

GROUP 54C

CONTROLLER  
AREA NETWORK  
(CAN)

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## GENERAL DESCRIPTION

M1548310001011

CAN, an abbreviation for Controller Area Network, is an ISO-certified international standard for a serial multiplex communication protocol\*.

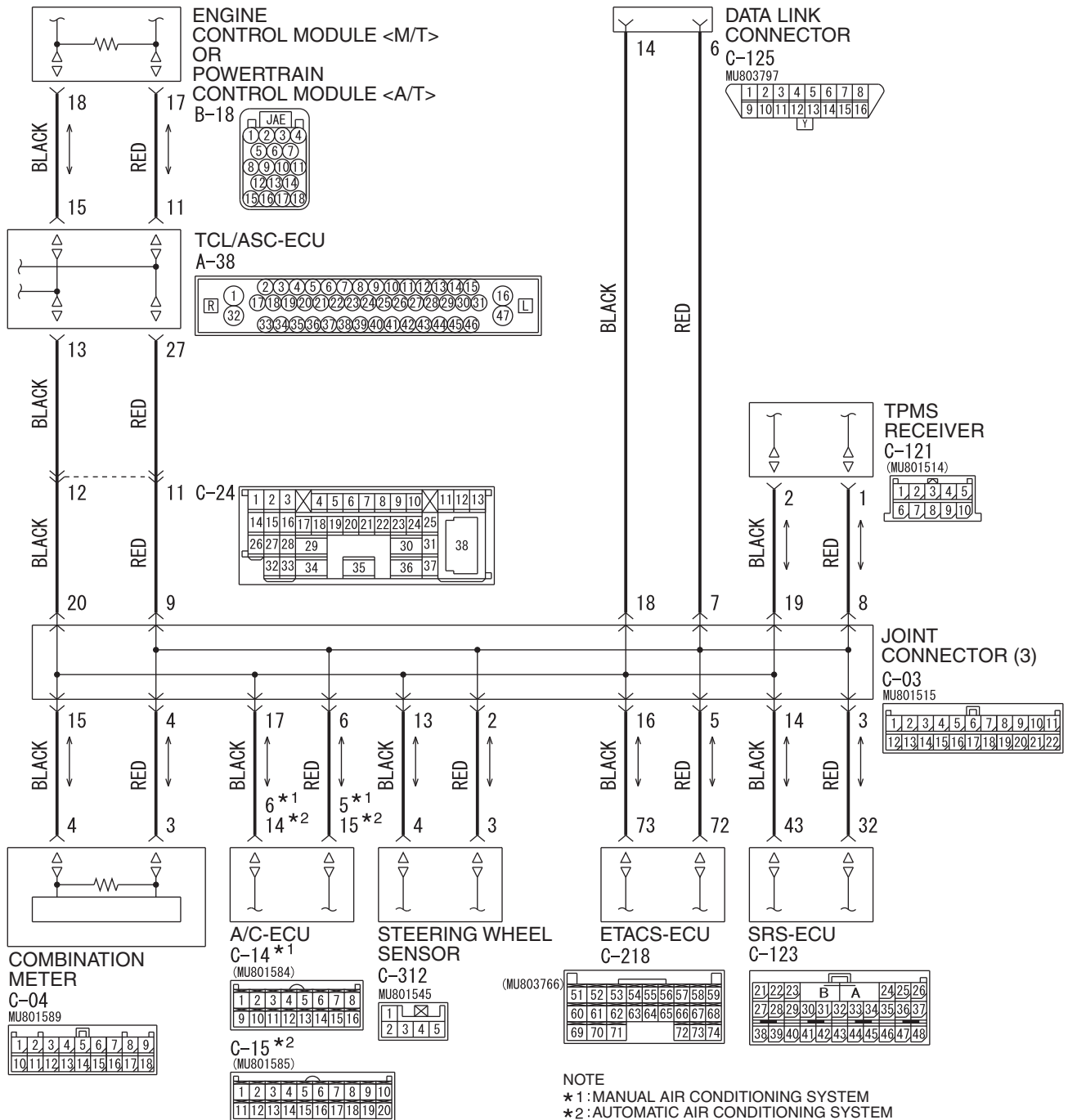
*NOTE: \*: The regulations have been decided in detail, from software issues such as the necessary transmission rate for communication, the system, data format, and communication timing control method to hardware issues such as the harness type and length and the resistance values.*

A communication circuit employing the CAN protocol connects each ECU, and sensor data can be shared among, which enables more reduction in wiring.

CAN offers the following advantages.

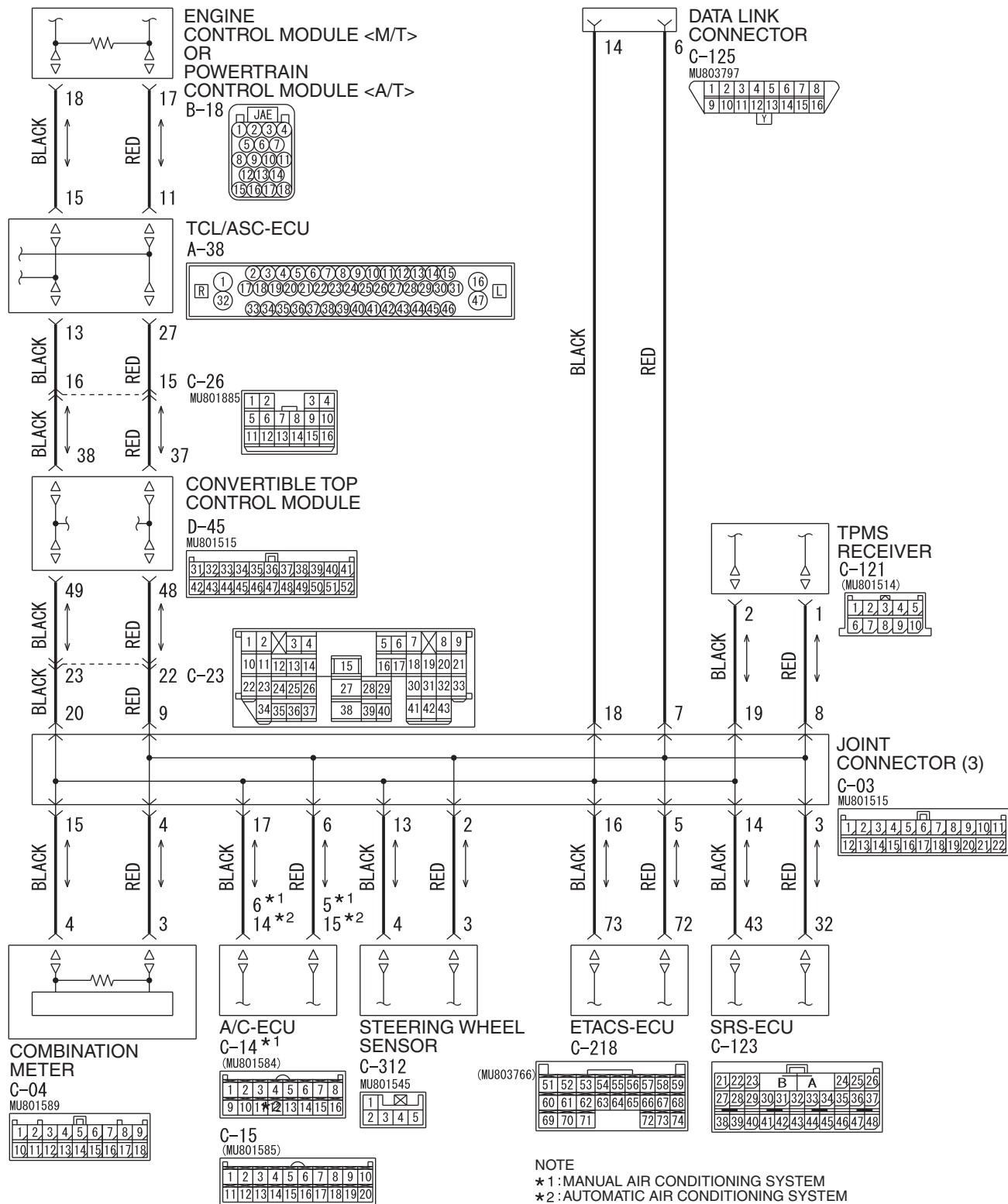
- Transmission rates are much faster than those in conventional communication (up to 1 Mbps), allowing much more data to be sent.
- It is exceptionally immune to noise, and the data obtained from each error detection device is more reliable.
- Each ECU connected via the CAN communicates independently, so if the ECU enters damaged mode, communications can be continued in some cases.

<ECLIPSE>



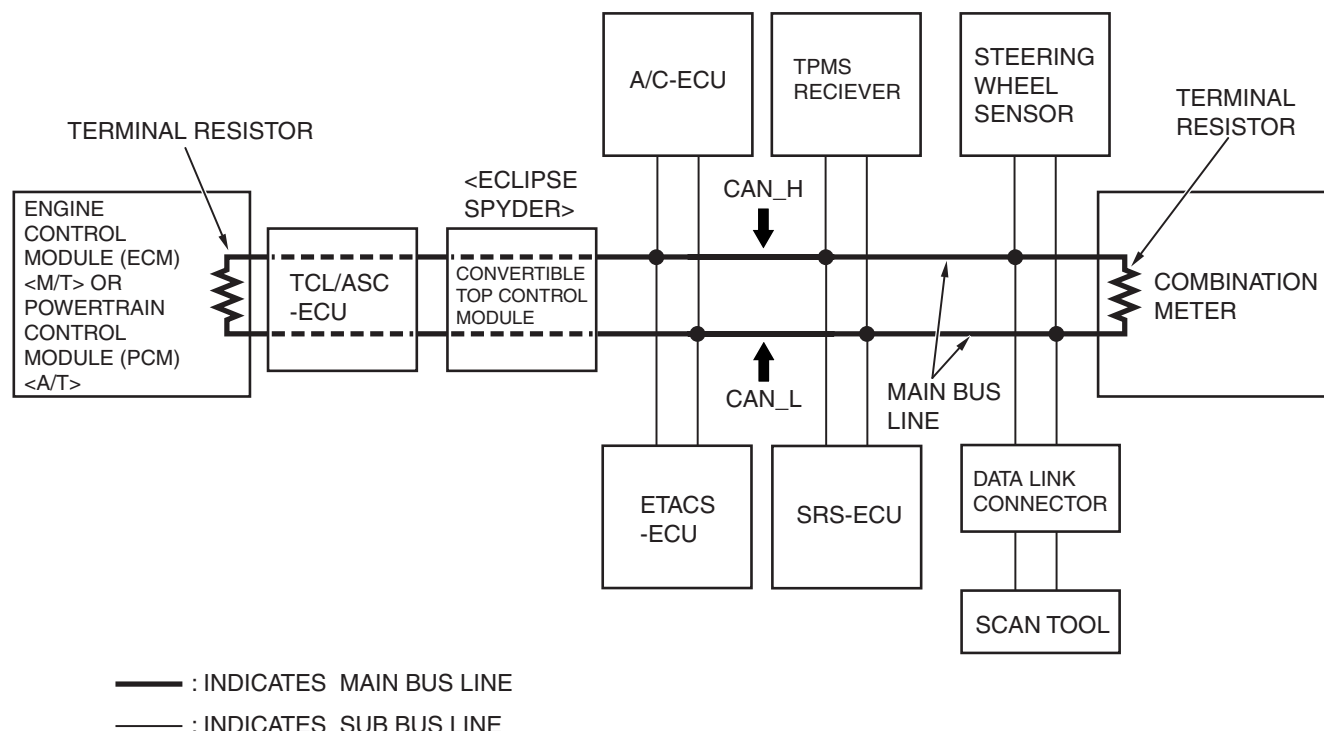
WAP54M000A

## &lt;ECLIPSE SPYDER&gt;



WAP54M001A

## STRUCTURE

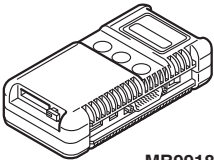
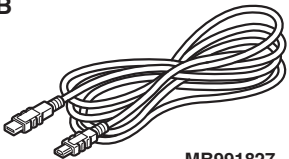
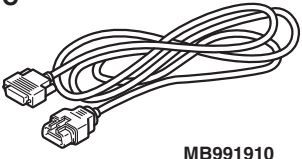
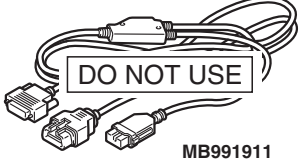
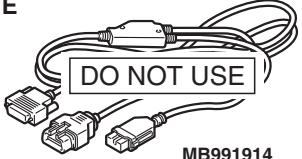
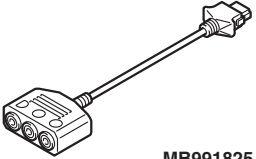
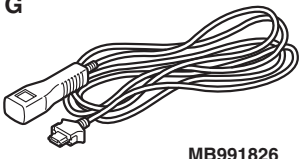



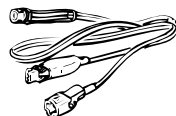
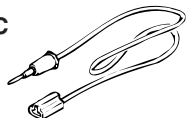
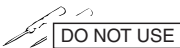
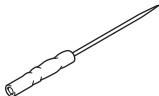

