

GROUP 54C

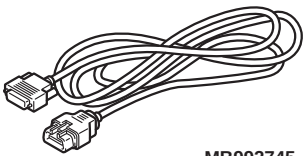
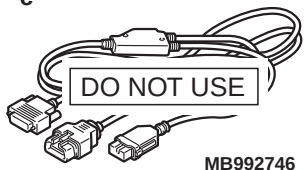
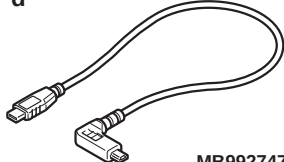
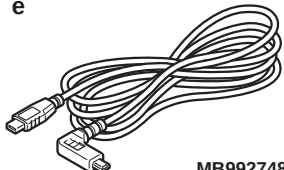
CONTROLLER
AREA NETWORK
(CAN)

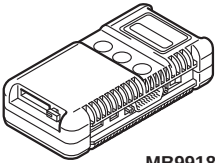
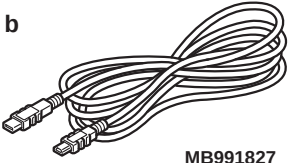
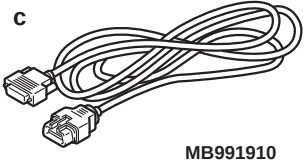
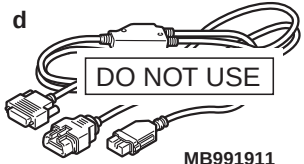
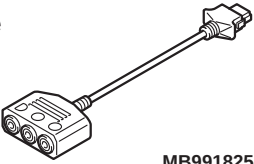
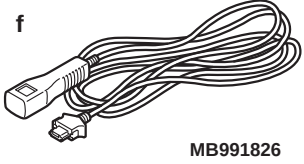
CONTENTS

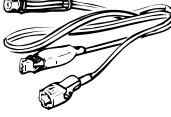
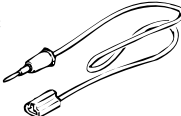
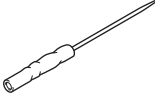
SPECIAL TOOLS.....	54C-2	DIAGNOSTIC TROUBLE CODE DIAGNOSIS	54C-11
TEST EQUIPMENT	54C-4	DIAGNOSIS	54C-12
SERVICE PRECAUTIONS.....	54C-5	CAN BUS DIAGNOSTICS TABLE	54C-12
PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES.....	54C-6	CAN-RELATED CONNECTOR POSITION.	54C-16
EXPLANATION ABOUT THE SCAN TOOL (M.U.T.-III) CAN BUS DIAGNOSTICS.....	54C-7	CAN BUS DIAGNOSTICS.....	54C-16
		DIAGNOSTICS TROUBLE CODE REFERENCE TABLE	54C-90

SPECIAL TOOLS

M1548304200994

Tool	Tool number and name	Supersession	Application
a  MB992744	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748	-	CAN bus diagnostics
b  MB992745	a. Vehicle communication interface-Lite (V.C.I.-Lite) b. V.C.I.-Lite main harness A (for vehicles with CAN communication)		
c  MB992746	c. V.C.I.-Lite main harness B (for vehicles without CAN communication) d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long		
d  MB992747			
e  MB992748 ACB05421AB			

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991825 f  MB991826 MB991955	MB991955 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991825 f. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (for vehicles with CAN communication) d. M.U.T.-III main harness B (for vehicles without CAN communication) e. Measuring adapter harness f. M.U.T.-III trigger harness	MB991824-KIT <i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i>	⚠ CAUTION For vehicles with CAN communication, use the M.U.T.-III main harness A to send simulated vehicle speed. If you connect the M.U.T.-III main harness B instead, the CAN communication does not function correctly. CAN bus diagnostics

Tool	Tool number and name	Supersession	Application
a  b  c  d 	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Wiring harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector. a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection
 MB992006	MB992006 Extra fine probe	—	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.
	MB991709 Wiring harness set	—	Measurement of voltage and resistance at the ASC-ECU

TEST EQUIPMENT

M1548304300281

Test equipment	Name	Application
 AC000019	Digital multimeter	Checking CAN bus circuit (for resistance and voltage measurements)

SERVICE PRECAUTIONS

M1548302100270

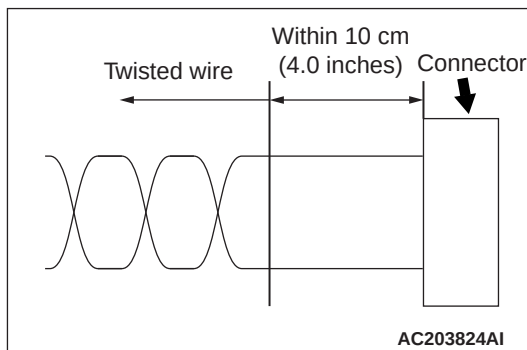
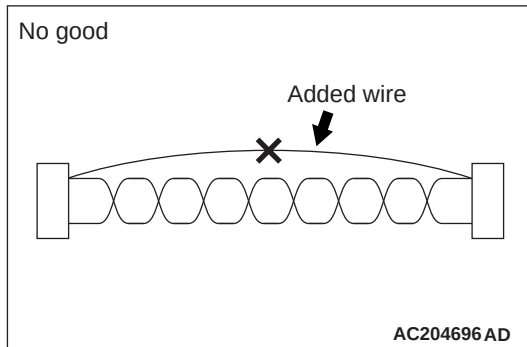
Warnings in diagnosis section	Details regarding warnings
⚠ CAUTION When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do, a component connected to the CAN bus line may be broken.	—
⚠ CAUTION A digital multimeter should be used.	When measuring resistance value or voltage in CAN bus lines, use a digital multimeter. If not using a digital multimeter, the equipment, which are connected through the CAN communication lines, may be damaged.
⚠ CAUTION When measuring the resistance, disconnect the negative battery terminal.	Disconnect the negative battery terminal when measuring the resistance value in the CAN bus line. If you fail to do so, the equipment, which are connected through the CAN communication lines, may be damaged.
⚠ CAUTION The test wiring harness should be used.	Always use the test harness when measuring the voltage or resistance value at the female connector. If you fail to do so, connectors may be damaged.
⚠ CAUTION The strand end of the twist wire should be within 10 cm (4 inches) from the connector.	If you repair the wire due to a defective connector or its terminal or harness wire, you should cut the wire so that the strand end of the twist wire should be within 10 cm (4 inches) from the connector as shown. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4 inches), a communication error may be caused.
⚠ CAUTION Strictly observe the specified wiring harness repair procedure.	When you repair a CAN bus line, observe the precautions on how to repair the CAN bus line strictly. Refer to P.54C-6 . If a new wire is added or a splice point is modified for the CAN_L or CAN_H line, an error in the CAN communication may be caused.

PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES

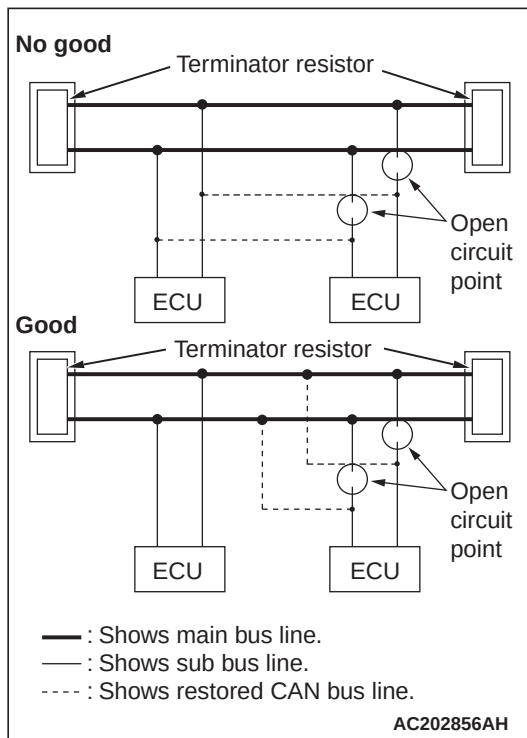
M1548301900273

PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES

- If the CAN bus line(s) are repaired, renew all the twisted wires between the end connectors. If the wiring harness is partially repaired, or only CAN_L or CAN_H line is repaired, noise suppression is deteriorated, causing a communication error.



- If the connector or wire on the main bus line or the sub-bus wire is replaced, the frayed end of the twisted wire should be within 10 cm (4 inches) from the connector. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the frayed end exceeds 10 cm (4 inches), noise suppression is deteriorated, causing a communication error.



- If a sub-bus line is repaired, splice a new wire directly into the main bus line. If a new wire is spliced into the sub-bus line, which is connected to another device, the CAN communication will be disabled.

PRECAUTIONS ON HOW TO REPAIR THE TERMINATOR RESISTOR

If one-side terminator resistor is broken, the CAN communication will continue although noise suppression is deteriorated. No diagnostic trouble code may be stored even if the terminator resistor was broken. If damage is found, replace the ECU which incorporates the defective terminator resistor.

CAN BUS LINE REPAIR HARNESS (PART NAME AND NUMBER)

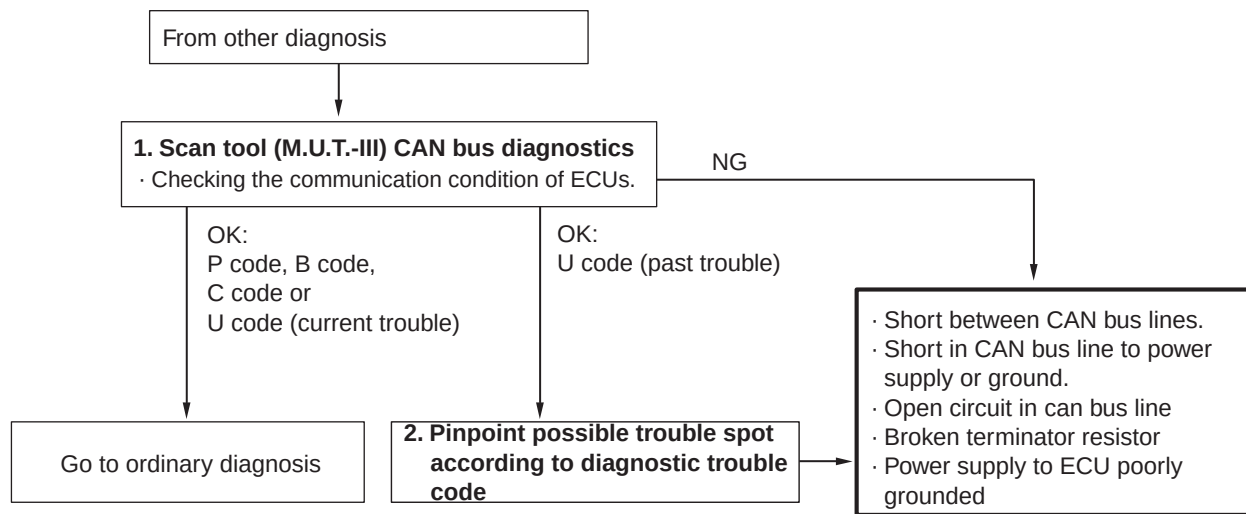
Part name	Part number
Twist pair cable	MN151514

EXPLANATION ABOUT THE SCAN TOOL (M.U.T.-III) CAN BUS DIAGNOSTICS

M1548300100683

Scan tool (M.U.T.-III) CAN bus diagnostics carries out the three checks below automatically, and then displays current condition of the CAN bus lines according to the check results.

CAN BUS LINE DIAGNOSTIC FLOW



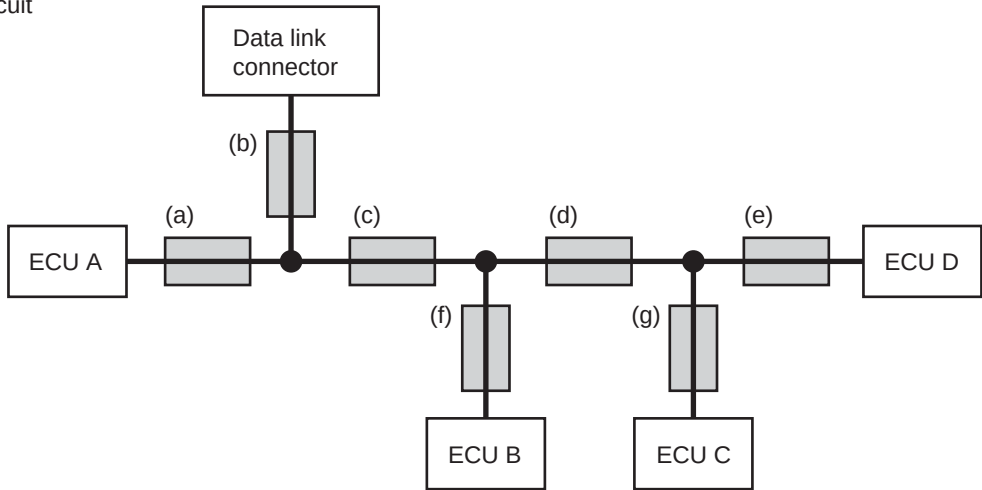
ACB05636AB

1. Scan tool CAN bus diagnostics

Scan tool (M.U.T.-III) diagnoses CAN bus lines in accordance with the following strategy.

