
CAUTION:

After removing the terminal, wait for at least 90 seconds before starting the operation.



(d) Remove the steering column cover lower.

(1) While turning the steering wheel assembly to the right and left, remove the 2 screws and steering column cover lower.



(e) Install the SST.

CAUTION:

Check that there is no looseness in the steering wheel assembly and horn button assembly.

(1) Disconnect the airbag connector (yellow coloured one) from the spiral cable sub-assembly.

NOTICE:

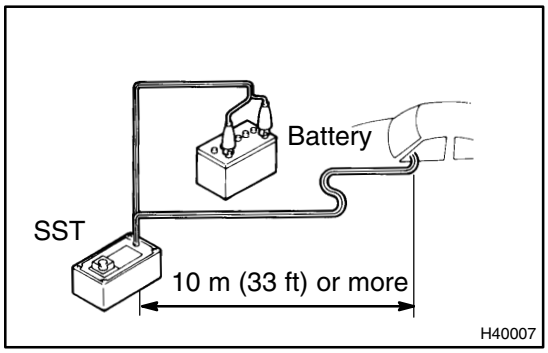
When handling the airbag connector, take care not to damage the airbag wire harness.

(2) Connect the SST connector to the airbag connector of the spiral cable sub-assembly.

HINT:09082-00700, 09082-00760

NOTICE:

To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock.



(3) Move the SST at least 10 m (33 ft) away from the vehicle front side window.

(4) Close all doors and windows of the vehicle.

NOTICE:

Take care not to damage the SST wire harness.

(5) Connect the red clip of the SST to the battery positive (+) terminal and the black clip of the SST to the negative (-) terminal.

(f) Deploy the airbag.

(1) Check that no-one is inside the vehicle or within a 10 m (33 ft) radius of the vehicle.

(2) Press the SST activation switch and deploy the airbag.

CAUTION:

- **When deploying the airbag, make sure that no-one is near the vehicle.**
- **The horn button assembly becomes extremely hot when the airbag is deployed, so do not touch it for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a horn button assembly with a deployed airbag.**
- **Do not apply water, etc. to a horn button assembly with a deployed airbag.**
- **Always wash your hands with water after completing the operation.**

HINT:

The airbag is deployed as the LED of the SST activation switch comes on.

2. DISPOSE OF HORN BUTTON ASSEMBLY (WHEN NOT INSTALLED IN THE VEHICLE)

NOTICE:

- **When disposing of the horn button assembly, never use the customer's vehicle to deploy the airbag.**
- **Be sure to follow the procedure detailed below when deploying the airbag.**

HINT:

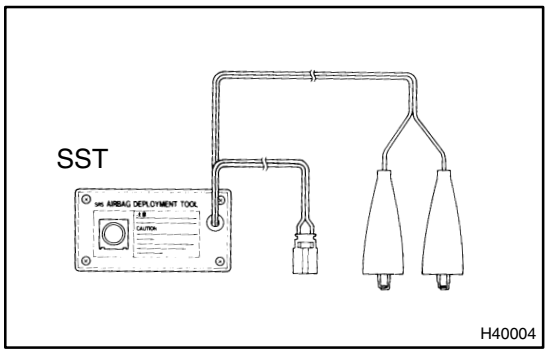
Prepare a battery as the power source to deploy the airbag.

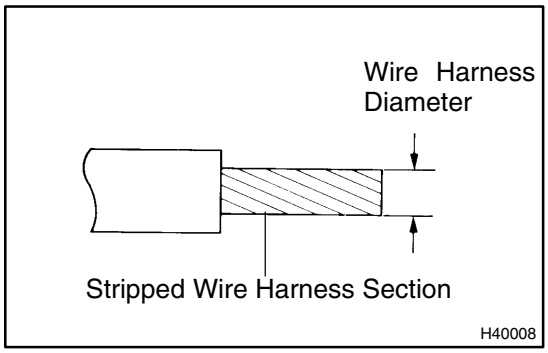
(a) Check the function of the SST, see step 1(a).

(b) Remove the horn button assembly, see page 60-16.

CAUTION:

- **When removing the horn button assembly, work must be started 90 seconds after the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.**
- **When storing the horn button assembly, keep the airbag deployment side facing upward.**





(c) Using a service-purpose wire harness for the vehicle, tie down the horn button assembly to the disc wheel.
Wire harness: Stripped wire harness section 1.25 mm^2 or more (0.0019 in^2 or more)

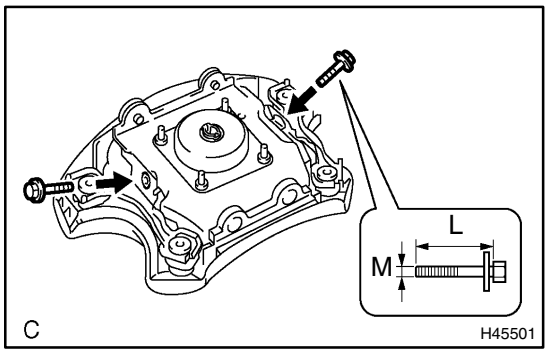
CAUTION:

If the wire harness is too thin or an alternative object is used to tie down the horn button assembly, it may be snapped by the shock when the airbag is deployed. Always use a wire harness for vehicle use with an area of at least 1.25 mm^2 (0.0019 in^2).

HINT:

To calculate the area of the stripped wire harness section:

Area = 3.14 x (Diameter)^2 divided by 4



(1) Install the 2 bolts with washers into the 2 bolt holes on the horn button assembly.

Bolt:

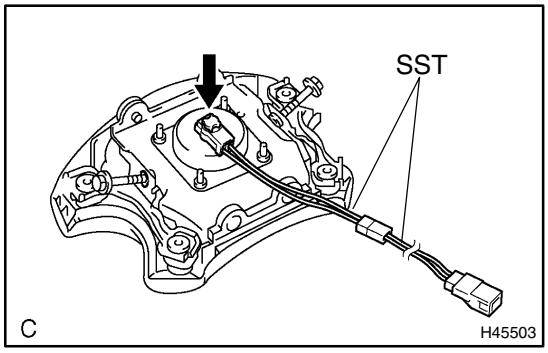
L: 35.0 mm (1.387 in)

M: 6.0 mm (0.236 in)

Pitch: 1.0 mm (0.039 in)

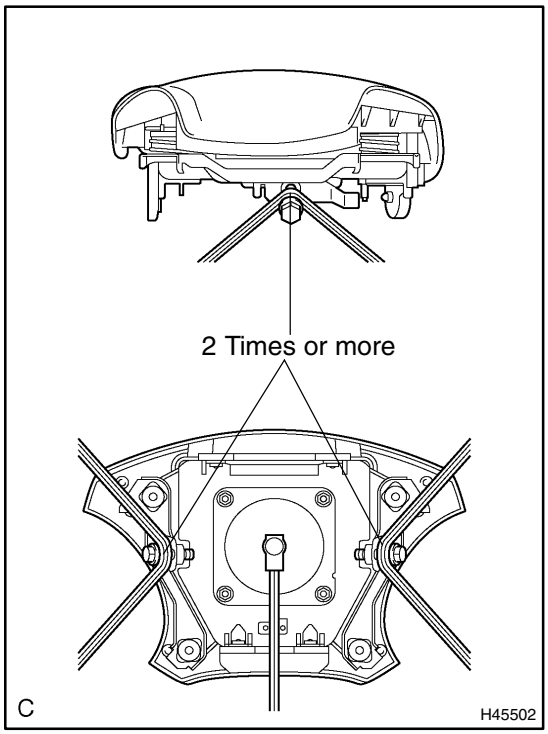
NOTICE:

- **Tighten the bolts by hand until they become difficult to turn.**
- **Do not tighten the bolts excessively.**



(2) After connecting the SST below to each other, connect them to the horn button assembly.

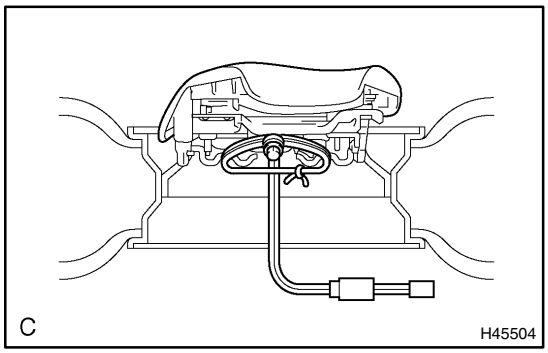
SST 09082-00802 (09082-10801, 09082-40800)



(3) Using 3 wire harnesses, wind the wire harness at least 2 times each around the bolts installed on the left and right sides of the horn button assembly.

CAUTION:

- **Tightly wind the wire harness around the bolts so that there is no slack.**
- **Make sure that the wire harness is tight. If there is slack in the wire harness, the horn button assembly may become loose due to the shock when the airbag is deployed.**



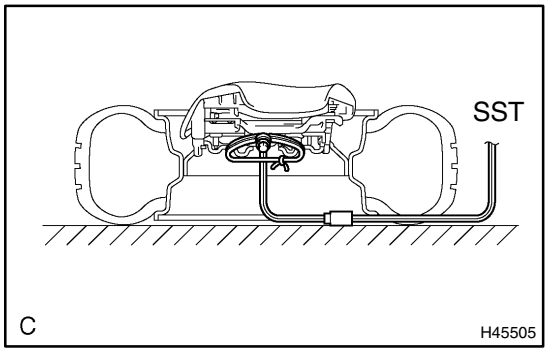
(4) Face the airbag deployment side of the horn button assembly upward. Separately tie the left and right sides of the horn button assembly to the disc wheel through the hub nut holes. Position the SST connector so that it hangs downward through the hub hole in the disc wheel.

CAUTION:

- **Make sure that the wire harness is tight. If there is slack in the wire harness, the horn button assembly may become loose due to the shock when the airbag is deployed.**
- **Always tie down the horn button assembly with the airbag deployment side facing upward.**

NOTICE:

The disc wheel will be marked by the airbag deployment, so when disposing of the airbag use a redundant disc wheel.



(d) Install the SST.

CAUTION:

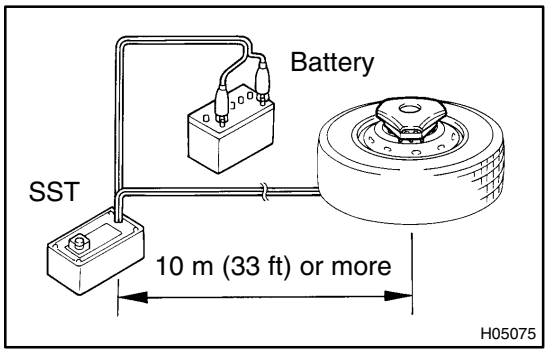
Place the disc wheel on level ground.

HINT:09082-00700

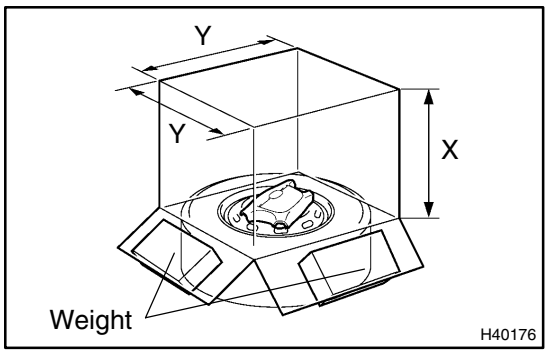
(1) Connect the SST connector.

NOTICE:

To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock. Also, secure some slack for the SST wire harness inside the disc wheel.



(2) Move the SST at least 10 m (33 ft) away from the horn button assembly tied down to the disc wheel.



(e) Cover the horn button assembly with a cardboard box or tyres.

(1) **Using a cardboard box:**

Cover the horn button assembly with a cardboard box and place weights of at least 190 N (19 kg, 43 lb) on the cardboard box in 4 places as shown in the illustration.

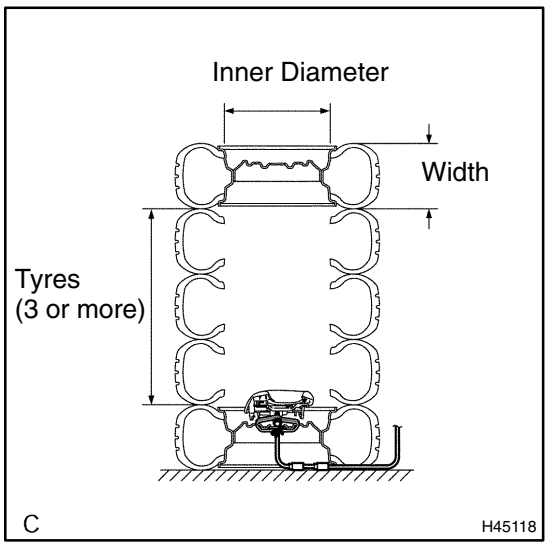
Cardboard box size: Must exceed the following dimensions

X = 460 mm (18.11 in)

Y = 650 mm (25.59 in)

NOTICE:

- **When dimension Y of the cardboard box exceeds the diameter of the disc wheel with tyre which the horn button assembly is tied to, X should be the following size.**
  X = 460 mm (18.11 in.) + width of tyre
- **If a cardboard box which is smaller than the specified size is used, the cardboard box will be broken by the shock from the airbag deployment.**



(2) **Using tyres:**

Place at least 3 tyres without disc wheels on the tyre with disc wheel which the horn button assembly is tied to. Place the tyre with disc wheel on them.

Tyre size: Must exceed the following dimensions

Width: 185 mm (7.28 in)

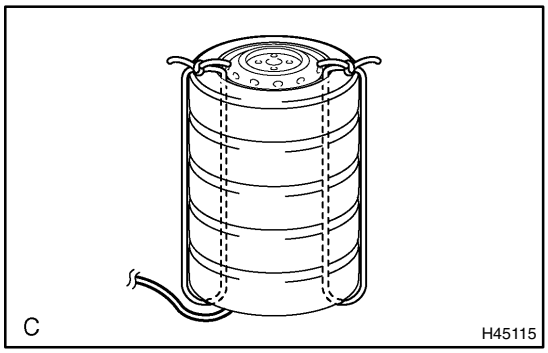
Inner diameter: 360 mm (14.17 in)

CAUTION:

Do not use tyres with disc wheels except on the top and bottom.

NOTICE:

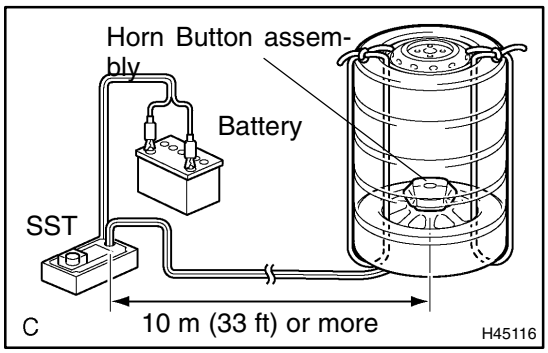
- **The tyres may be marked by the airbag deployment, therefore use redundant tyres.**
- **Do not place the SST connector under the tyre because it could be damaged.**



(3) Tie the tyres together with 2 wire harnesses.

CAUTION:

Make sure that the wire harness is tight. Looseness in the wire harness results in the tyres coming free due to the shock of the airbag deploying.



(f) Deploy the airbag.

(1) Connect the red clip of the SST to the battery positive (+) terminal and the black clip of the SST to the battery negative (-) terminal.

(2) Check that no-one is within a 10 m (33 ft) radius of the disc wheel which the horn button assembly is tied to.

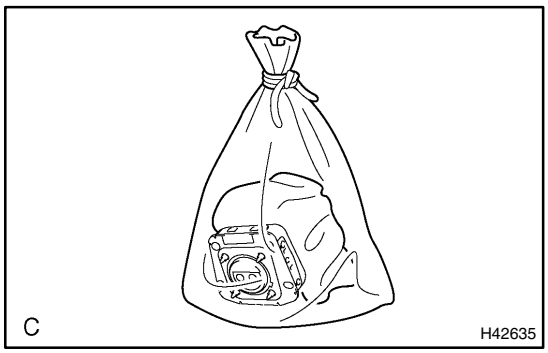
(3) Press the SST activation switch and deploy the airbag.

CAUTION:

When deploying the airbag, make sure that no-one is near the tyres.

HINT:

The airbag is deployed as the LED of the SST activation switch comes on.



(g) Dispose of the horn button assembly.

CAUTION:

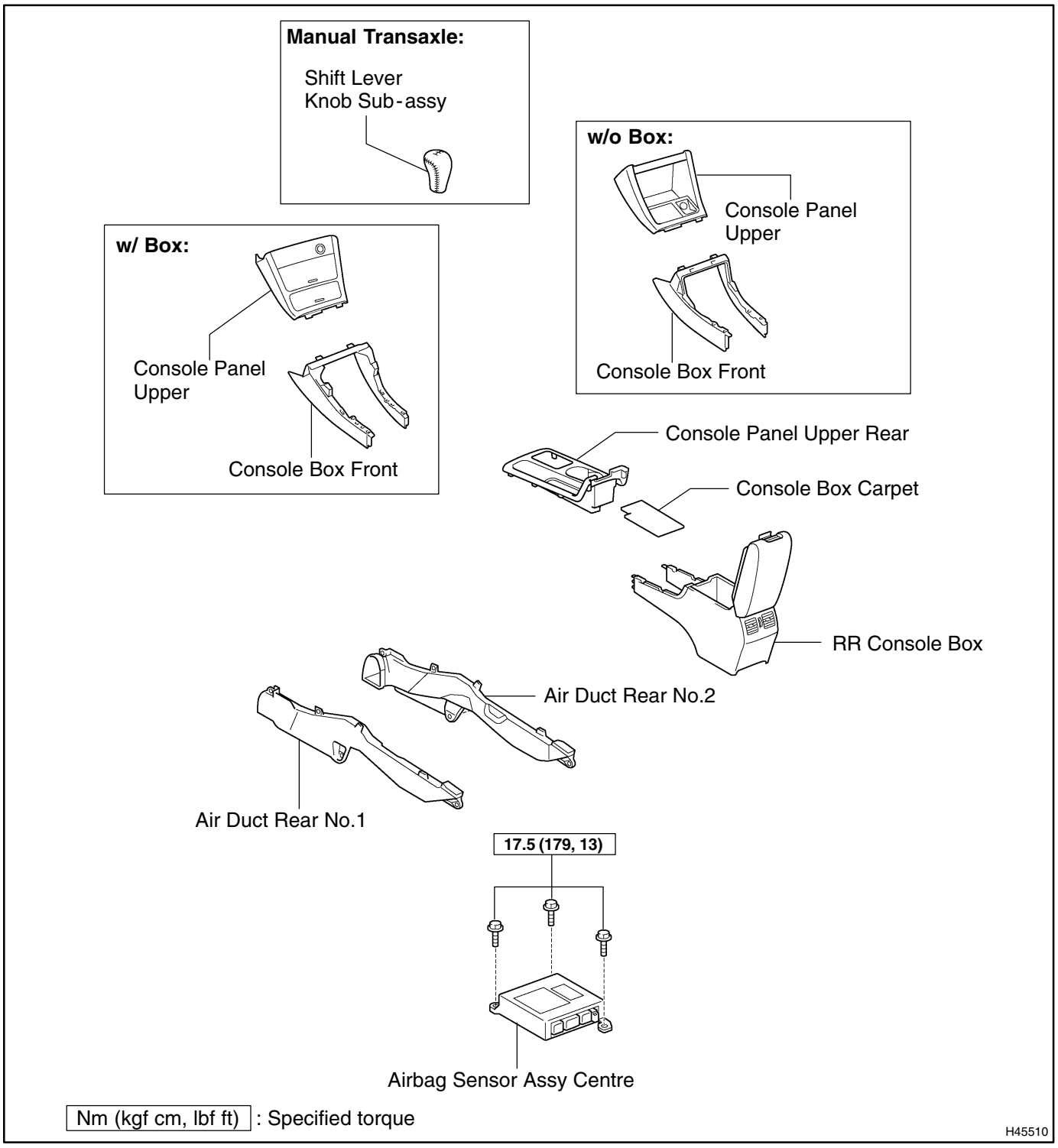
- **The horn button assembly becomes extremely hot when the airbag is deployed, therefore do not touch it for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling a horn button assembly with a deployed airbag.**
- **Do not apply water, etc. to a horn button assembly with a deployed airbag.**
- **Always wash your hands with water after completing the operation.**

(1) Remove the horn button assembly from the disc wheel.

(2) Place the horn button assembly in a vinyl bag, tie it tightly and dispose of it in the same way as other general parts disposal.

AIR BAG SENSOR ASSY CENTRE

COMPONENTS



REPLACEMENT

HINT:
Installation is in the reverse order of removal.

1. PRECAUTION (SEE PAGE 60-1)

2. DISCONNECT THE BATTERY NEGATIVE TERMINAL

CAUTION:

After removing the terminal, wait for at least 90 seconds before starting the operation.

3. REMOVE THE SHIFT LEVER KNOB SUB-ASSEMBLY (MANUAL TRANSAXLE), See page 71-5

4. REMOVE CONSOLE PANEL UPPER REAR, See page 71-5

5. REMOVE CONSOLE BOX CARPET, See page 71-5

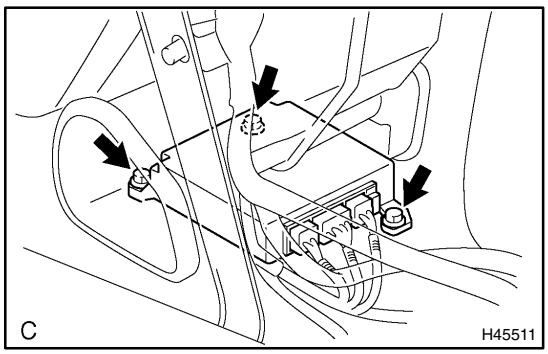
6. REMOVE RR CONSOLE BOX, See Page 71-5

7. REMOVE CONSOLE PANEL SUB-ASSEMBLY, See Page 71-5

8. REMOVE CONSOLE BOX, SEE PAGE 71-5

9. REMOVE CONSOLE BOX DUCT NO.1, See Pub. No. AC-RM033V2, Page 55-25

10. REMOVE CONSOLE BOX DUCT NO.2, See Pub. No. AC-RM033V2, Page 55-25



11. Remove Air Bag Sensor Assembly Center

(a) Disconnect the 3 Connectors from the airbag sensor assembly centre.

(b) Remove the 3 bolts and airbag sensor assembly centre.

12. INSTALL AIR BAG SENSOR ASSEMBLY CENTER

(a) Check that the ignition switch is in the off position.

(b) Check that the battery negative (-) terminal is disconnected.

NOTICE:

After removing the terminal, wait for at least 90 seconds before starting the operation.

(c) Temporarily install the airbag sensor assembly centre with the 3 bolts.

NOTICE:

- **If the airbag sensor assembly center has been dropped, or there are any cracks, dents or other defects in the case, bracket, or connector, replace it with a new one.**
- **When installing the airbag sensor assembly center, be careful that the SRS wiring does not interfere with other component and that it is not pinched between other components.**

(d) Tighten the 3 bolts to the specified torque.
Torque: 17.5 Nm (179 kgf cm, 13 lbf ft)

(e) Check that there is no looseness in the installation of the airbag sensor assembly centre.