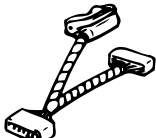
AC808307 AB

- The CAN bus line consists of two lines, CAN\_L and CAN\_H (CAN Low and CAN High, respectively), as well as two terminal resistors. (A twisted-pair cable, highly resistant to noise, is used for the communications line.)
- The CAN bus line connecting the two terminal resistors is the main bus line, and the CAN bus line connecting each ECU is the sub-bus line.
- The terminal resistors are installed in the engine-control module (ECM) <M/T> or powertrain control module (PCM) <A/T> and combination meter to stabilize communication signals. (Each terminal resistance is set at approximately 120 ohms.)
- The TCL/ASC-ECU and convertible top control module <ECLIPSE SPYDER> are branched internally, with one line connected to the TCL/ASC-ECU and convertible top control module <ECLIPSE SPYDER> and the other connected to the powertrain control module (PCM).
- To the CAN bus line, equipments with control module and data link connector are connected as follows for each network.
  - Engine control module (ECM) <M/T> or powertrain control module (PCM) <A/T>
  - TCL/ASC-ECU
  - Convertible top control module <ECLIPSE SPYDER>
  - ETACS-ECU
  - TPMS receiver
  - A/C-ECU
  - SRS-ECU
  - Combination meter
  - Steering wheel sensor

## SPECIAL TOOLS


M1548304200723

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

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
<p><b>A</b></p>  <p><b>B</b></p>  <p><b>C</b></p>  <p><b>D</b></p>  <p>MB991223AZ</p>	<p>MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222</p> <p>Harness set A: Test harness B: LED harness C: LED harness adaptor D: Probe</p>	<p>General service tools</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p> <p>A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection</p>
 <p>MB992006</p>	<p>MB992006 Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p>
 <p>MB991923</p>	<p>MB991923 Power plant ECU check harness</p>	<p>MD998478-01</p>	<p>Measure the voltage and resistance at the engine control module (ECM) &lt;M/T&gt; the powertrain control module (PCM) &lt;A/T&gt;</p>
 <p>MB991997</p>	<p>MB991997 ASC check harness</p>	<p>–</p>	<p>Measure the voltage and resistance at the TCL/ASC-ECU</p>

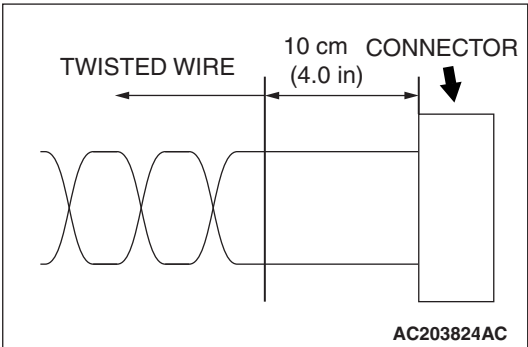
## TEST EQUIPMENT

M1548304300173

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

## SERVICE PRECAUTIONS

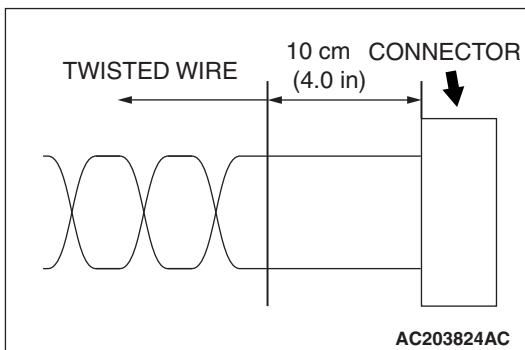
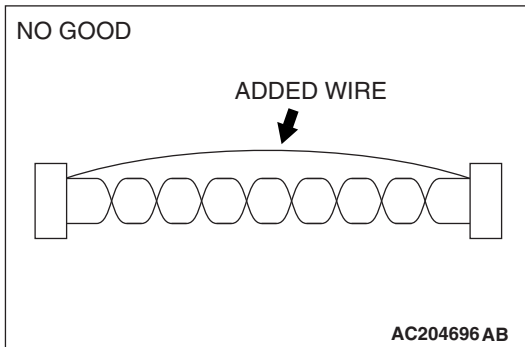
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WARNINGS IN DIAGNOSIS SECTION	DETAILS REGARDING WARNINGS
<b>⚠ CAUTION</b> When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.	—
<b>⚠ CAUTION</b> 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 connected through the CAN communication lines, may be damaged.
<b>⚠ CAUTION</b> 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, a component connected through the CAN communication lines may be damaged.
<b>⚠ CAUTION</b> 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.
<b>⚠ CAUTION</b> The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector.	 <p>If you repair the wire due to a defective connector or its terminal or harness wire, you should cut the wire so that the strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector as shown. If it exceeds 10 cm (4.0 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4.0 inches), a communication error may be caused.</p>
<b>⚠ CAUTION</b> 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 <a href="#">P.54C-9</a> ). 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.

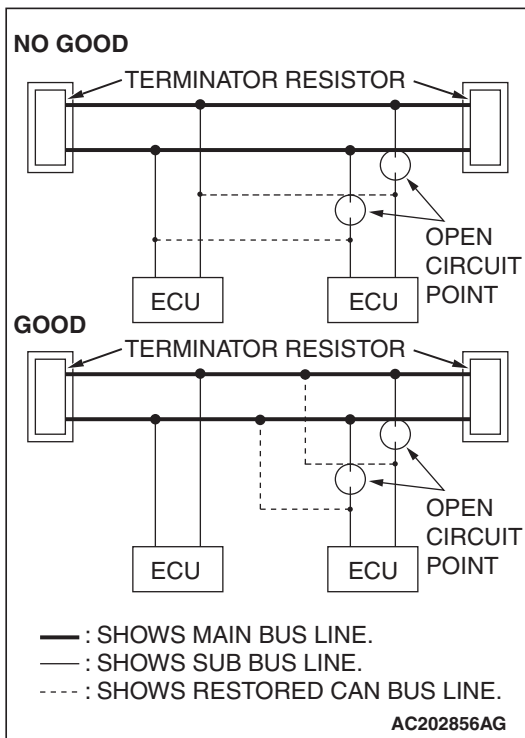
# PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES

## PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES

- If the CAN\_L or CAN\_H line on the main bus line or sub-bus line is repaired, replace all the twisted wires between the end connectors. If the wiring harness is partially repaired, or only CAN\_L or CAN\_H line is repaired, noise suppression is deteriorated, causing a communication error.



- If the connector or wire on the main bus line or the sub-bus wire is replaced, the strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4 inches), noise suppression is deteriorated, causing a communication error.



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

**PRECAUTIONS ON HOW TO REPAIR THE TERMINATOR RESISTOR**

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

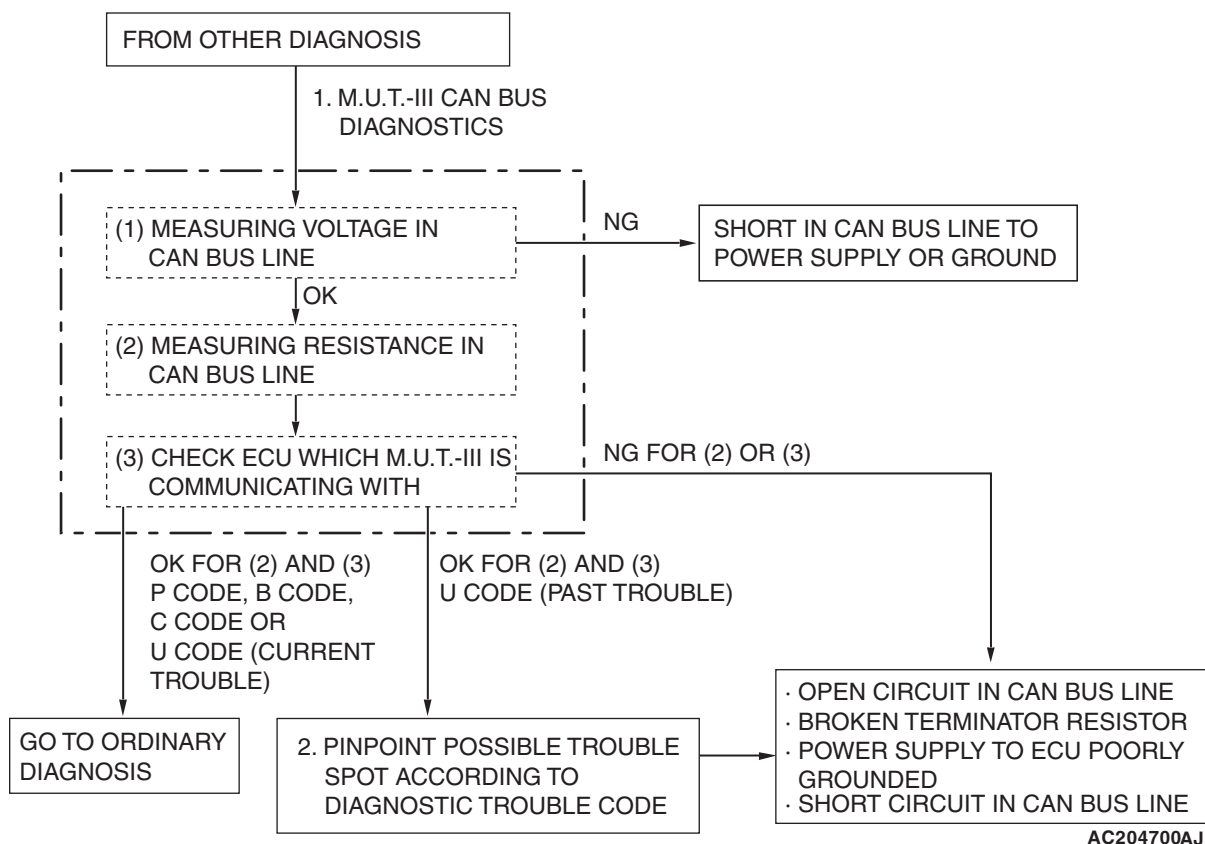
**CAN BUS LINE REPAIR HARNESS (PART NAME AND NUMBER)**

Part name	Part number
Twist pair cable	MN151514

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

M1548300100542

Scan tool MB991958 CAN bus diagnostics carries out the three checks below automatically, and then displays the current condition of the CAN bus lines according to the check results.

**1. Scan tool CAN bus diagnostics**

Scan tool MB991958 diagnoses CAN bus lines in accordance with the following strategy.

**(1) Measuring voltage in CAN bus line**

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

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

(2) Measuring resistance in CAN bus line

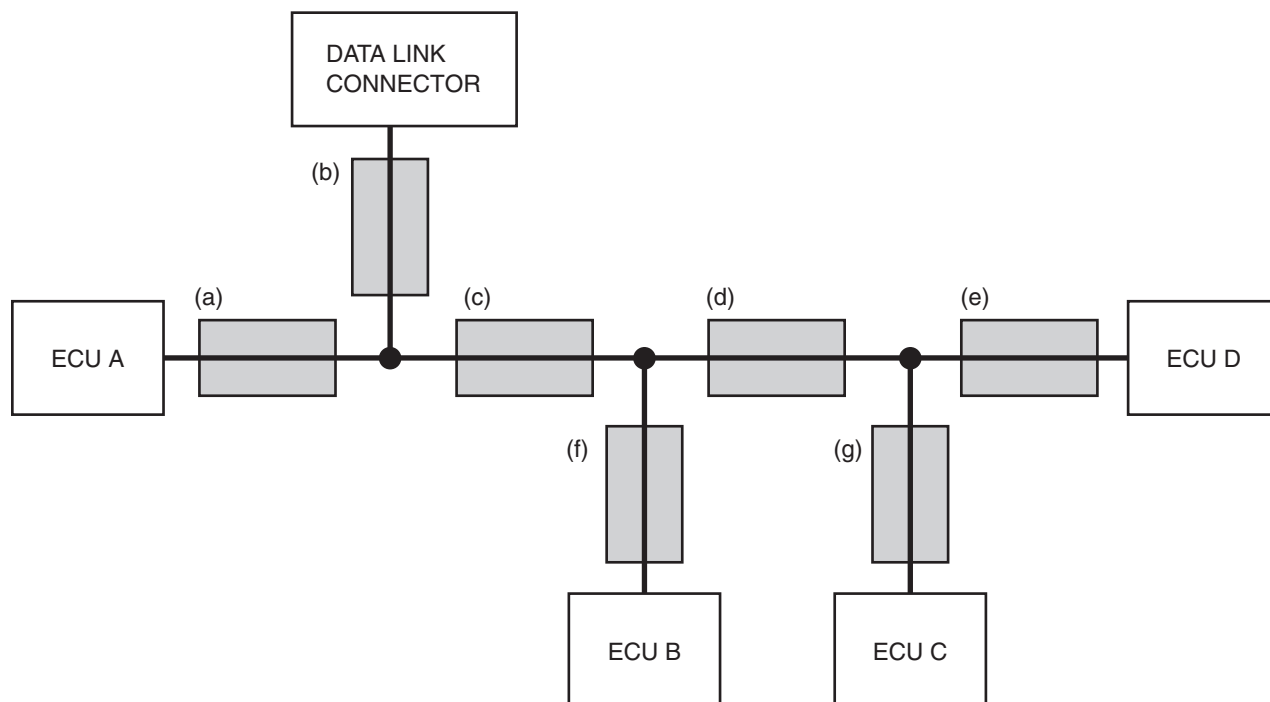
Checks the terminator resistors (incorporated in the combination meter, the engine control module (ECM) <M/T> or the powertrain control module (PCM) <A/T>), which are connected to each end of a CAN bus line, for breakage and a CAN bus main line for open circuit by measuring the resistance value between a CAN\_L line and H line.