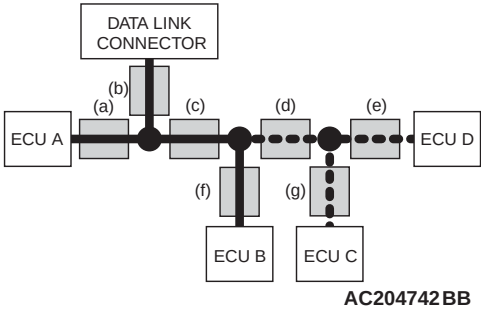
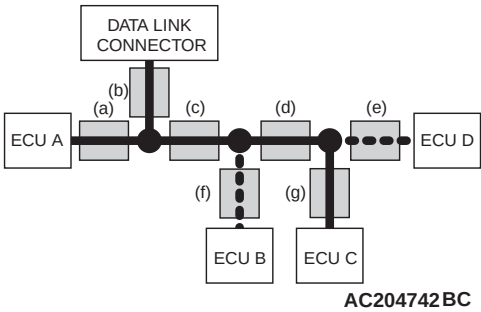
- Checking the communication condition of ECUs
Scan tool (M.U.T.-III) narrows down troubles in circuit by itself. Its strategies are as follows.

Reference circuit



AC502594AB

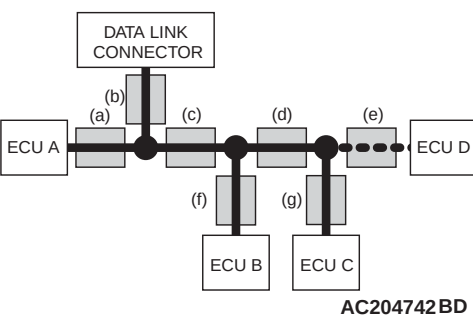
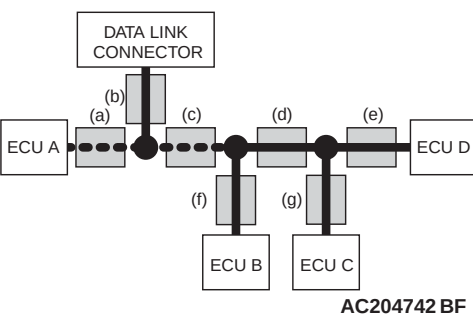
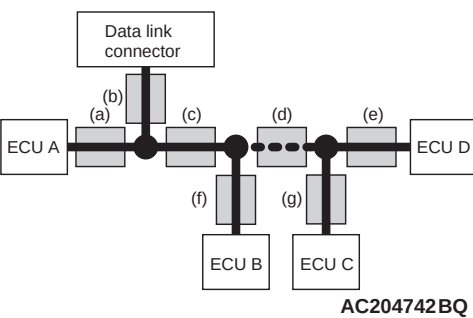
ECU which cannot communicate with the scan tool	Possible trouble spot	Logic for narrowing down trouble spot	
ECU A	CAN bus line (a) and power supply system to ECU A	ECU A communicates with the scan tool (M.U.T.-III) via CAN bus lines (a) and (b). The scan tool (M.U.T.-III) judges that CAN bus line (b) is normal, because it can communicate with other ECUs. Possible trouble may be present in CAN bus line (a) or the power supply system to ECU A.	The diagram shows the CAN bus network with ECU A, ECU B, ECU C, and ECU D. ECU A is connected to the bus via CAN bus line (a) and a power supply system (b). ECU B is connected via CAN bus line (f) and a power supply system (g). ECU C is connected via CAN bus line (g) and a power supply system (f). ECU D is connected via CAN bus line (e) and a power supply system (d). A data link connector is connected to the bus via CAN bus line (b) and a power supply system (c). The bus lines are labeled (a), (b), (c), (d), (e), (f), and (g). AC204742 AZ
ECU C	CAN bus line (g) and power supply system to ECU C	ECU C communicates with the scan tool (M.U.T.-III) via CAN bus lines (b), (c), (d) and (g). The scan tool (M.U.T.-III) judges that CAN bus lines (b), (c) and (d) are normal, because it can communicate with ECUs B and D. Possible trouble may be present in CAN bus line (g) or the power supply system to ECU C.	The diagram shows the CAN bus network with ECU A, ECU B, ECU C, and ECU D. ECU A is connected to the bus via CAN bus line (a) and a power supply system (b). ECU B is connected via CAN bus line (f) and a power supply system (g). ECU C is connected via CAN bus line (g) and a power supply system (f). ECU D is connected via CAN bus line (e) and a power supply system (d). A data link connector is connected to the bus via CAN bus line (b) and a power supply system (c). The bus lines are labeled (a), (b), (c), (d), (e), (f), and (g). AC204742 BA

ECU which cannot communicate with the scan tool	Possible trouble spot	Logic for narrowing down trouble spot
ECU C and ECU D	Trouble in CAN bus line (d)	ECUs C and D communicate with the scan tool (M.U.T.-III) via CAN bus lines (b), (c), (d), (e) and (g). The scan tool (M.U.T.-III) judges that CAN bus lines (b) and (c) are normal, because it can communicate with ECU B. Possible trouble may be present in CAN bus line (d), (e) or (g) or the power supply system to ECU D or C. CAN bus line (d) is shared by ECUs C and D when they communicate with the scan tool (M.U.T.-III), so CAN bus line (d) is suspected as ultimate cause. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.  AC204742BB
ECU B and ECU D	CAN bus line (e) or (f) or power supply system to ECU B or D	ECUs B and D communicate with the scan tool (M.U.T.-III) via CAN bus lines (b), (c), (d), (e) and (f). The scan tool (M.U.T.-III) judges that CAN bus lines (b), (c) and (d) are normal, because it can communicate with ECU C. Possible trouble may be present in CAN bus line (f) or (e) or the power supply system to ECU B or D.  AC204742BC

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

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

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

Diagnostic trouble code to be stored	Possible trouble spot	Logic for narrowing down trouble spot
Time-out diagnostic trouble code associated with ECU D is stored in ECU A, ECU B and ECU C. Time-out diagnostic trouble code associated with ECUs A, B, C and D is stored in ECU.	Trouble in CAN bus line (e) and power supply system to ECU D	When time-out diagnostic trouble code associated with ECU D is stored in ECU A, B and C, or time-out diagnostic trouble code associated with ECUs A, B and C is stored in ECU D, CAN bus line (e) is suspected. When diagnostic trouble code is not stored in ECU D, the power supply to ECU D is suspected.  AC204742 BD
Time-out diagnostic trouble code associated with ECU A is stored in ECUs B, C and D. Time-out diagnostic trouble code associated with ECUs B, C and D is stored in ECU A.	Trouble in CAN bus line (a) or (c) and power supply system to ECU A.	When time-out diagnostic trouble code associated with ECU A is stored in ECUs B, C and D, or time-out diagnostic trouble code associated with ECUs B, C and D is stored in ECU A, CAN bus line (a) or (c) is suspected. When diagnostic trouble code is not stored in ECU A, the power supply to ECU A is suspected.  AC204742 BF
Time-out diagnostic trouble codes associated with ECUs C and D are stored in ECU A and ECU B. Time-out diagnostic trouble codes associated with ECUs A and B are stored in ECU C and ECU D.	Trouble in CAN bus line (d)	If time-out diagnostic trouble codes associated with ECUs C and D are stored in ECUs A and B, or time-out codes associated with ECUs A and B are stored in ECUs C and D, CAN bus line (d) is suspected. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.  AC204742 BQ

DIAGNOSTIC TROUBLE CODE DIAGNOSIS

M1548304500401

ON-BOARD DIAGNOSTICS

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

- ETACS-ECU
- Combination meter
- SRS-ECU
- KOS&OSS-ECU <Vehicles with KOS>
- Auto A/C controller assembly (A/C-ECU) <Vehicles with automatic A/C>
- Steering wheel sensor
- EPS-ECU
- ASC-ECU
- Transaxle control module (TCM) <CVT>
- ECM
- Occupant classification-ECU
- PTC heater control unit (ECU for signal reception only)

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (M.U.T.-III).

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB992747/M992748 or special tool MB991827 to special tool MB992744 or special tool MB991824 and the personal computer.
4. Connect special tool MB992745 or special tool MB991910 to special tool MB992744 or special tool MB991824.
5. Connect special tool MB992745 or special tool MB991910 to the data link connector.

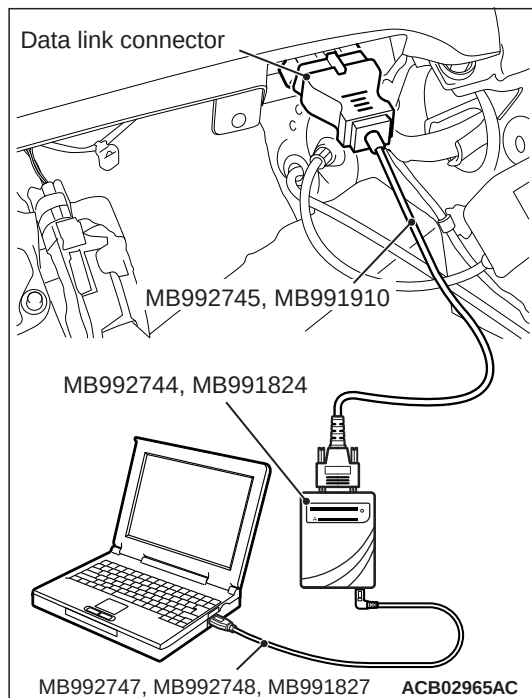
NOTE: When the special tool MB992745 is connected to the data link connector, the special tool MB992744 indicator light will be illuminated in a green color.

6. Turn the power switch of special tool MB991824 to the "ON" position. <When using the special tool MB991824>

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

7. Start the M.U.T.-III system on the personal computer.

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



HOW TO DIAGNOSE THE CAN BUS LINES**Required Special Tools:**

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (M.U.T.-III).

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

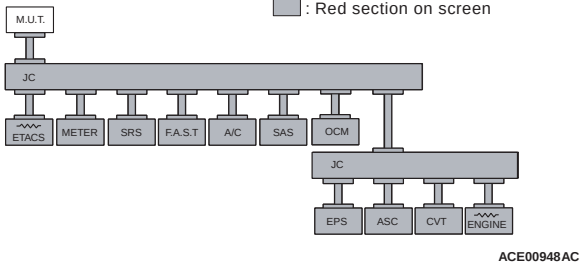
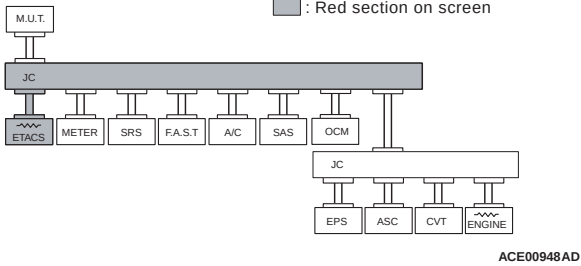
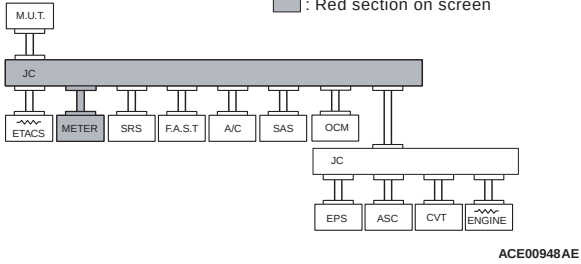
DIAGNOSIS**CAN BUS DIAGNOSTICS TABLE**