(f) Connect the 3 connectors to the airbag sensor assembly centre.

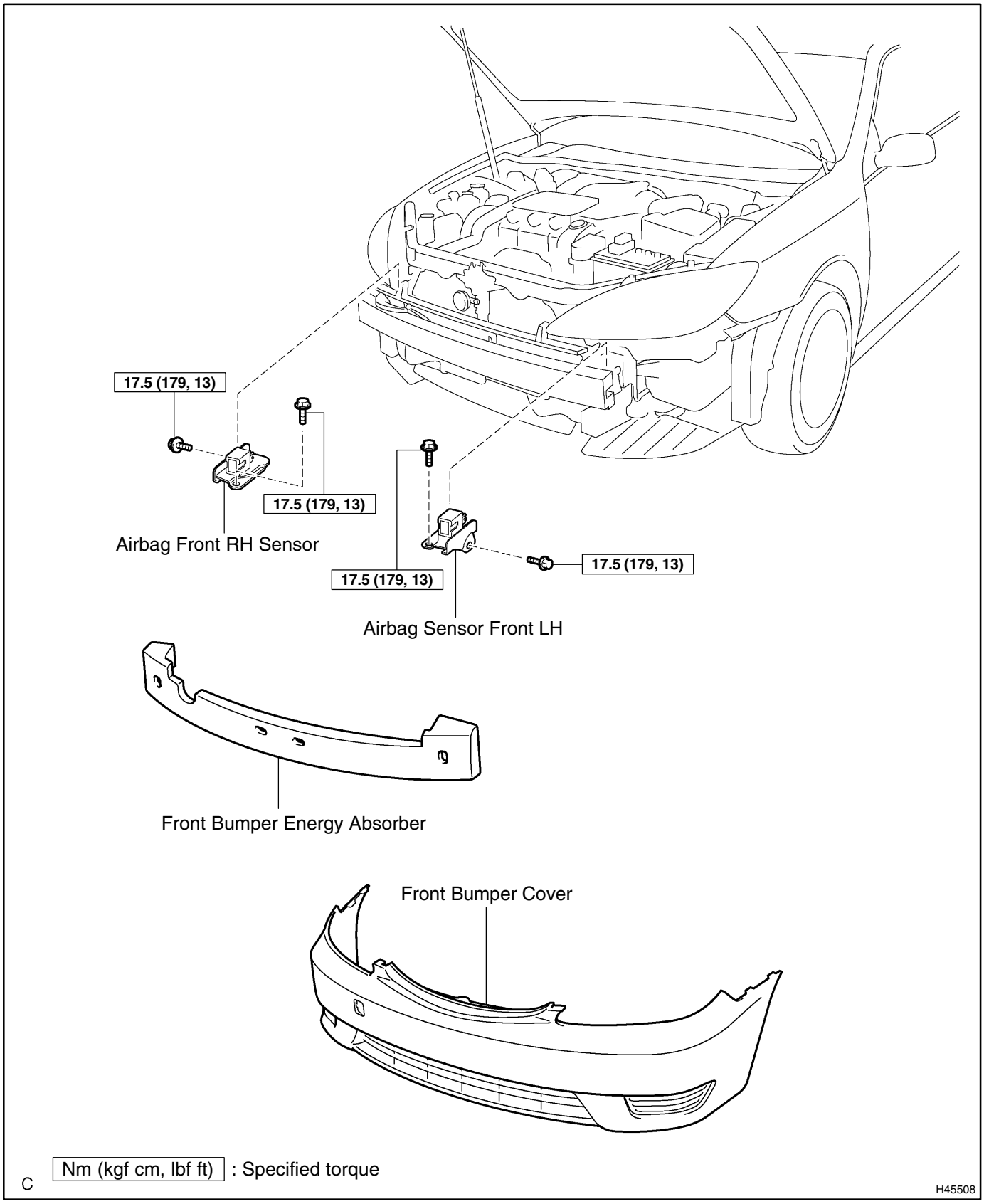
(g) Check that the water-proof sheet is properly set.

13. CONNECT THE BATTERY NEGATIVE TERMINAL

14. INSPECT THE SRS WARNING LIGHT, See page 05-4

AIRBAG FRONT RH SENSOR

COMPONENTS



C Nm (kgf cm, lbf ft) : Specified torque

H45508

REPLACEMENT

HINT:

- Use the same procedures for the LH and RH sides.
- The procedures listed below are for the RH side.
- Installation is in the reverse order of removal.

1. PRECAUTION, See page 60-1

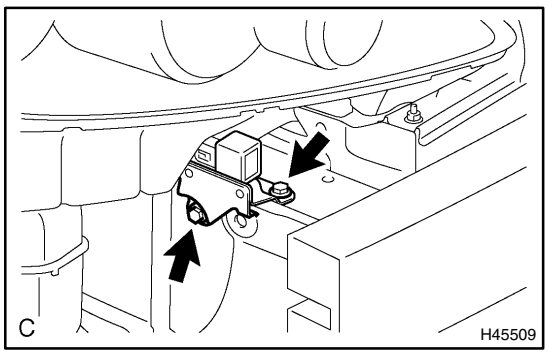
2. DISCONNECT THE BATTERY NEGATIVE TERMINAL

CAUTION:

After removing the terminal, wait for at least 90 seconds before starting the operation.

3. REMOVE THE FRONT BUMPER COVER, See page 76-2

4. REMOVE FRONT BUMPER ENERGY ABSORBER (SEE PAGE 76-2)



5. REMOVE AIRBAG FRONT RH SENSOR

(a) Disconnect the connector from the airbag front RH sensor.

(b) Remove the 2 bolts and airbag front RH sensor.

6. INSTALL THE AIRBAG FRONT RH SENSOR

(a) Check that the ignition switch is in the off position.

(b) Check that the battery negative (-) terminal is disconnected.

NOTICE:

After removing the terminal, wait for at least 90 seconds before starting the operation.

(c) Install the airbag front RH sensor with the 2 bolts.

Torque: Torque: 17.5 Nm (179 kgf cm, 13 lbf ft)

NOTICE:

- **If the airbag front RH sensor has been dropped, or there are any cracks, dents or other defects in the case or connector, replace it with a new one.**
- **When installing the airbag front RH sensor, be careful that the SRS wiring does not interfere with or is not pinched between other components.**

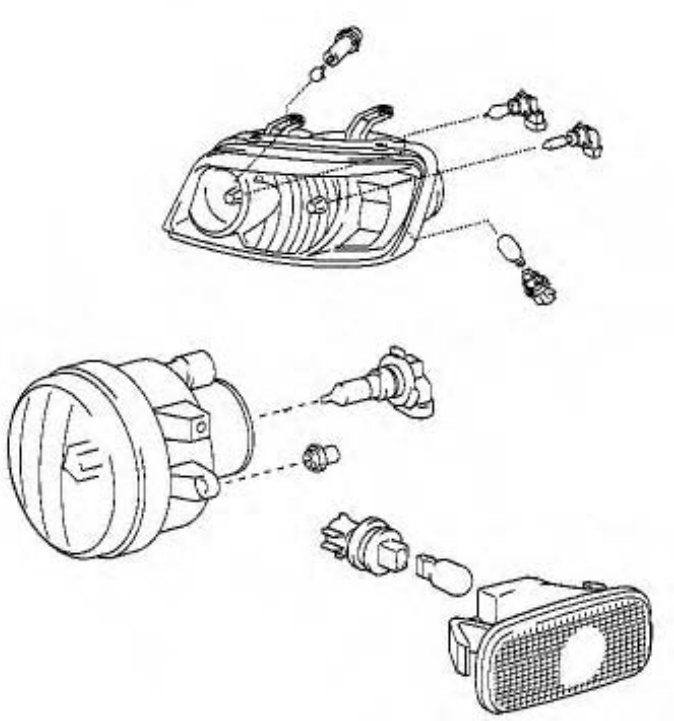
(d) Check that there is no looseness in the installation parts of the airbag front RH sensor.

(e) Connect the connector to the airbag front RH sensor.

7. CONNECT BATTERY NEGATIVE TERMINAL

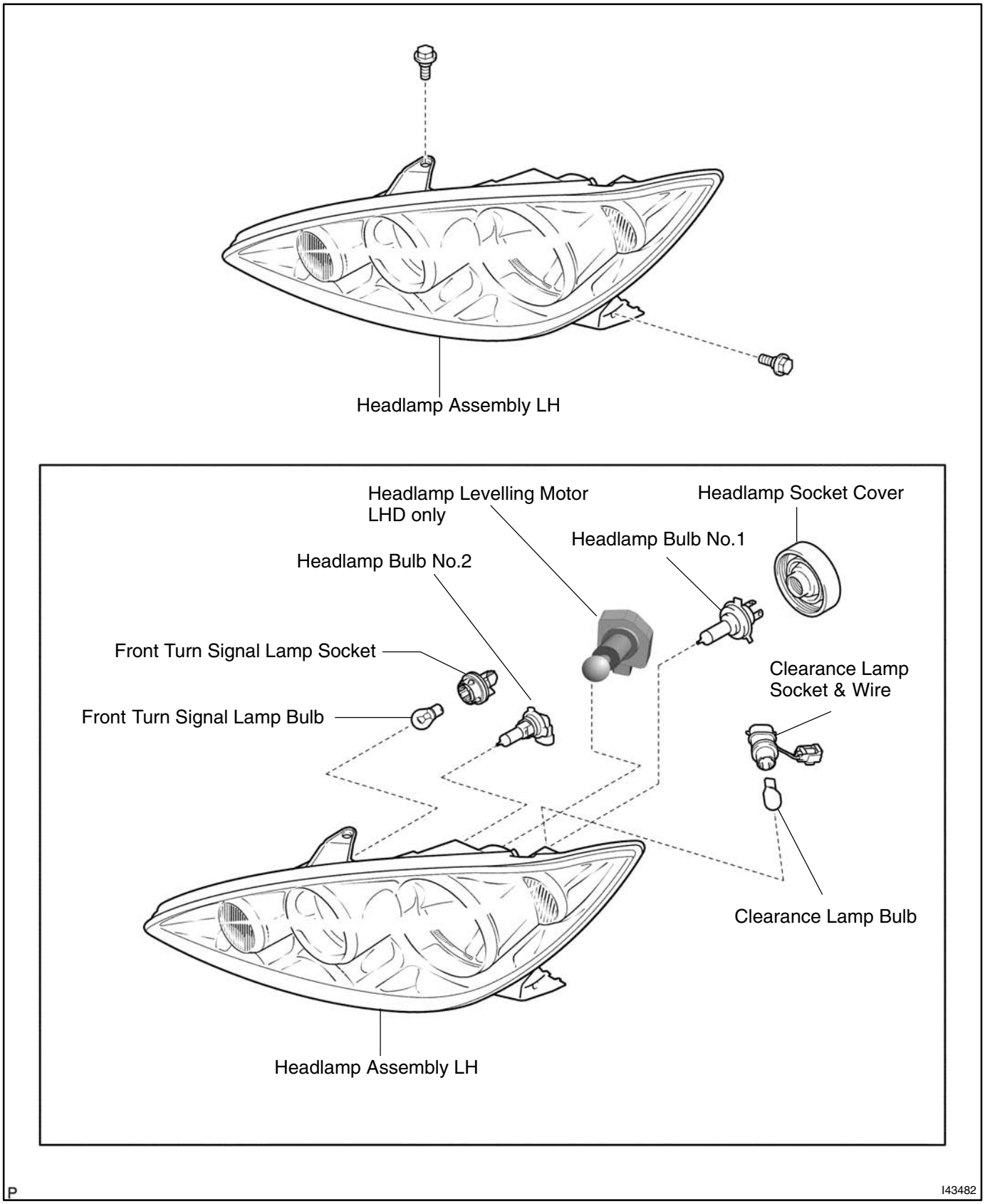
8. INSPECT SRS WARNING LIGHT (SEE PAGE 05-4)

Section 65 – Lighting



HEADLAMP ASSY LH

COMPONENTS

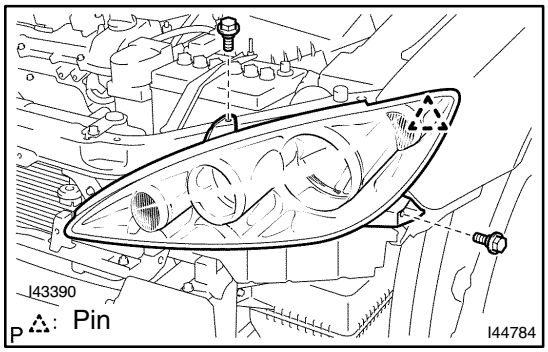


OVERHAUL

HINT:

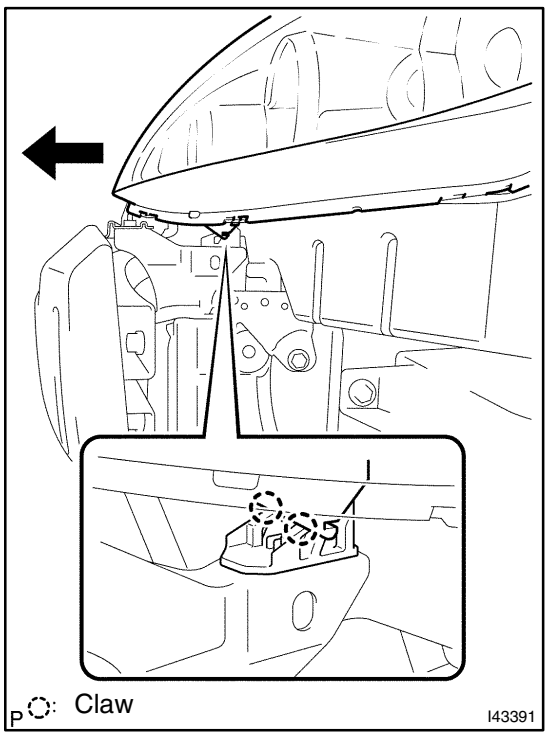
- COMPONENTS, See page 65-1.
- Use the same procedures for both the RH and LH sides.
- The procedures listed below are for the LH side.
- Installation is in the reverse order of removal.

1. REMOVE FRONT BUMPER ASSY (SEE PAGE 76-2)



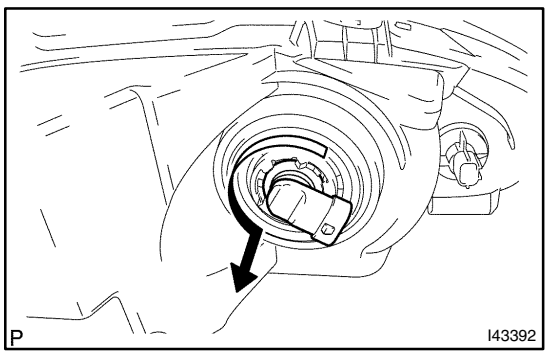
2. REMOVE THE HEADLAMP ASSY LH

(a) Remove the 2 bolts and disengage the pin.

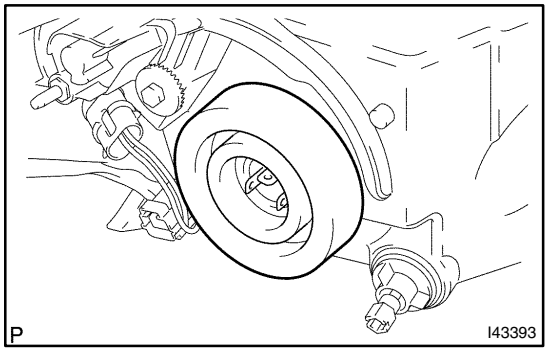


(b) Disengage the 2 claws and pull the headlamp assy LH in the direction indicated by the arrow, and then separate the headlamp assy LH from the vehicle.

(c) Disconnect the connectors and remove the headlamp assy LH.

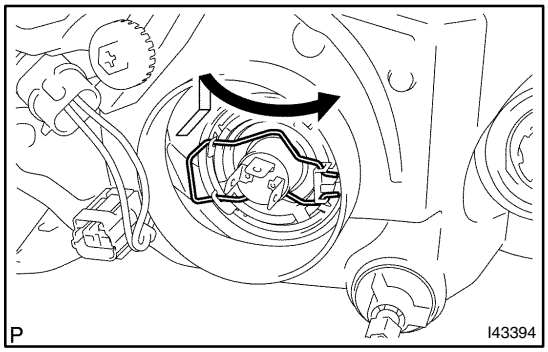


(d) Turn headlamp bulb in the direction indicated by the arrow and remove the headlamp bulb No.2.

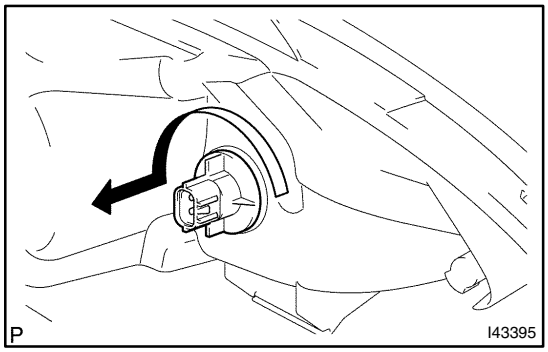


3. REMOVE HEADLAMP SOCKET COVER

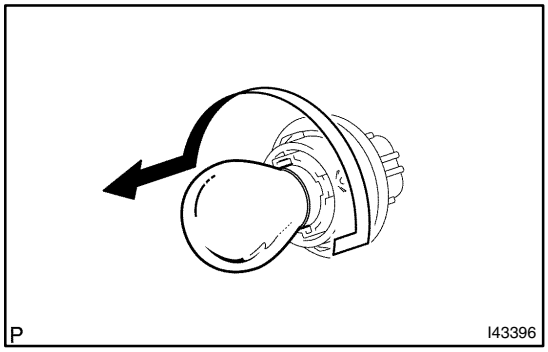
(a) Remove the headlamp socket cover.



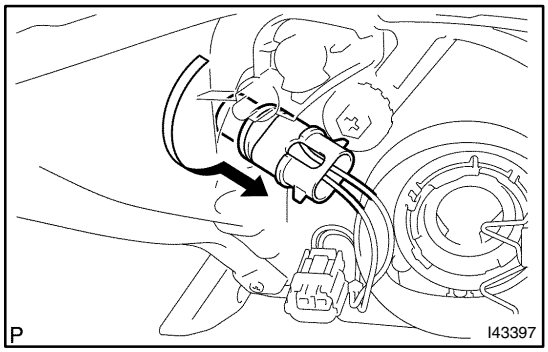
(b) Release the set spring lock as shown in the illustration and remove the headlamp bulb No.1.



(c) Turn the front turn signal lamp socket in the direction indicated by the arrow in the illustration and remove the front turn signal lamp bulb as a unit.

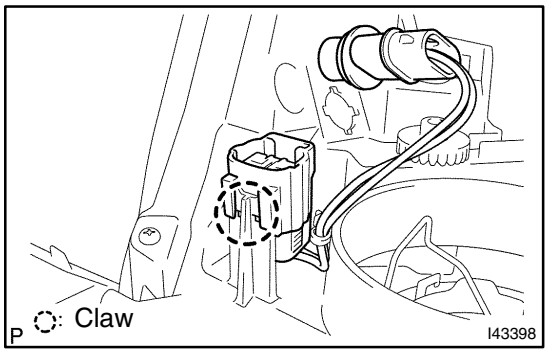


(d) Turn the front turn signal lamp bulb in the direction indicated by the arrow and remove it.



(e) Turn the clearance lamp socket & wire in the direction indicated by the arrow and remove the clearance lamp bulb as a unit.

(f) Remove the clearance lamp bulb from the clearance lamp socket & wire.



(g) Disengage the claw and remove the clearance lamp socket & wire.

4. **VEHICLE PREPARATION FOR HEADLAMP AIM ADJUSTMENT, See page 65-8**
5. **PREPARATION FOR HEADLAMP AIMING (Using a screen), See page 65-8**
6. **HEADLAMP AIMING INSPECTION, See page 65-8**
7. **HEADLAMP AIMING ADJUSTMENT, See page 65-8**
8. **VEHICLE PREPARATION FOR FOG LAMP AIM ADJUSTMENT, See page 65-13**
9. **PREPARATION FOR FOG LAMP AIMING, See page 65-13**
10. **FOG LAMP AIMING INSPECTION, See page 65-13**
11. **FOG LAMP AIMING ADJUSTMENT, See page 65-13**

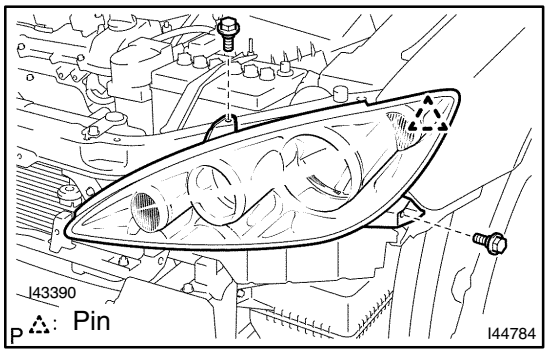
OVERHAUL

HINT:

- COMPONENTS, See page 65-1.
- Use the same procedures for both the RH and LH sides.
- The procedures listed below are for the LH side.
- Installation is in the reverse order of removal.

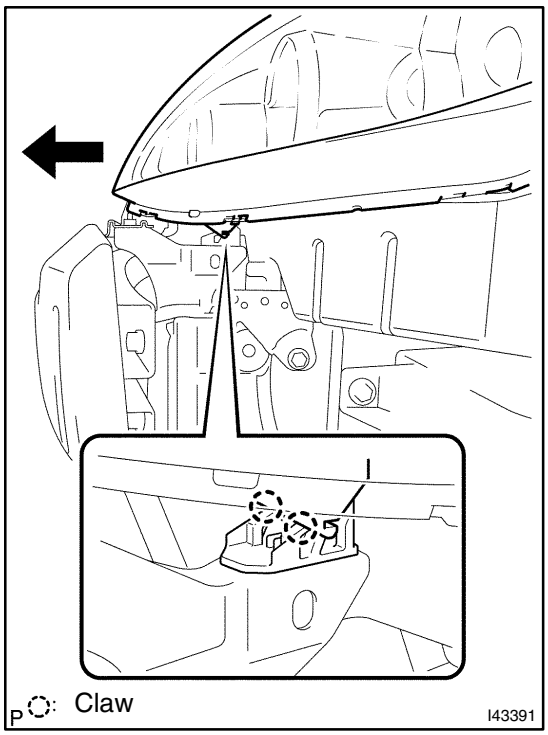
1. SET THE HEADLAMP LEVEL CONTROL TO ZERO

2. REMOVE FRONT BUMPER ASSY (SEE PAGE 76-2)



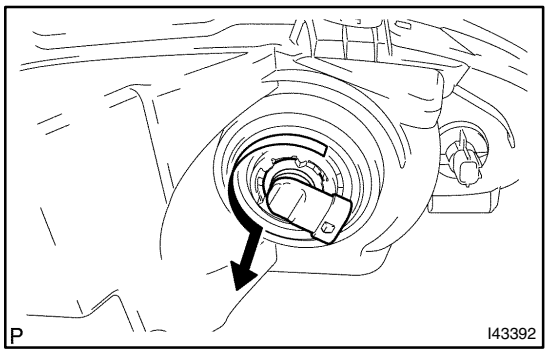
3. REMOVE THE HEADLAMP ASSY LH

(a) Remove the 2 bolts and disengage the pin.