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

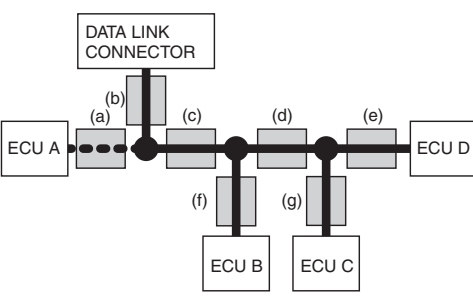
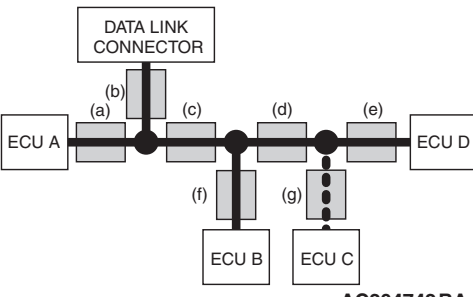
(3) Checking the communication condition of ECUs

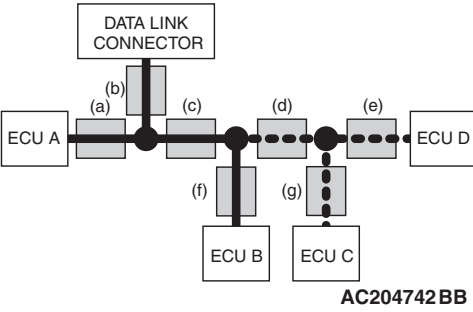
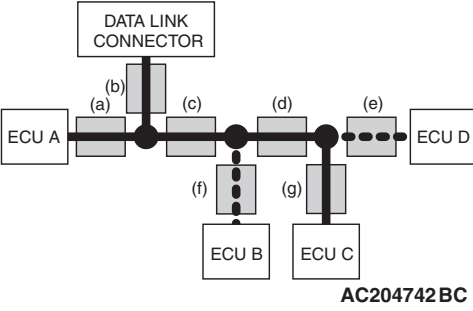
Scan tool MB991958 narrows down troubles in circuit by itself. Its strategy is as follows:

## REFERENCE CIRCUIT



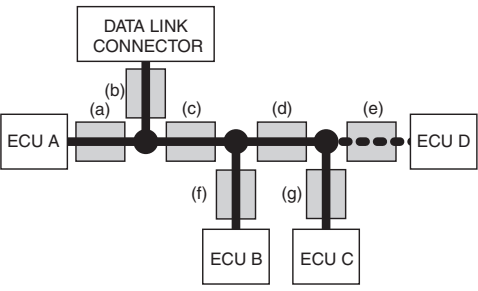
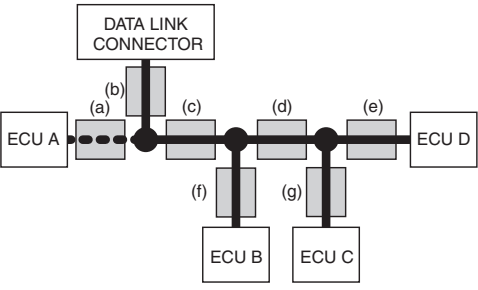
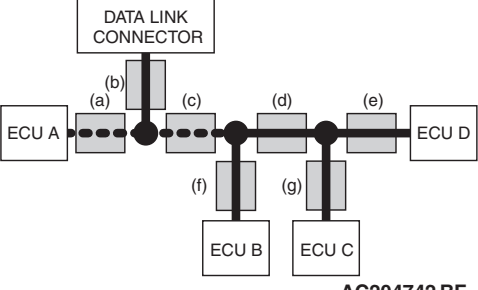
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ECU WHICH CAN NOT COMMUNICATE WITH THE SCAN TOOL	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING DOWN TROUBLE SPOT	
ECU A	CAN bus line (a) and power supply system to ECU A	ECU A communicates with scan tool MB991958 via CAN bus lines (a) and (b). Scan tool MB991958 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.	 <p>AC204742 AZ</p>
ECU C	CAN bus line (g) and power supply system to ECU C	ECU C communicates with scan tool MB991958 via CAN bus lines (b), (d) and (g). Scan tool MB991958 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.	 <p>AC204742 BA</p>

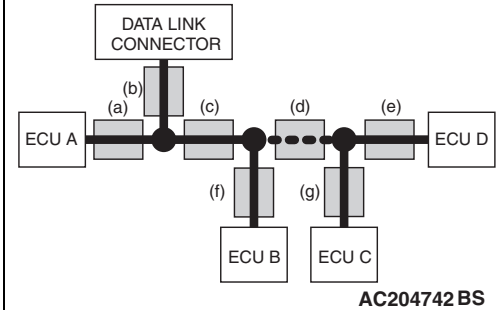
ECU WHICH CAN NOT COMMUNICATE WITH THE SCAN TOOL	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING DOWN TROUBLE SPOT
ECU C and ECU D	Trouble in CAN bus line (d)	<p>ECUs C and D communicate with scan tool MB991958 via CAN bus lines (b), (c), (d), (e) and (g). Scan tool MB991958 judges that CAN bus lines (b) 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 scan tool MB991958, so CAN bus line (d) is suspected as ultimate cause. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.</p> 
ECU B and ECU D	CAN bus line (e) or (f) or power supply system to ECU B or D	<p>ECUs B and D communicate with scan tool MB991958 via CAN bus lines (b), (c), (d), (e) and (f). Scan tool MB991958 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.</p> 

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

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

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

DTC CODE TO BE SET	POSSIBLE TROUBLE SPOT	LOGIC FOR DETERMINING TROUBLE SPOT
Time-out DTC codes associated with ECUs C and D are stored in ECU A and ECU B	Trouble in CAN bus line (d)	If time-out DTC codes associated with ECUs C and D are stored in ECUs A and B, or time-out codes associated with ECUs A and B are stored in ECUs C and D, CAN bus line (d) is suspected. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.
Time-out DTC codes associated with ECUs A and B are stored in ECU C and ECU D		



## DIAGNOSTIC TROUBLE CODE DIAGNOSIS

M1548304500199

### ON-BOARD DIAGNOSTICS

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

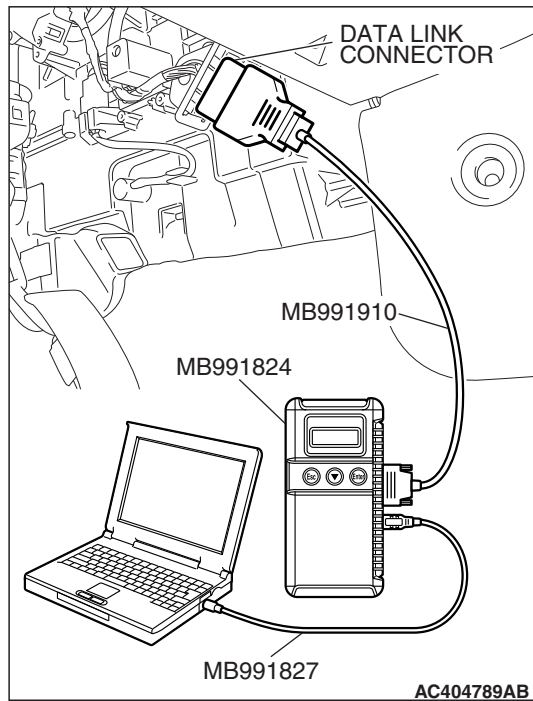
- ECM <M/T> or PCM <A/T>
- TCL/ASC-ECU

- Convertible top control module <ECLIPSE SPYDER>
- ETACS-ECU
- TPMS receiver
- A/C-ECU
- SRS-ECU
- Combination meter
- Steering wheel sensor

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

#### Required Special Tools:

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

**⚠ CAUTION**

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

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

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

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

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

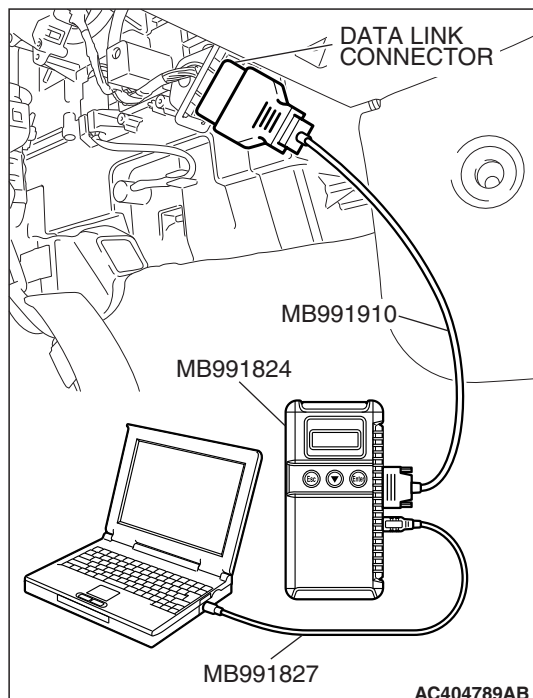
**HOW TO DIAGNOSE THE CAN BUS LINE****Required Special Tools:**

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

**⚠ CAUTION**

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

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



# DIAGNOSIS

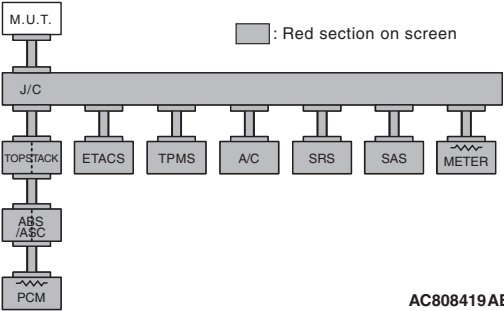
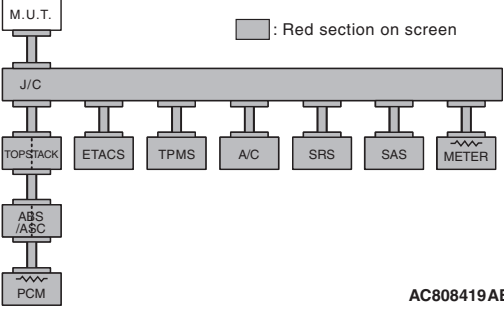
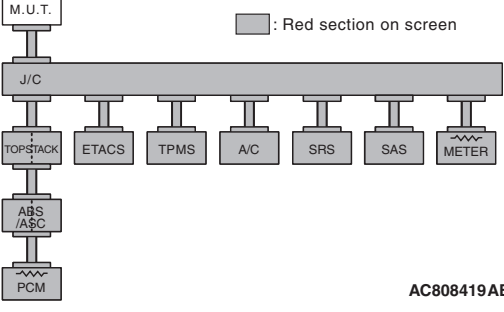
## CAN BUS DIAGNOSTICS TABLE

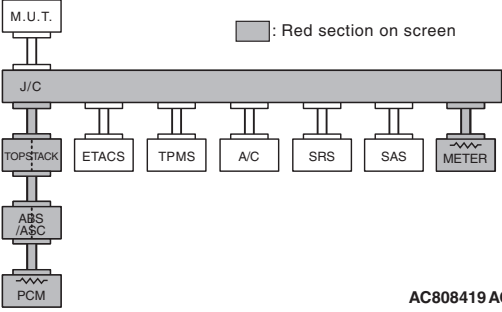
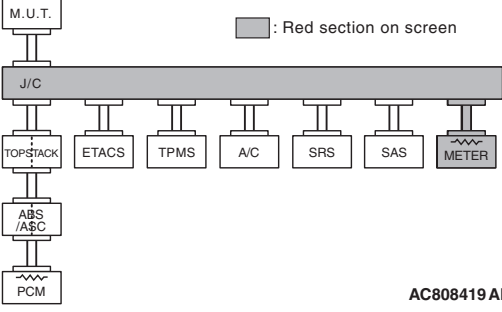
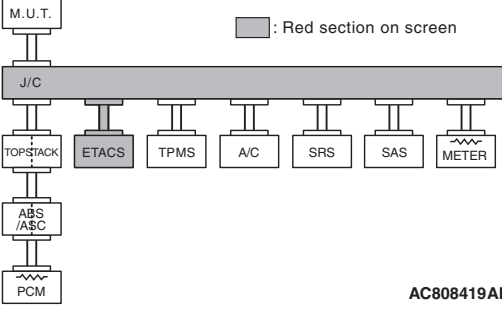
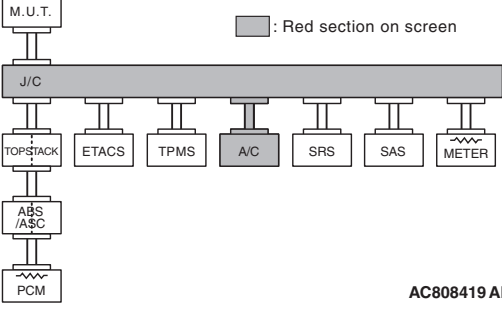
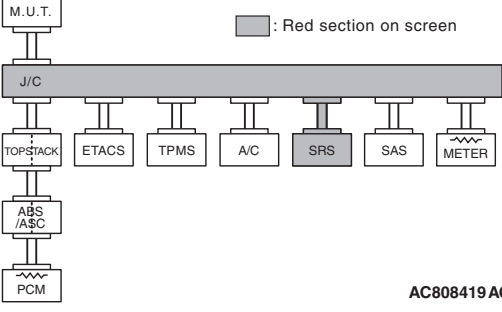
M1548300201553