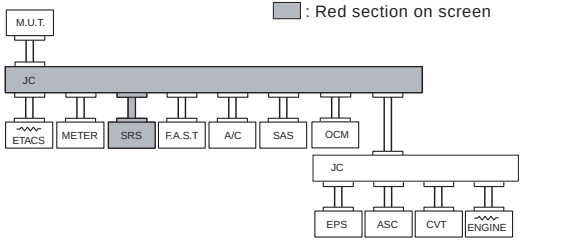
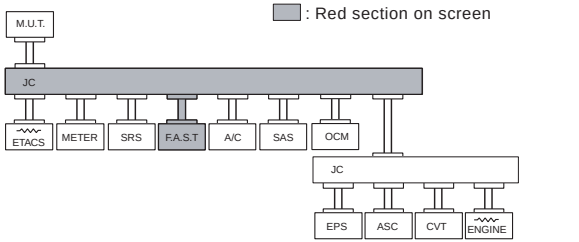
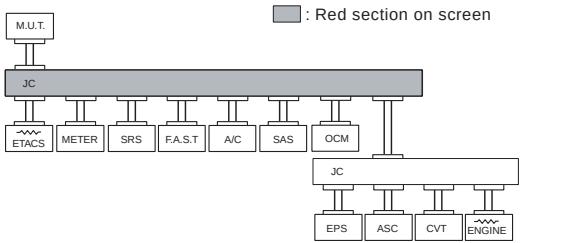
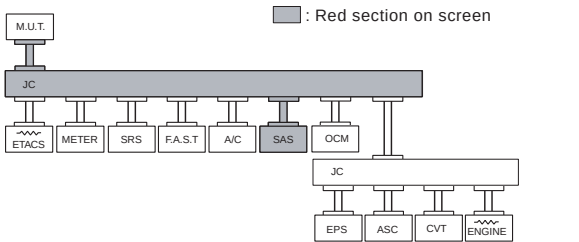
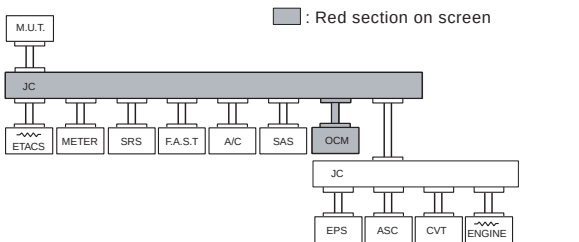
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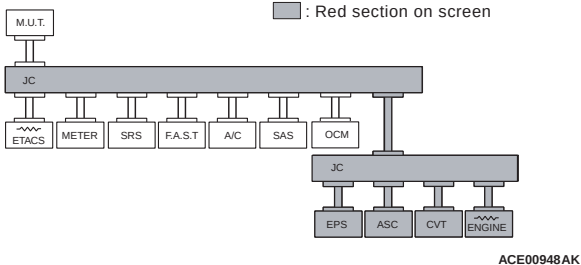
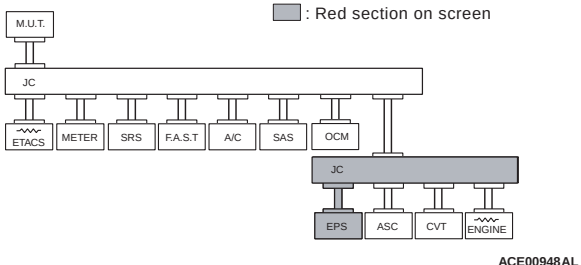
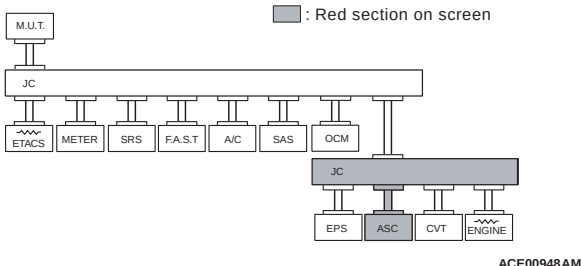
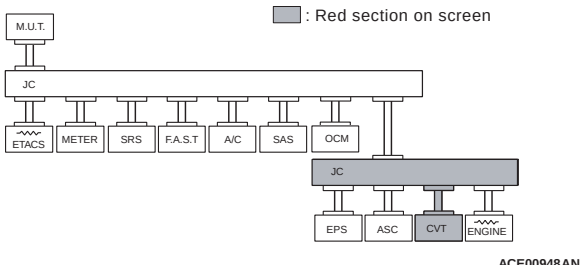
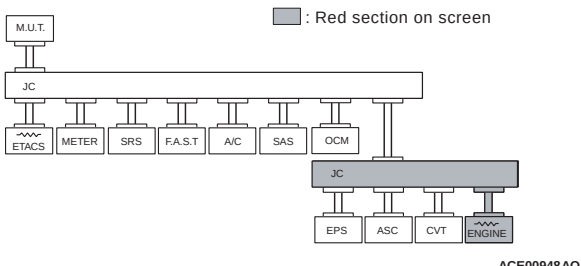
⚠ CAUTION

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

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

Scan tool screen - The ECUs that are not adopted are not displayed. - PTC heater control unit (ECU for signal reception only) is not displayed.	Comment	Diagnostics detail	Reference page
	Failure in red displayed area is estimated.	Diagnostic Item 1 Communication with no ECUs is possible.	P.54C-16
—	—	Diagnostic Item 2* Diagnose shorts in the power supply to CAN bus line	P.54C-18
—	—	Diagnostic Item 3* Diagnose shorts in the ground to CAN bus line	P.54C-38
—	—	Diagnostic Item 4* Diagnose shorts between CAN_H and L lines	P.54C-59
	Failure in red displayed area is estimated.	Diagnostic Item 5 Diagnose when the scan tool cannot receive the data sent by ETACS-ECU.	P.54C-74
	Failure in red displayed area is estimated.	Diagnostic Item 6 Diagnose when the scan tool cannot receive the data sent by combination meter.	P.54C-76

Scan tool screen - The ECUs that are not adopted are not displayed. - PTC heater control unit (ECU for signal reception only) is not displayed.	Comment	Diagnostics detail	Reference page
 ACE00948AF	Failure in red displayed area is estimated.	Diagnostic Item 7 Diagnose when the scan tool cannot receive the data sent by SRS-ECU.	P.54C-78
 ACE00948AG	Failure in red displayed area is estimated.	Diagnostic Item 8 Diagnose when the scan tool cannot receive the data sent by KOS&OSS-ECU. <Vehicles with KOS>	P.54C-79
 ACE00948AH	Failure in red displayed area is estimated.	Diagnostic Item 9 Diagnose when the scan tool cannot receive the data sent by auto A/C controller assembly (A/C-ECU). <Vehicles with automatic A/C>	P.54C-80
 ACE00948AI	Failure in red displayed area is estimated.	Diagnostic Item 10 Diagnose when the scan tool cannot receive the data sent by steering wheel sensor.	P.54C-81
 ACE00948AJ	Failure in red displayed area is estimated.	Diagnostic Item 11 Diagnose when the scan tool cannot receive the data sent by occupant classification-ECU.	P.54C-82

Scan tool screen - The ECUs that are not adopted are not displayed. - PTC heater control unit (ECU for signal reception only) is not displayed.	Comment	Diagnostics detail	Reference page
 ACE00948AK	Failure in red displayed area is estimated.	Diagnostic Item 12 Diagnose the lines between the joint connectors (CAN1 and CAN2)	P.54C-83
 ACE00948AL	Failure in red displayed area is estimated.	Diagnostic Item 13 Diagnose when the scan tool cannot receive the data sent by EPS-ECU.	P.54C-85
 ACE00948AM	Failure in red displayed area is estimated.	Diagnostic Item 14 Diagnose when the scan tool cannot receive the data sent by ASC-ECU.	P.54C-85
 ACE00948AN	Failure in red displayed area is estimated.	Diagnostic Item 15 Diagnose when the scan tool cannot receive the data sent by transaxle control module (TCM). <CVT>	P.54C-86
 ACE00948AO	Failure in red displayed area is estimated.	Diagnostic Item 16 Diagnose when the scan tool cannot receive the data sent by engine control module (ECM).	P.54C-88

NOTE: *: Diagnostic items 2, 3 and 4 should be checked after the cause of the fault is determined in diagnostic item 1 "Communication with no ECUs is possible".

CAN-RELATED CONNECTOR POSITION

M1548304101729

Connector number	Connector name
A-119	ASC-ECU
C-01	Joint connector (CAN1)
C-13	Data link connector
C-29	SRS-ECU
C-30	PTC heater control unit <ECU for signal reception only>
C-108	Combination meter
C-112	Auto A/C controller assembly (A/C-ECU)
C-131	KOS&OSS-ECU <Vehicles with KOS>
C-203	Joint connector (CAN2)
C-207	EPS-ECU

Connector number	Connector name
C-209	Transaxle control module (TCM) <CVT>
C-117	Instrument panel wiring harness and floor wiring harness combination
C-212	Front wiring harness and instrument panel wiring harness combination
C-215	Front wiring harness and control wiring harness combination
C-228	Engine control module (ECM)
C-311	Steering wheel sensor
C-416	ETACS-ECU
D-37	Occupant classification-ECU

CAN BUS DIAGNOSTICS

Diagnostic Item 1: Communication with no ECUs is possible.

CAUTION

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

TROUBLESHOOTING HINTS

- Malfunction in CAN bus line (short to ground or power supply, wire short to one another)
- Malfunction in the ECUs which are interconnected via CAN bus line (internal error)
- Malfunction (open circuit) of wiring harness, connector (s) between the data link connector and joint connector(s)

DIAGNOSIS

STEP 1. Check the CAN bus lines for short to power supply. Voltage measurement at data link connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (2) Voltage between data link connector terminal No.6 (CAN_H) and body ground

OK: Less than 4.0 V

- (3) Voltage between data link connector terminal No.14 (CAN_L) and body ground

OK: Less than 4.0 V

- (4) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES <Voltage is less than 4.0 V in both CAN_H and CAN_L> : Go to Step 2.

NO <Voltage is 4.0 V or more in either CAN_H or CAN_L> : Perform diagnosis item 2 "Diagnose shorts in the power supply to CAN bus line". Refer to [P.54C-18](#).

STEP 3. Check the CAN bus lines for short to each other. Resistance measurement at data link connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between data link connector terminal Nos.6 and 14

STEP 2. Check the CAN bus lines for short to ground. Resistance measurement at data link connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between data link connector terminal No.6 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between data link connector terminal No.14 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES <Resistance value is 1 kΩ or more in both CAN_H and CAN_L> : Go to Step 3.

NO <Resistance value is less than 1 kΩ in either CAN_H or CAN_L> : Perform diagnosis item 3 "Diagnose shorts in the ground to CAN bus line". Refer to [P.54C-38](#).

OK: 60 ± 10 Ω

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO <Resistance value is less than 60 ± 10 Ω> : Perform diagnosis Item 4 "Diagnose shorts between CAN_H and L lines". Refer to [P.54C-59](#).

NO <Resistance value is 1 kΩ or more> : Check the wires between data link connector and joint connector (CAN1) for open circuit, and check the terminal resistors in the engine control module and the ETACS-ECU for open circuit. Then repair or replace if necessary.

Diagnostic Item 2: Diagnose shorts in the power supply to CAN bus line

 CAUTION

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

TROUBLE JUDGMENT CONDITIONS

The scan tool (M.U.T.-III) judges the trouble when it is impossible to receive the periodically sent data and the voltage of CAN_H or CAN_L line is more than 4.0 V.

TROUBLESHOOTING HINTS

- Malfunction of the wiring harness
- Malfunction of the connector
- Malfunction of the ETACS-ECU

- Malfunction of the combination meter
- Malfunction of the SRS-ECU
- Malfunction of the occupant classification-ECU
- Malfunction of the KOS&OSS-ECU <Vehicles with KOS>
- Malfunction of the auto A/C controller assembly (A/C-ECU) <Vehicles with automatic A/C>
- Malfunction of the Steering wheel sensor
- Malfunction of the EPS-ECU
- Malfunction of the ASC-ECU
- Malfunction of the transaxle control module (TCM) <CVT>
- Malfunction of the engine control module (ECM)
- Malfunction of the PTC heater control unit <ECU for signal reception only>

DIAGNOSIS

STEP 1. Check the CAN bus lines. Voltage measurement at data link connector.

 CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

 CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

NOTE: This inspection allows you to check that there is a short to power supply in either CAN_H line or CAN_L line. Thus, in the following steps, check the CAN bus line that is defective.

- (1) Disconnect engine control module (ECM) connector and ETACS-ECU connector, and measure the voltage at the harness side of data link connector.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between data link connector terminal No.6 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between data link connector terminal No.14 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES : <Both of the measurement results show 4.0 V or less> Go to Step 36.

NO : <Either of CAN_H line or CAN_L line the measurement results show more than 4.0 V> Go to Step 2.

STEP 2. Check the CAN line. Voltage measurement at C-212 intermediate connector.

 CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

 CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the intermediate connector, and measure at its female-side intermediate connector (at the front wiring harness side).
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between C-212 intermediate connector terminal No.17 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between C-212 intermediate connector terminal No.8 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 16.

NO : <More than 4.0 V> Go to Step 3.

STEP 3. Check the CAN line between joint connector (CAN2) and the engine control module (ECM). Voltage measurement at joint connector (CAN2).

 CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

 CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN2) terminal No.11 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN2) terminal No.22 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 4.

NO : <More than 4.0 V> Repair the wiring harness between joint connector (CAN2) and the engine control module (ECM) connector.

STEP 4. Check the CAN line between joint connector (CAN2) and the transaxle control module (TCM). Voltage measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN2) terminal No.7 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN2) terminal No.18 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 7.

NO : <More than 4.0 V> Go to Step 5.

STEP 5. scan tool (M.U.T.-III) CAN bus diagnostics

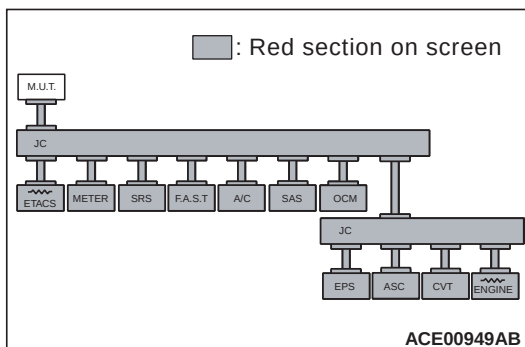
[transaxle control module (TCM) connector disconnected]

- (1) Disconnect transaxle control module (TCM) connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Check the intermediate connector, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between joint connector (CAN2) and the transaxle control module (TCM) connector.