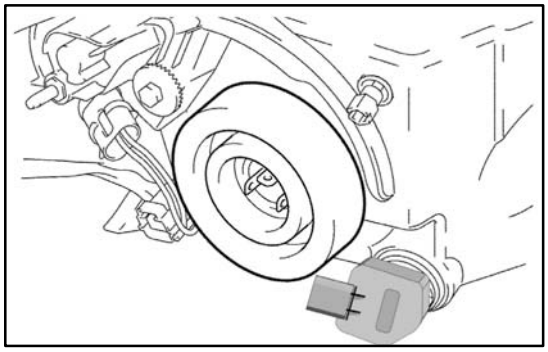


(b) Disengage the 2 claws and pull the headlamp assy LH in the direction indicated by the arrow, and then separate the headlamp assy LH from the vehicle.

(c) Disconnect the connectors and remove the headlamp assy LH.

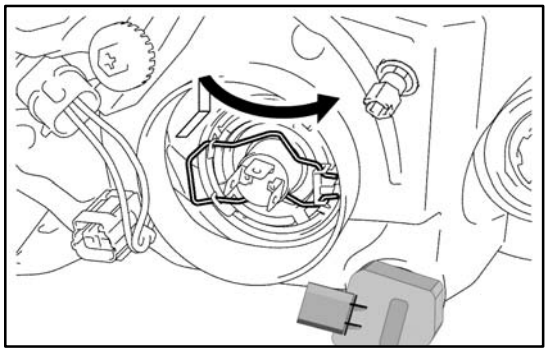


(d) Turn headlamp bulb in the direction indicated by the arrow and remove the headlamp bulb No.2.

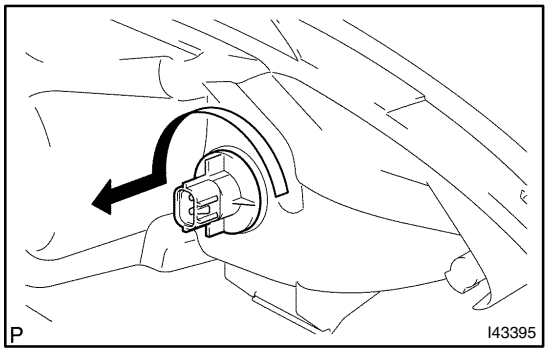


4. REMOVE HEADLAMP SOCKET COVER

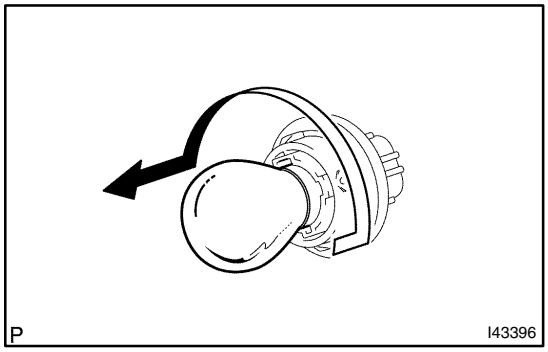
(a) Remove the headlamp socket cover.



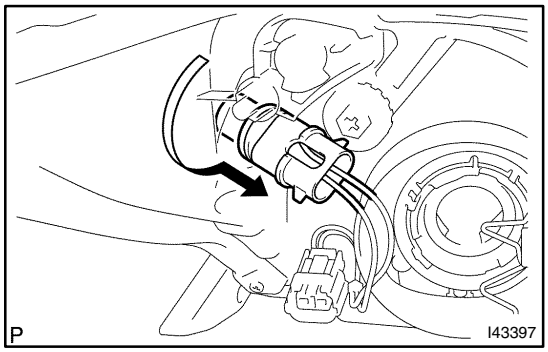
(b) Release the set spring lock as shown in the illustration and remove the headlamp bulb No.1.



(c) Turn the front turn signal lamp socket in the direction indicated by the arrow in the illustration and remove the front turn signal lamp bulb as a unit.

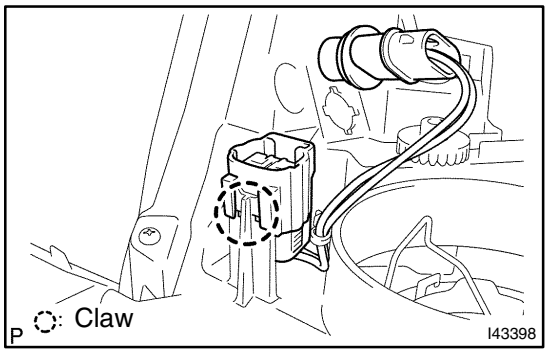


(d) Turn the front turn signal lamp bulb in the direction indicated by the arrow and remove it.

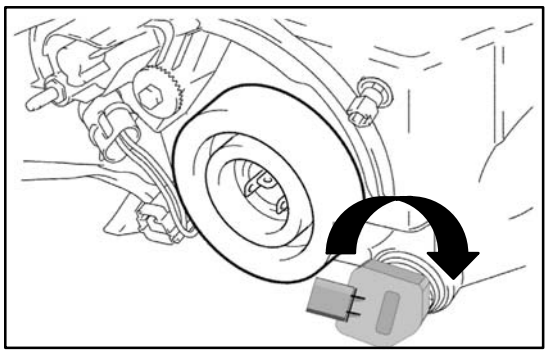


(e) Turn the clearance lamp socket & wire in the direction indicated by the arrow and remove the clearance lamp bulb as a unit.

(f) Remove the clearance lamp bulb from the clearance lamp socket & wire.



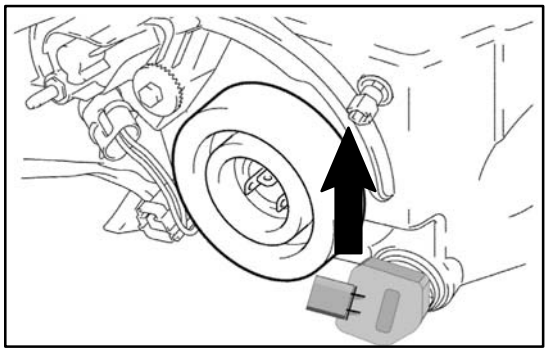
(g) Disengage the claw and remove the clearance lamp socket & wire.



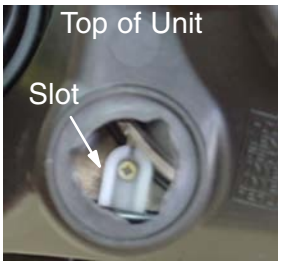
5. REMOVE HEADLAMP LEVEL MOTOR

(a) Disconnect the headlamp level motor connector.

(b) Rotate the in a clockwise direction as shown in the illustration.



(c) Tilt the motor in an upward direction to disengage the motor ball from the slot, see the illustration below.



6. VEHICLE PREPARATION FOR HEADLAMP AIM ADJUSTMENT, See page 65-8

7. PREPARATION FOR HEADLAMP AIMING (Using a screen), See page 65-8

8. HEADLAMP AIMING INSPECTION, See page 65-8

9. HEADLAMP AIMING ADJUSTMENT, See page 65-8

10. VEHICLE PREPARATION FOR FOG LAMP AIM ADJUSTMENT, See page 65-13

11. PREPARATION FOR FOG LAMP AIMING, See page 65-13

12. FOG LAMP AIMING INSPECTION, See page 65-13

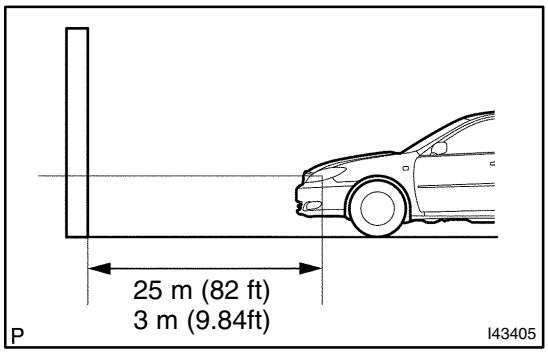
13. FOG LAMP AIMING ADJUSTMENT, See page 65-13

ADJUSTMENT

1. VEHICLE PREPARATION FOR HEADLAMP AIM ADJUSTMENT

(a) Prepare the vehicle:

- Ensure there is no damage or deformation to the body around the headlamps.
- Fill the fuel tank.
- Make sure that the oil is filled to the specified level.
- Make sure that the coolant is filled to the specified level.
- Inflate the tyres to the appropriate pressure.
- Place the spare tyre, tools, and jack in their original positions.
- Unload the trunk.
- Sit a person of average weight (75 kg, 165 lb) in the driver's seat.



2. PREPARATION FOR HEADLAMP AIMING (Using a screen)

(a) Prepare the vehicle according to the following conditions:

- Place the vehicle in a location that is dark enough to clearly observe the cut-off line. The cut-off line is a distinct line, below which light from the headlamps can be observed and above which it cannot.
- Place the vehicle at a 90° angle to the wall.
- Create a 25 m (82 ft) distance between the vehicle (headlamp bulb centre) and the wall.
- Place the vehicle on a level surface.
- Bounce the vehicle up and down to settle the suspension.
- LHD only, set the headlight levelling switch on the instrument panel to zero.

NOTICE:

A distance of 25 m (82 ft) between the vehicle (headlamp bulb centre) and the wall is necessary for proper aim adjustment. If this space is unavailable, use a distance of exactly 3 m (9.84 ft) for check and adjustment. The target zone will change with the distance so use the instructions in the following illustrations.

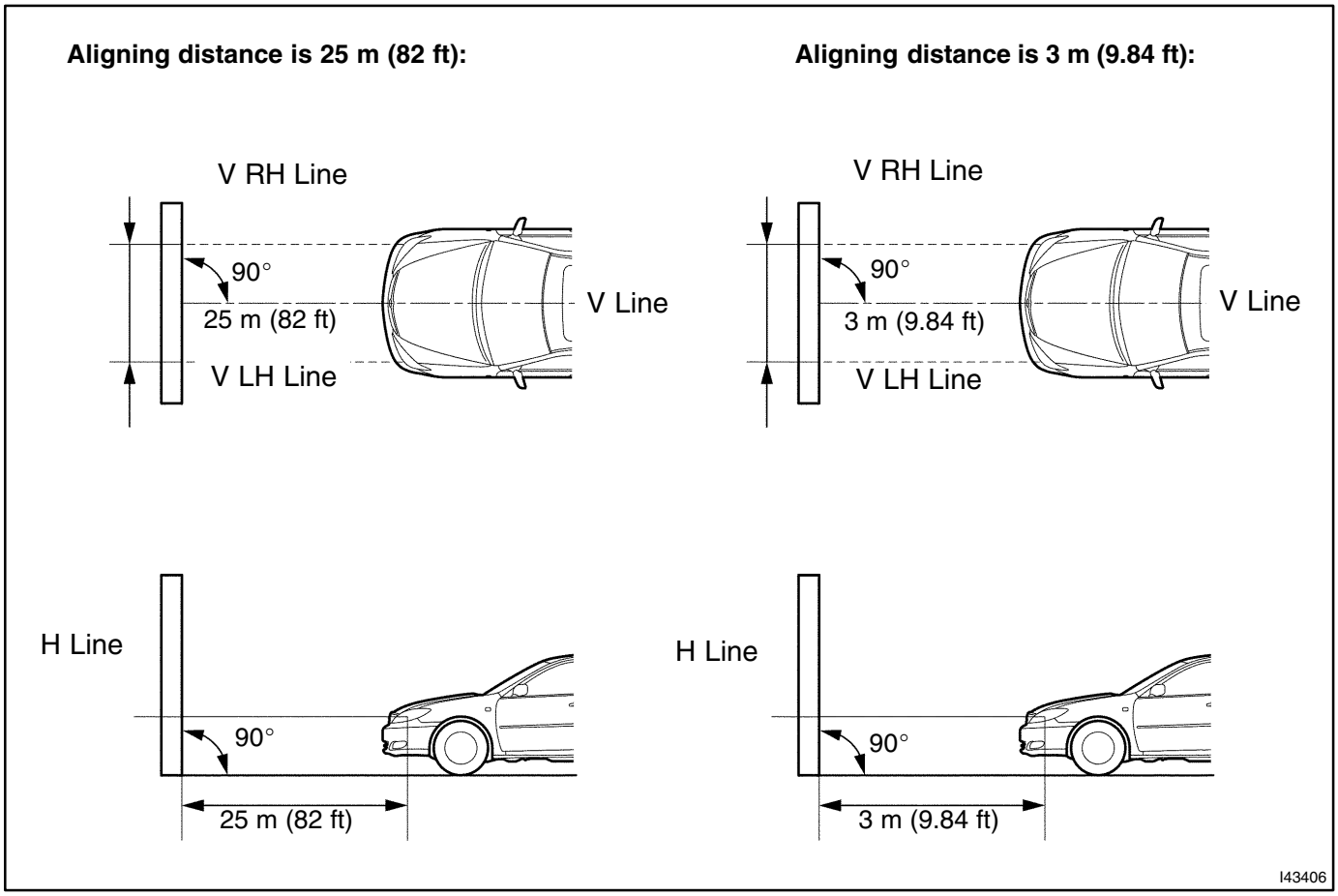
(b) Prepare a piece of thick white paper (approximately 2 m (6.6 ft) (height) x 4 m (13.1 ft) (width)) to use as a screen.

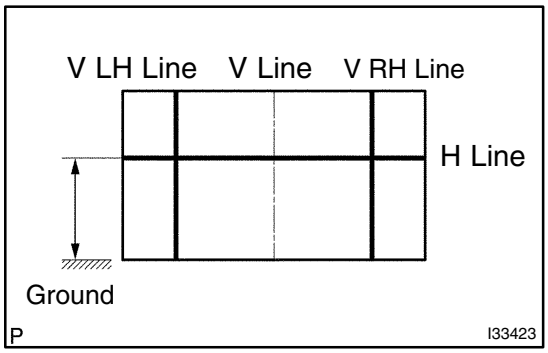
(c) Draw a vertical line down the centre of screen (V line).

(d) Set the screen as shown in the illustration.

HINT:

- Stand the screen perpendicular to the ground.
- Align the V line on the screen with the centre of the vehicle.





(e) Draw base lines (H line, V LH, V RH lines) on the screen as shown in the illustration.

HINT:

- The base lines differ for “low-beam inspection” and “high-beam inspection”.
- Mark the headlamp bulb centre marks on the screen. If the centre mark cannot be observed on the headlamp, use the centre of the headlamp bulb or the manufacturer’s name marked on the headlamp as the centre mark.
  (1) H Line (Headlamp height):
  Draw a horizontal line across the screen so that it passes through the centre marks. The H line should be at the same height as the headlamp bulb centre marks of the low-beam headlamps.
  (2) V LH Line, V RH Line (Centre mark position of left-hand (LH) and right-hand (RH) headlamps):
  Draw two vertical lines so that they intersect the H line at each centre mark (aligned with the centre of the low-beam headlamp bulbs).

3. HEADLAMP AIMING INSPECTION

(a) Cover or disconnect the connector of the RH headlamp to prevent light from the headlamp not being inspected from affecting the headlamp aiming inspection of the LH side.

NOTICE:

Do not keep the headlamp covered for more than 3 minutes. The headlamp lens is made of synthetic resin, and may easily melt or be damaged due to heat.

HINT:

When checking the aim of the high-beam, cover the low-beam or disconnect the connector.

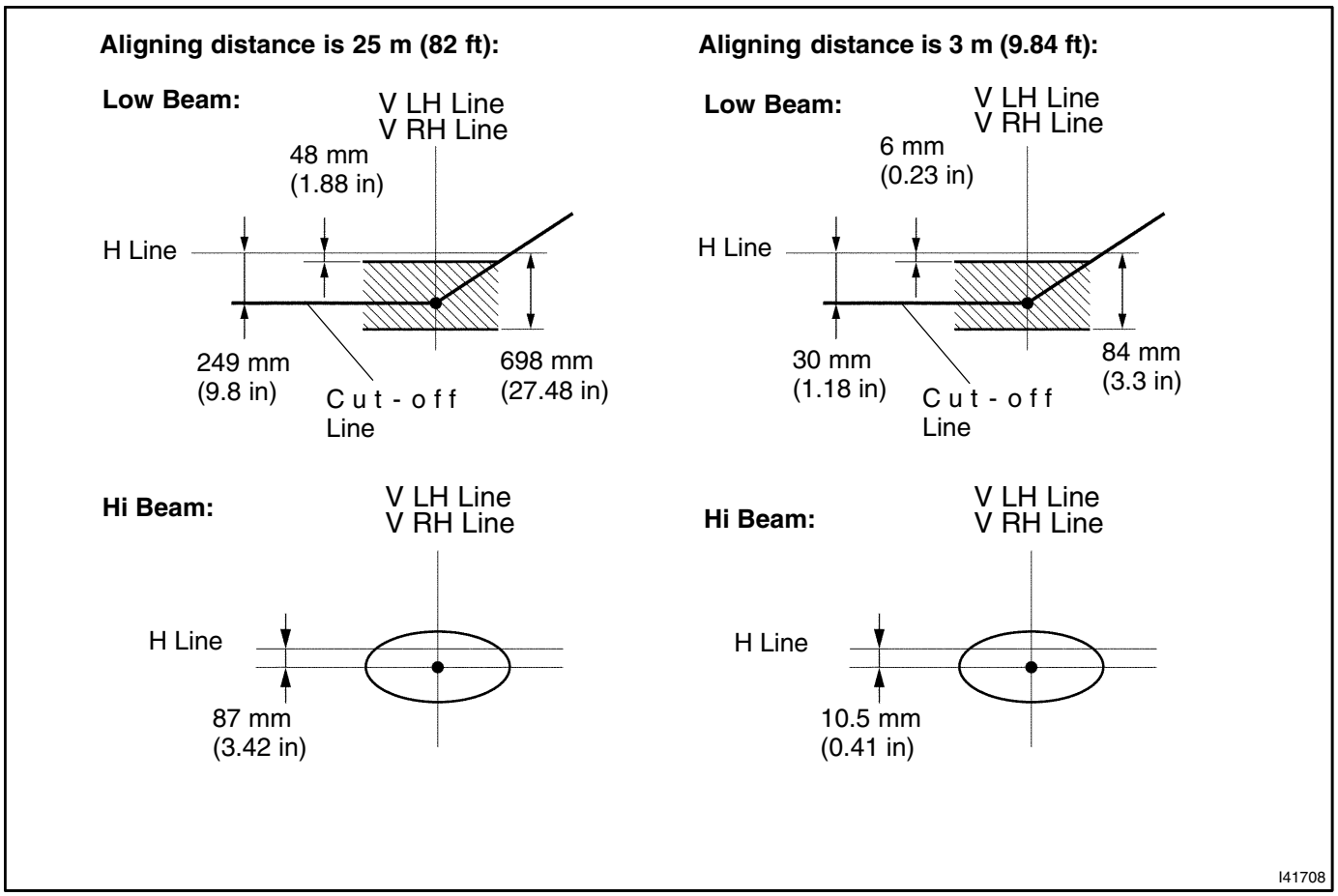
(b) Start the engine.

NOTICE:

The engine rpm must be 1,500 or more.

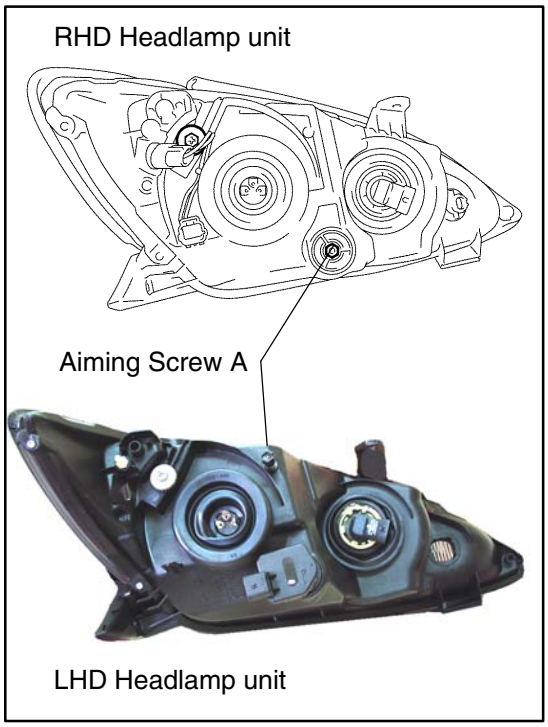
(c) w/ Headlamp levelling switch:
Set the headlamp levelling switch to 0 (zero).

(d) Turn on the headlamp and make sure that the cut-off line falls within the specified area, as shown in the illustration below.



HINT:

- Alignment distance is 25 m (82 ft):
  The cut-off line is 48 to 698 mm (1.88 - 27.48 in) below the H line with low-beam .
- Alignment distance is 3 m (9.84 ft):
  The cut-off line is 6 to 84 mm (0.23 - 3.3 in) below the H line with low-beam.
- Alignment distance is 25 m (82 ft):
  The cut-off line is 249 mm (9.8 in) below the H line with low-beam.
- Alignment distance is 3 m (9.84 ft):
  The cut-off line is 30 mm (1.18 in) below the H line with low-beam.
- Since the low-beam light and the high-beam light are a unit, if the aim on one is correct, the other should also be correct. However, check both beams just to make sure.



4. HEADLAMP AIMING ADJUSTMENT

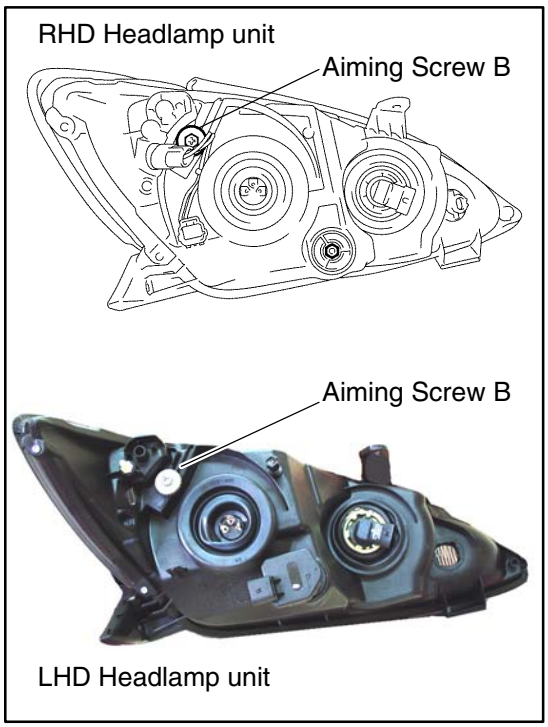
(a) Adjust the aim vertically:
Adjust the headlamp aim into the specified range by turning aiming screw A with a screwdriver.