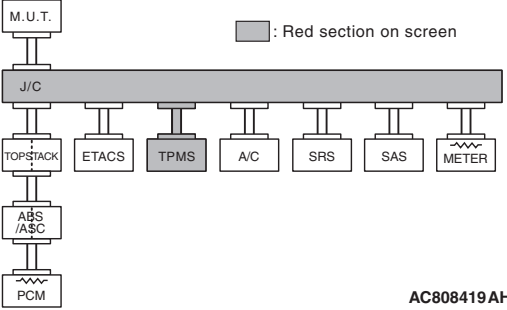
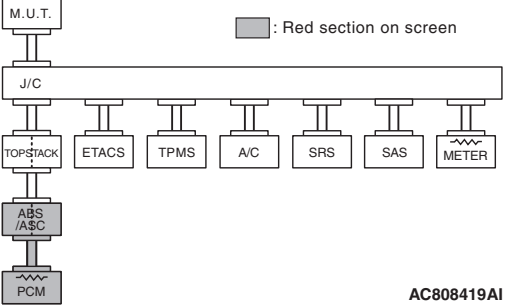
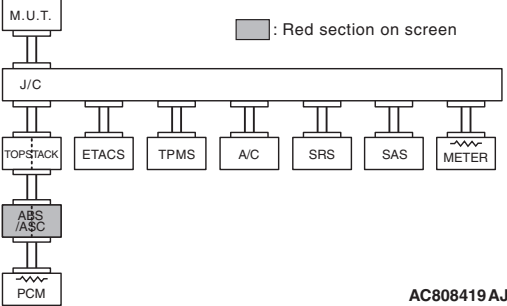
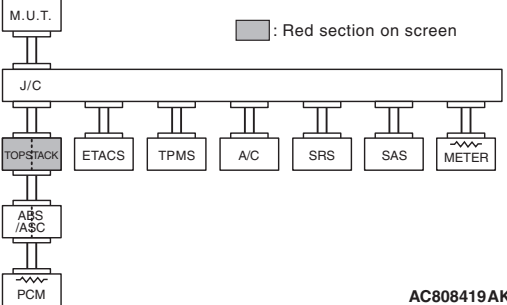
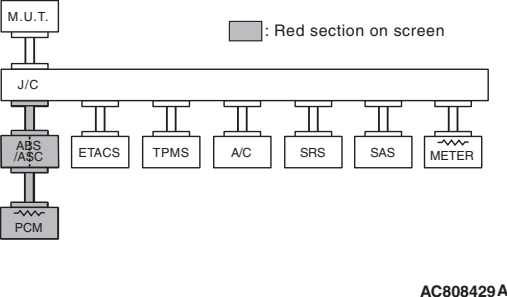
This diagnosis applies only to the CAN bus lines. If a different system is defective, proceed to the applicable diagnosis section for each system. Observe the diagnosis procedure below only when the CAN bus line is defective.

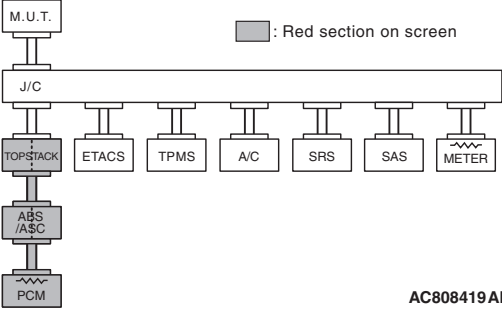
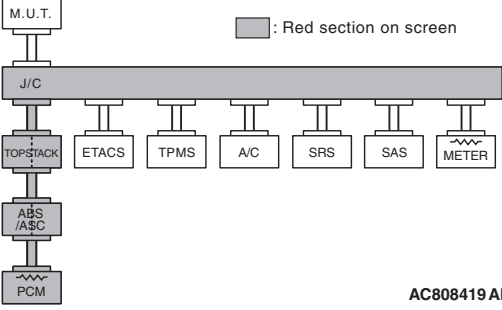
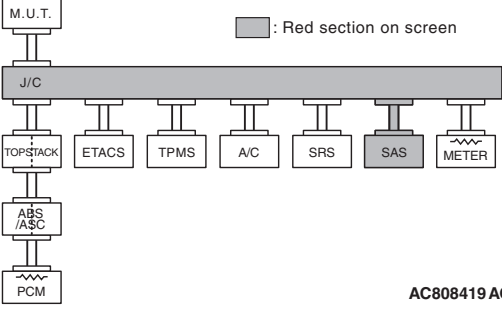
### CAUTION

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

M.U.T.-III SCREEN (THE ECUS THAT ARE NOT ADOPTED ARE NOT DISPLAYED.)	COMMENT	DIAGNOSIS DETAIL	REFERENCE PAGE
 <p>AC808419AB</p>	Short circuit to battery in red displayed area is estimated.	Diagnostic Item 1 Diagnose shorts in the power supply to CAN bus line	<a href="#">P.54C-21</a>
 <p>AC808419AB</p>	Grounding in red displayed area is estimated.	Diagnostic Item 2 Diagnose shorts in the ground to CAN bus line	<a href="#">P.54C-49</a>
 <p>AC808419AB</p>	Short circuit between CAN_H and CAN_L in red displayed area is estimated.	Diagnostic Item 3 Diagnose shorts between CAN_H and L lines	<a href="#">P.54C-79</a>

M.U.T.-III SCREEN (THE ECUS THAT ARE NOT ADOPTED ARE NOT DISPLAYED.)	COMMENT	DIAGNOSIS DETAIL	REFERENCE PAGE
 <p>AC808419 AC</p>	Disconnection or terminating resistance in red displayed area is estimated.	Diagnostic Item 4 Diagnose the terminator resistors	<a href="#">P.54C-103</a>
 <p>AC808419 AD</p>	Harness disconnection or loose connection in red displayed area is estimated.	Diagnostic Item 5 Diagnose when the scan tool cannot receive the data sent by combination meter.	<a href="#">P.54C-108</a>
 <p>AC808419 AE</p>	Harness disconnection or loose connection in red displayed area is estimated.	Diagnostic Item 6 Diagnose when the scan tool cannot receive the data sent by ETACS-ECU.	<a href="#">P.54C-113</a>
 <p>AC808419 AF</p>	Harness disconnection or loose connection in red displayed area is estimated.	Diagnostic Item 7 Diagnose when the scan tool cannot receive the data sent by A/C-ECU.	<a href="#">P.54C-119</a>
 <p>AC808419 AG</p>	Harness disconnection or loose connection in red displayed area is estimated.	Diagnostic Item 8 Diagnose when the scan tool cannot receive the data sent by SRS-ECU.	<a href="#">P.54C-126</a>

<b>M.U.T.-III SCREEN</b> <b>(THE ECUS THAT ARE NOT ADOPTED</b> <b>ARE NOT DISPLAYED.)</b>	<b>COMMENT</b>	<b>DIAGNOSIS DETAIL</b>	<b>REFERENCE PAGE</b>
 <p align="right">AC808419AH</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 9 Diagnose when the scan tool cannot receive the data sent by the TPMS receiver.</p>	<p>P.54C-131</p>
 <p align="right">AC808419AI</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 10 Diagnose when the scan tool cannot receive the data sent by the ECM &lt;M/T&gt; or the PCM &lt;A/T&gt;.</p>	<p>P.54C-136</p>
 <p align="right">AC808419AJ</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 11 Diagnose when the scan tool cannot receive the data sent by TCL/ASC-ECU.</p>	<p>P.54C-145</p>
 <p align="right">AC808419AK</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 12 Diagnose when the scan tool cannot receive the data sent by convertible top control module. &lt;ECLIPSE SPYDER&gt;</p>	<p>P.54C-145</p>
 <p align="right">AC808429AB</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 13 Diagnose when the scan tool cannot receive the data sent by the ECM &lt;M/T&gt; or the PCM &lt;A/T&gt; and TCL/ASC-ECU. &lt;ECLIPSE&gt;</p>	<p>P.54C-146</p>

M.U.T.-III SCREEN (THE ECUS THAT ARE NOT ADOPTED ARE NOT DISPLAYED.)	COMMENT	DIAGNOSIS DETAIL	REFERENCE PAGE
 <p>AC808419 AL</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 14 Diagnose when the scan tool cannot receive the data sent by the ECM &lt;M/T&gt; or the PCM &lt;A/T&gt; and TCL/ASC-ECU. &lt;ECLIPSE SPYDER&gt;</p>	<p>P.54C-153</p>
 <p>AC808419 AN</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 15 Diagnose when the scan tool cannot receive the data sent by the ECM &lt;M/T&gt; or the PCM &lt;A/T&gt;, and TCL/ASC-ECU, and convertible top control module. &lt;ECLIPSE SPYDER&gt;</p>	<p>P.54C-161</p>
 <p>AC808419 AO</p>	<p>Harness disconnection or loose connection in red displayed area is estimated.</p>	<p>Diagnostic Item 16 Diagnose when the scan tool cannot receive the data sent by the steering wheel sensor.</p>	<p>P.54C-169</p>

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

**NOTE:** If a trouble cannot be solved after performing the diagnosis other than item 4, diagnose CAN bus line thoroughly.