NO : Check the transaxle control module (TCM) connector, and repair if necessary. If the transaxle control module (TCM) connector is in good condition, go to Step 6.



STEP 6. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the transaxle control module (TCM) connector, and repair if necessary. If the transaxle control module (TCM) connector is in good condition, replace the transaxle control module (TCM).

STEP 7. Check the CAN line between joint connector (CAN2) and the ASC-ECU. Voltage measurement at joint connector (CAN2).

 CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

 CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN2) terminal No.9 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN2) terminal No.20 (CAN_L) and body ground

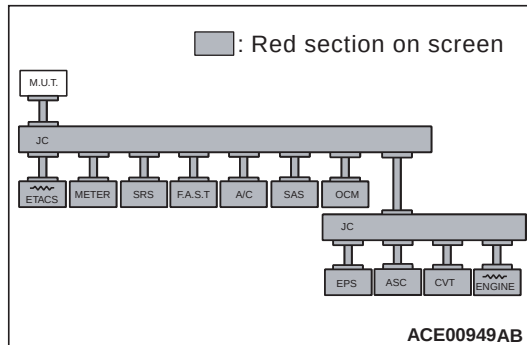
OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 10.

NO : <More than 4.0 V> Go to Step 8.



STEP 8. scan tool (M.U.T.-III) CAN bus diagnostics (ASC-ECU connector disconnected)

- (1) Disconnect ASC-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN2) and the ASC-ECU connector.

NO : Check the ASC-ECU connector, and repair if necessary. If the ASC-ECU connector is in good condition, go to Step 9.

STEP 9. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the ASC-ECU connector, and repair if necessary. If the ASC-ECU connector is in good condition, replace the ASC-ECU.

STEP 10. Check the CAN line between joint connector (CAN2) and the EPS-ECU. Voltage measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN2) terminal No.8 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN2) terminal No.19 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 13.

NO : <More than 4.0 V> Go to Step 11.

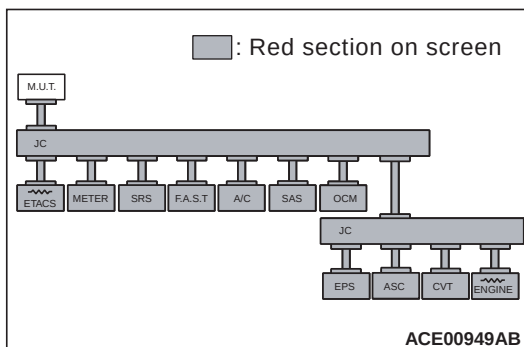
STEP 11. scan tool (M.U.T.-III) CAN bus diagnostics [EPS-ECU connector disconnected]

- (1) Disconnect EPS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN2) and the EPS-ECU connector.

NO : Check the EPS-ECU connector, and repair if necessary. If the EPS-ECU connector is in good condition, go to Step 12.



STEP 12. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the EPS-ECU connector, and repair if necessary. If the EPS-ECU connector is in good condition, replace the EPS-ECU.

STEP 13. Check the CAN line between joint connector (CAN2) and the PTC heater control unit. Voltage measurement at joint connector (CAN2).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN2) terminal No.5 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN2) terminal No.16 (CAN_L) and body ground

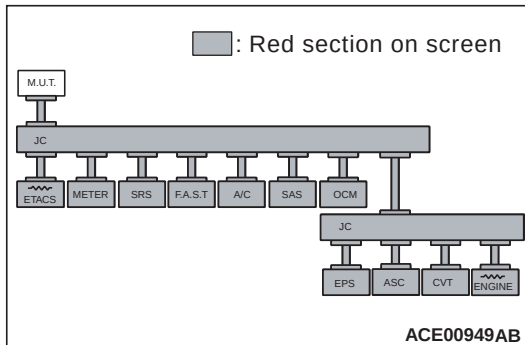
OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

Q: Is the check result normal?

YES : <4.0 V or less> Repair intermediate connector C-212, or the wiring harness between joint connector (CAN2) and the intermediate connector C-212.

NO : <More than 4.0 V> Go to Step 14.



STEP 14. scan tool (M.U.T.-III) CAN bus diagnostics [PTC heater control unit connector disconnected]

- (1) Disconnect PTC heater control unit connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

- YES :** Repair the wiring harness between joint connector (CAN2) and the PTC heater control unit connector.
- NO :** Check the PTC heater control unit connector, and repair if necessary. If the PTC heater control unit connector is in good condition, go to Step 15.

STEP 15. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).
- NO :** Check the PTC heater control unit connector, and repair if necessary. If the PTC heater control unit connector is in good condition, replace the PTC heater control unit.

STEP 16. Check the CAN line between joint connector (CAN1) and the ETACS-ECU. Voltage measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN1) terminal No.10 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN1) terminal No.21 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

⚠ CAUTION

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

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 17.

NO : <More than 4.0 V> Repair the wiring harness between joint connector (CAN1) and the ETACS-ECU connector.

STEP 17. Check the CAN line between joint connector (CAN1) and the combination meter. Voltage measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN1) terminal No.6 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN1) terminal No.17 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

⚠ CAUTION

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

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 20.

NO : <More than 4.0 V> Go to Step 18.

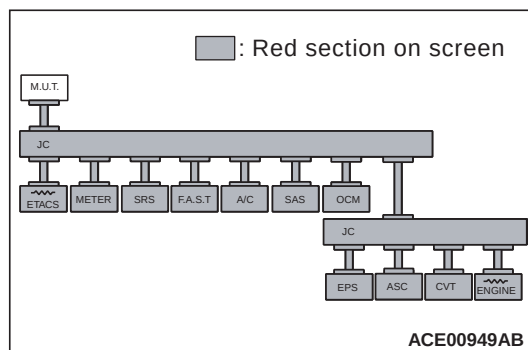
STEP 18. scan tool (M.U.T.-III) CAN bus diagnostics [combination meter connector disconnected]

- (1) Disconnect combination meter connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the combination meter connector.

NO : Check the combination meter connector, and repair if necessary. If the combination meter connector is in good condition, go to Step 19.



STEP 19. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the combination meter connector, and repair if necessary. If the combination meter connector is in good condition, replace the combination meter.

STEP 20. Check the CAN line between joint connector (CAN1) and the SRS-ECU. Voltage measurement at joint connector (CAN1).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN1) terminal No.4 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN1) terminal No.15 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

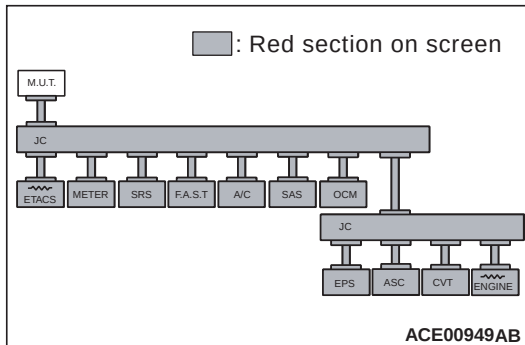
** CAUTION**

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

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 23.

NO : <More than 4.0 V> Go to Step 21.



STEP 21. scan tool (M.U.T.-III) CAN bus diagnostics
[SRS-ECU connector disconnected]

- (1) Disconnect SRS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

- YES :** Repair the wiring harness between joint connector (CAN1) and the SRS-ECU connector.
- NO :** Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, go to Step 22.

STEP 22. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).
- NO :** Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, replace the SRS-ECU.

STEP 23. Check the CAN line between joint connector (CAN1) and the occupant classification-ECU. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN1) terminal No.1 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.12 (CAN_L) and body ground

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 26.

NO : <Less than 1 kΩ > Go to Step 24.

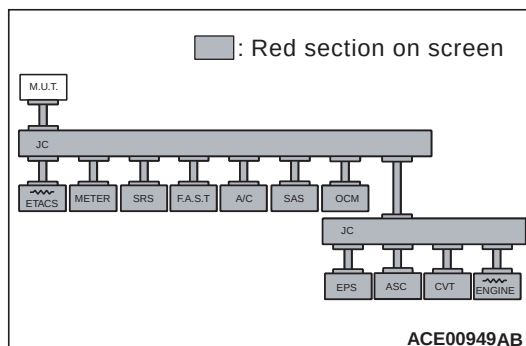
STEP 24. scan tool (M.U.T.-III) CAN bus diagnostics [occupant classification-ECU connector disconnected]

- (1) Disconnect occupant classification-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the occupant classification-ECU connector.

NO : Check the occupant classification-ECU connector, and repair if necessary. If the occupant classification-ECU connector is in good condition, go to Step 25.



STEP 25. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the occupant classification-ECU connector, and repair if necessary. If the occupant classification-ECU connector is in good condition, replace the occupant classification-ECU.

STEP 26. Check the CAN line between joint connector (CAN1) and the KOS&OSS-ECU. Voltage measurement at joint connector (CAN1).

 CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

 CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN1) terminal No.11 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN1) terminal No.22 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

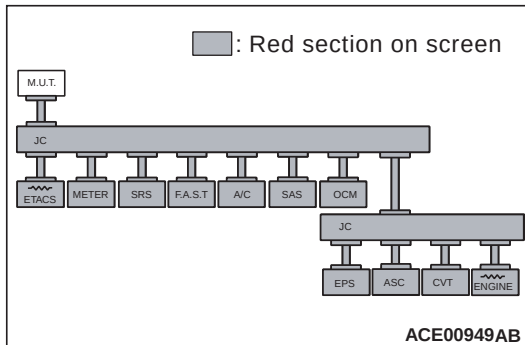
 CAUTION

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

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 29.

NO : <More than 4.0 V> Go to Step 27.



STEP 27. scan tool (M.U.T.-III) CAN bus diagnostics [KOS&OSS-ECU connector disconnected]

- (1) Disconnect KOS&OSS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the KOS&OSS-ECU connector.

NO : Check the KOS&OSS-ECU connector, and repair if necessary. If the KOS&OSS-ECU connector is in good condition, go to Step 28.

STEP 28. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the KOS&OSS-ECU connector, and repair if necessary. If the KOS&OSS-ECU connector is in good condition, replace the KOS&OSS-ECU.

STEP 29. Check the CAN line between joint connector (CAN1) and the auto A/C controller assembly (A/C-ECU). Voltage measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN1) terminal No.7 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN1) terminal No.18 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

⚠ CAUTION

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

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 32.

NO : <More than 4.0 V> Go to Step 30.

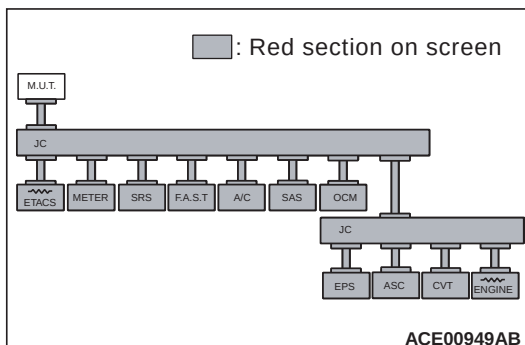
STEP 30. scan tool (M.U.T.-III) CAN bus diagnostics [auto A/C controller assembly (A/C-ECU) connector disconnected]

- (1) Disconnect auto A/C controller assembly (A/C-ECU) connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the auto A/C controller assembly (A/C-ECU) connector.

NO : Check the auto A/C controller assembly (A/C-ECU) connector, and repair if necessary. If the auto A/C controller assembly (A/C-ECU) connector is in good condition, go to Step 31.



STEP 31. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the auto A/C controller assembly (A/C-ECU) connector, and repair if necessary. If the auto A/C controller assembly (A/C-ECU) connector is in good condition, replace the auto A/C controller assembly (A/C-ECU).

STEP 32. Check the CAN line between joint connector (CAN1) and the steering wheel sensor. Voltage measurement at joint connector (CAN1).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN1) terminal No.3 (CAN_H) and body ground

OK: 4.0 V or less

- (4) Voltage between joint connector (CAN1) terminal No.14 (CAN_L) and body ground

OK: 4.0 V or less

- (5) Disconnect the negative battery terminal.

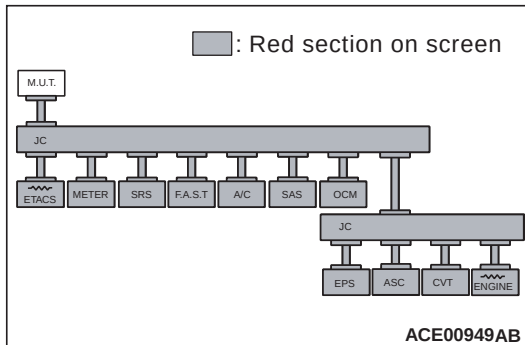
** CAUTION**

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

Q: Is the check result normal?

YES : <4.0 V or less> Go to Step 35.

NO : <More than 4.0 V> Go to Step 33.