NOTICE:

The final turn of the aiming screw should be made in the clockwise direction. If the screw is tightened excessively, loosen it and then re-tighten it, so that the final turn of the screw is in the clockwise direction.

HINT:

- Perform a low-beam aim adjustment.
- The headlamp aim moves up when turning the aiming screw clockwise, and moves down when turning the aiming screw counterclockwise.



(b) Adjust the aim horizontally:
Adjust the headlamp aim into the specified range by turning the aiming screw B with a screwdriver.

NOTICE:

The final turn of the aiming screw should be made in the clockwise direction. If the screw is tightened excessively, loosen it and then re-tighten it, so that the final turn of the screw is in the clockwise direction.

HINT:

Perform a low-beam aim adjustment.

(c) Re-check the alignment as the horizontal adjustment may affect the vertical adjustment.

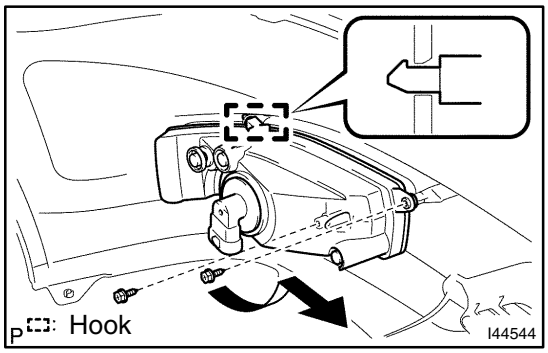
(d) Adjust the RH side in the same manner as the LH side.

FOG LAMP ASSY LH

OVERHAUL

HINT:

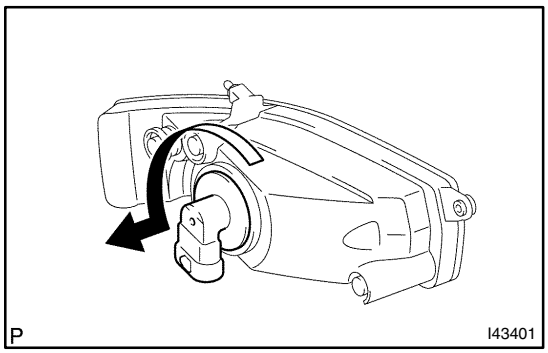
- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.
- Installation is the reverse order of removal.



1. **REMOVE FRONT BUMPER ASSEMBLY, See page 76-2**
2. **REMOVE FOG LAMP ASSEMBLY LH**

(a) Remove the 2 screws.

(b) Move the fog lamp assembly LH in the direction indicated by the arrow, disengage the hook, and remove the fog lamp assembly LH.



3. **REMOVE THE FOG LAMP BULB**

(a) Turn the fog lamp bulb in the direction shown in the illustration and remove the fog lamp bulb.

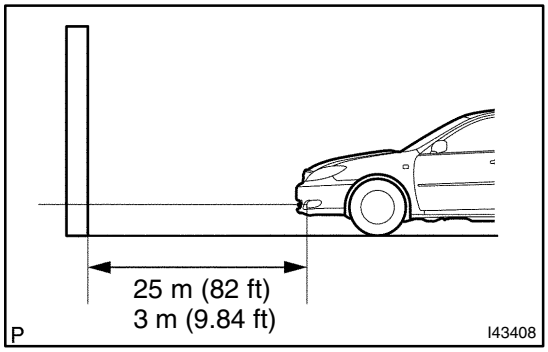
4. **VEHICLE PREPARATION FOR FOG LAMP AIM ADJUSTMENT, See page 65-13**
5. **PREPARATION FOR FOG LAMP AIMING, See page 65-13**
6. **FOG LAMP AIMING INSPECTION, See page 65-13**
7. **FOG LAMP AIMING ADJUSTMENT, See page 65-13**

ADJUSTMENT

1. VEHICLE PREPARATION FOR FOG LAMP AIM ADJUSTMENT

(a) Prepare the vehicle:

- Ensure there is no damage or deformation to the body around the fog lamps.
- Fill the fuel tank.
- Make sure that the engine oil is filled to the specified level.
- Make sure that the coolant is filled to the specified level.
- Inflate the tyres to the appropriate pressure.
- Place the spare tyre, tools, and jack in their original positions.
- Unload the trunk.
- Sit a person of average weight (75 kg, 165 lb) in the driver's seat.



2. PREPARATION FOR FOG LAMP AIMING

(a) Prepare the vehicle according to the following conditions.

- Place the vehicle in a location that is dark enough to clearly observe the cut-off line. The cut-off line is a distinct line, below which light from the fog lamps can be observed and above which it cannot.
- Place the vehicle at a 90° angle to the wall.
- Create a 25 m (82 ft) distance between the vehicle (fog lamp bulb centre) and the wall.
- Place the vehicle on a level surface.
- Bounce the vehicle up and down to settle the suspension.

NOTICE:

A distance of 25 m (82 ft) between the vehicle (fog lamp bulb centre) and the wall is necessary for proper aim adjustment. If this space is unavailable, use a distance of exactly 3 m (9.84 ft) for check and adjustment. The target zone will change with the distance, so use the instructions in the following illustrations.

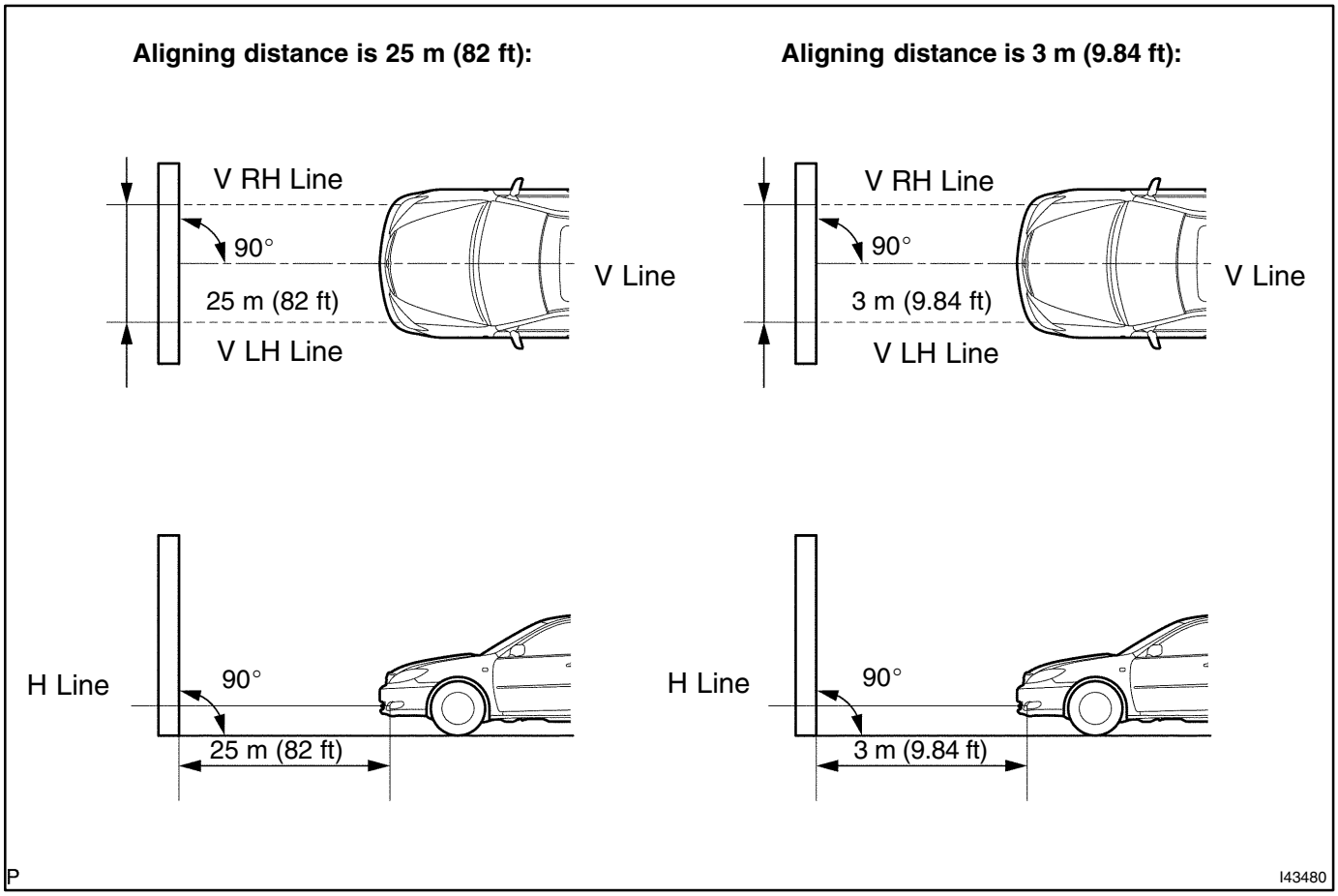
(b) Prepare a piece of thick white paper (approximately 2 m (6.6 ft) (height) x 4 m (13.1 ft) (width)) to use as a screen.

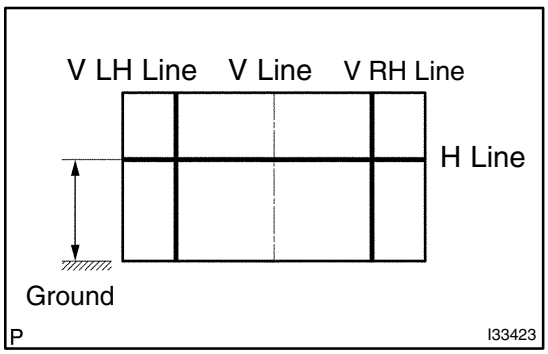
(c) Draw a vertical line down the centre of screen (V line).

(d) Set the screen as shown in the illustration.

HINT:

- Stand the screen perpendicular to the ground.
- Align the V line on the screen with the centre of the vehicle.





(e) Draw base lines (H line, V LH, V RH lines) on the screen as shown in the illustration.

HINT:

Mark the fog lamp bulb centre marks on the screen. If the centre mark cannot be observed on the fog lamp, use the centre of the fog lamp bulb or the manufacturer's name marked on the fog lamp as the centre mark.

(1) H Line (Fog lamp height):
Draw a horizontal line across the screen so that it passes through the centre marks. The H line should be at the same height as the fog lamp bulb centre marks of the low-beam fog lamps.

(2) V LH Line, V RH Line (Canter mark position of left-hand (LH) and right-hand (RH) fog lamps):
Draw two vertical lines so that they intersect the H line at each centre mark.

3. FOG LAMP AIMING INSPECTION

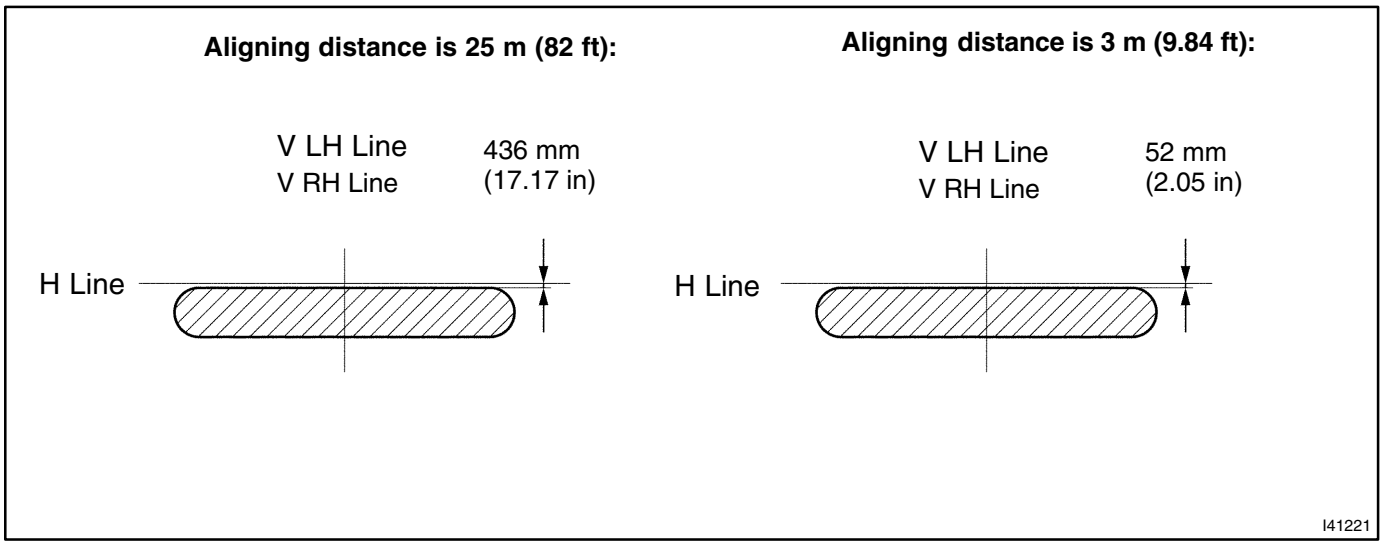
(a) Cover or disconnect the connector of the RH side fog lamp to prevent light from the fog lamp not being inspected from affecting the LH fog lamp aiming inspection.

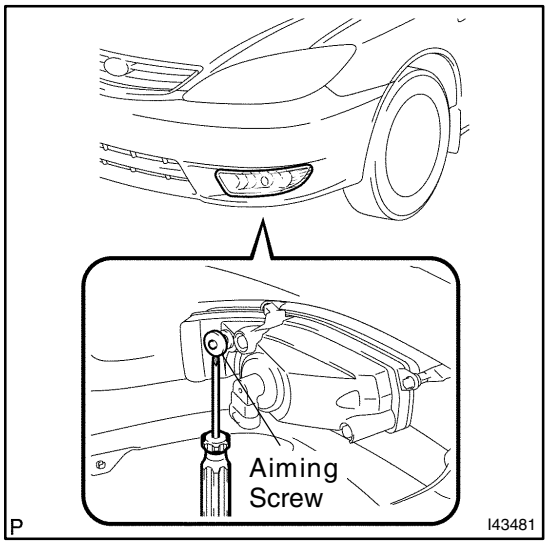
(b) Start the engine.

NOTICE:

Engine rpm must be 1,500 or more.

(c) Turn on the fog lamp and make sure that the cut-off line falls within the specified area, as shown in the illustration.





4. FOG LAMP AIMING ADJUSTMENT

(a) Adjust the fog lamp aim into the specified range by turning aiming screw with a screwdriver.

NOTICE:

The final turn of the aiming screw should be made in the clockwise direction. If the screw is tightened excessively, loosen it and then re-tighten it, so that the final turn of the screw is in the clockwise direction.

REAR COMBINATION LAMP ASSY LH

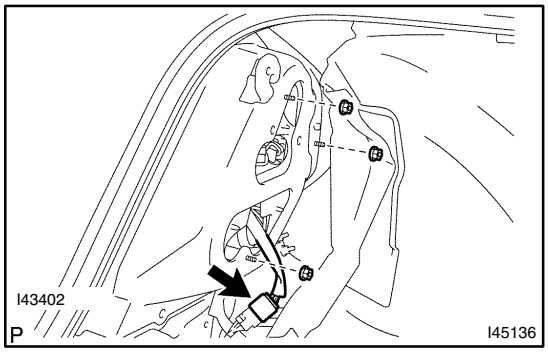
OVERHAUL

HINT:

- Use the same procedures for the RH side and LH side.
- The procedures listed below are for the LH side.
- Installation is in the reverse order of removal.

1. REMOVE THE LUGGAGE COMPARTMENT TRIM HOOK NO.1, See pub. No. AC-RM033V2, page 76-8

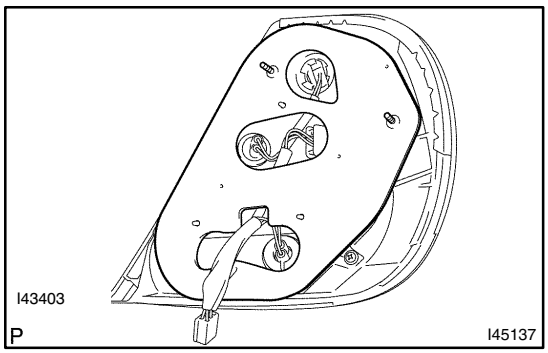
2. REMOVE REAR FLOOR FINISH PLATE, See pub. No. AC-RM033V2, page 76-5



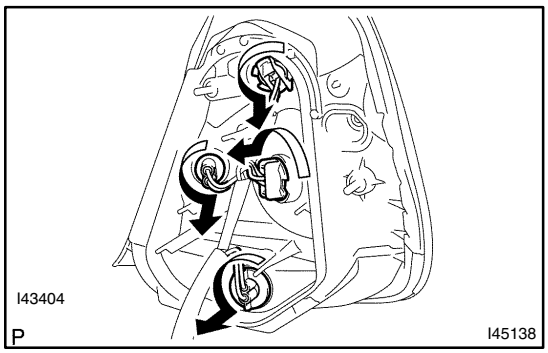
3. REMOVE THE REAR COMBINATION LAMP ASSEMBLY LH

(a) Disconnect the connector.

(b) Remove the 3 nuts and remove the rear combination lamp assy LH.



(c) Remove the rear combination lamp lens gasket LH.

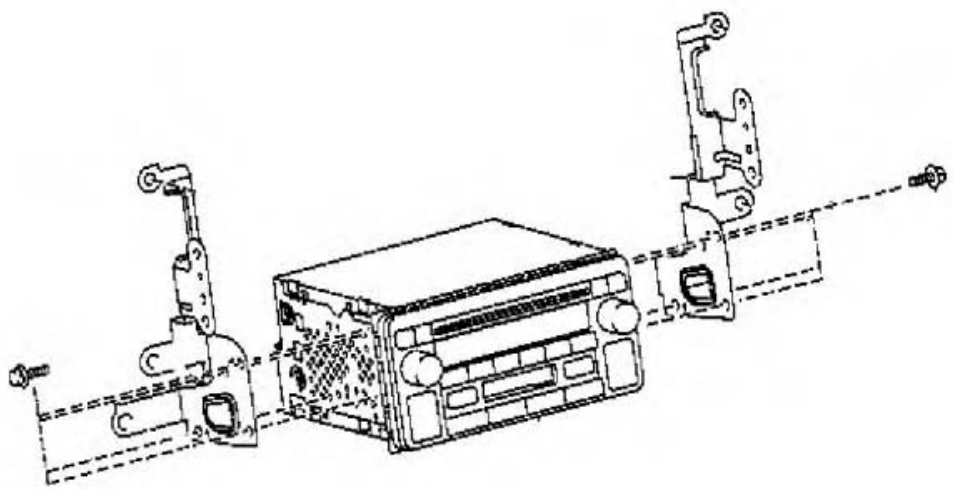


4. REMOVE REAR COMBINATION LAMP BULB

(a) Turn the bulb in the direction indicated by the arrow and remove the 4 rear combination lamp socket & wire sub-assemblies and the 4 rear combination lamp bulbs as a unit.

(b) Remove the 4 rear combination lamp bulbs from the 4 rear combination lamp socket & wire sub-assy.

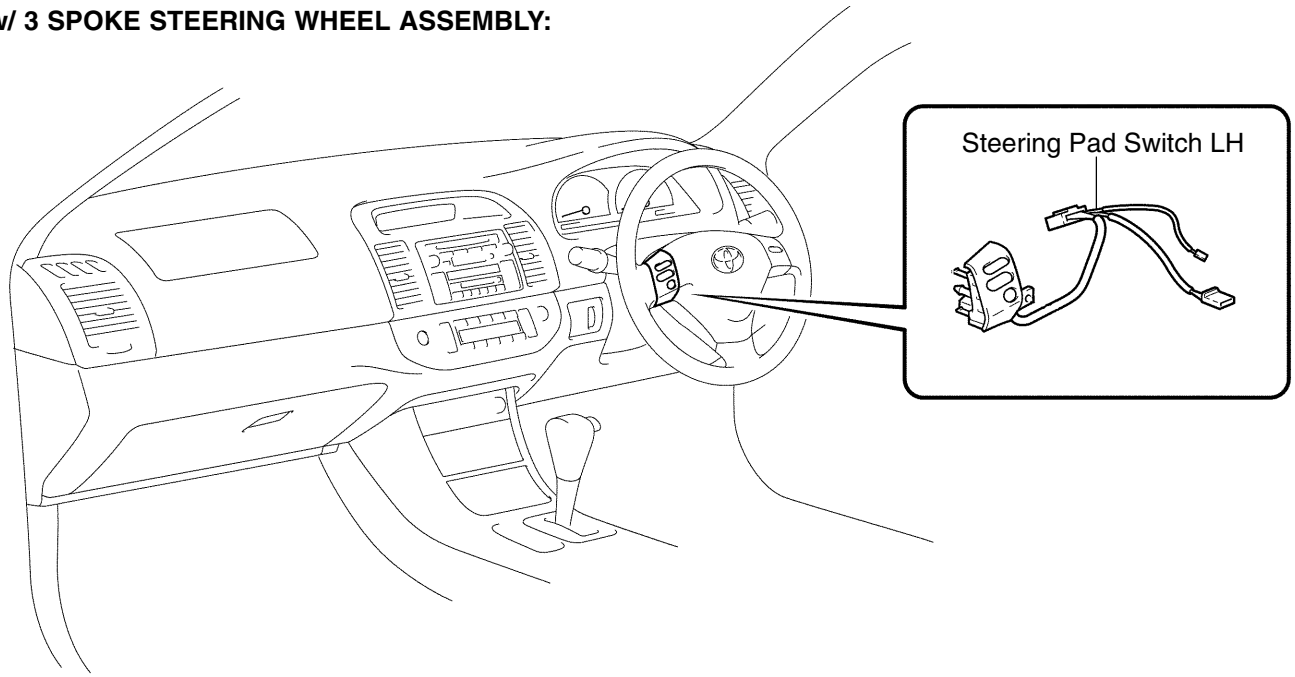
Section 67 – Audio & Visual



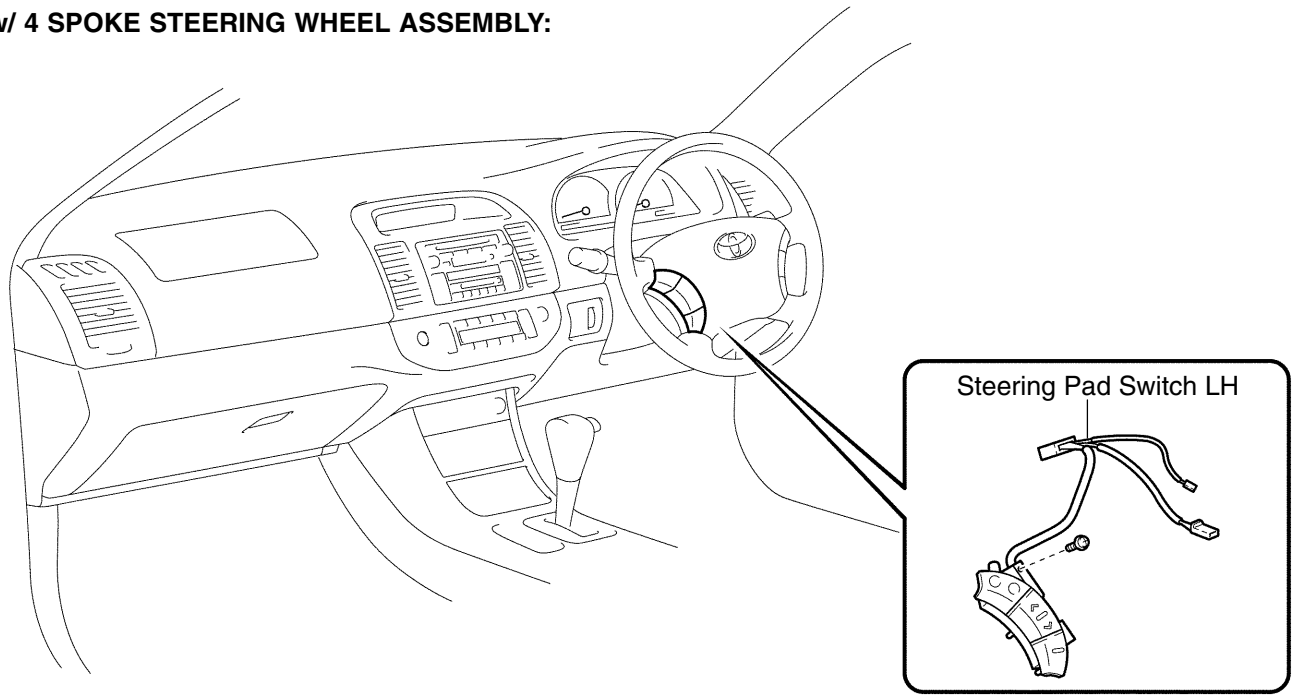
AUDIO & VISUAL SYSTEM

LOCATION

w/ 3 SPOKE STEERING WHEEL ASSEMBLY:



w/ 4 SPOKE STEERING WHEEL ASSEMBLY:



P

I43761

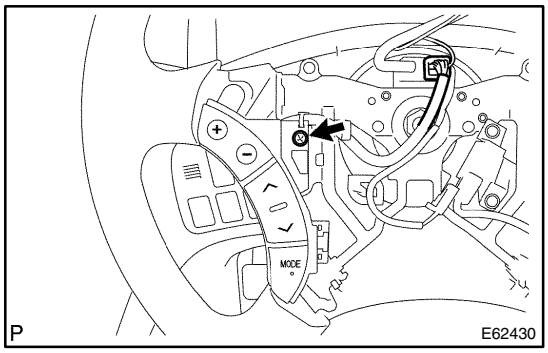
STEERING PAD SWITCH LH

REPLACEMENT

HINT:

- COMPONENTS, See page 67-1.
- Installation is, the reverse order of removal.