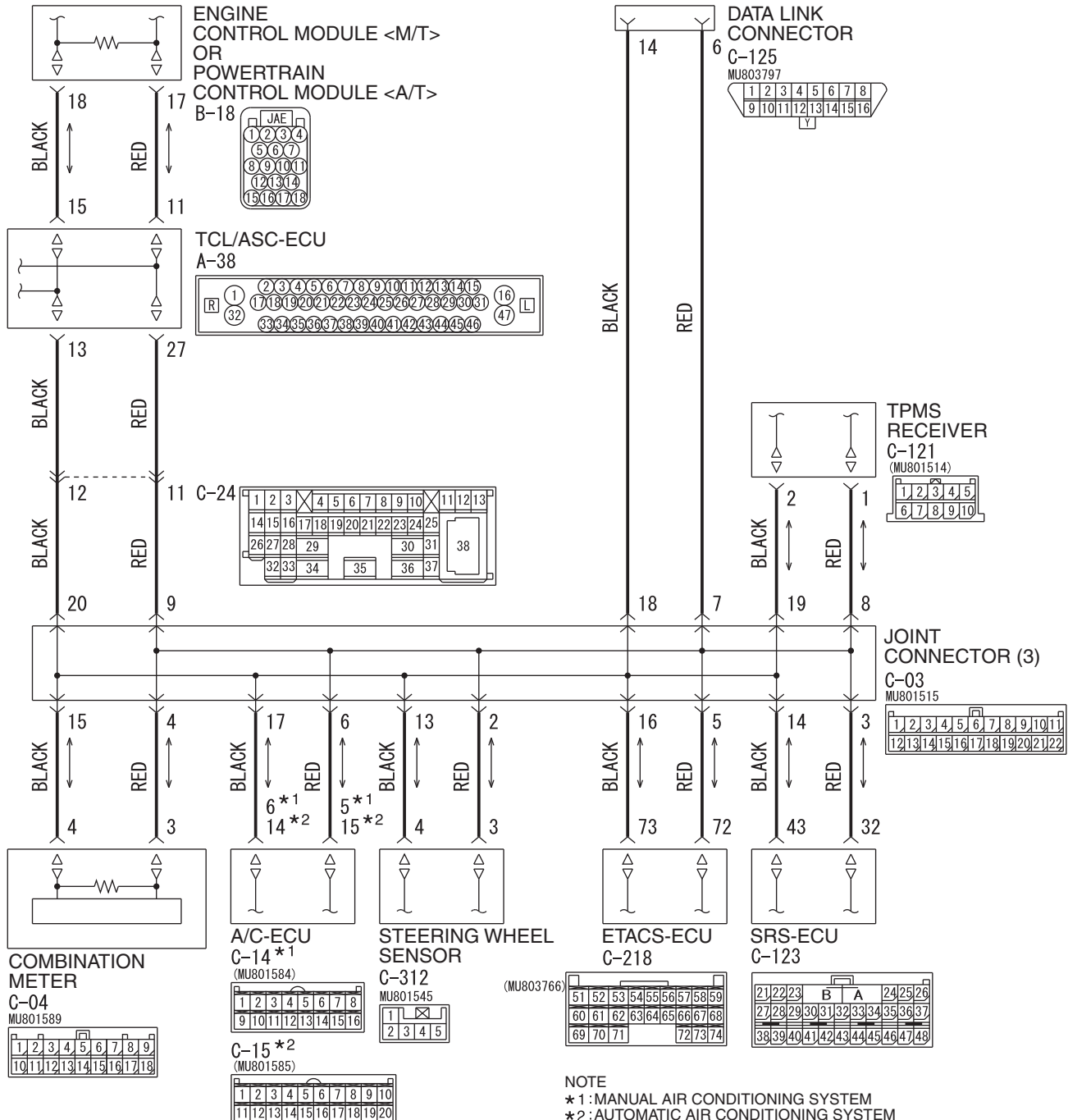
## CAN BUS DIAGNOSTICS

### DIAGNOSTIC ITEM 1: Diagnose shorts in the power supply to CAN bus line

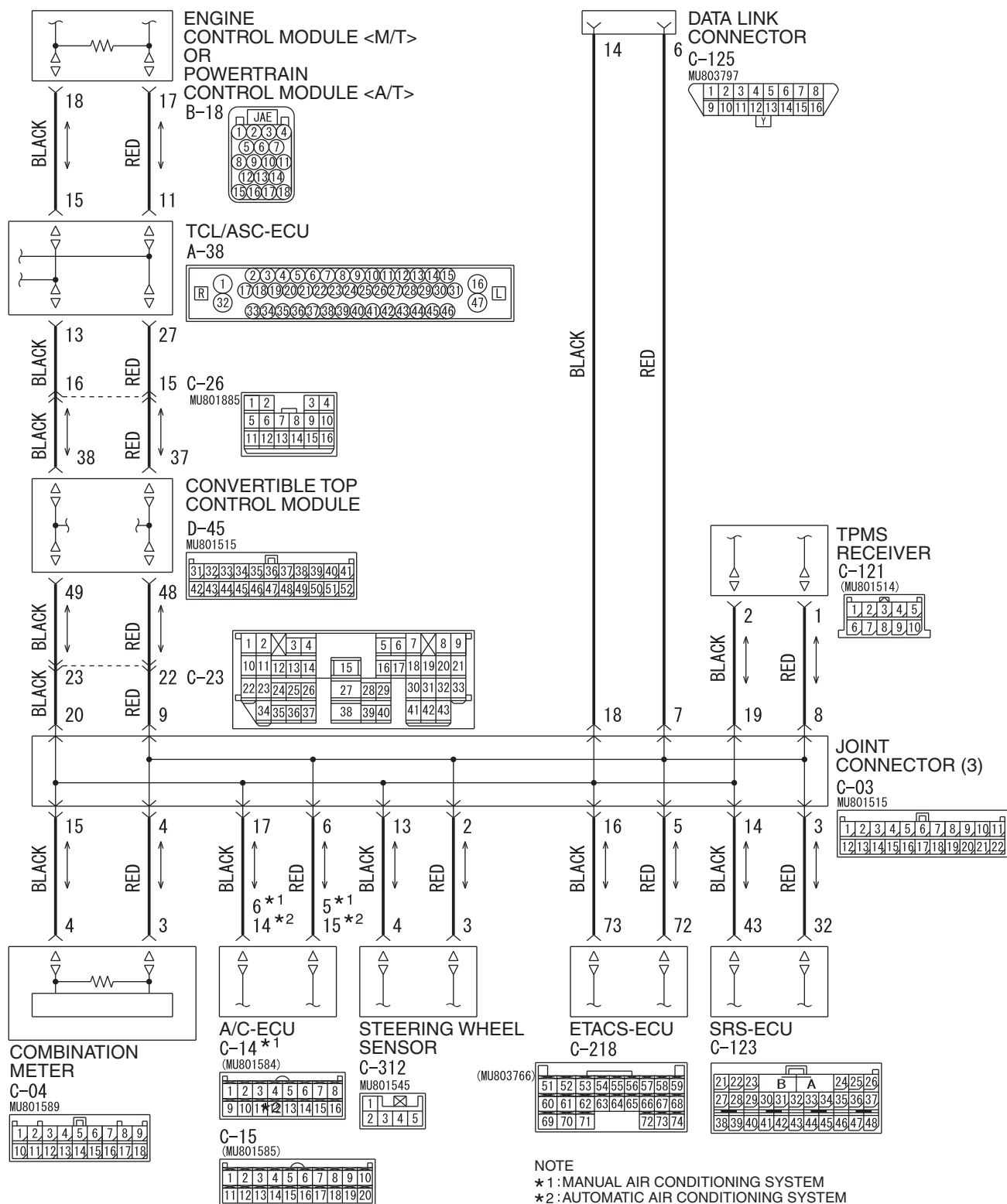
#### ⚠ CAUTION

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

<ECLIPSE>

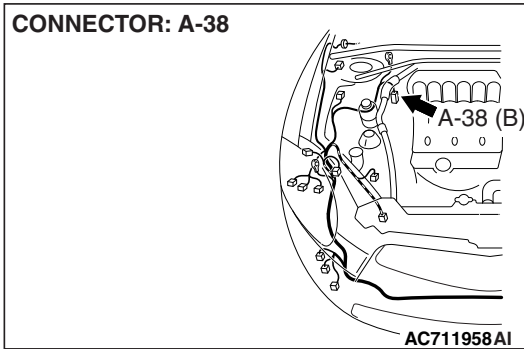


## &lt;ECLIPSE SPYDER&gt;



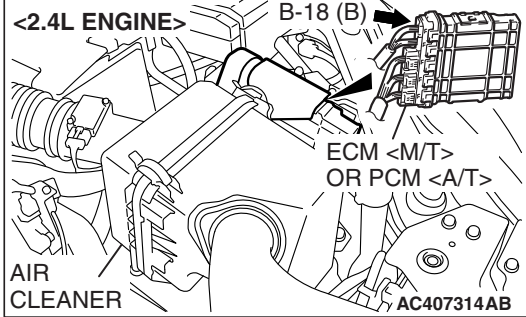
WAP54M001A

CONNECTOR: A-38



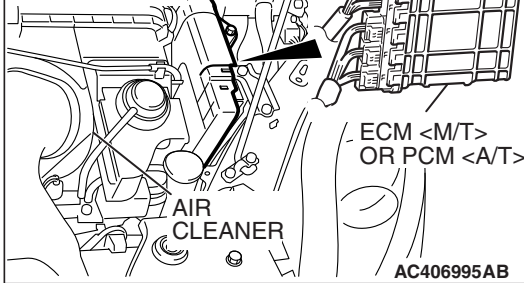
CONNECTOR: B-18

<2.4L ENGINE>

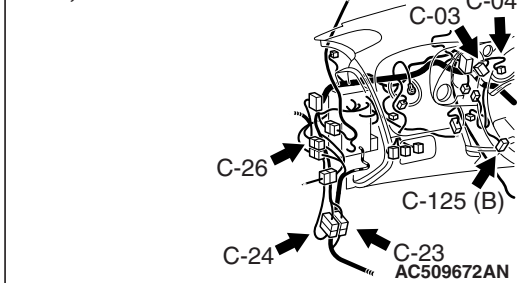


CONNECTOR: B-18

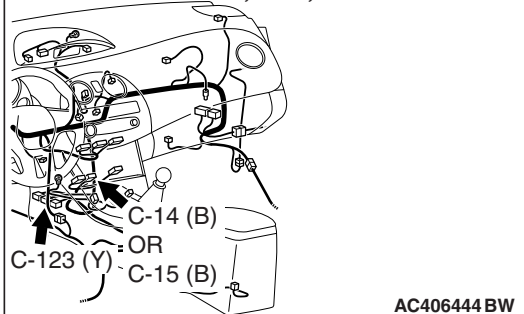
<3.8L ENGINE>



CONNECTORS: C-03, C-04, C-23, C-24,  
C-26, C-125

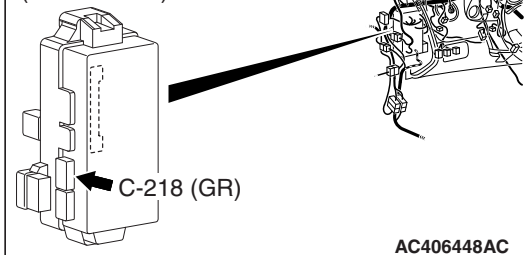


CONNECTORS: C-14, C-15, C-123



CONNECTOR: C-218

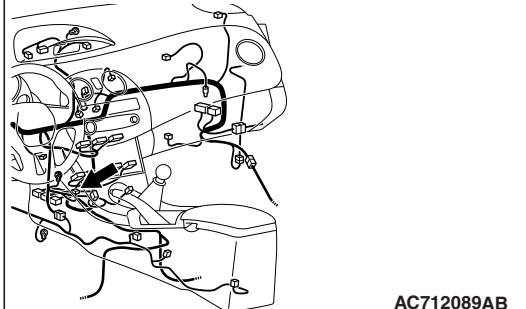
JUNCTION BLOCK  
(REAR VIEW)



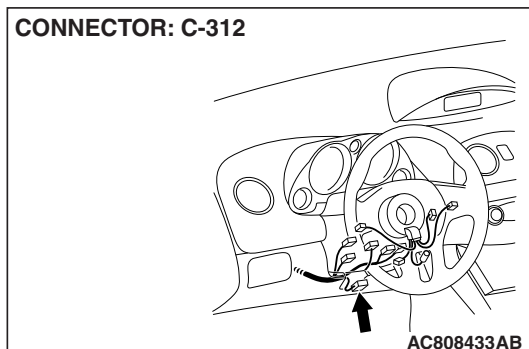
CONNECTOR: D-45 <ECLIPSE SPYDER>



CONNECTOR: C-121



CONNECTOR: C-312



## FUNCTION

When diagnosing the CAN bus lines, the scan tool MB991958 measures the voltage of CAN\_H and CAN\_L line and detects the short to power supply.

## TROUBLE JUDGMENT CONDITIONS

The scan tool MB991958 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 volts.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective (CAN bus lines for a short to the power supply).
- Short to power supply of the connector
- Each ECU may be defective (short to power supply in the ECU)

## DIAGNOSIS

### Required Special Tools:

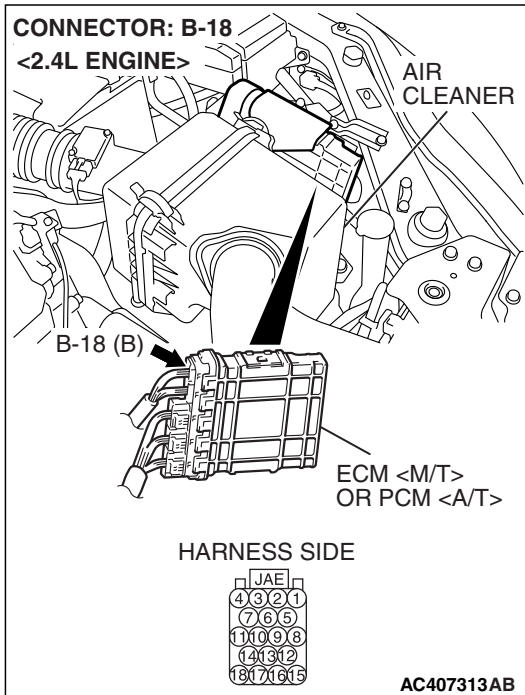
- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A
- MB991923: Power plant ECU Check Harness
- MB991997: ASC Check Harness

**STEP 1. Check the CAN bus lines for a short to the power supply. Measure the voltage at data link connector C-125.**

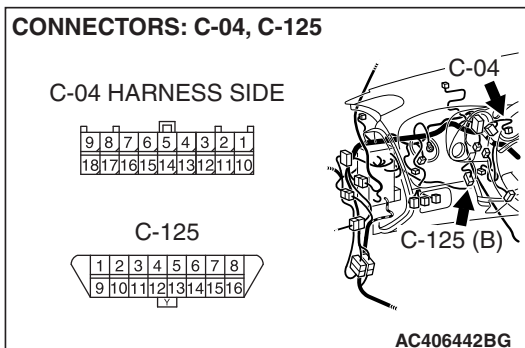
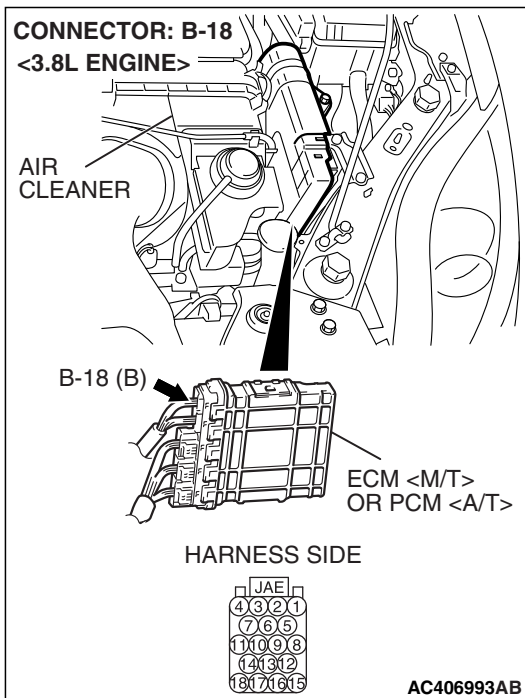
### CAUTION

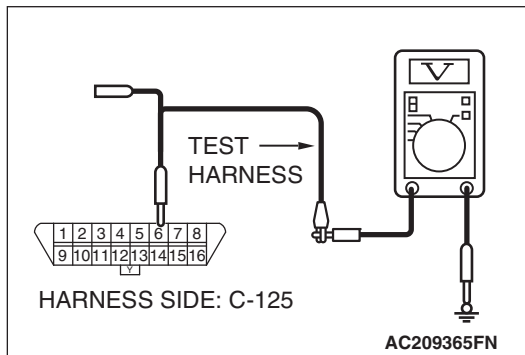
- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

*NOTE: This inspection allows you to check that there is a short to power supply in either CAN\_H line or CAN\_L line.*



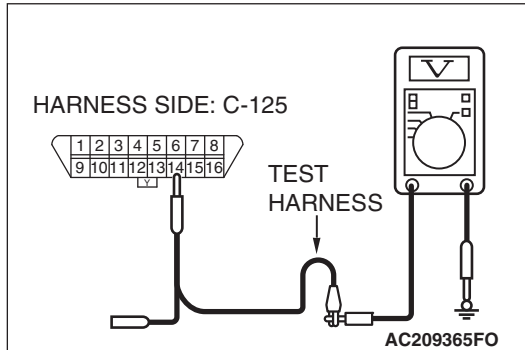
- (1) Disconnect ECM <M/T> or PCM <A/T> connector B-18 and combination meter connector C-04, and measure the voltage at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "ON" position.





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

**OK: 4.0 volts or less**



- (4) Measure the voltage between data link connector terminal 14 (CAN\_L) and body ground.