STEP 33. scan tool (M.U.T.-III) CAN bus diagnostics [steering wheel sensor connector disconnected]

- (1) Disconnect steering wheel sensor connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

- YES :** Repair the wiring harness between joint connector (CAN1) and the steering wheel sensor connector.
- NO :** Check the steering wheel sensor connector, and repair if necessary. If the steering wheel sensor connector is in good condition, go to Step 34.

STEP 34. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).
- NO :** Check the steering wheel sensor connector, and repair if necessary. If the steering wheel sensor connector is in good condition, replace the steering wheel sensor.

STEP 35. Check the CAN line between joint connector (CAN1) and the data link connector. Voltage measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Connect the negative battery terminal, and turn the ignition switch to the "ON" position.
- (3) Voltage between joint connector (CAN1) terminal No.8 (CAN_H) and body ground

OK: Less than 1.0 V

- (4) Voltage between joint connector (CAN1) terminal No.19 (CAN_L) and body ground

OK: Less than 1.0 V

- (5) Disconnect the negative battery terminal.

⚠ CAUTION

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

Q: Is the check result normal?

YES : <Less than 1.0 V> Repair the intermediate connector, or the wiring harness between joint connector (CAN1) and the intermediate connector C-212.

NO : <1.0 V or more> Repair the data link connector, or the wiring harness between joint connector (CAN1) and the data link connector.

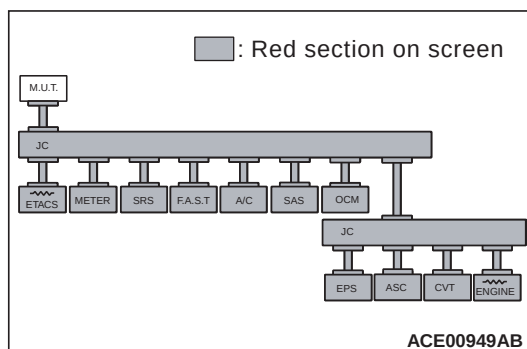
STEP 36. scan tool (M.U.T.-III) CAN bus diagnostics [engine control module (ECM) connector disconnected]

- (1) Disconnect engine control module (ECM) connector and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Go to Step 38.

NO : Check the engine control module (ECM) connector, and repair if necessary. If the engine control module (ECM) connector is in good condition, go to Step 37.



STEP 37. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the engine control module (ECM) connector, and repair if necessary. If the engine control module (ECM) connector is in good condition, replace the engine control module (ECM).

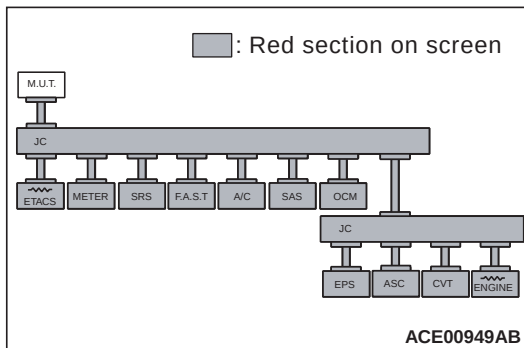
STEP 38. scan tool (M.U.T.-III) CAN bus diagnostics [ETACS-ECU connector disconnected]

- (1) Disconnect ETACS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, go to Step 39.



STEP 39. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU.

Diagnostic Item 3: Diagnose shorts in the ground to CAN bus line

⚠ CAUTION

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

TROUBLE JUDGMENT CONDITIONS

The scan tool (scan tool (M.U.T.-III)) judges the trouble when it is impossible to receive the periodically sent data and the voltage of CAN_H or CAN_L line is less than 1.0 V.

TROUBLESHOOTING HINTS

- Malfunction of the wiring harness
- Malfunction of the connector
- Malfunction of the ETACS-ECU
- Malfunction of the combination meter
- Malfunction of the SRS-ECU
- Malfunction of the occupant classification-ECU
- Malfunction of the KOS&OSS-ECU <Vehicles with KOS>
- Malfunction of the auto A/C controller assembly (A/C-ECU) <Vehicles with automatic A/C>
- Malfunction of the Steering wheel sensor
- Malfunction of the EPS-ECU
- Malfunction of the ASC-ECU
- Malfunction of the transaxle control module (TCM) <CVT>
- Malfunction of the engine control module (ECM)
- Malfunction of the PTC heater control unit <ECU for signal reception only>

DIAGNOSIS

STEP 1. Check the CAN bus lines. Resistance measurement at data link connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

NOTE: This inspection allows you to check that there is a short to ground in either CAN_H line or CAN_L line. Thus, in the following steps, check the CAN bus line that is defective.

- (1) Disconnect engine control module (ECM) connector and ETACS-ECU connector, and measure the resistance at harness side of data link connector.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between data link connector terminal No.6 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between data link connector terminal No.14 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <Both of the measurement results show 1 kΩ or more> Go to Step 36.

NO : <Either of CAN_H line or CAN_L line the measurement results show less than 1 kΩ> Go to Step 2.

STEP 2. Check the CAN line. Resistance measurement at C-212 intermediate connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the C-212 intermediate connector, and measure at its female-side intermediate connector (at the front wiring harness side).

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between C-212 intermediate connector terminal No.17 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between C-212 intermediate connector terminal No.8 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 16.

NO : <Less than 1 kΩ > Go to Step 3.

STEP 3. Check the CAN line between joint connector (CAN2) and the engine control module (ECM). Resistance measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN2) terminal No.11 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN2) terminal No.22 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 4.

NO : <Less than 1 kΩ > Repair the wiring harness between joint connector (CAN2) and the engine control module (ECM) connector.

STEP 4. Check the CAN line between joint connector (CAN2) and the transaxle control module (TCM). Resistance measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN2) terminal No.7 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN2) terminal No.18 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 7.

NO : <Less than 1 kΩ > Go to Step 5.

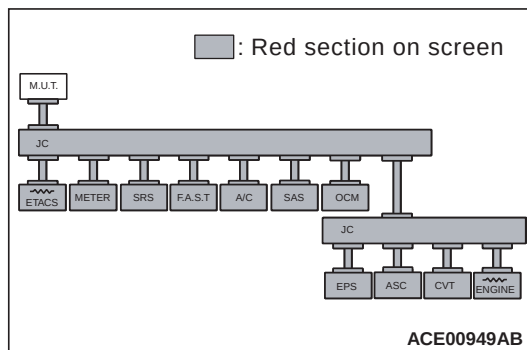
STEP 5. scan tool (M.U.T.-III) CAN bus diagnostics [transaxle control module (TCM) connector disconnected]

- (1) Disconnect transaxle control module (TCM) connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Check intermediate connector, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between joint connector (CAN2) and the transaxle control module (TCM) connector.

NO : Check the transaxle control module (TCM) connector, and repair if necessary. If the transaxle control module (TCM) connector is in good condition, go to Step 6.



STEP 6. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the transaxle control module (TCM) connector, and repair if necessary. If the transaxle control module (TCM) connector is in good condition, replace the transaxle control module (TCM).

STEP 7. Check the CAN line between joint connector (CAN2) and the ASC-ECU. Resistance measurement at joint connector (CAN2).

 CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

 CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.

 CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
(3) Resistance between joint connector (CAN2) terminal No.9 (CAN_H) and body ground

OK: 1 kΩ or more

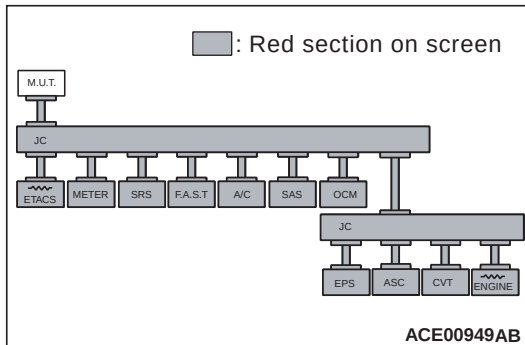
- (4) Resistance between joint connector (CAN2) terminal No.20 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 10.

NO : <Less than 1 kΩ > Go to Step 8.



STEP 8. scan tool (M.U.T.-III) CAN bus diagnostics [ASC-ECU connector disconnected]

- (1) Disconnect ASC-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN2) and the ASC-ECU connector.

NO : Check the ASC-ECU connector, and repair if necessary. If the ASC-ECU connector is in good condition, go to Step 9.

STEP 9. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the ASC-ECU connector, and repair if necessary. If the ASC-ECU connector is in good condition, replace the ASC-ECU.

STEP 10. Check the CAN line between joint connector (CAN2) and the EPS-ECU. Resistance measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN2) terminal No.8 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN2) terminal No.19 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 13.

NO : <Less than 1 kΩ > Go to Step 11.

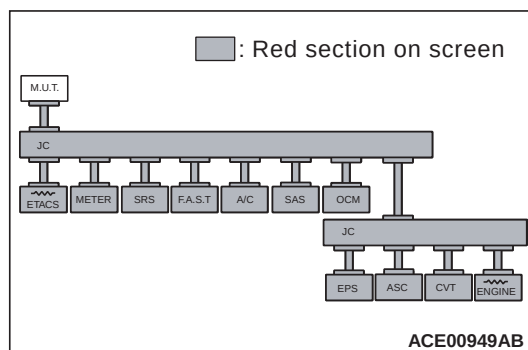
STEP 11. scan tool (M.U.T.-III) CAN bus diagnostics [EPS-ECU connector disconnected]

- (1) Disconnect EPS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN2) and the EPS-ECU connector.

NO : Check the EPS-ECU connector, and repair if necessary. If the EPS-ECU connector is in good condition, go to Step 12.



STEP 12. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the EPS-ECU connector, and repair if necessary. If the EPS-ECU connector is in good condition, replace the EPS-ECU.

STEP 13. Check the CAN line between joint connector (CAN2) and the PTC heater control unit. Resistance measurement at joint connector (CAN2).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2), and measure at the wiring harness side.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
(3) Resistance between joint connector (CAN2) terminal No.5 (CAN_H) and body ground

OK: 1 kΩ or more

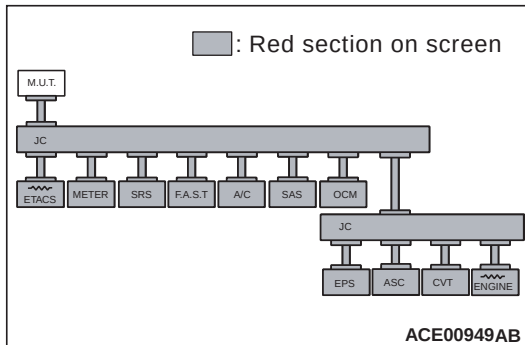
- (4) Resistance between joint connector (CAN2) terminal No.16 (CAN_L) and body ground

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Repair C-212 intermediate connector, or the wiring harness between joint connector (CAN2) and C-212 intermediate connector.

NO : <Less than 1 kΩ > Go to Step 14.



STEP 14. scan tool (M.U.T.-III) CAN bus diagnostics [PTC heater control unit connector disconnected]

- (1) Disconnect PTC heater control unit connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

- YES :** Repair the wiring harness between joint connector (CAN2) and the PTC heater control unit connector.
- NO :** Check the PTC heater control connector, and repair if necessary. If the PTC heater control connector is in good condition, go to Step 15.

STEP 15. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).
- NO :** Check the PTC heater control connector, and repair if necessary. If the PTC heater control connector is in good condition, replace the PTC heater control.

STEP 16. Check CAN line between joint connector (CAN1) and the ETACS-ECU. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN1) terminal No.10 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.21 (CAN_L) and body ground

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 17.

NO : <Less than 1 kΩ > Repair the wiring harness between joint connector (CAN1) and the ETACS-ECU connector.

STEP 17. Check the CAN line between joint connector (CAN1) and the combination meter. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN1) terminal No.6 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.17 (CAN_L) and body ground

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 20.

NO : <Less than 1 kΩ > Go to Step 18.

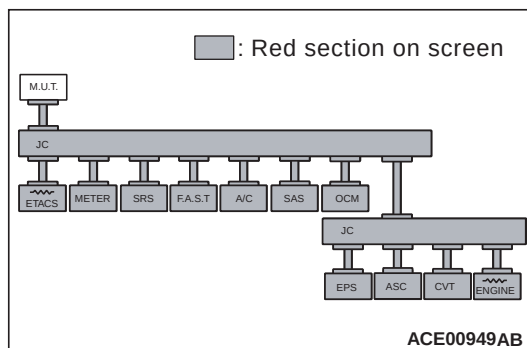
STEP 18. scan tool (M.U.T.-III) CAN bus diagnostics [combination meter connector disconnected]

- (1) Disconnect combination meter connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the combination meter connector.

NO : Check the combination meter connector, and repair if necessary. If the combination meter connector is in good condition, go to Step 19.



STEP 19. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the combination meter connector, and repair if necessary. If the combination meter connector is in good condition, replace the combination meter.