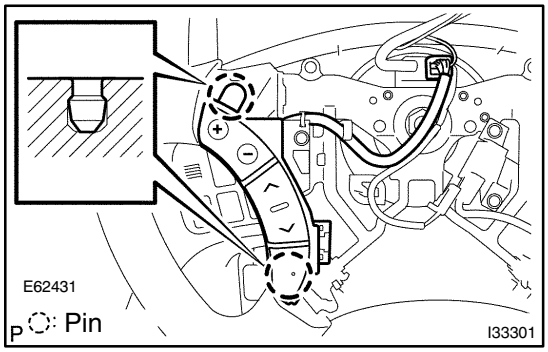
1. **PRECAUTION, See page 60-1**
2. **DISCONNECT THE BATTERY NEGATIVE TERMINAL, See page 60-1**
3. **REMOVE THE STEERING WHEEL COVER LOWER NO.2, See page 60-16**
4. **REMOVE THE STEERING WHEEL COVER LOWER NO.3, See page 60-16**
5. **REMOVE THE HORN BUTTON ASSY, See page 60-16**



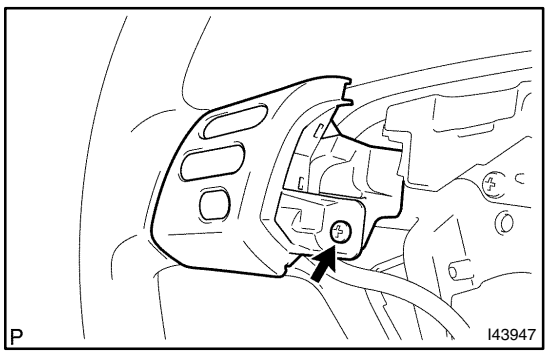
6. **REMOVE THE STEERING PAD SWITCH LH (4 SPOKE STEERING WHEEL ASSEMBLY)**

(a) Remove the screw.

(b) Disconnect the connector.



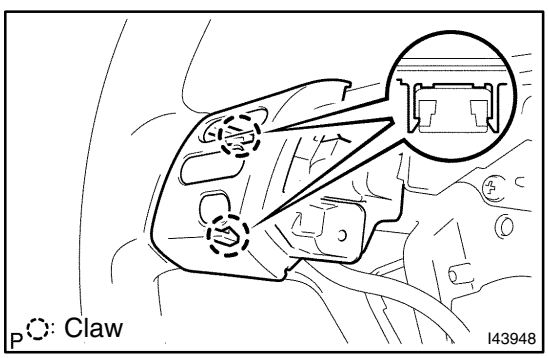
(c) Release the 2 pins and remove the steering pad switch LH.



7. **REMOVE THE STEERING PAD SWITCH LH (3 SPOKE STEERING WHEEL ASSEMBLY)**

(a) Disconnect the connector.

(b) Remove the screw.

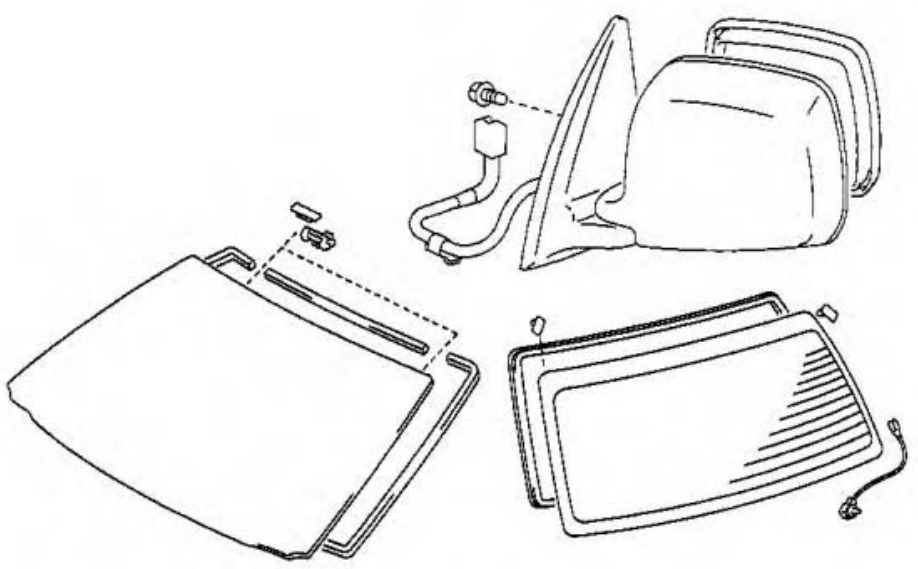


(c) Disengage the 2 claws.

(d) Remove the steering pad switch LH.

8. **INSTALL THE HORN BUTTON ASSEMBLY, See page 60-16**
9. **INSPECT THE SRS WARNING LIGHT, See page 60-10)**

Section 70 – Windshield/Windowglass/Mirror

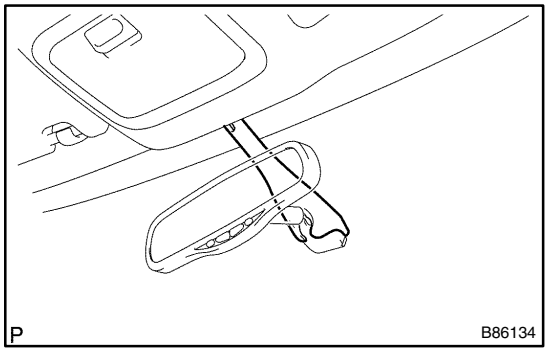


INNER REAR VIEW MIRROR ASSY

REPLACEMENT

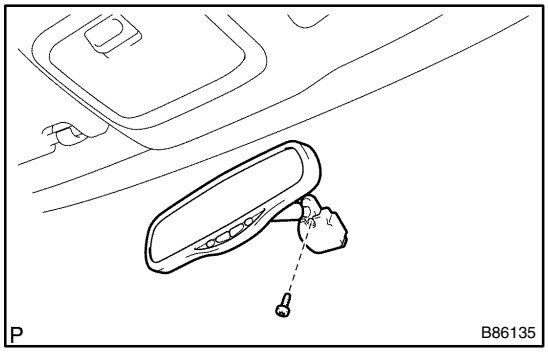
HINT:

Installation is in the reverse order of removal.



1. REMOVE THE INNER RR VIEW MIRROR COVER

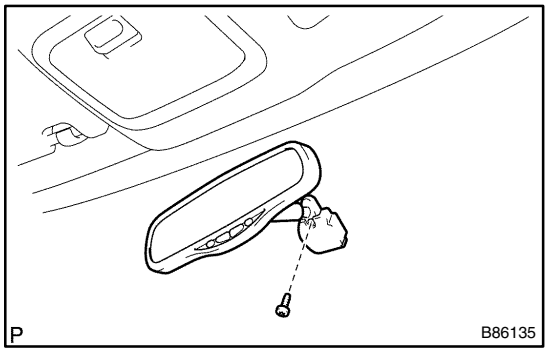
(a) Remove the inner RR view mirror cover.



2. REMOVE THE INNER REAR VIEW MIRROR ASSY

(a) Disconnect the connector.

(b) Using torx socket T20, remove the screw and the inner rear view mirror assy.



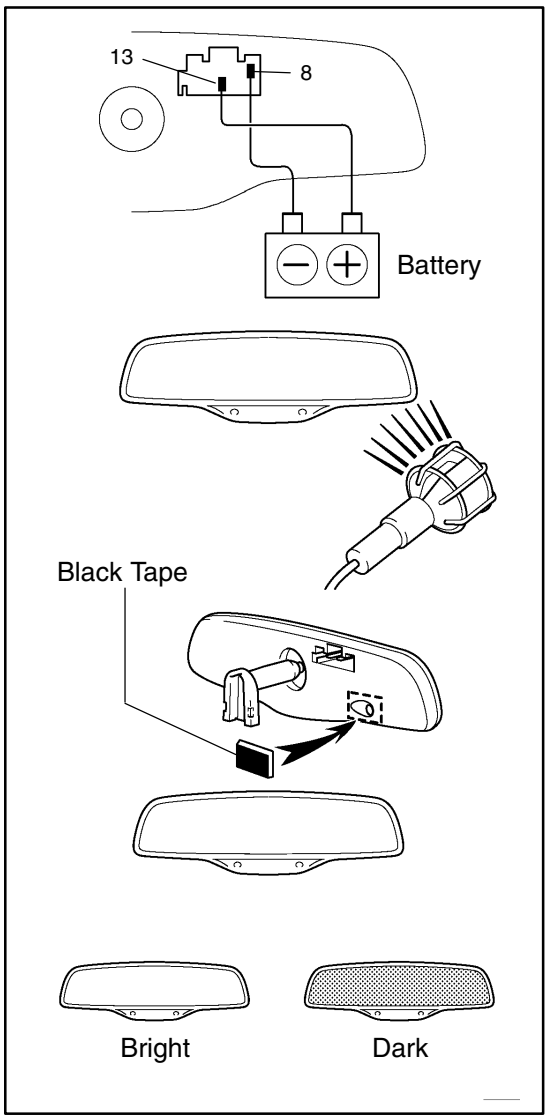
3. INSTALL THE INNER REAR VIEW MIRROR ASSY

(a) Using torx socket T20, install the inner rear view mirror assy with the screw.

Torque: Torque: 1.8 N m (18 kgf cm, 16 lbf IN)

(b) Connect the connector.

INSPECTION



1. INSPECT INNER REAR VIEW MIRROR ASSEMBLY

(a) Inspect the electrochromatic inner mirror operation.

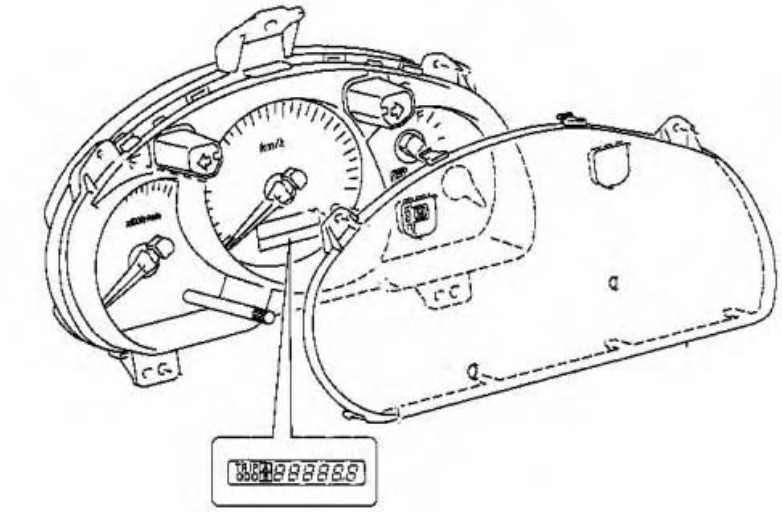
(1) Connect the positive (+) lead from the battery to terminal 13 and the negative (-) lead to terminal 8.

(2) Attach black tape to the forward sensor to prevent it from sensing the ambient light.

(3) Light up the mirror with an electric light, and check that the mirror surface changes “bright” to “dark”.

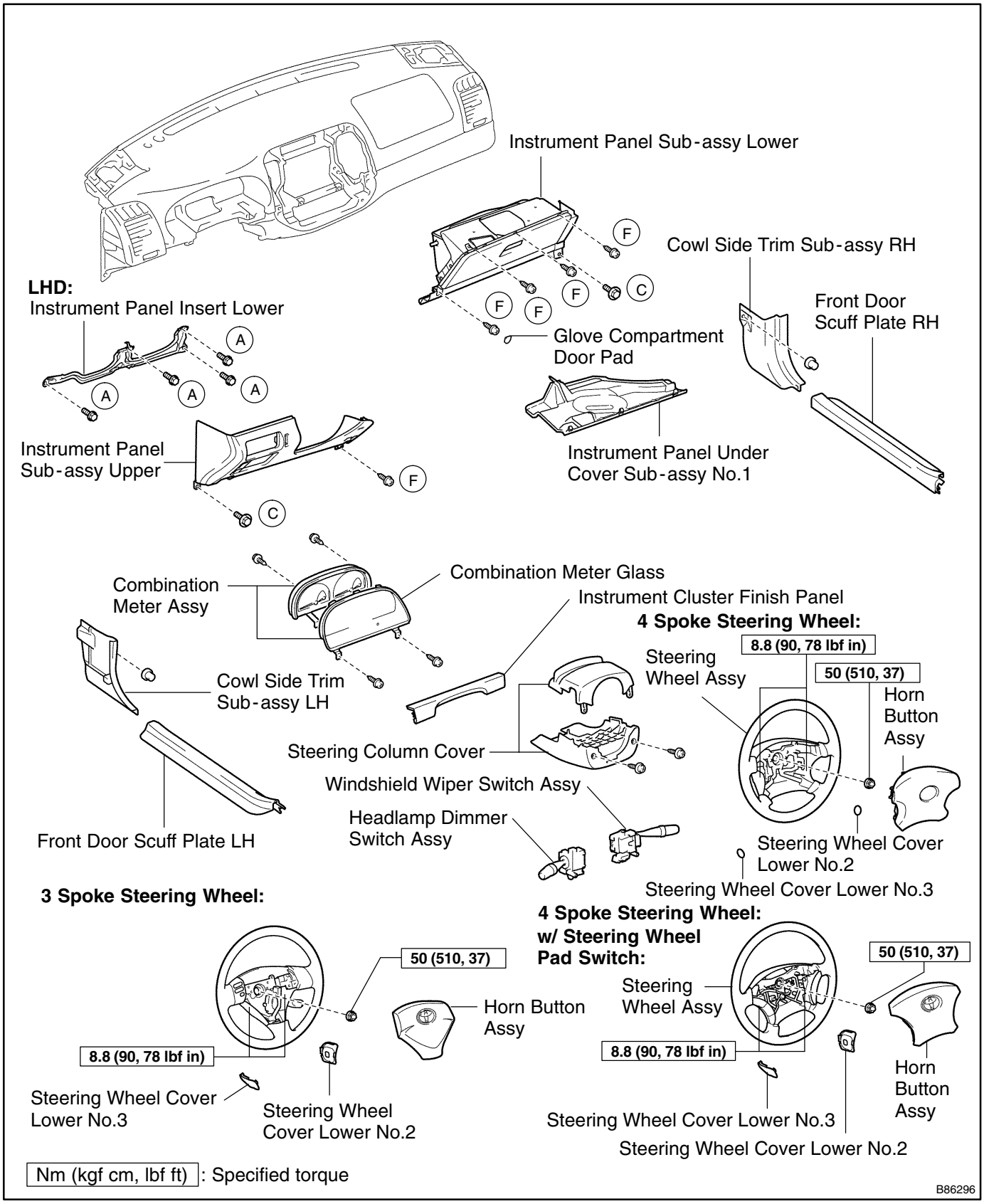
If operation is not as specified, replace the inner mirror.

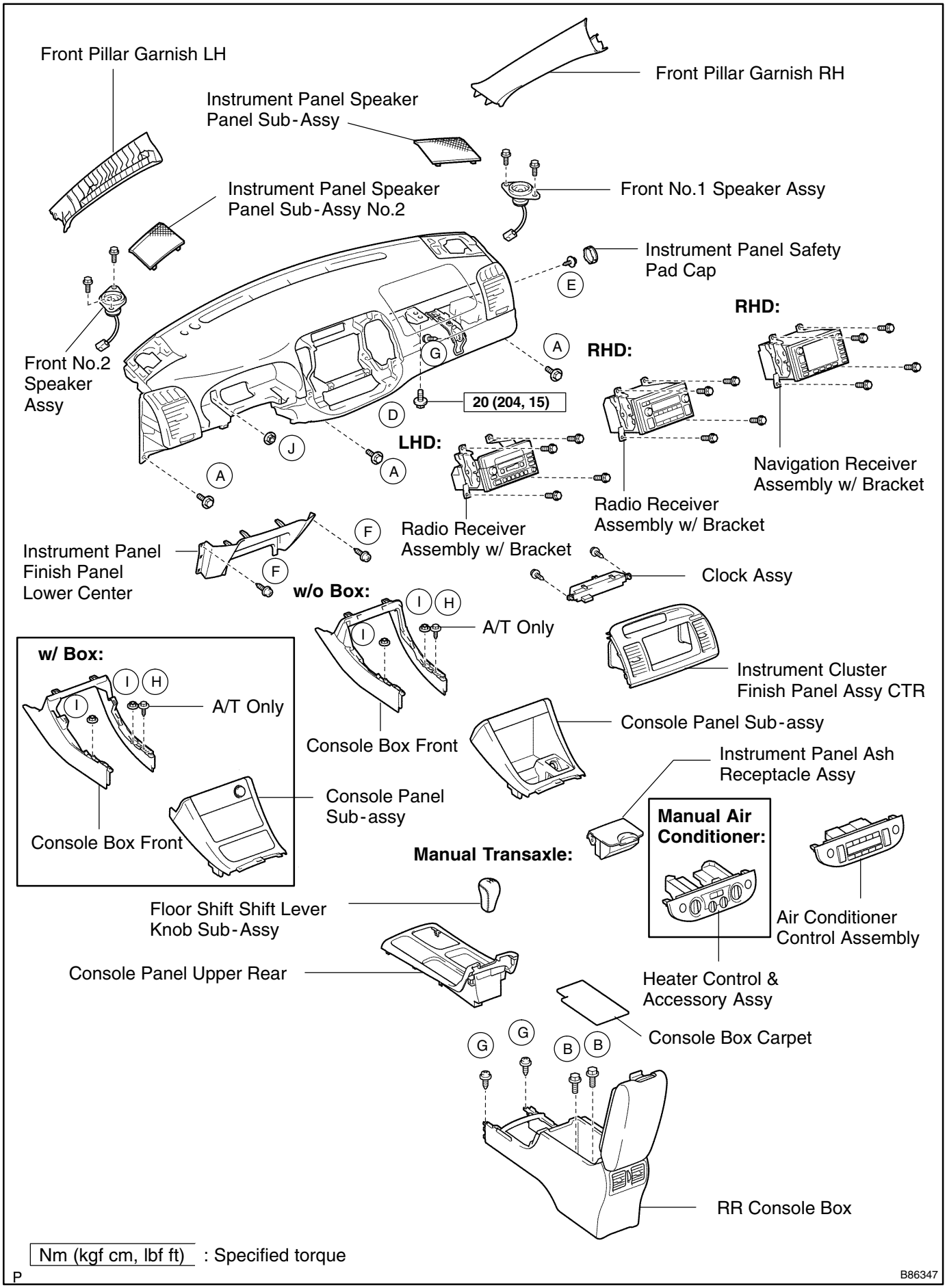
Section 71 – Instrument Panel / Meter

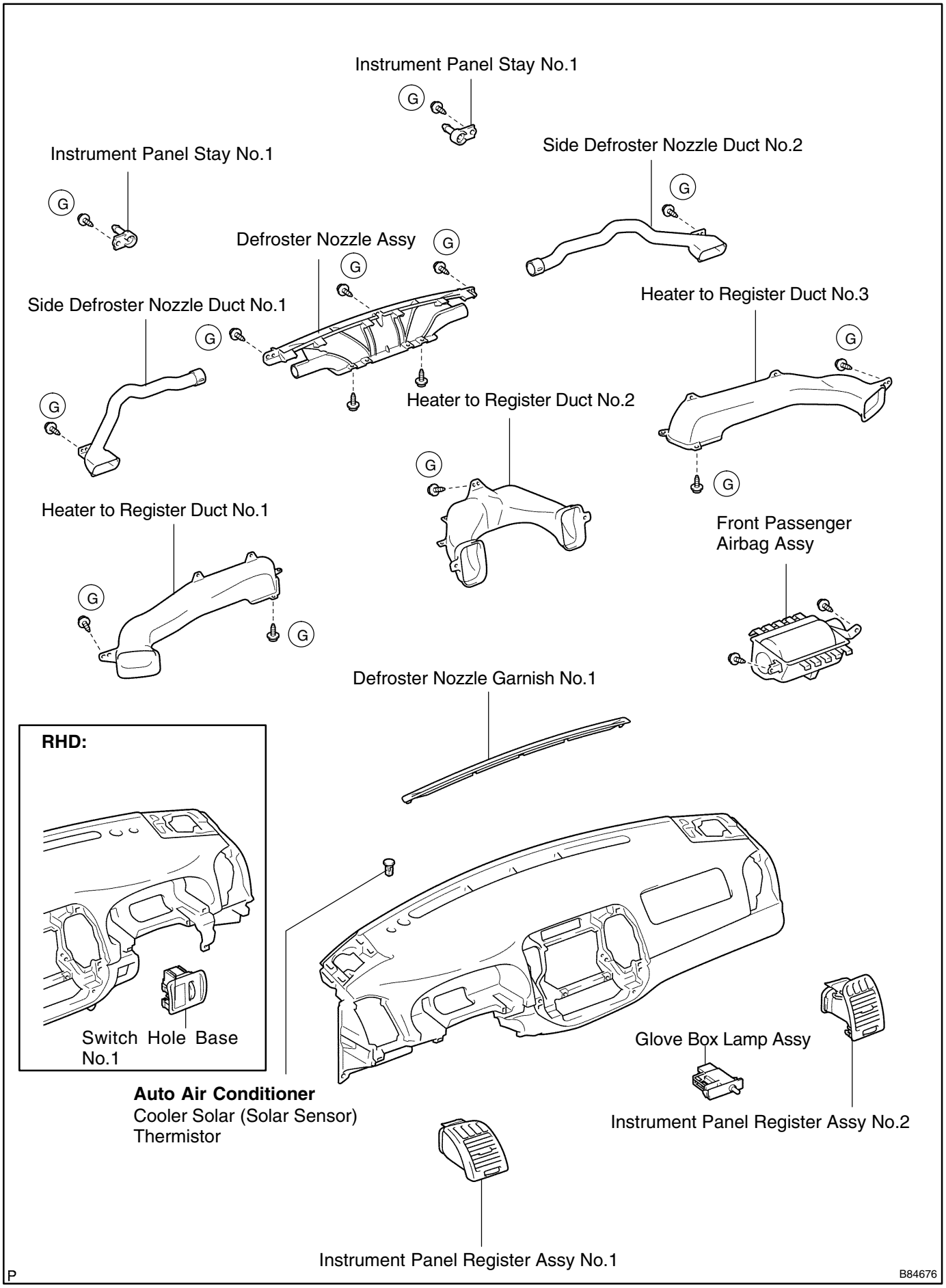


INSTRUMENT PANEL/METER

COMPONENTS




Front Pillar Garnish LH
Front Pillar Garnish RH
Instrument Panel Speaker Panel Sub-Assy
Instrument Panel Speaker Panel Sub-Assy No.2
Front No.1 Speaker Assy
Instrument Panel Safety Pad Cap
Front No.2 Speaker Assy
20 (204, 15)
RHD:
LHD:
Navigation Receiver Assembly w/ Bracket
Radio Receiver Assembly w/ Bracket
Instrument Panel Finish Panel Lower Center
Clock Assy
w/o Box:
A/T Only
w/ Box:
Instrument Cluster Finish Panel Assy CTR
Console Box Front
Console Panel Sub-assy
Instrument Panel Ash Receptacle Assy
Console Panel Sub-assy
Manual Transaxle:
Manual Air Conditioner:
Floor Shift Shift Lever Knob Sub-Assy
Air Conditioner Control Assembly
Console Panel Upper Rear
Heater Control & Accessory Assy
Console Box Carpet
RR Console Box
Nm (kgf cm, lbf ft) : Specified torque
P
B86347