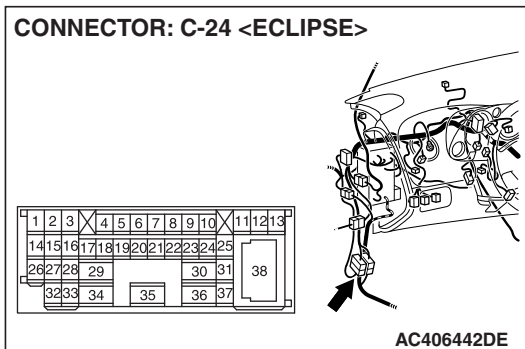
**OK: 4.0 volts or less**

**Q: Is the check result normal?**

**YES** : Go to Step 21.

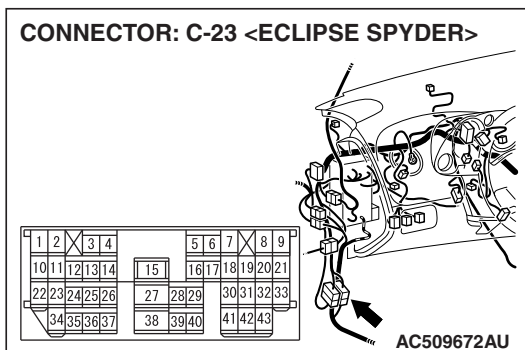
**NO** : Go to Step 2.

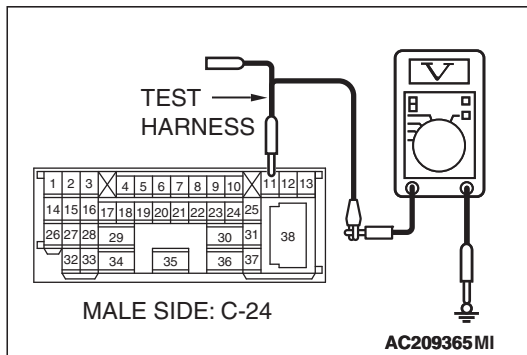
**STEP 2. Check the CAN line of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>.**



- (1) Disconnect intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>, and measure the voltage at the male side (at front wiring harness side <ECLIPSE> or floor wiring harness side <ECLIPSE SPYDER>).

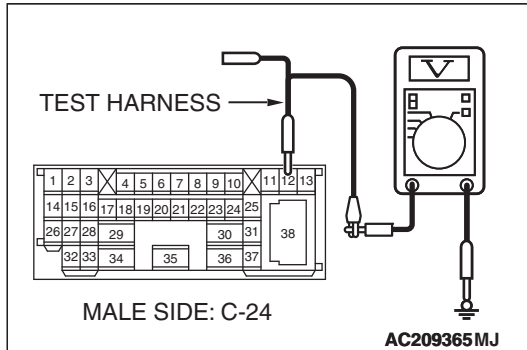
- (2) Turn the ignition switch to the "ON" position.





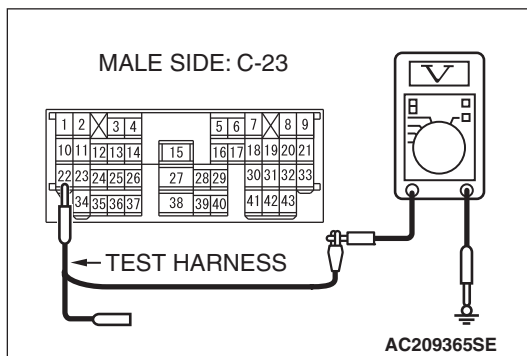
- (3) Measure the voltage between intermediate connector (C-24) terminal 11 (CAN\_H) and body ground. <ECLIPSE>

**OK: 4.0 volts or less**



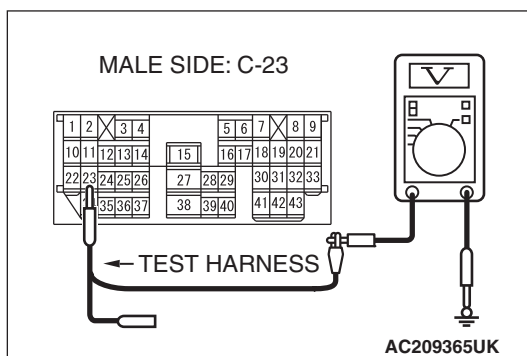
- (4) Measure the voltage between intermediate connector (C-24) terminal 12 (CAN\_L) and body ground. <ECLIPSE>

**OK: 4.0 volts or less**



- (5) Measure the voltage between intermediate connector (C-23) terminal 22 (CAN\_H) and body ground. <ECLIPSE SPYDER>

**OK: 4.0 volts or less**



- (6) Measure the voltage between intermediate connector (C-23) terminal 23 (CAN\_L) and body ground. <ECLIPSE SPYDER>

**OK: 4.0 volts or less**

**Q: Is the check result normal?**

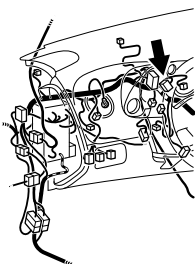
**YES** : Go to Step 3.

**NO <ECLIPSE>** : Go to Step 15.

**NO <ECLIPSE SPYDER>** : Go to Step 16.

## CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

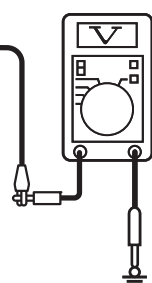


AC406442BE

TEST  
HARNESS

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

HARNESS SIDE: C-03



AC209365MK

**STEP 3. Check the CAN line between joint connector (3) and the combination meter for a short to the power supply. Measure the voltage at joint connector (3) C-03.**

- (1) Disconnect joint connector (3) C-03, and measure the voltage at the wiring harness side of joint connector (3) C-03.
- (2) Turn the ignition switch to the "ON" position.

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

**OK: 4.0 volts or less**

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

**OK: 4.0 volts or less**

**⚠ CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

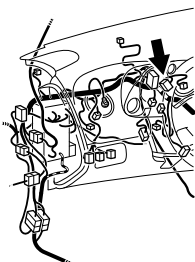
**Q: Is the check result normal?**

**YES :** Go to Step 4.

**NO :** Repair the wiring harness between joint connector (3) and the combination meter connector.

## CONNECTOR: C-03

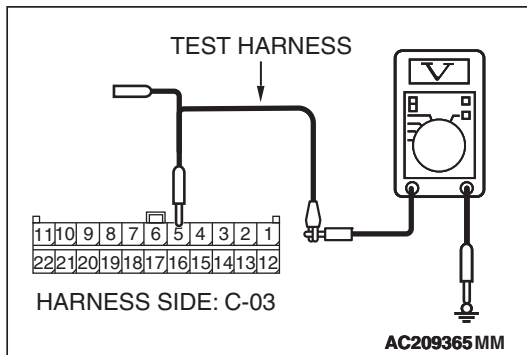
1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



AC406442BE

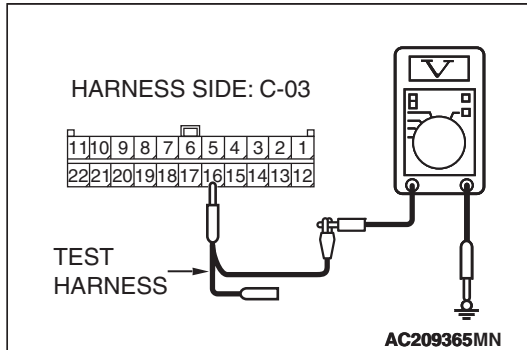
**STEP 4. Check the CAN line between joint connector (3) and the ETACS-ECU for a short to the power supply. Measure the voltage at joint connector (3) C-03.**

- (1) Disconnect joint connector (3) C-03, and measure the voltage at the wiring harness side of joint connector (3) C-03.
- (2) Turn the ignition switch to the "ON" position.



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

**OK: 4.0 volts or less**



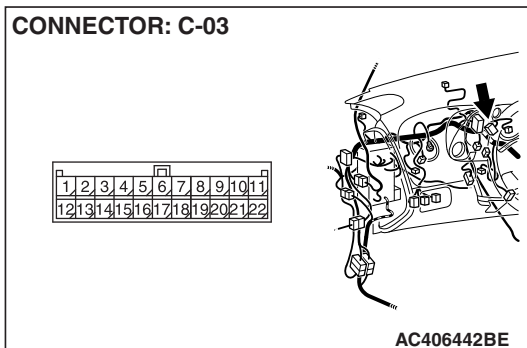
- (4) Measure the voltage between joint connector (3) terminal 16 (CAN\_L) and body ground.

**OK: 4.0 volts or less**

**Q: Is the check result normal?**

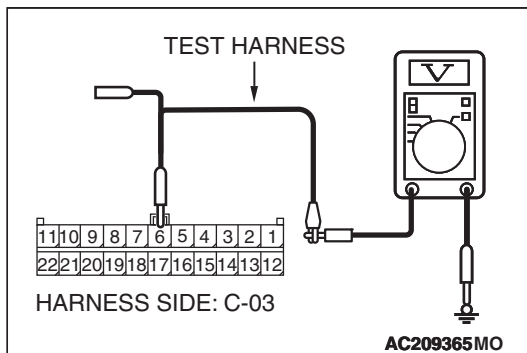
**YES** : Go to Step 5.

**NO** : Go to Step 10.



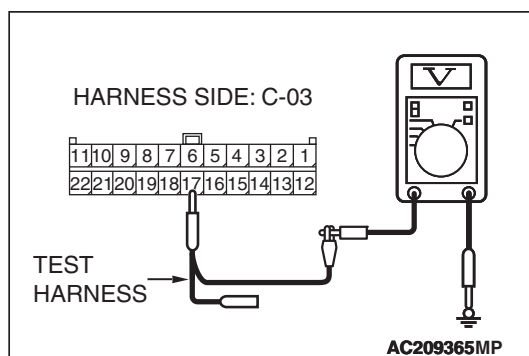
**STEP 5. Check the CAN line between joint connector (3) and the A/C-ECU for a short to the power supply. Measure the voltage at joint connector (3) C-03.**

- (1) Disconnect joint connector (3) C-03, and measure the voltage at the wiring harness side of joint connector (3) C-03.
- (2) Turn the ignition switch to the "ON" position.



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

**OK: 4.0 volts or less**



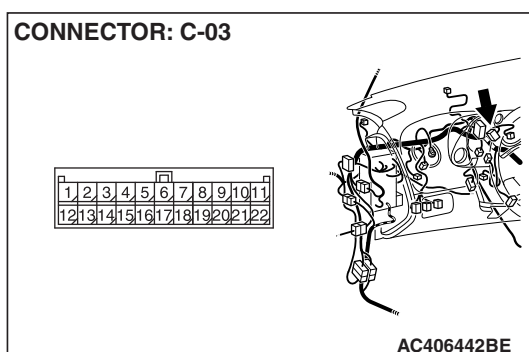
- (4) Measure the voltage between joint connector (3) terminal 17 (CAN\_L) and body ground.

**OK: 4.0 volts or less**

**Q: Is the check result normal?**

**YES :** Go to Step 6.

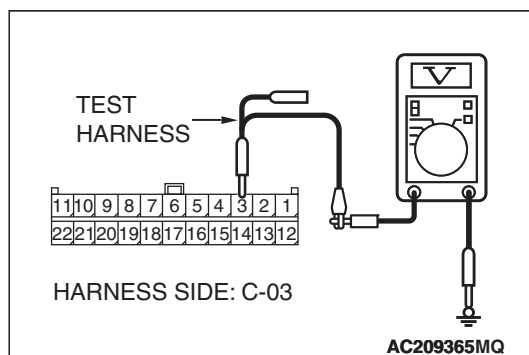
**NO :** Go to Step 11.



**STEP 6. Check the CAN line between joint connector (3) and the SRS-ECU for short to the power supply. Measure the voltage at joint connector (3) C-03.**

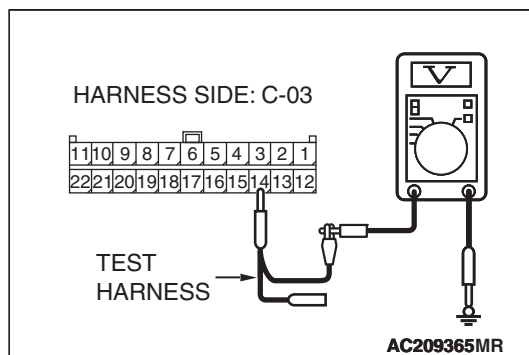
- (1) Disconnect joint connector (3) C-03, and measure the voltage at the wiring harness side of joint connector (3) C-03.

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



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

**OK: 4.0 volts or less**



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

**OK: 4.0 volts or less**

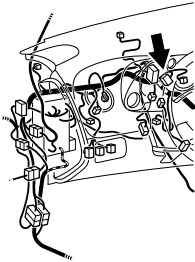
**Q: Is the check result normal?**

**YES :** Go to Step 7.

**NO :** Go to Step 12.

CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



AC406442BE

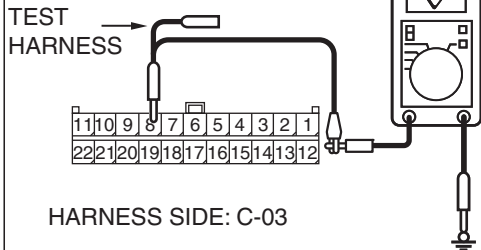
**STEP 7. Check the CAN line between joint connector (3) and the TPMS receiver for short to the power supply. Measure the voltage at joint connector (3) C-03.**

(1) Disconnect joint connector (3) C-03, and measure the voltage at the wiring harness side of joint connector (3) C-03.

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

(3) Measure the voltage between joint connector (3) terminal 8 (CAN\_H) and body ground.