STEP 20. Check the CAN line between joint connector (CAN1) and the SRS-ECU. Resistance measurement at joint connector (CAN1).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
(3) Resistance between joint connector (CAN1) terminal No.4 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.15 (CAN_L) and body ground

OK: 1 kΩ or more

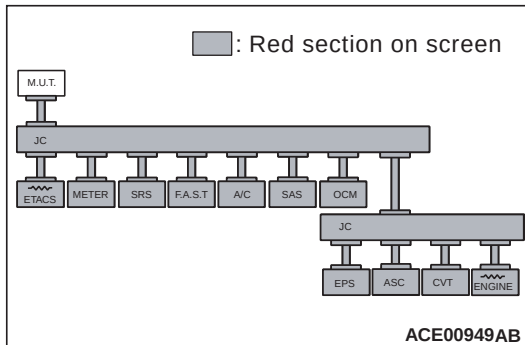
** CAUTION**

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 23.

NO : <Less than 1 kΩ > Go to Step 21.



STEP 21. scan tool (M.U.T.-III) CAN bus diagnostics (SRS-ECU connector disconnected)

- (1) Disconnect SRS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool [scan tool (M.U.T.-III)] screen is as shown in the illustration.

Q: Does scan tool [scan tool (M.U.T.-III)] screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the SRS-ECU connector.

NO : Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, go to Step 22.

STEP 22. scan tool [scan tool (M.U.T.-III)] CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool [scan tool (M.U.T.-III)] screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, replace the SRS-ECU.

STEP 23. Check the CAN line between joint connector (CAN1) and the occupant classification-ECU. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN1) terminal No.1 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.12 (CAN_L) and body ground

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 26.

NO : <Less than 1 kΩ > Go to Step 24.

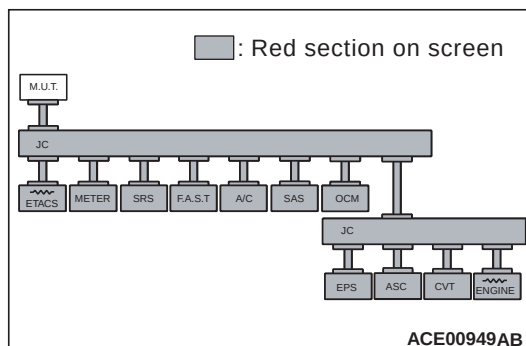
STEP 24. scan tool (M.U.T.-III) CAN bus diagnostics [occupant classification-ECU connector disconnected]

- (1) Disconnect occupant classification-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the occupant classification-ECU connector.

NO : Check the occupant classification-ECU connector, and repair if necessary. If the occupant classification-ECU connector is in good condition, go to Step 25.



STEP 25. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the occupant classification-ECU connector, and repair if necessary. If the occupant classification-ECU connector is in good condition, replace the occupant classification-ECU.

STEP 26. Check the CAN line between joint connector (CAN1) and the KOS&OSS-ECU. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

(1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

(2) Ensure that the negative battery terminal is disconnected.

(3) Resistance between joint connector (CAN1) terminal No.11 (CAN_H) and body ground

OK: 1 kΩ or more

(4) Resistance between joint connector (CAN1) terminal No.22 (CAN_L) and body ground

OK: 1 kΩ or more

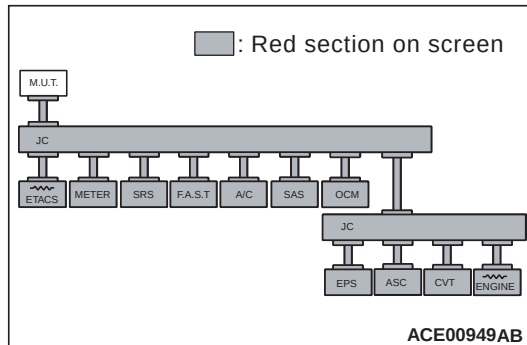
⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 29.

NO : <Less than 1 kΩ > Go to Step 27.



STEP 27. scan tool (M.U.T.-III) CAN bus diagnostics [KOS&OSS-ECU connector disconnected]

- (1) Disconnect KOS&OSS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

- YES :** Repair the wiring harness between joint connector (CAN1) and the KOS&OSS-ECU connector.
- NO :** Check the KOS&OSS-ECU connector, and repair if necessary. If the KOS&OSS-ECU connector is in good condition, go to Step 28.

STEP 28. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).
- NO :** Check the KOS&OSS-ECU connector, and repair if necessary. If the KOS&OSS-ECU connector is in good condition, replace the KOS&OSS-ECU.

STEP 29. Check the CAN line between joint connector (CAN1) and the auto A/C controller assembly (A/C-ECU). Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN1) terminal No.7 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.18 (CAN_L) and body ground

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 32.

NO : <Less than 1 kΩ > Go to Step 30.

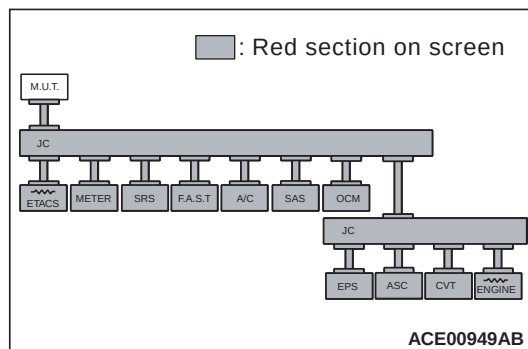
STEP 30. scan tool (M.U.T.-III) CAN bus diagnostics [auto A/C controller assembly (A/C-ECU) connector disconnected]

- (1) Disconnect auto A/C controller assembly (A/C-ECU) connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Repair the wiring harness between joint connector (CAN1) and the auto A/C controller assembly (A/C-ECU) connector.

NO : Check the auto A/C controller assembly (A/C-ECU) connector, and repair if necessary. If the auto A/C controller assembly (A/C-ECU) connector is in good condition, go to Step 31.



STEP 31. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the auto A/C controller assembly (A/C-ECU) connector, and repair if necessary. If the auto A/C controller assembly (A/C-ECU) connector is in good condition, replace the auto A/C controller assembly (A/C-ECU).

STEP 32. Check the CAN line between joint connector (CAN1) and the steering wheel sensor. Resistance measurement at joint connector (CAN1).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
(3) Resistance between joint connector (CAN1) terminal No.3 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.14 (CAN_L) and body ground

OK: 1 kΩ or more

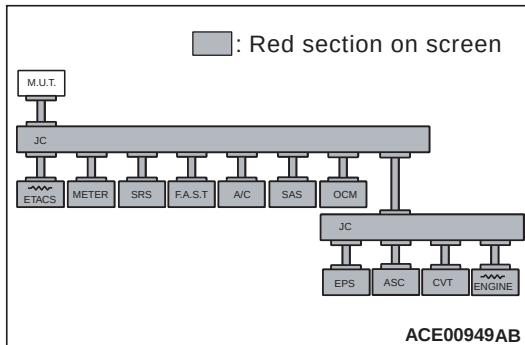
** CAUTION**

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 35.

NO : <Less than 1 kΩ > Go to Step 33.



**STEP 33. scan tool (M.U.T.-III) CAN bus diagnostics
[steering wheel sensor connector disconnected]**

- (1) Disconnect steering wheel sensor connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

- YES :** Repair the wiring harness between joint connector (CAN1) and the steering wheel sensor connector.
- NO :** Check the steering wheel sensor connector, and repair if necessary. If the steering wheel sensor connector is in good condition, go to Step 34.

STEP 34. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).
- NO :** Check the steering wheel sensor connector, and repair if necessary. If the steering wheel sensor connector is in good condition, replace the steering wheel sensor.

STEP 35. Check the CAN line between joint connector (CAN1) and the data link connector. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (2) Ensure that the negative battery terminal is disconnected.
- (3) Resistance between joint connector (CAN1) terminal No.8 (CAN_H) and body ground

OK: 1 kΩ or more

- (4) Resistance between joint connector (CAN1) terminal No.19 (CAN_L) and body ground

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the C-212 intermediate connector, or the wiring harness between joint connector (CAN1) and the C-212 intermediate connector.

NO : <Less than 1 kΩ > Repair the data link connector, or the wiring harness between joint connector (CAN1) and the data link connector.

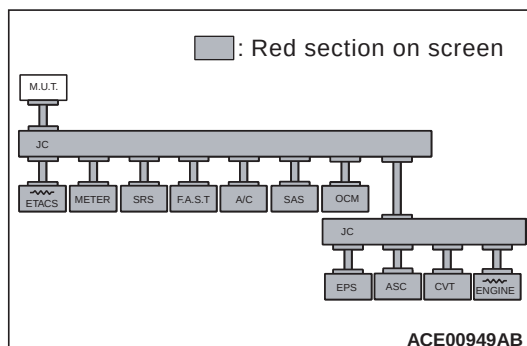
STEP 36. scan tool (M.U.T.-III) CAN bus diagnostics [engine control module (ECM) connector disconnected]

- (1) Disconnect engine control module (ECM) connector and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : Go to Step 38.

NO : Check the engine control module (ECM) connector, and repair if necessary. If the engine control module (ECM) connector is in good condition, go to Step 37.



STEP 37. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the engine control module (ECM) connector, and repair if necessary. If the engine control module (ECM) connector is in good condition, replace the engine control module (ECM).

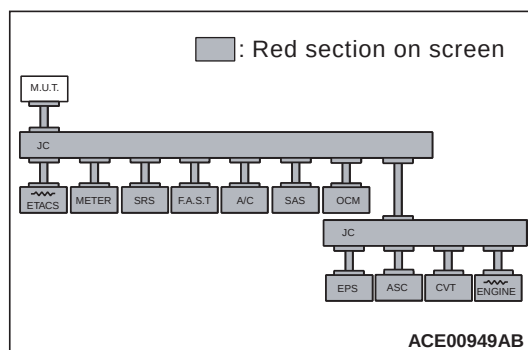
STEP 38. scan tool (M.U.T.-III) CAN bus diagnostics [ETACS-ECU connector disconnected]

- (1) Disconnect ETACS-ECU connector, and diagnose by using the scan tool (M.U.T.-III).
- (2) Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen is as shown in the illustration.

Q: Does scan tool (M.U.T.-III) screen correspond to the illustration?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, go to Step 39.



STEP 39. scan tool (M.U.T.-III) CAN bus diagnostics (retest the system)

Diagnose CAN bus lines, and check if scan tool (M.U.T.-III) screen shows normal state.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU.

Diagnostic Item 4: Diagnose shorts between CAN_H and L lines

CAUTION

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

TROUBLE JUDGMENT

When all of the following conditions are met, the scan tool (M.U.T.-III) determines that a short circuit is present between CAN_L and CAN_H lines.

- The scan tool (M.U.T.-III) cannot receive the periodic transmission data from any ECUs.
- The voltage between CAN bus lines (CAN_L and CAN_H lines) is 1.0 V or more, 4.0 V or less.
- The resistance at CAN bus line (CAN_L and CAN_H lines) is 2 Ω or less.
- Malfunction of the occupant classification-ECU
- Malfunction of the KOS&OSS-ECU <Vehicles with KOS>
- Malfunction of the auto A/C controller assembly (A/C-ECU) <Vehicles with automatic A/C>
- Malfunction of the steering wheel sensor
- Malfunction of the EPS-ECU
- Malfunction of the ASC-ECU
- Malfunction of the transaxle control module (TCM) <CVT>
- Malfunction of the engine control module (ECM)
- Malfunction of the PTC heater control unit <ECU for signal reception only>

TROUBLESHOOTING HINTS

- Malfunction of the wiring harness
- Malfunction of the connector
- Malfunction of the ETACS-ECU
- Malfunction of the combination meter
- Malfunction of the SRS-ECU

DIAGNOSIS

STEP 1. Connector check: C-212 intermediate connector

CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.52A-5](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector.

STEP 2. Resistance measurement at C-212 intermediate connector.

CAUTION

A digital multimeter should be used. For details refer to [P.54A-186](#).

CAUTION

The test wiring harness should be used. For details refer to [P.52A-7](#).

(1) Disconnect the connector, and measure at its female-side intermediate connector (at the front wiring harness side).

(2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.52A-5](#).

(3) Ensure that the negative battery terminal is disconnected.

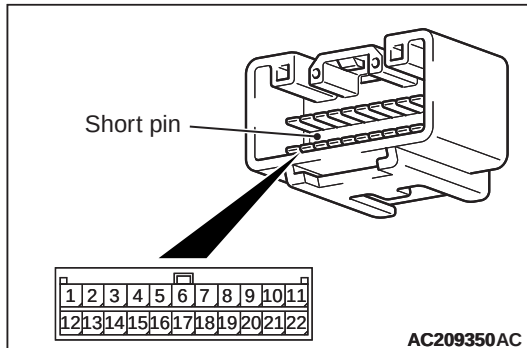
(4) Resistance between C-212 intermediate connector terminal No.17 and 8

OK: $120 \pm 20 \Omega$

Q: Is the check result normal?

YES : <Within $120 \pm 20 \Omega$ > Go to Step 14.

NO : <Not within $120 \pm 20 \Omega$ > Go to Step 3.



STEP 3. Connector check: joint connector (CAN2)

⚠ CAUTION

The strand end of the twist wire should be within 10 cm from the connector. For details refer to [P.54A-163](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair a defective connector or replace the joint connector.