Instrument Panel Stay No.1
Instrument Panel Stay No.1
Side Defroster Nozzle Duct No.2
Defroster Nozzle Assy
Side Defroster Nozzle Duct No.1
Heater to Register Duct No.3
Heater to Register Duct No.2
Heater to Register Duct No.1
Front Passenger Airbag Assy
Defroster Nozzle Garnish No.1
RHD:
Switch Hole Base No.1
Auto Air Conditioner
Cooler Solar (Solar Sensor)
Thermistor
Glove Box Lamp Assy
Instrument Panel Register Assy No.2
Instrument Panel Register Assy No.1
P
B84676

INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

PRECAUTION

PRECAUTION FOR VEHICLE WITH SRS AIRBAG AND SEAT BELT PRETENSIONER

Some operations in this section may affect the SRS airbag. Therefore before performing the any operations contained in this section, read the PRECAUTION and NOTICES of the SRS airbag section, see page 60-1 for more information, to ensure that the correct proceedure are executed.

REPLACEMENT

HINT:

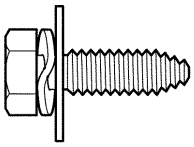
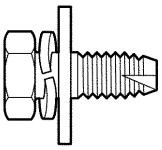
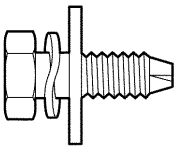
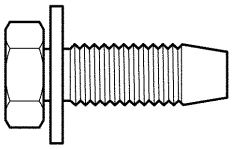
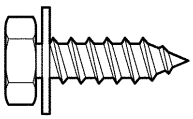
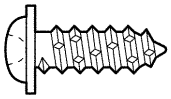
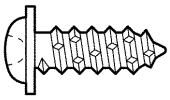
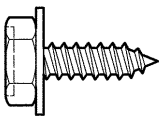
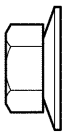
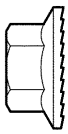
- COMPONENTS: See page 71-1.
- Installation is in the reverse order of removal.

TABLE OF BOLT, SCREW AND NUT

HINT:

All bolts, screws and nuts relevant to installing and removing the instrument panel are shown along with their alphabet code in the table below.

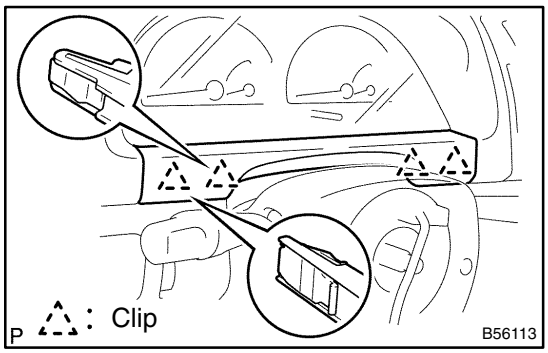
mm (in.) (L = Length)

Code	Shape	Code	Shape	Code	Shape
<A>	 ϕ=6 (0.24) L=20 (0.79) 90119-06144	<B>	 ϕ=6 (0.24) L=16 (0.63) 90119-06450	<C>	 ϕ=6 (0.24) L=18 (0.71) 90119-06428
<D>	 ϕ=8 (0.32) L=20 (0.79) 91633-60820	<E>	 ϕ=6 (0.24) L=20 (0.79) 90159-60200	<F>	 ϕ=5 (0.20) L=18 (0.71) 93567-55018
<G>	 ϕ=5 (0.20) L=14 (0.55) 93567-55014	<H>	 ϕ=5 (0.20) L=16 (0.63) 90159-50322	<I>	 ϕ=6 (0.24) 90179-06097
<J>	 ϕ=6 (0.24) 90179-06115				

1. **DISCONNECT THE BATTERY NEGATIVE TERMINAL, See page 60-1**
2. **REMOVE THE STEERING WHEEL COVER LOWER NO.2**
3. **REMOVE THE STEERING WHEEL COVER LOWER NO.3**
4. **REMOVE THE HORN BUTTON ASSEMBLY (SEE PAGE 60-16)**

5. REMOVE STEERING WHEEL ASSEMBLY, See Pub. No. AC-RM033V2, page 50-6

09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021)



6. REMOVE THE INSTRUMENT CLUSTER FINISH PANEL

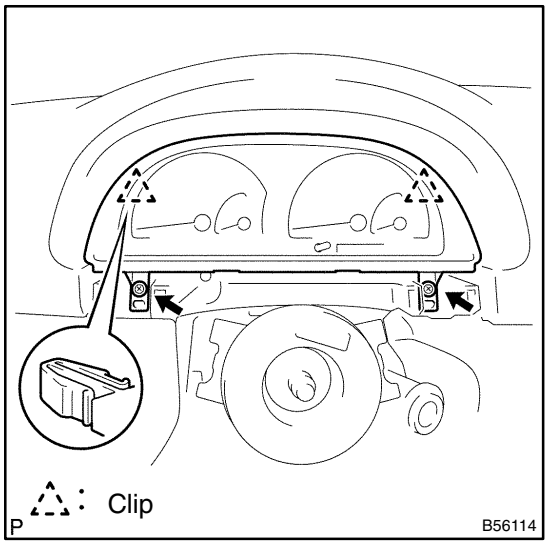
(a) Disengage the 4 clips and remove the instrument cluster finish panel.

7. REMOVE THE STEERING COLUMN COVER UPR, See Pub. No. AC-RM033V2, page 50-6

8. REMOVE THE STEERING COLUMN COVER LWR, See Pub. No. AC-RM033V2, page 50-6

9. REMOVE THE HEADLAMP DIMMER SWITCH ASSEMBLY, See Pub. No. AC-RM003V2, page 65-18

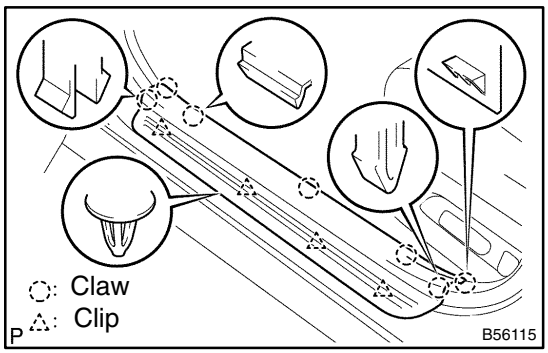
10. REMOVE THE WINDSHIELD WIPER SWITCH ASSEMBLY, Pub. No. AC-RM003V2, page 66-11



11. REMOVE THE COMBINATION METER ASSEMBLY

(a) Remove the 2 screws and disengage the 2 clips.

(b) Pull out the combination meter assembly, then disconnect the connectors.



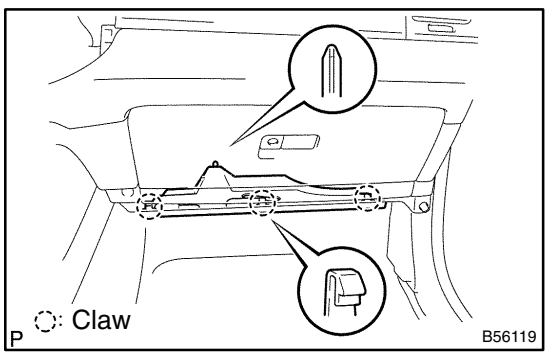
12. REMOVE THE FRONT DOOR SCUFF PLATE LH

(a) Disengage the 7 claws and 4 clips then remove the front door scuff plate LH.

13. REMOVE FRONT DOOR SCUFF PLATE RH

HINT:

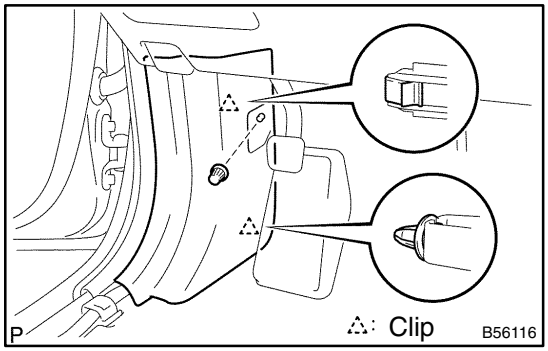
Use the same procedures for the RH side and LH side.



14. REMOVE THE INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY NO.2

(a) Disengage the 3 claws.

(b) Disengage the pin and remove the instrument panel under cover sub-assembly No.2.



15. REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH

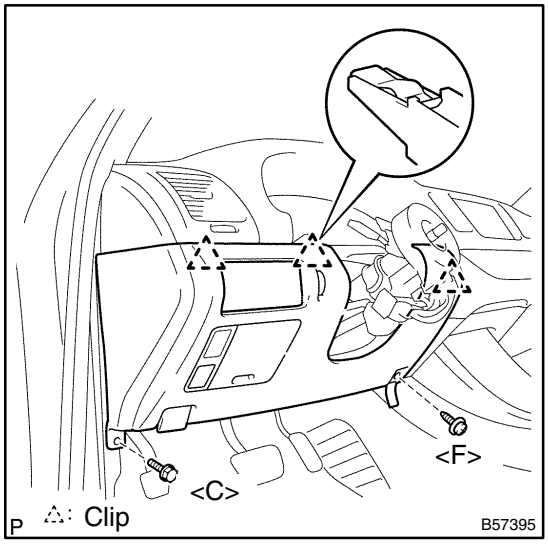
(a) Remove the clip.

(b) Disengage the 2 clips and remove the cowl side trim sub-assembly LH.

16. REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH

HINT:

Use the same procedures for the RH side and LH side.



17. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY UPPER

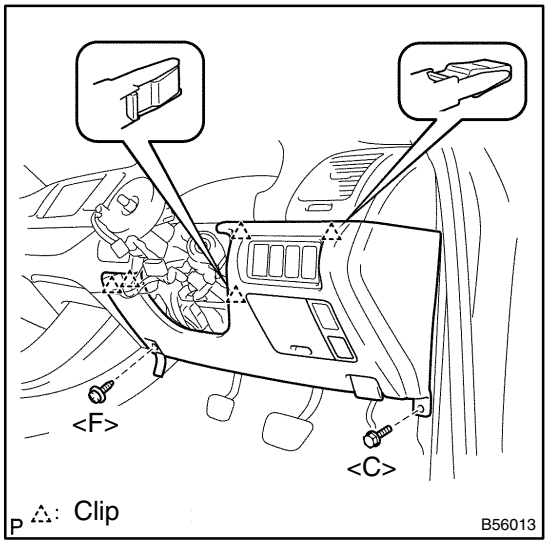
LHD steering position:

(a) Disconnect the hood lock control cable.

(b) Remove the bolt <C> and screw <F>.

(c) Disengage the 3 clips.

(d) Disconnect the connectors and remove the instrument panel sub-assembly upper.



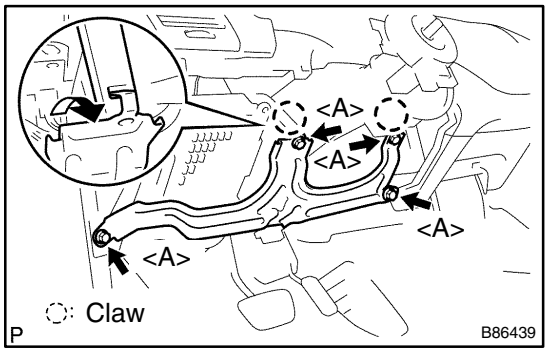
RHD steering position:

(e) Disconnect the hood lock control cable.

(f) Remove the bolt <C> and screw <F>.

(g) Disengage the 5 clips.

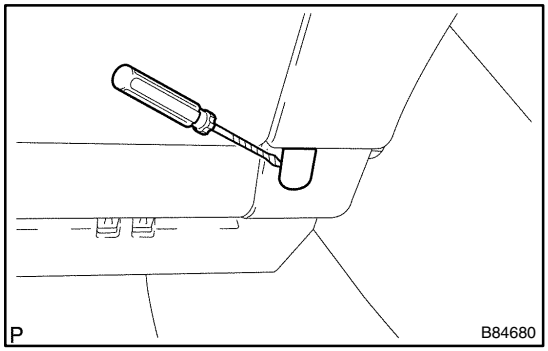
(h) Disconnect the connectors and remove the instrument panel sub-assembly upper.



18. REMOVE INSTRUMENT PANEL INSERT LOWER (LHD STEERING POSITION TYPE)

(a) Remove the 4 bolts <A>.

(b) Disengage the 2 claws and remove the instrument panel insert lower.

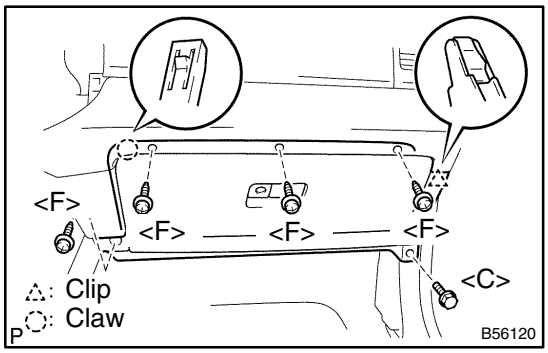


19. REMOVE GLOVE COMPARTMENT DOOR PAD

(a) Using a screwdriver, remove the glove compartment door pad.

HINT:

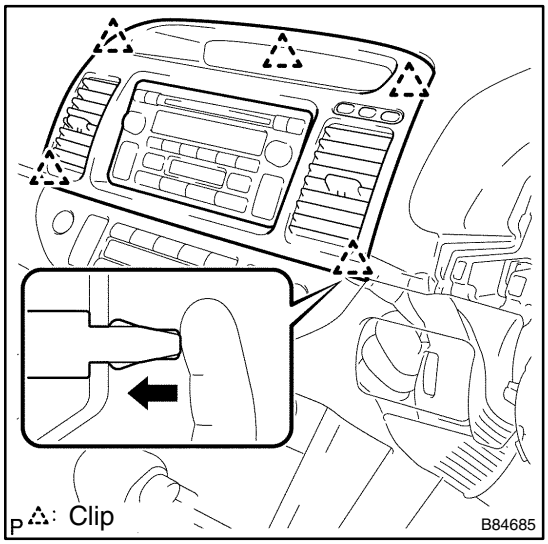
Tape the screwdriver tip before use.



20. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY LOWER

(a) Remove the bolt <C> and 4 screws <F>.

(b) Disengage the claw and clip, then remove the instrument panel sub-assembly lower.



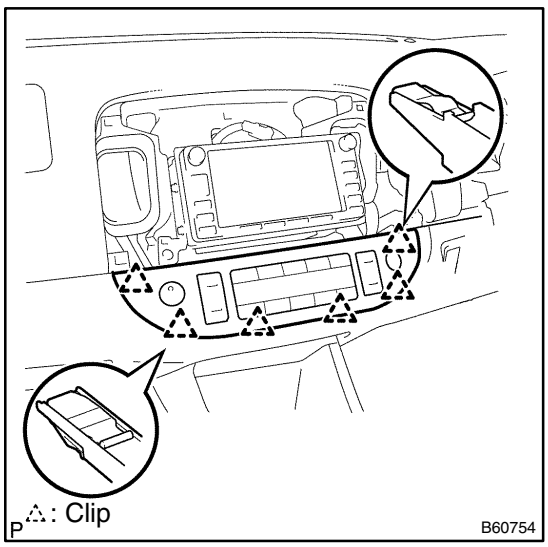
21. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY CENTRE

(a) Insert your hand as shown in the illustration to push out the clip with your finger.

(b) Disengage the remaining clips and claws from the front and disconnect the connector to remove the instrument cluster finish panel assembly centre.

NOTICE:

- **Be sure to wear protective gloves.**
- **To prevent the instrument panel safety pad from being damaged, do not use a screwdriver, etc.**



22. REMOVE AIR CONDITIONER CONTROL ASSEMBLY (AUTO AIR CONDITIONING)

(a) Disengage the 6 clips and remove the air conditioner control assembly, then disconnect the connectors.

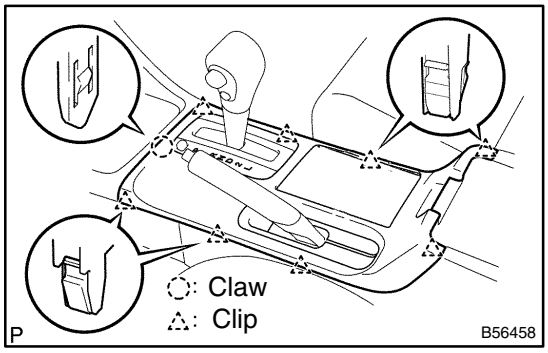
23. REMOVE HEATER CONTROL & ACCESSORY ASSEMBLY (MANUAL AIR CONDITIONING), See Pub. No. AC-RM033V2, page 55-25

24. REMOVE RADIO RECEIVER ASSEMBLY W/ BRACKET, See Pub. No. AC-RM033V2, Page 67-5

25. REMOVE NAVIGATION RECEIVER ASSEMBLY W/ BRACKET, See Pub. No. AC-RM033V2, Page 67-7

26. REMOVE THE SHIFT LEVER KNOB SUB-ASSEMBLY (MANUAL TRANSAXLE)

(a) Turn the shift lever knob sub-assembly counterclockwise and remove the shift lever knob sub-assembly.



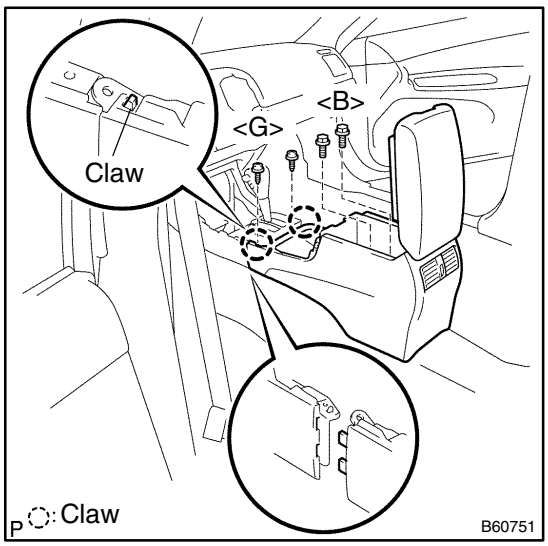
27. REMOVE THE CONSOLE PANEL UPPER REAR

(a) Disengage the clip and 2 claws, and remove the console panel cup holder.

(b) Using a moulding remover, disengage the claw and 8 clips, and remove the console panel upper rear.

HINT:
Set the shift lever to the N position (Automatic transaxle).

28. REMOVE THE CONSOLE BOX CARPET

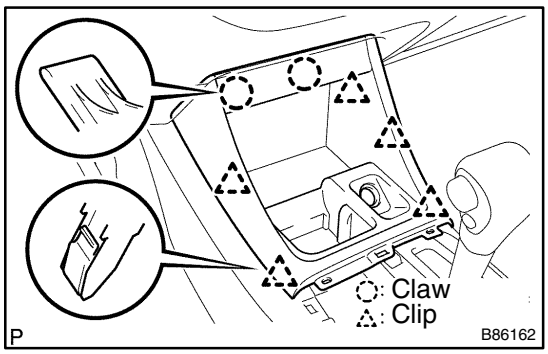


29. REMOVE RR CONSOLE BOX

(a) Remove the 2 bolts <B> and 2 screws <G>.

(b) Disengage the 2 claws and remove the RR console box.