**OK: 4.0 volts or less**



AC209365UI

(4) Measure the voltage between joint connector (3) terminal 19 and body ground.

**OK: 4.0 volts or less**

**Q: Is the check result normal?**

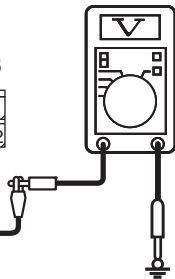
**YES :** Go to Step 8.

**NO :** Go to Step 13.

HARNESS SIDE: C-03

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

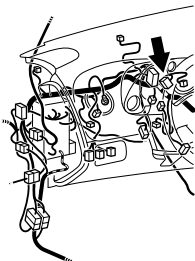
TEST HARNESS



AC209365UJ

CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

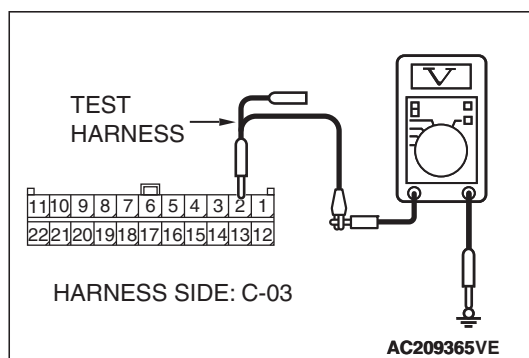


AC406442BE

**STEP 8. Check the CAN line between joint connector (3) and the steering wheel sensor for short to the power supply. Measure the voltage at joint connector (3) C-03.**

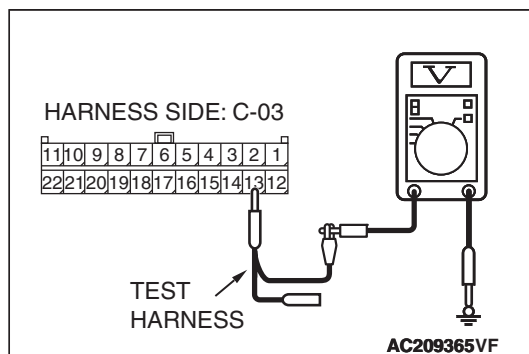
(1) Disconnect joint connector (3) C-03, and measure the voltage at the wiring harness side of joint connector (3) C-03.

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



- (3) Measure the voltage between joint connector (3) terminal 2 (CAN\_H) and body ground.

**OK: 4.0 volts or less**



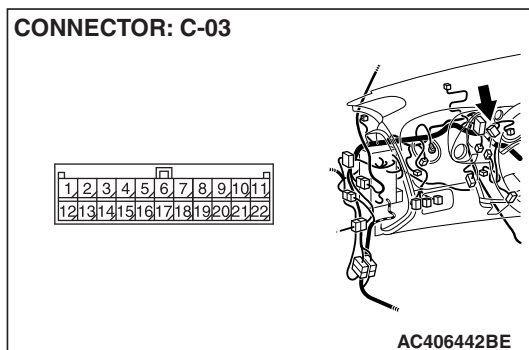
- (4) Measure the voltage between joint connector (3) terminal 13 and body ground.

**OK: 4.0 volts or less**

**Q: Is the check result normal?**

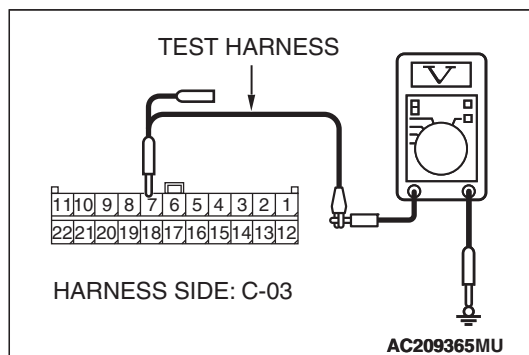
**YES** : Go to Step 9.

**NO** : Go to Step 14.



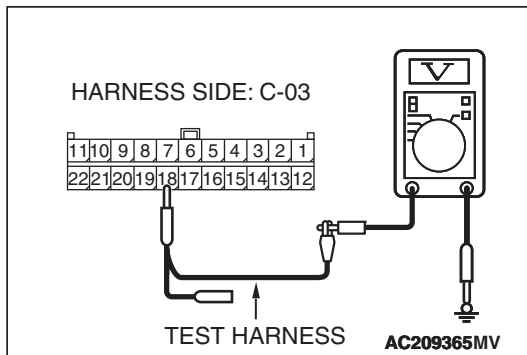
**STEP 9. Check the CAN line between joint connector (3) and the data link connector for a short to the power supply. Measure the voltage at joint connector (3) C-03.**

- (1) Disconnect joint connector (3) C-03, and measure the voltage at the wiring harness side of joint connector (3) C-03.
- (2) Turn the ignition switch to the "ON" position.



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

**OK: 1.0 volt or less**



- (4) Measure the voltage between joint connector (3) terminal 18 (CAN\_L) and body ground.

**OK: 1.0 volt or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Is the check result normal?**

**YES :** Repair the wiring harness between joint connector (3) and the intermediate connector, or the intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>.

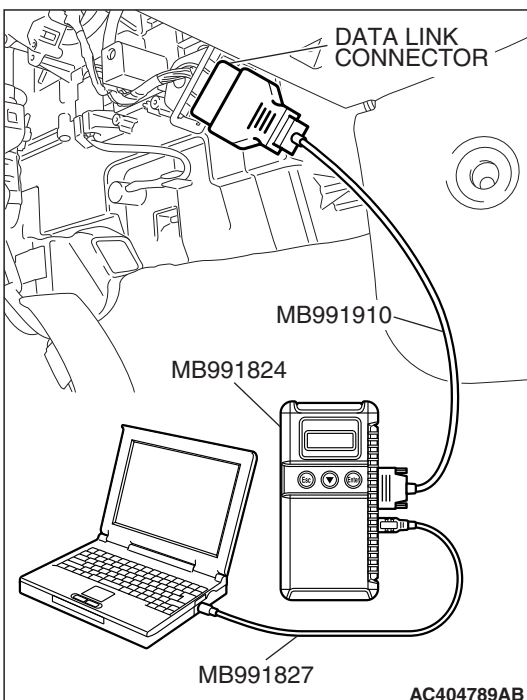
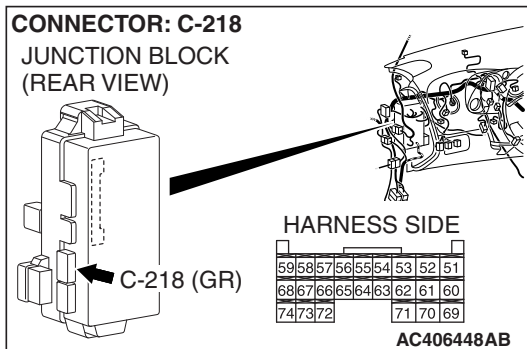
**NO :** Repair the wiring harness between joint connector (3) and the data link connector, or the data link connector.

**STEP 10. Check the ETACS-ECU for a short to the power supply.**

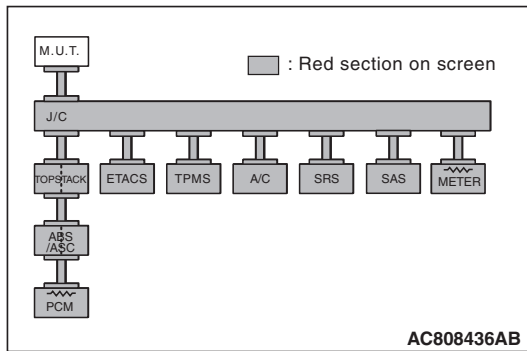
- (1) Disconnect ETACS-ECU connector C-218.

**CAUTION**

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



- (2) Connect scan tool MB991958 to the data link connector.

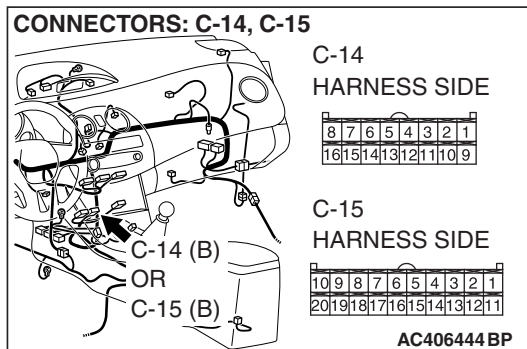


(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

**NO :** Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU. When the ETACS-ECU is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

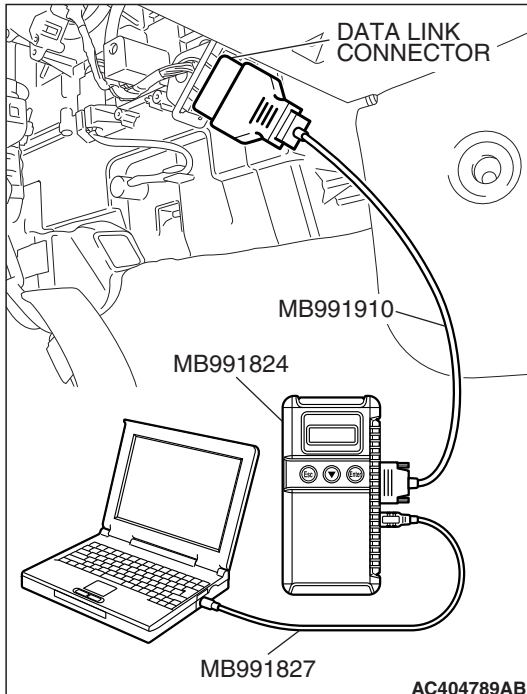


**STEP 11. Check the A/C-ECU for a short to the power supply.**

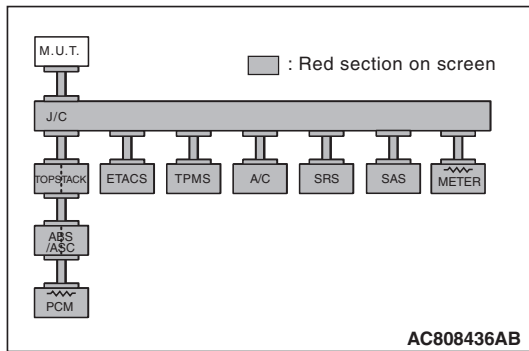
(1) Disconnect A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>.

**CAUTION**

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



(2) Connect scan tool MB991958 to the data link connector.

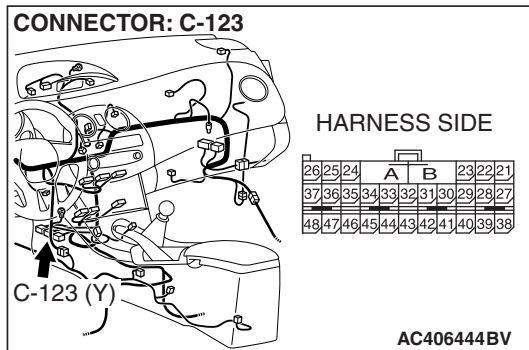


(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) and the A/C-ECU connector.

**NO :** Check the A/C-ECU connector, and repair if necessary. If the A/C-ECU connector is in good condition, replace the A/C-ECU.

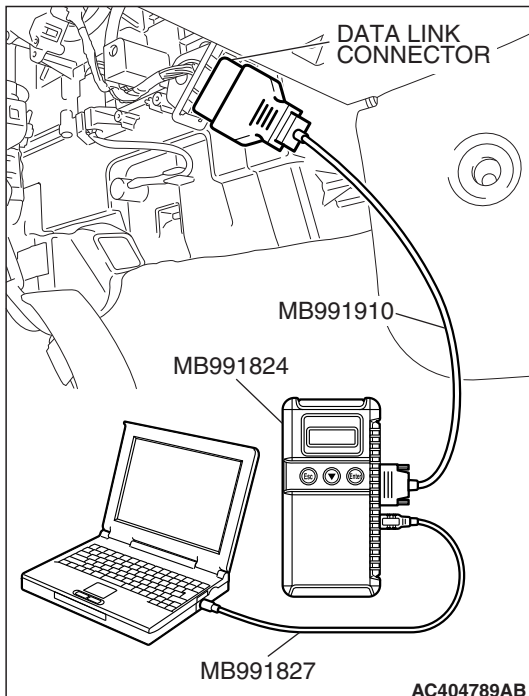


**STEP 12. Check the SRS-ECU for a short to the power supply.**

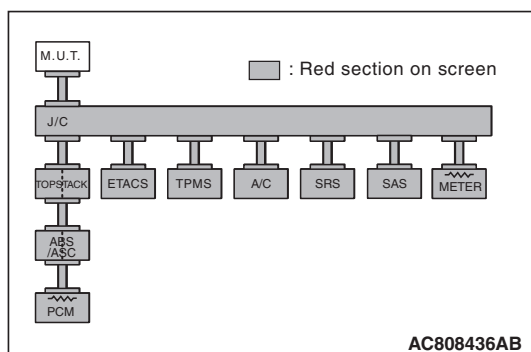
(1) Disconnect SRS-ECU connector C-123.

**CAUTION**

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



(2) Connect scan tool MB991958 to the data link connector.



(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) and the SRS-ECU connector.