STEP 4. Resistance measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.52A-7](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN2) terminal No.11 and 22

OK: $120 \pm 20 \Omega$

⚠ CAUTION

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

Q: Is the check result normal?

YES : <Within $120 \pm 20 \Omega$ > Go to Step 6.

NO : <Not within $120 \pm 20 \Omega$ > Go to Step 5.

STEP 5. Resistance measurement at engine control module (ECM) connector.** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the engine control module (ECM), and measure at the equipment side.
- (2) Resistance between engine control module (ECM) connector terminal No.101 and 102

OK: $120 \pm 20 \Omega$

** CAUTION**

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

Q: Is the check result normal?

- YES :** <Within $120 \pm 20 \Omega$ > Repair the wiring harness between joint connector (CAN2) and the engine control module (ECM) connector.
- NO :** <Not within $120 \pm 20 \Omega$ > Check the engine control module (ECM) connector, and repair if necessary. If the engine control module (ECM) connector is in good condition, replace the engine control module (ECM).

STEP 6. Resistance measurement at joint connector (CAN2).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN2) terminal No.7 and 18

OK: 1 k Ω or more

** CAUTION**

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

Q: Is the check result normal?

- YES :** <1 k Ω or more> Go to Step 8.
- NO :** <Less than 1 k Ω > Go to Step 7.

STEP 7. Resistance measurement at transaxle control module (TCM) connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the transaxle control module (TCM), and measure at the equipment side.
- (2) Resistance between transaxle control module (TCM) connector terminal No.9 and 10

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Check intermediate connector, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between joint connector (CAN2) and the transaxle control module (TCM) connector.

NO : <Less than 1 kΩ> Check the transaxle control module (TCM) connector, and repair if necessary. If the transaxle control module (TCM) connector is in good condition, replace the transaxle control module (TCM).

STEP 8. Resistance measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN2) terminal No.9 and 20

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 10.

NO : <Less than 1 kΩ> Go to Step 9.

STEP 9. Resistance measurement at ASC-ECU connector.** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the ASC-ECU, and measure at the equipment side.
- (2) Resistance between ASC-ECU connector terminal No.26 and 14

OK: 1 k Ω or more

** CAUTION**

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

Q: Is the check result normal?

YES : <1 k Ω or more> Repair the wiring harness between joint connector (CAN2) and the ASC-ECU connector.

NO : <Less than 1 k Ω > Check the ASC-ECU connector, and repair if necessary. If the ASC-ECU connector is in good condition, replace the ASC-ECU.

STEP 10. Resistance measurement at joint connector (CAN2).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN2) terminal No.8 and 19

OK: 1 k Ω or more

** CAUTION**

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

Q: Is the check result normal?

YES : <1 k Ω or more> Go to Step 12.

NO : <Less than 1 k Ω > Go to Step 11.

STEP 11. Resistance measurement at EPS-ECU connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the EPS-ECU, and measure at the equipment side.
- (2) Resistance between EPS-ECU connector terminal No.3 and 4

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN2) and the EPS-ECU connector.

NO : <Less than 1 kΩ> Check the EPS-ECU connector, and repair if necessary. If the EPS-ECU connector is in good condition, replace the EPS-ECU.

STEP 12. Resistance measurement at joint connector (CAN2).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN2) terminal No.5 and 16

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN2) and C-212 intermediate connector.

NO : <Less than 1 kΩ> Go to Step 13.

STEP 13. Resistance measurement at PTC heater control unit connector.**⚠ CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the PTC heater control unit, and measure at the equipment side.
- (2) Resistance between PTC heater control unit connector terminal No.12 and 13

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN2) and the PTC heater control unit connector.

NO : <Less than 1 kΩ> Check the PTC heater control unit connector, and repair if necessary. If the PTC heater control unit connector is in good condition, replace the PTC heater control unit.

STEP 14. Connector check: joint connector (CAN1)**⚠ CAUTION**

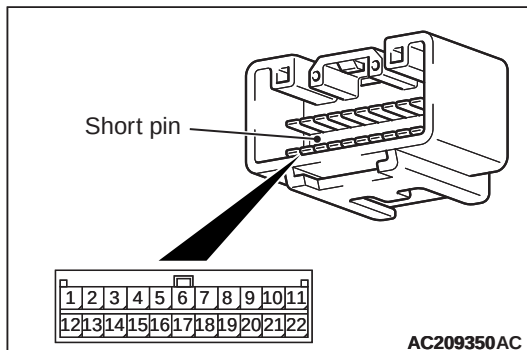
The strand end of the twist wire should be within 10 cm from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair a defective connector or replace the joint connector.



STEP 15. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.10 and 21

OK: $120 \pm 20 \Omega$

⚠ CAUTION

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

Q: Is the check result normal?

YES : <Within $120 \pm 20 \Omega$ > Go to Step 17.

NO : <Not within $120 \pm 20 \Omega$ > Go to Step 16.

STEP 16. Resistance measurement at ETACS-ECU connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the ETACS-ECU, and measure at the equipment side.
- (2) Resistance at ETACS-ECU connector terminal No.56 and 65

OK: $120 \pm 20 \Omega$

Q: Is the check result normal?

YES : <Within $120 \pm 20 \Omega$ > Repair the wiring harness between joint connector (CAN1) and the ETACS-ECU connector.

NO : <Not within $120 \pm 20 \Omega$ > Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU.

STEP 17. Resistance measurement at joint connector (CAN1).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.6 and 17

OK: 1 kΩ or more

** CAUTION**

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 19.

NO : <Less than 1 kΩ> Go to Step 18.

STEP 18. Resistance measurement at combination meter connector.** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the combination meter, and measure at the equipment side.
- (2) Resistance at combination meter connector terminal No.14 and 15

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN1) and the combination meter connector.

NO : <Less than 1 kΩ> Check the combination meter connector, and repair if necessary. If the combination meter connector is in good condition, replace the combination meter.

STEP 19. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.4 and 15

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 21.

NO : <Less than 1 kΩ> Go to Step 20.

STEP 20. Resistance measurement at SRS-ECU connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the SRS-ECU, and measure at the equipment side.
- (2) Resistance at SRS-ECU connector terminal No.30 and 29

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN1) and the SRS-ECU connector.

NO : <Less than 1 kΩ> Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, replace the SRS-ECU.

STEP 21. Resistance measurement at joint connector (CAN1).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.1 and 12

OK: 1 k Ω or more

** CAUTION**

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

Q: Is the check result normal?

YES : <1 k Ω or more> Go to Step 23.

NO : <Less than 1 k Ω > Go to Step 22.

STEP 22. Resistance measurement at occupant classification-ECU connector.** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the occupant classification-ECU, and measure at the equipment side.
- (2) Resistance at occupant classification-ECU connector terminal No.2 and 4

OK: 1 k Ω or more

Q: Is the check result normal?

YES : <1 k Ω or more> Repair the wiring harness between joint connector (CAN1) and the occupant classification-ECU connector.

NO : <Less than 1 k Ω > Check the occupant classification-ECU connector, and repair if necessary. If the occupant classification-ECU connector is in good condition, replace the occupant classification-ECU.

STEP 23. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.11 and 22

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 25.

NO : <Less than 1 kΩ> Go to Step 24.

STEP 24. Resistance measurement at KOS&OSS-ECU connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the KOS&OSS-ECU, and measure at the equipment side.
- (2) Resistance at KOS&OSS-ECU connector terminal No.35 and 51

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN1) and the KOS&OSS-ECU connector.

NO : <Less than 1 kΩ> Check the KOS&OSS-ECU connector, and repair if necessary. If the KOS&OSS-ECU connector is in good condition, replace the KOS&OSS-ECU.

STEP 25. Resistance measurement at joint connector (CAN1).** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

** CAUTION**

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

** CAUTION**

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.7 and 18

OK: 1 kΩ or more

** CAUTION**

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 27.

NO : <Less than 1 kΩ> Go to Step 26.

STEP 26. Resistance measurement at auto A/C controller assembly (A/C-ECU) connector.** CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the auto A/C controller assembly, and measure at the equipment side.
- (2) Resistance at auto A/C controller assembly (A/C-ECU) connector terminal No.12 and 11

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN1) and the auto A/C controller assembly (A/C-ECU) connector.

NO : <Less than 1 kΩ> Check the auto A/C controller assembly (A/C-ECU) connector, and repair if necessary. If the auto A/C controller assembly (A/C-ECU) connector is in good condition, replace the auto A/C controller assembly (A/C-ECU).

STEP 27. Resistance measurement at joint connector (CAN1).

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.3 and 14

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Go to Step 29.

NO : <Less than 1 kΩ> Go to Step 28.

STEP 28. Resistance measurement at steering wheel sensor connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the steering wheel sensor, and measure at the equipment side.
- (2) Resistance at steering wheel sensor connector terminal No.3 and 4

OK: 1 kΩ or more

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN1) and the steering wheel sensor connector.

NO : <Less than 1 kΩ> Check the steering wheel sensor connector, and repair if necessary. If the steering wheel sensor connector is in good condition, replace the steering wheel sensor.

STEP 29. Resistance measurement at joint connector (CAN1).**⚠ CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the joint connector (CAN1), and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Resistance between joint connector (CAN1) terminal No.8 and 19

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Is the check result normal?

YES : <1 kΩ or more> Repair the wiring harness between joint connector (CAN1) and the C-212 intermediate connector.

NO : <Less than 1 kΩ> Check the data link connector, and repair if necessary. If the data link connector is in good condition, repair the wiring harness between joint connector (CAN1) and the data link connector.

Diagnostic Item 5: Diagnose when the scan tool cannot receive the data sent by ETACS-ECU.

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the ETACS-ECU" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the ETACS-ECU data only.

TROUBLE JUDGMENT CONDITIONS

Scan tool (M.U.T.-III) judges the trouble when the periodically sent data from ETACS-ECU cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the ETACS-ECU
- Malfunction of the ETACS-ECU

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN1) and ETACS-ECU connector

CAUTION

The strand end of the twist wire should be within 10 cm from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and ETACS-ECU connector.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the joint connector (CAN1) and the ETACS-ECU connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.10 and ETACS-ECU connector terminal No.56

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.21 and ETACS-ECU connector terminal No.65

OK: Continuity (2 Ω or less)

CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Go to Step 3.

NO : <Either or all of the resistances measure more than 2 Ω > Repair the wiring harness between joint connector (CAN1) and the ETACS-ECU connector.

STEP 3. Resistance measurement at ETACS-ECU connector.**⚠ CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the ETACS-ECU, and measure at the equipment side.
- (2) Resistance at ETACS-ECU connector terminal Nos.56 and 65

OK: $120 \pm 20 \Omega$

Q: Is the check result normal?

YES : <Within $120 \pm 20 \Omega$ > Power supply to the ETACS-ECU may be suspected. Refer to [P.54A-237](#).

NO : <Not within $120 \pm 20 \Omega$ > Replace the ETACS-ECU.

Diagnostic Item 6: Diagnose when the scan tool cannot receive the data sent by combination meter**⚠ CAUTION**

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the combination meter" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the combination meter data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from combination meter cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors

- Power supply circuit malfunction of the combination meter
- Malfunction of the combination meter

DIAGNOSIS**STEP 1. Connector check: joint connector (CAN1) and combination meter connector****⚠ CAUTION**

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and combination meter connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1) and the combination meter connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.6 and combination meter connector terminal No.14

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.17 and combination meter connector terminal No.15

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the combination meter may be suspected. Diagnose the combination meter. Refer to GROUP 54A Combination Meter – Troubleshooting [P.54A-36](#).

NO : <Either or all of the resistances measure more than 2 Ω > Repair the wiring harness between joint connector (CAN1) and the combination meter.

Diagnostic Item 7: Diagnose when the scan tool cannot receive the data sent by SRS-ECU

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the SRS-ECU" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the SRS-ECU data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from SRS-ECU cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the SRS-ECU
- Malfunction of the SRS-ECU

DIAGNOSIS**STEP 1. Connector check: joint connector (CAN1) and SRS-ECU connector****⚠ CAUTION**

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and SRS-ECU connector.**⚠ CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1) and the SRS-ECU connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.4 and SRS-ECU connector terminal No.30

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.15 and SRS-ECU connector terminal No.29

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the SRS-ECU may be suspected. Diagnose the SRS. Refer to GROUP 52B – Troubleshooting [P.52B-213](#).

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN1) and the SRS-ECU connector.

Diagnostic Item 8: Diagnose when the scan tool cannot receive the data sent by KOS&OSS-ECU.
<Vehicles with KOS>

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the KOS&OSS-ECU" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the KOS&OSS-ECU data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from KOS&OSS-ECU cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the KOS&OSS-ECU
- Malfunction of the KOS&OSS-ECU

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN1) and KOS&OSS-ECU connector

⚠ CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and KOS&OSS-ECU connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1) and the KOS&OSS-ECU connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.11 and KOS&OSS-ECU connector terminal No.35

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.22 and KOS&OSS-ECU connector terminal No.51

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the KOS&OSS-ECU may be suspected. Diagnose the KOS. Refer to GROUP 42B – Troubleshooting [P.42B-80](#).