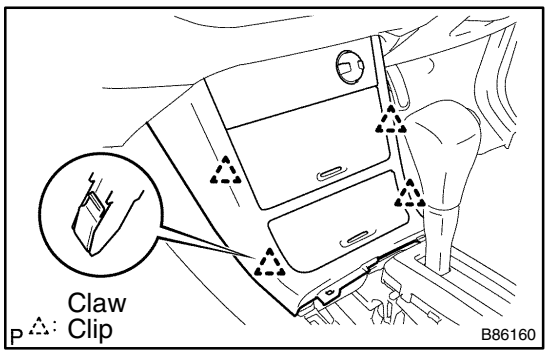
30. REMOVE INSTRUMENT PANEL ASH RECEPTACLE ASSEMBLY



31. REMOVE CONSOLE PANEL SUB-ASSEMBLY

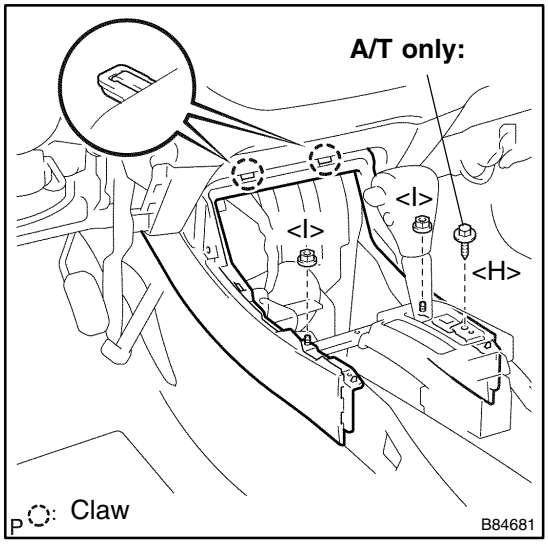
(a) **w/o Box Lid:**
Using a moulding remover, disengage the 4 clips and 2 claws.

(b) **w/o Box Lid:**
Disconnect the connectors and remove the console panel sub-assembly.



(c) **w/ Box Lid:**
Using a moulding remover, disengage the 4 clips.

(d) **w/ Box Lid:**
Disconnect the connectors and remove the console panel sub-assembly.

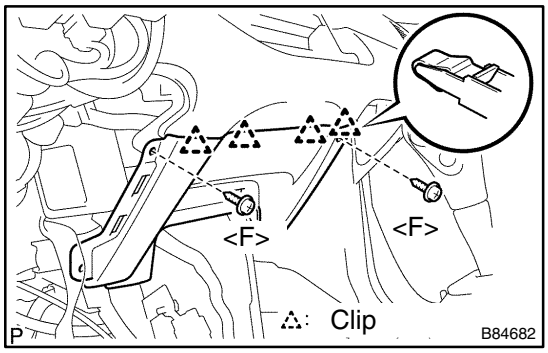


32. REMOVE THE CONSOLE BOX FRONT

(a) Remove the 2 nuts <I>.

(b) Automatic transaxle:
Remove the screw <H>.

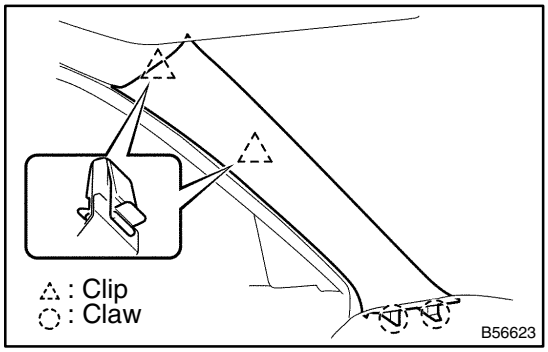
(c) Disengage the 2 claws and remove the console box front.



33. REMOVE THE INSTRUMENT PANEL FINISH PANEL LOWER CENTER

(a) Remove the screws <F>.

(b) Disengage the 4 clips and remove the instrument panel finish panel lower center.



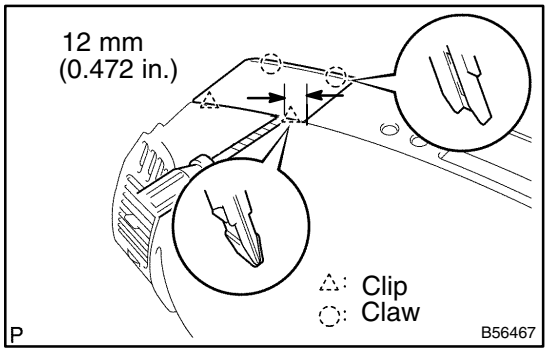
34. REMOVE FRONT PILLAR GARNISH LH

(a) Using a moulding remover, disengage the 2 clips and 2 claws then remove the front pillar garnish LH.

35. REMOVE THE FRONT PILLAR GARNISH RH

HINT:

Use the same procedures for the RH side and LH side.



36. REMOVE THE INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY NO.2

(a) Using a screwdriver, disengage the 2 clips and 2 claws.

HINT:

Tape the screwdriver tip before use.

(b) Remove the instrument panel speaker panel sub-assembly No.2.

37. REMOVE THE INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

HINT:

Use the same procedures for the instrument panel speaker panel sub-assembly and instrument panel speaker panel sub-assembly No.2.

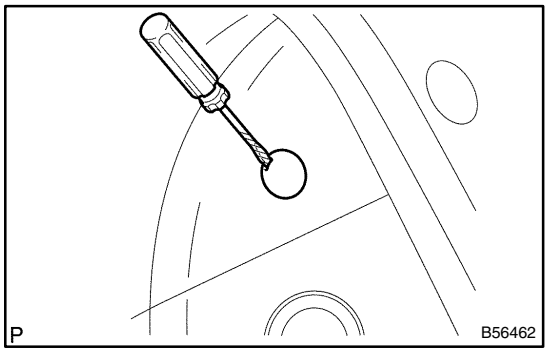
38. REMOVE FRONT NO.1 SPEAKER ASSEMBLY, See Pub. No. AC-RM033V2, Page 67-13

39. REMOVE FRONT NO.2 SPEAKER ASSEMBLY

HINT:

Use the same procedures for the front No.2 speaker assembly and front No.1 speaker assembly.

40. DISCONNECT PASSENGER AIRBAG CONNECTOR, See Pub. No. AC-RM033V2, Page 60-45



41. REMOVE INSTRUMENT PANEL SAFETY PAD CAP

(a) Using a screwdriver, remove the instrument panel safety pad cap.

HINT:

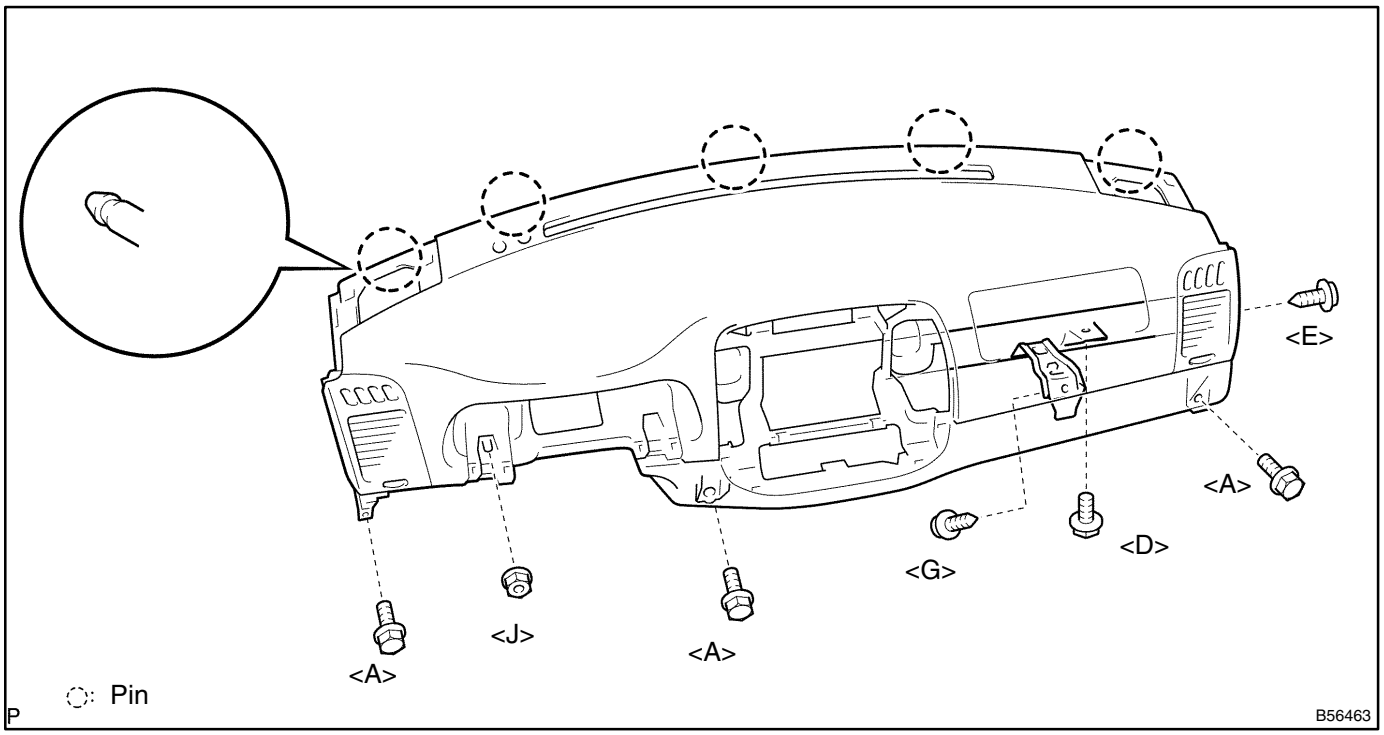
Tape the screwdriver tip before use.

42. REMOVE THE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY, W/FRONT PASSENGER AIRBAG ASSEMBLY

(a) Remove the 2 screws <E> <G>, nut <J> and 4 bolts <A> and <D>.

(b) Disconnect the connectors.

(c) Remove the instrument panel safety pad sub-assembly w/ front passenger airbag assembly.



43. REMOVE THE INSTRUMENT PANEL REGISTER ASSEMBLY NO.2

(a) Disengage the 3 clips and 3 claws.

(b) Remove the instrument panel register assembly No.2.

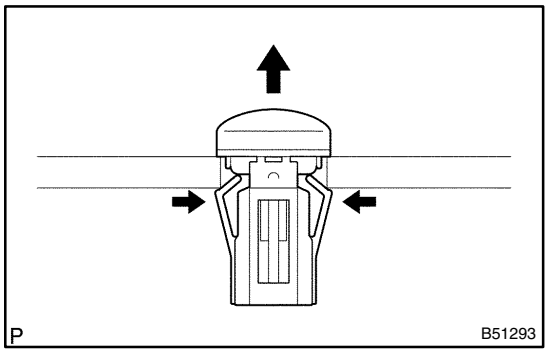
44. REMOVE THE INSTRUMENT PANEL REGISTER ASSEMBLY NO.1

(a) Disengage the 3 clips and 3 claws.

(b) Remove the instrument panel register assembly No.1.

45. REMOVE THE GLOVE BOX LAMP ASSEMBLY

(a) Disengage the 4 claws and remove the glove box lamp assembly.



46. REMOVE COOLER (SOLAR SENSOR) THERMISTOR (AUTO AIR CONDITIONING)

(a) Disconnect the connector.

(b) Remove the cooler (solar sensor) thermistor.

NOTICE:

Do not pry the cooler (solar sensor) thermistor off from the upper position.

47. REMOVE THE SIDE DEFROSTER NOZZLE DUCT NO.2

(a) Remove the screw <G> and side defroster nozzle duct No.2.

48. REMOVE THE SIDE DEFROSTER NOZZLE DUCT NO.1

(a) Remove the screw <G> and side defroster nozzle duct No.1.

49. REMOVE THE DEFROSTER NOZZLE ASSEMBLY

(a) Remove the 5 screws <G> and defroster nozzle assembly.

50. REMOVE THE HEATER TO REGISTER DUCT NO.1

(a) Remove the 2 screws <G> and heater to register duct No.1.

51. REMOVE THE HEATER TO REGISTER DUCT NO.3

(a) Remove the 2 screws <G> and heater to register duct No.3.

52. REMOVE THE HEATER TO REGISTER DUCT NO.2

(a) Remove the screw <G> and heater to register duct No.2.

53. REMOVE THE DEFROSTER NOZZLE GARNISH NO.1

(a) Disengage the 5 clips and remove the defroster nozzle garnish No.1.

54. REMOVE THE INSTRUMENT PANEL STAY NO.1

(a) Remove the 2 screws <G> and 2 instrument panel stay No.1.

55. REMOVE THE FRONT PASSENGER AIRBAG ASSEMBLY, See Pub. No. AC-RM033V2, Page 60-45

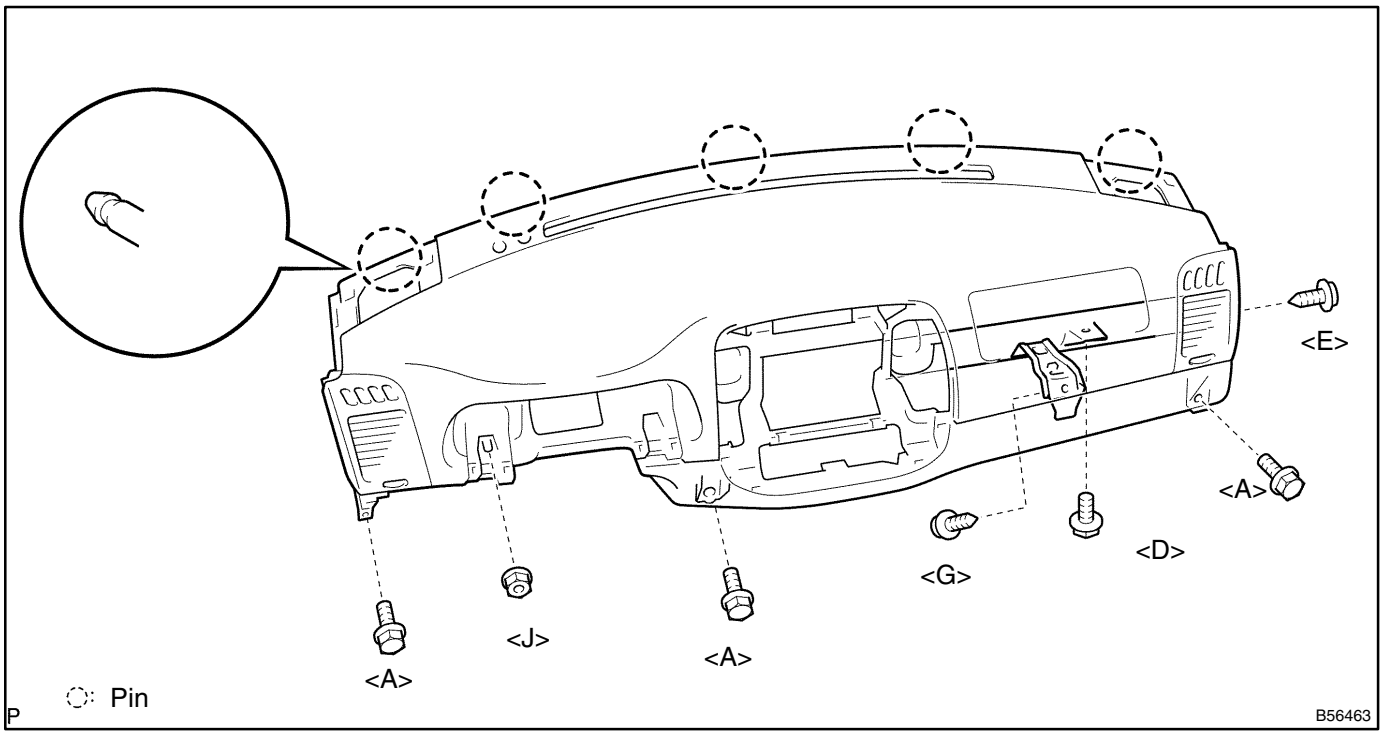
56. REMOVE THE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

57. INSTALL THE FRONT PASSENGER AIRBAG ASSEMBLY, See Pub. No. AC-RM033V2, Page 60-45

58. INSTALL THE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY, W/FRONT PASSENGER AIRBAG ASSEMBLY

(a) Install the bolt <D>.

Torque: 20 N m (204 kgf cm, 15 lbf ft)



59. ADJUST THE SPIRAL CABLE SUB-ASSEMBLY, See Pub. No. AC-RM033V2, Page 60-23

60. INSTALL THE STEERING WHEEL ASSEMBLY, See Pub. No. AC-RM033V2, Page 50-6

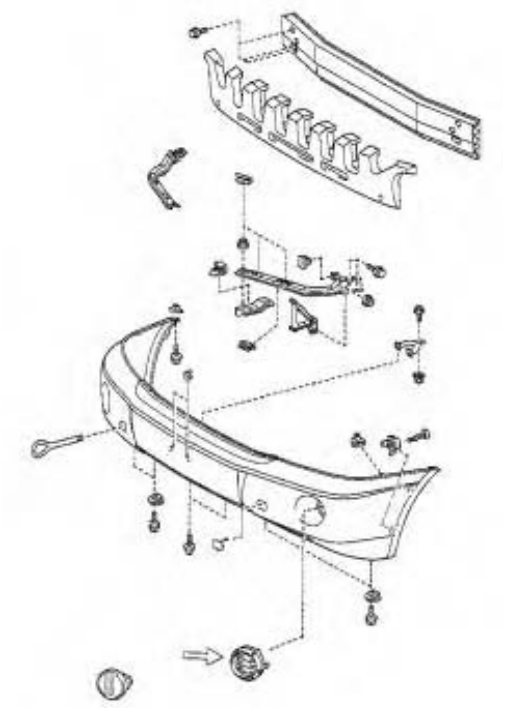
61. INSTALL THE HORN BUTTON ASSEMBLY, See page 60-16

62. INSPECT THE HORN BUTTON ASSEMBLY, See page 60-10

63. CONNECT THE BATTERY NEGATIVE TERMINAL

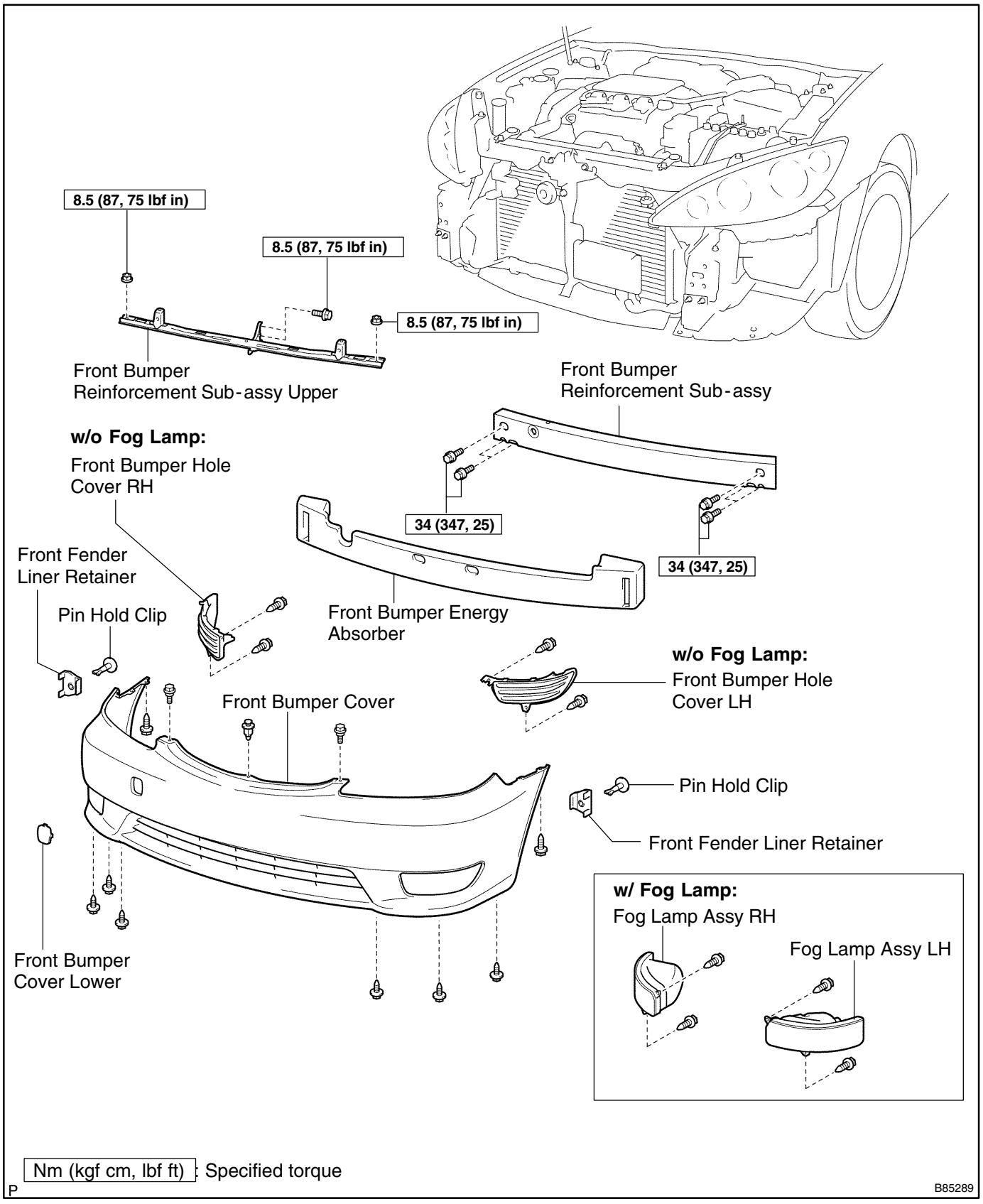
64. INSPECT THE SRS WARNING LIGHT, See page 05-4

Section 76 – Exterior/Interior Trim



FRONT BUMPER

COMPONENTS



Nm (kgf cm, lbf ft) : Specified torque

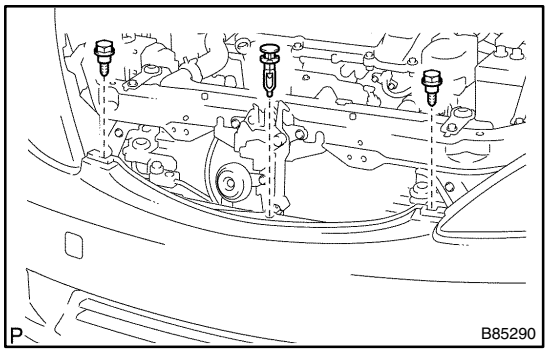
P

B85289

REPLACEMENT

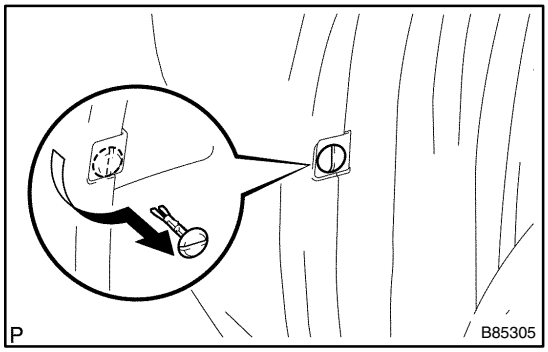
HINT:

- Installation is in the reverse order of removal.
- COMPONENTS, See page 76-1.



1. REMOVE THE FRONT BUMPER ASSEMBLY

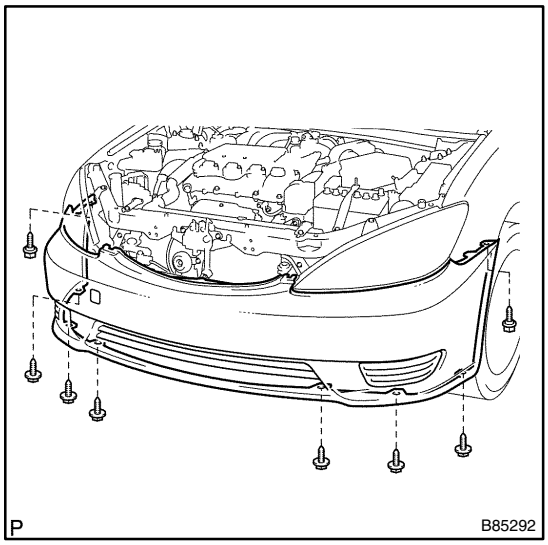
(a) Remove the clip and the 2 bolts.



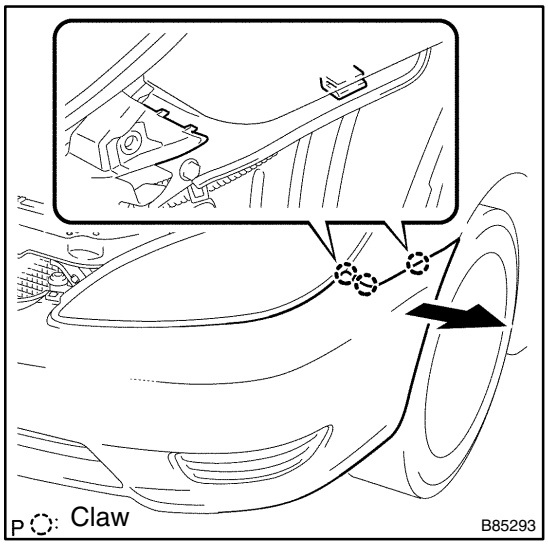
(b) Turn the pin hold clip 90°as shown in the illustration and remove it. (LH side)

HINT:

Remove the RH side by following the same procedure as for the LH side.



(c) Remove the 8 screws.

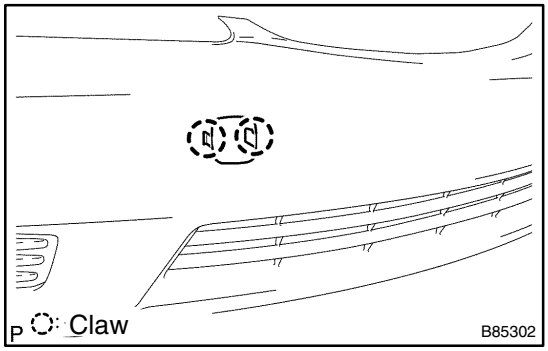


(d) Disengage the 3 claws by pulling the left side of the front bumper cover in the direction shown by the arrow.

HINT:

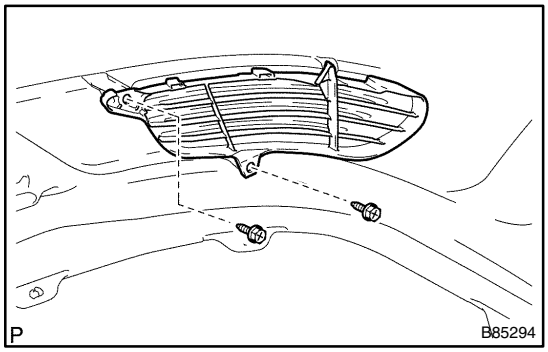
Disengage the RH side by following the same procedure as for the LH side.

(e) Disconnect the fog lamp connector (w/ fog lamp) and remove the front bumper assembly.



2. REMOVE THE FRONT BUMPER COVER LOWER

(a) Disengage the 2 claws and remove the front bumper cover lower.



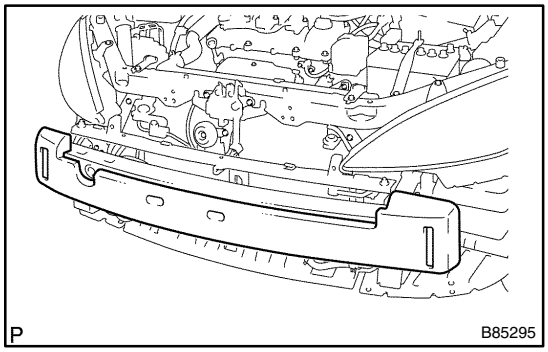
3. REMOVE THE FRONT BUMPER HOLE COVER RH (W/O FOG LAMP)

(a) Remove the 2 screws and the front bumper hole cover RH.

4. REMOVE THE FRONT BUMPER HOLE COVER LH (W/O FOG LAMP)

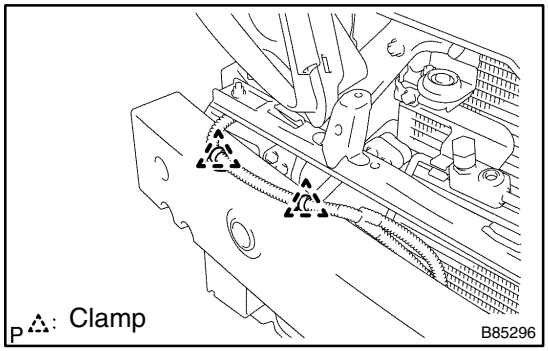
5. REMOVE THE FOG LAMP ASSEMBLY RH (W/ FOG LAMP) (SEE PAGE 65-12)

6. REMOVE THE FOG LAMP ASSEMBLY LH (W/ FOG LAMP) (SEE PAGE 65-12)



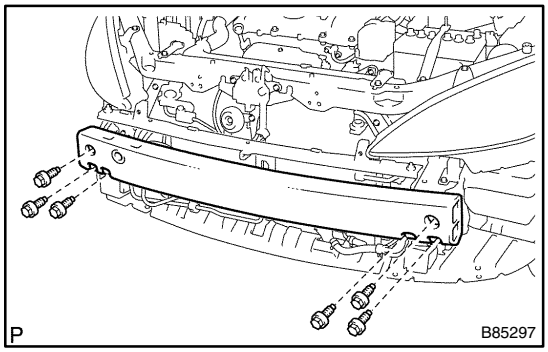
7. REMOVE THE FRONT BUMPER ENERGY ABSORBER

(a) Remove the front bumper energy absorber.

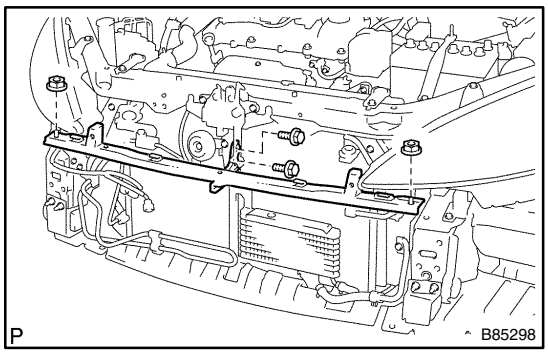


8. REMOVE THE FRONT BUMPER REINFORCEMENT SUB-ASSEMBLY

(a) Disengage the 2 clamps.



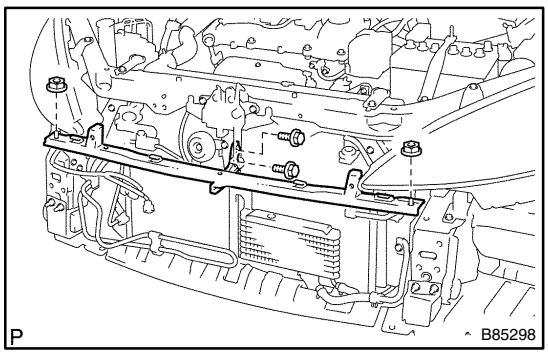
(b) Remove the 6 bolts and the front bumper reinforcement sub-assembly.



9. REMOVE THE FRONT BUMPER REINFORCEMENT SUB-ASSEMBLY UPPER

(a) Remove the 2 bolts and the 2 nuts.

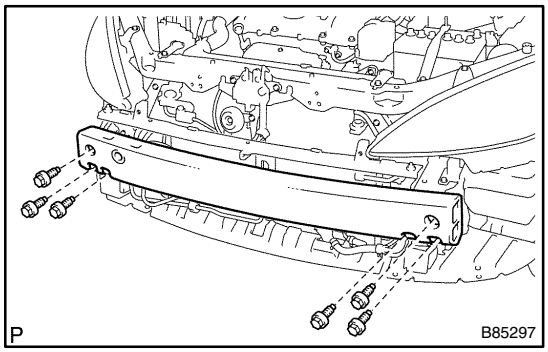
(b) Remove the front bumper reinforcement sub-assembly upper.



10. INSTALL THE FRONT BUMPER REINFORCEMENT SUB-ASSEMBLY UPPER

(a) Install the front bumper reinforcement sub-assembly upper with the 2 bolts and 2 nuts.

Torque: 8.5 N m (87 kgf cm, 75 lbf in)



11. INSTALL THE FRONT BUMPER REINFORCEMENT SUB-ASSEMBLY

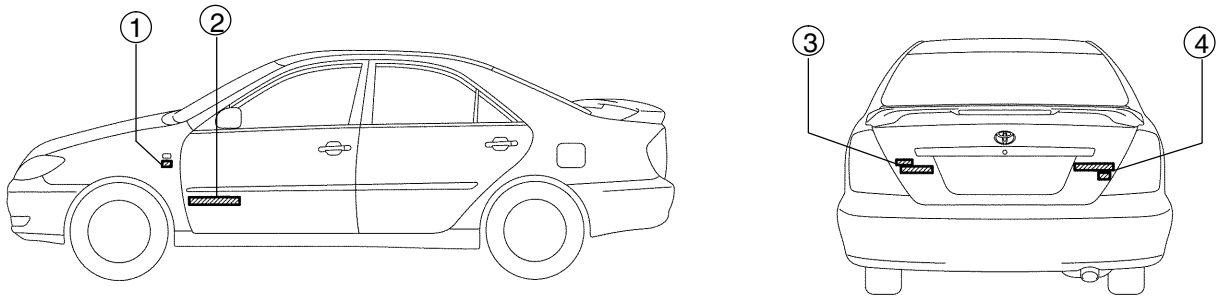
(a) Install the front bumper reinforcement sub-assembly with the 6 bolts.

Torque: 34 N m (347 kgf cm, 25 lbf ft)

12. FOG LAMP AIMING ADJUSTMENT (W/ FOG LAMP), See page 65-13

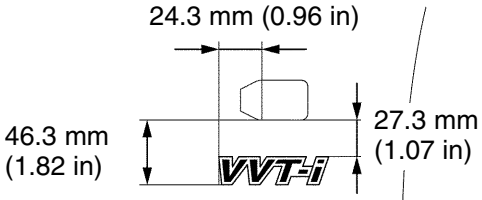
NAME PLATE

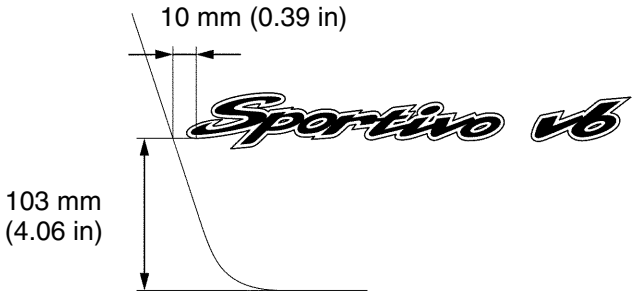
REPLACEMENT



① FRONT FENDER EMBLEM

② FRONT DOOR NAME PLATE



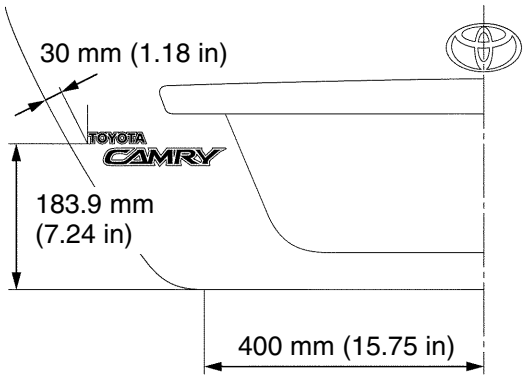


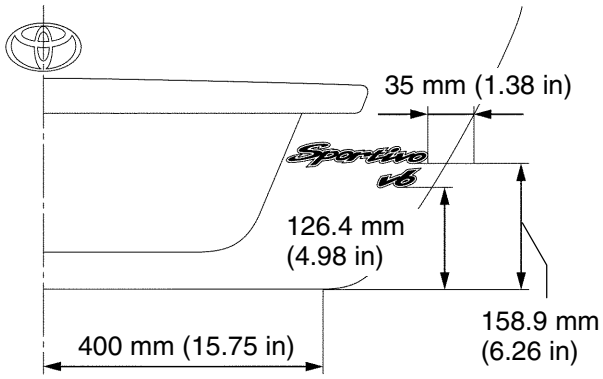




③ LUGGAGE COMPARTMENT DOOR NAME PLATE No.2

④ LUGGAGE COMPARTMENT DOOR NAME PLATE No.3











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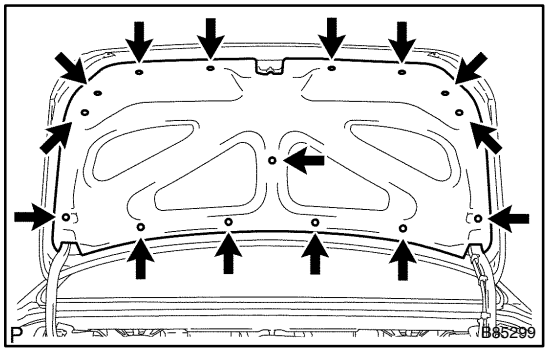
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BACK DOOR GARNISH SUB-ASSY OUTSIDE

REPLACEMENT

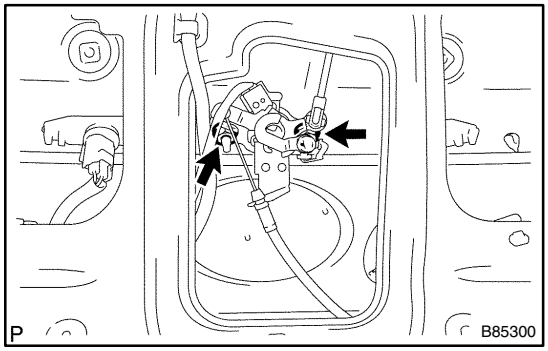
HINT:

Installation is in the reverse order of removal.



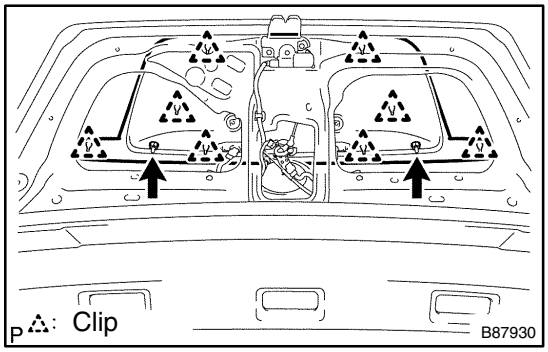
1. REMOVE THE LUGGAGE COMPARTMENT DOOR COVER

(a) Using a clip remover, remove the 15 clips and the luggage compartment door cover.



2. REMOVE THE BACK DOOR GARNISH SUB-ASSEMBLY OUTSIDE

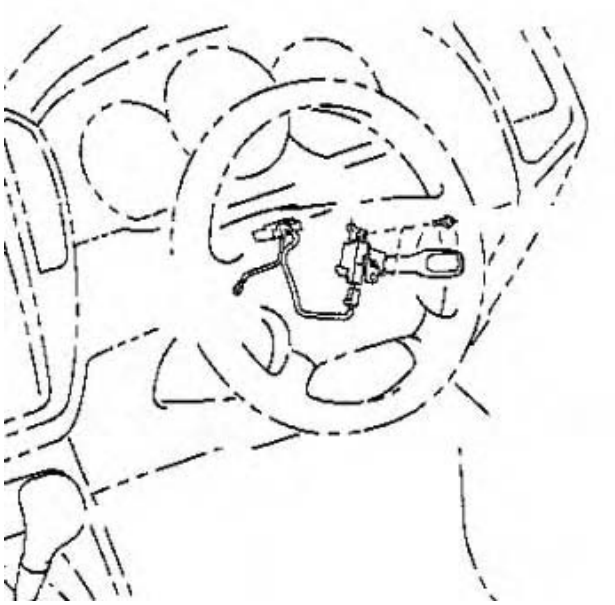
(a) Remove the 2 nuts.



(b) Remove the 2 nuts.

(c) Disengage the 8 clips and remove the back door outside garnish sub-assembly.

Section 82 – Cruise Control



CRUISE CONTROL MAIN SWITCH ASSEMBLY

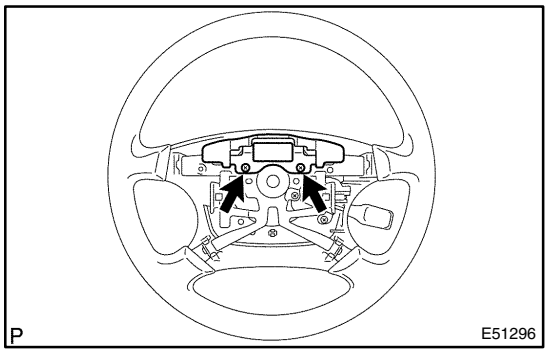
REPLACEMENT

HINT:

Installation is in the reverse order of removal.

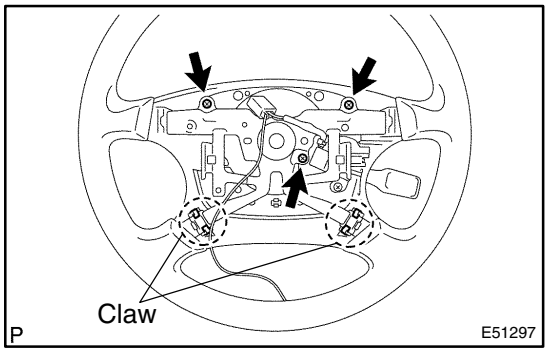
1. **DISCONNECT THE BATTERY NEGATIVE TERMINAL, See page 60-1**
2. **REMOVE THE STEERING WHEEL COVER LOWER NO.2**
3. **REMOVE THE STEERING WHEEL COVER LOWER NO.3**
4. **PLACE THE FRONT WHEELS IN THE STRAIGHT AHEAD POSITION**
5. **REMOVE THE HORN BUTTON ASSEMBLYY, See page 60-16**
6. **REMOVE STEERING WHEEL assembly (EXCEPT RHD W/STEERING PAD SWITCH), see Pub. No. AC-RM033V2, page 50-6**

   SST 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021)



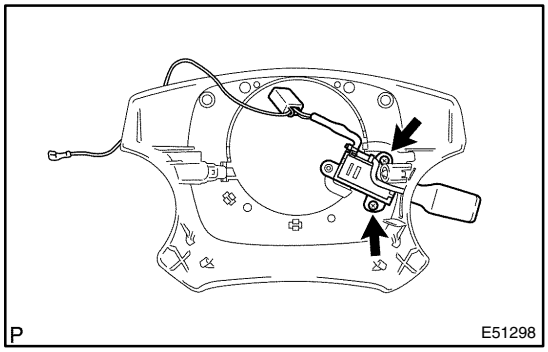
7. **REMOVE THE CRUISE CONTROL MAIN SWITCH ASSEMBLY (EXCEPT RHD W/STEERING PAD SWITCH)**

   (a) Remove the 2 screws and steering wheel damper.

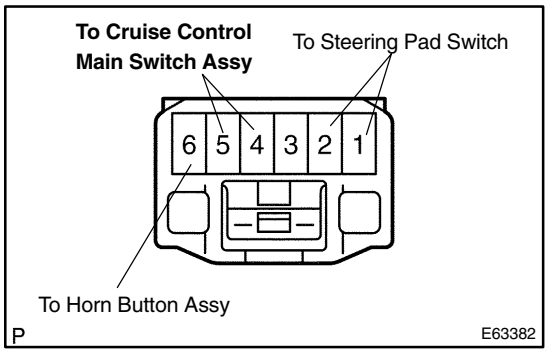


   (b) Remove the 3 screws.

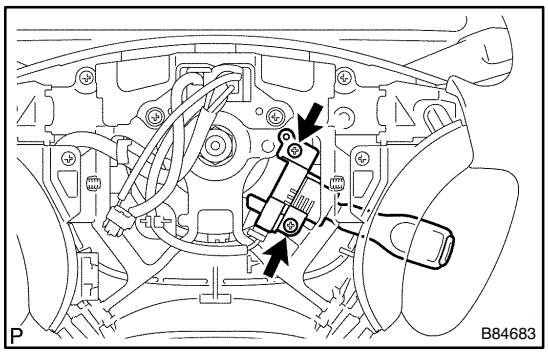
   (c) Disengage the 2 claws and remove the steering wheel boss cover lower.



   (d) Remove the 2 screws and cruise control main switch assembly.



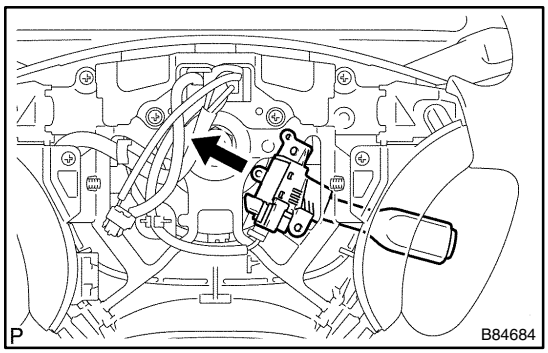
(e) Disengage the 2 wiring pins (terminals 4 and 5) for the cruise control main switch assembly from the connector, and pull them out.



8. REMOVE THE CRUISE CONTROL MAIN SWITCH ASSEMBLY (FOR RHD W/STEERING PAD SWITCH)

(a) Disconnect the connector.

(b) Remove the 2 screws.



(c) Pull out the cruise control main switch assembly in the direction shown by the arrow in the illustration.

9. ADJUST THE SPIRAL CABLE SUB-ASSEMBLY (EXCEPT RHD W/STEERING PAD SWITCH), see Pub. No. AC-RM033V2, page 60-24

10. INSTALL THE STEERING WHEEL ASSEMBLY (EXCEPT RHD W/STEERING PAD SWITCH), see Pub. No. AC-RM033V2, page 50-11

11. INSTALL THE HORN BUTTON ASSEMBLY, see page 60-16

12. INSPECT THE HORN BUTTON ASSY, see page 60-10

13. INSPECT THE SRS WARNING LIGHT, see page 05-4