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN1) and the KOS&OSS-ECU connector.

Diagnostic Item 9: Diagnose when the scan tool cannot receive the data sent by auto A/C controller assembly (A/C-ECU). <Vehicles with automatic A/C>

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the auto A/C controller assembly (A/C-ECU)" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the auto A/C controller assembly (A/C-ECU) data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from auto A/C controller assembly (A/C-ECU) cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the auto A/C controller assembly (A/C-ECU)
- Malfunction of the auto A/C controller assembly (A/C-ECU)

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN1) and auto A/C controller assembly (A/C-ECU) connector

⚠ CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and auto A/C controller assembly (A/C-ECU) connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1) and the auto A/C controller assembly (A/C-ECU) connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.7 and auto A/C controller assembly (A/C-ECU) connector terminal No.12

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.18 and auto A/C controller assembly (A/C-ECU) connector terminal No.11

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>

Power supply to the auto A/C controller assembly (A/C-ECU) may be suspected. Diagnose the automatic A/C. Refer to GROUP 55B – Troubleshooting [P.55B-34](#).

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN1) and the auto A/C controller assembly (A/C-ECU) connector.

Diagnostic Item 10: Diagnose when the scan tool cannot receive the data sent by steering wheel sensor.

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the steering wheel sensor" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the steering wheel sensor data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from steering wheel sensor cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the steering wheel sensor
- Malfunction of the steering wheel sensor

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN1) and steering wheel sensor connector

⚠ CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and steering wheel sensor connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1) and the steering wheel sensor connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.3 and steering wheel sensor connector terminal No.3

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.14 and steering wheel sensor connector terminal No.4

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the steering wheel sensor may be suspected.

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN1) and the steering wheel sensor connector.

Diagnostic Item 11: Diagnose when the scan tool cannot receive the data sent by occupant classification-ECU.

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the occupant classification-ECU" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the occupant classification-ECU data only.

TROUBLE JUDGMENT CONDITIONS

Scan tool (M.U.T.-III) judges the trouble when the periodically sent data from occupant classification-ECU cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the occupant classification-ECU
- Malfunction of the occupant classification-ECU

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN1) and occupant classification-ECU connector

⚠ CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and occupant classification-ECU connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN1) and the occupant classification-ECU connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.1 and occupant classification-ECU connector terminal No.2

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.12 and occupant classification-ECU connector terminal No.4

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the occupant classification-ECU may be suspected.

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN1) and the occupant classification-ECU connector.

Diagnostic Item 12: Diagnose the lines between the joint connectors (CAN1 and CAN2)

CAUTION

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

FUNCTION

The diagnostic result demonstrates that "diagnose the lines between the joint connectors (CAN1 and CAN2)" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the engine control module (ECM) data.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from engine control module (ECM) cannot be received.

PROBABLE CAUSE

Damaged harness wires and connectors

DIAGNOSIS

STEP 1. Connector check: C-212 intermediate connector, joint connector (CAN1) and joint connector (CAN2)

CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN1) and C-212 intermediate connector.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the joint connector (CAN1) and the intermediate connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN1) terminal No.9 and C-212 intermediate connector terminal No.17

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN1) terminal No.20 and C-212 intermediate connector terminal No.8

OK: Continuity (2 Ω or less)

CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Go to Step 3.

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN1) and intermediate connector C-212.

STEP 3. Resistance measurement at joint connector (CAN2) and C-212 intermediate connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2) and the intermediate connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the LOCK (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN2) terminal No.6 and C-212 intermediate connector terminal No.17

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN2) terminal No.17 and C-212 intermediate connector terminal No.8

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>

Follow diagnosis item 5, 6, 7, 8, 9, 10, 11, 13, 14, 15 and 16. Refer to [P.54C-12](#).

NO : <Either or all of the resistances measure more than 2 Ω > Repair the wiring harness between the joint connector (CAN2) and the intermediate connector.

Diagnostic Item 13: Diagnose when the scan tool cannot receive the data sent by EPS-ECU.

CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the EPS-ECU" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the EPS-ECU data only.

TROUBLE JUDGMENT CONDITIONS

Scan tool (M.U.T.-III) judges the trouble when the periodically sent data from EPS-ECU cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the EPS-ECU
- Malfunction of the EPS-ECU

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN2) and EPS-ECU connector

CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN2) and EPS-ECU connector.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2) and the EPS-ECU connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN2) terminal No.8 and EPS-ECU connector terminal No.3

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN2) terminal No.19 and EPS-ECU connector terminal No.4

OK: Continuity (2 Ω or less)

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the EPS-ECU may be suspected. Diagnose the EPS. Refer to GROUP 37 – Troubleshooting [P.37-43](#).

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN2) and the EPS-ECU connector.

Diagnostic Item 14: Diagnose when the scan tool cannot receive the data sent by ASC-ECU.

CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the ASC-ECU" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the ASC-ECU data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from ASC-ECU cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the ASC-ECU
- Malfunction of the ASC-ECU

DIAGNOSIS**STEP 1. Connector check: joint connector (CAN2) and ASC-ECU connector****⚠ CAUTION**

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN2) and ASC-ECU connector.**⚠ CAUTION**

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect joint connector (CAN2) and the ASC-ECU connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN2) terminal No.9 and ASC-ECU connector terminal No.26

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN2) terminal No.20 and ASC-ECU connector terminal No.14

OK: Continuity (2 Ω or less)

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the ASC-ECU may be suspected. Diagnose the ABS. Refer to GROUP 35C – Troubleshooting [P.35C-109](#).

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN2) and the ASC-ECU connector.

Diagnostic Item 15: Diagnose when the scan tool cannot receive the data sent by transaxle control module (ECM). <CVT>

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the transaxle control module (ECM)" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the transaxle control module (ECM) data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from transaxle control module (ECM) cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the transaxle control module (ECM)
- Malfunction of the transaxle control module (ECM)

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN2) and transaxle control module (ECM) connector

CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-5.

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN2) and transaxle control module (ECM) connector.

CAUTION

A digital multimeter should be used. For details refer to P.54C-5.

CAUTION

The test wiring harness should be used. For details refer to P.54C-5.

- (1) Disconnect joint connector (CAN2) and the transaxle control module (ECM) connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to P.54C-5.

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN2) terminal No.7 and transaxle control module (ECM) connector terminal No.9

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN2) terminal No.18 and transaxle control module (ECM) connector terminal No.10

OK: Continuity (2 Ω or less)

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Power supply to the transaxle control module (ECM) may be suspected.

NO : <Either or all of the resistances measure more than 2 Ω > Check the intermediate connector, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between joint connector (CAN2) and the transaxle control module (ECM) connector.

Diagnostic Item 16: Diagnose when the scan tool (M.U.T.-III) cannot receive the data sent by engine control module (ECM).

⚠ CAUTION

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

FUNCTION

The diagnostic result demonstrates that "the scan tool (M.U.T.-III) cannot receive the sent data from the engine control module (ECM)" when the scan tool (M.U.T.-III) checks the periodically sent data from each ECU and cannot receive the engine control module (ECM) data only.

TROUBLE JUDGMENT CONDITIONS

scan tool (M.U.T.-III) judges the trouble when the periodically sent data from engine control module (ECM) cannot be received.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Power supply circuit malfunction of the engine control module (ECM)
- Malfunction of the engine control module (ECM)

DIAGNOSIS

STEP 1. Connector check: joint connector (CAN2) and engine control module (ECM) connector

⚠ CAUTION

The strand end of the twist wire should be within 10 cm (4 inches) from the connector. For details refer to [P.54C-5](#).

When checking the joint connector, ensure that its wiring harness side and its short pins are not damaged.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector. Replace the joint connector as necessary.

STEP 2. Resistance measurement at joint connector (CAN2) and engine control module (ECM) connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

⚠ CAUTION

The test wiring harness should be used. For details refer to [P.54C-5](#).

- (1) Disconnect the joint connector (CAN2) and the engine control module (ECM) connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

When measuring the resistance, disconnect the negative battery terminal. For details refer to [P.54C-5](#).

- (3) Ensure that the negative battery terminal is disconnected.
- (4) Continuity between joint connector (CAN2) terminal No.11 and engine control module (ECM) connector terminal No.101

OK: Continuity (2 Ω or less)

- (5) Continuity between joint connector (CAN2) terminal No.22 and engine control module (ECM) connector terminal No.102

OK: Continuity (2 Ω or less)

⚠ CAUTION

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

Q: Is the check result normal?

YES : <All the resistances measure 2 Ω or less>
Go to Step 3.

NO : <Either or all of the resistances measure more than 2 Ω> Repair the wiring harness between joint connector (CAN2) and the engine control module (ECM).

STEP 3. Resistance measurement at engine control module (ECM) connector.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-5](#).

- (1) Remove the engine control module (ECM), and measure at the equipment side.
- (2) Resistance between engine control module (ECM) connector terminal No.101 and 102

OK: $120 \pm 20 \Omega$

⚠ CAUTION

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

Q: Is the check result normal?

YES : <Within $120 \pm 20 \Omega$ > Power supply to the engine control module (ECM) may be suspected. Diagnose the fuel system. Refer to GROUP 13A – Troubleshooting [P.13A-52](#).

NO : <Not within $120 \pm 20 \Omega$ > Replace the engine control module (ECM).

DIAGNOSTICS TROUBLE CODE REFERENCE TABLE

M1548300302810

Code No.	Diagnostic item	Output ECU	Action
U0001	Bus error (CAN-C)	Transaxle control module (TCM)	CAN main bus line diagnostics
U0100	Engine CAN timeout	Transaxle control module (TCM), combination meter, EPS-ECU, KOS&OSS-ECU	
U0101	T/M CAN timeout	Engine control module (ECM), KOS&OSS-ECU, combination meter	
U0121	ABS/ASC CAN timeout	Engine control module (ECM), transaxle control module (TCM), combination meter	
U0131	EPS CAN timeout	Engine control module (ECM), combination meter	
U0141	ETACS CAN timeout	Engine control module (ECM), transaxle control module (TCM), KOS&OSS-ECU, combination meter, EPS-ECU	
U0151	SRS-ABG CAN timeout	combination meter	
U0154	OCM CAN timeout	SRS-ECU, combination meter	
U0155	Meter CAN timeout	Engine control module (ECM), transaxle control module (TCM), KOS&OSS-ECU	
U0164	A/C CAN timeout	Engine control module (ECM), KOS&OSS-ECU	
U0168	WCM/F.A.S.T. CAN timeout	Engine control module (ECM), combination meter	
U1000	OSS CAN timeout	Combination meter, ETACS-ECU, auto A/C controller assembly (A/C-ECU)	
U1073	Bus-off	ASC-ECU, EPS-ECU	
U1100	Engine CAN timeout	ASC-ECU, SRS-ECU, ETACS-ECU, auto A/C controller assembly (A/C-ECU)	
U1101	T/M CAN timeout/Not equipped	ASC-ECU, ETACS-ECU	
U1102	ASC/TCL/ABS timeout/Not equipped	SRS-ECU, ETACS-ECU	
U1104	SAS CAN timeout/Not equipped	ASC-ECU, SRS-ECU	
U1108	Meter CAN timeout/Not equipped	ASC-ECU, EPS-ECU, SRS-ECU, ETACS-ECU, auto A/C controller assembly (A/C-ECU)	
U1109	ETACS CAN timeout/Not equipped	ASC-ECU, SRS-ECU, occupant classification-ECU, auto A/C controller assembly (A/C-ECU)	
U1110	A/C CAN timeout/Not equipped	Combination meter, ETACS-ECU	
U1116	F.A.S.T. KOS CAN timeout/Not equipped	ETACS-ECU, auto A/C controller assembly (A/C-ECU)	

Code No.	Diagnostic item	Output ECU	Action
U0167	Immobilizer CAN communication	Engine control module (ECM)	Diagnose CAN main bus lines and confirm input signals.
U0401	Engine (CAN message)	ASC-ECU	
U0402	T/M (CAN message)	ASC-ECU	
U0415	ABS (CAN message)	Engine control module (ECM)	
U0428	SAS (CAN message)	ASC-ECU	
U1150	Fail Info. for vehicle speed	ETACS-ECU	
U1190	No receive fault detect signal	EPS-ECU, KOS&OSS-ECU, SRS-ECU, occupant classification-ECU, combination meter, auto A/C controller assembly (A/C-ECU)	
U1195	Coding not completed	ASC-ECU, EPS-ECU, KOS&OSS-ECU, SRS-ECU, combination meter, auto A/C controller assembly (A/C-ECU)	
U1197	Coding data unavailable	EPS-ECU	
U1199	VIN not programmed	KOS&OSS-ECU, SRS-ECU	
U119A	VIN mismatch	SRS-ECU	
U1200	SAS parity error	ASC-ECU	
U1204	SAS message counter error	ASC-ECU	
U1211	ENG parity/Toggle bit error	ASC-ECU	
U15A2	Vehicle speed information lost	Occupant classification-ECU	
U15A3	Odometer information lost	Occupant classification-ECU	
U15A4	VIN information lost	Occupant classification-ECU	

NOTES