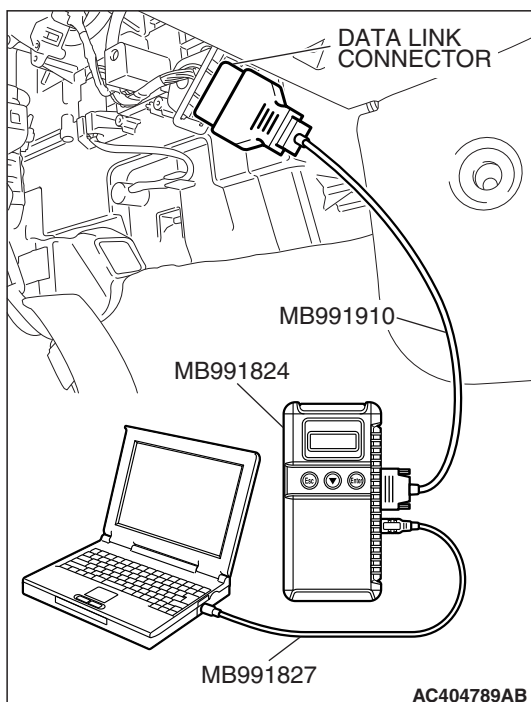
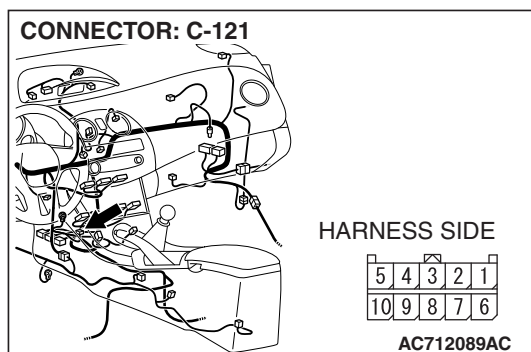
**NO :** Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, refer to GROUP 52B, Supplemental restraint system – Symptom procedures , Power supply circuit system [P.52B-393](#).

**STEP 13. Check the TPMS receiver for a short to the power supply.**

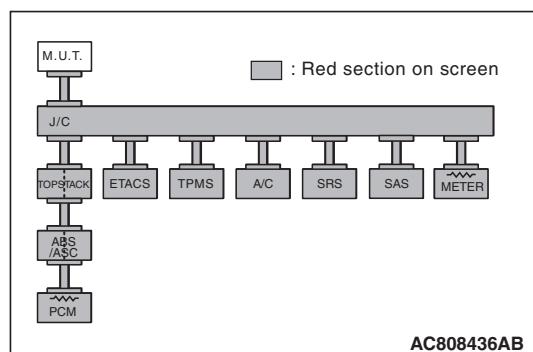
(1) Disconnect TPMS receiver connector C-121.

**CAUTION**

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



(2) Connect scan tool MB991958 to the data link connector.



(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) and the TPMS receiver connector.

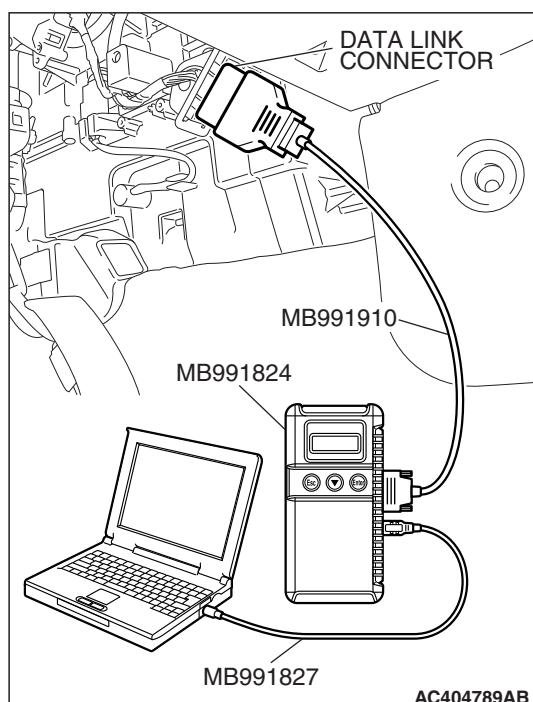
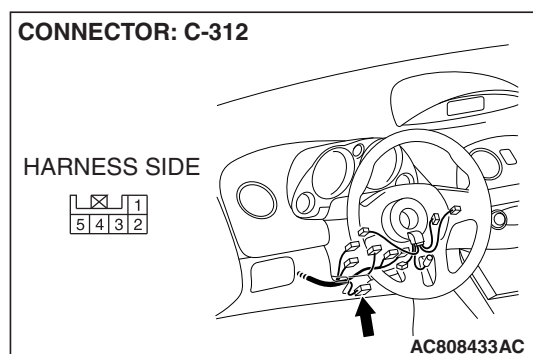
**NO :** Check the TPMS receiver connector, and repair if necessary. If the TPMS receiver connector is in good condition, refer to GROUP 31, TPMS Diagnosis – Symptom procedures, Communication between the scan tool and the TPMS is not possible [P.31-45](#).

#### STEP 14. Check the steering wheel sensor for a short to the power supply.

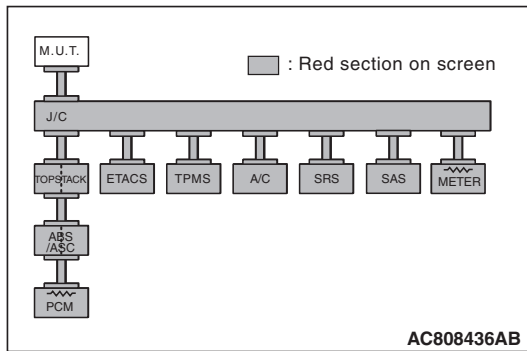
(1) Disconnect steering wheel sensor connector C-312.

#### ⚠ CAUTION

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



(2) Connect scan tool MB991958 to the data link connector.



- (3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

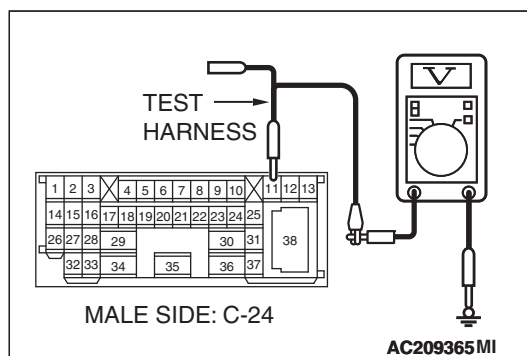
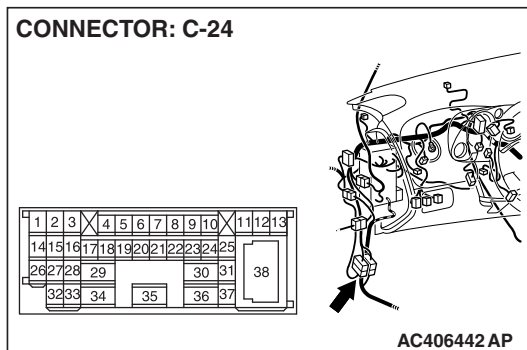
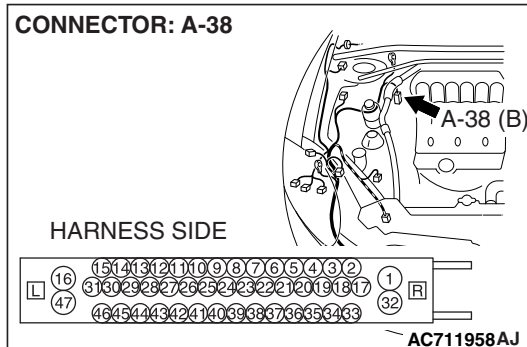
**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) 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, refer to GROUP 35C, TCL/ASC Diagnosis – Symptom procedures, Steering wheel sensor power supply circuit system [P.35C-194](#).

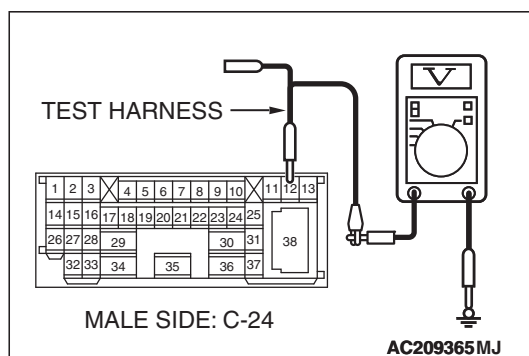
**STEP 15. Check the CAN line between intermediate connector C-24 and TCL/ASC-ECU connector A-38 for a short to the power supply. Measure the voltage at intermediate connector C-24.**

- (1) Disconnect intermediate connector C-24 and TCL/ASC-ECU connector A-38, and measure the voltage at the male side of intermediate connector C-24 (at front wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



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

**OK: 1.0 volt or less**



- (4) Measure the voltage between intermediate connector terminal 12 (CAN\_L) and body ground.

**OK: 1.0 volt or less**

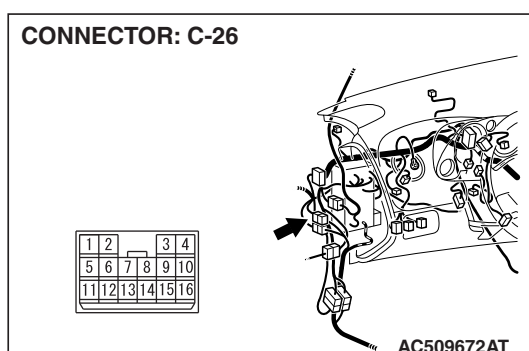
**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Is the check result normal?**

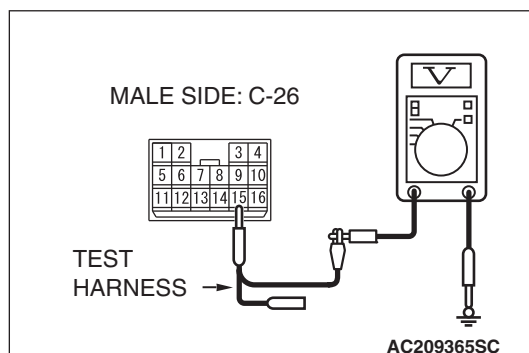
**YES :** Go to Step 19.

**NO :** Repair the wiring harness.



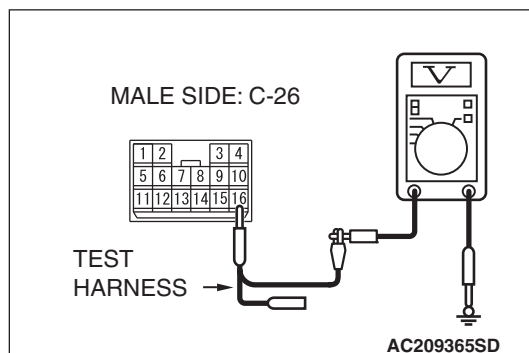
**STEP 16. Check the CAN line of the front wiring harness for a short to the power supply. Measure the voltage at intermediate connector C-26.**

- (1) Disconnect intermediate connector C-26, and measure the voltage at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between intermediate connector terminal 15 (CAN\_H) and body ground.

**OK: 4.0 volts or less**



- (4) Measure the voltage between intermediate connector terminal 16 (CAN\_L) and body ground.

**OK: 4.0 volts or less**

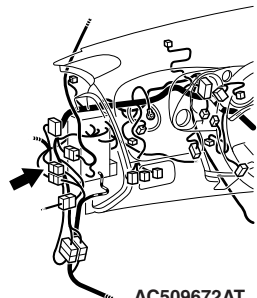
**Q: Is the check result normal?**

**YES :** Go to Step 19.

**NO :** Go to Step 17.

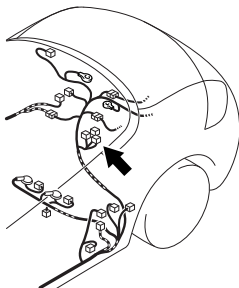
## CONNECTOR: C-26

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16



AC509672AT

## CONNECTOR: D-45



HARNESS SIDE

41	40	39	38	37	36	35	34	33	32	31
52	51	50	49	48	47	46	45	44	43	42

AC509379AP

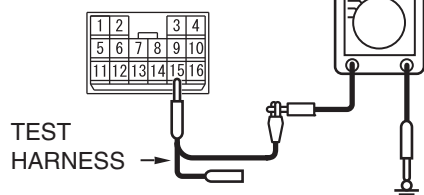
**STEP 17. Check the CAN line between intermediate connector C-26 and convertible top control module connector D-45 for a short to the power supply. Measure the voltage at intermediate connector C-26.**

- (1) Disconnect intermediate connector C-26 and convertible top control module connector D-45, and measure the voltage at the male side of intermediate connector C-26 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between intermediate connector terminal 15 (CAN\_H) and body ground.

**OK: 1.0 volt or less**

## MALE SIDE: C-26

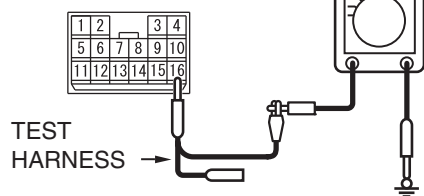


AC209365SC

- (4) Measure the voltage between intermediate connector terminal 16 (CAN\_L) and body ground.

**OK: 1.0 volt or less**

## MALE SIDE: C-26



AC209365SD

**CAUTION**

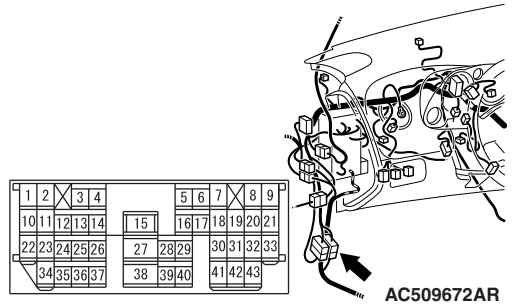
Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Is the check result normal?**

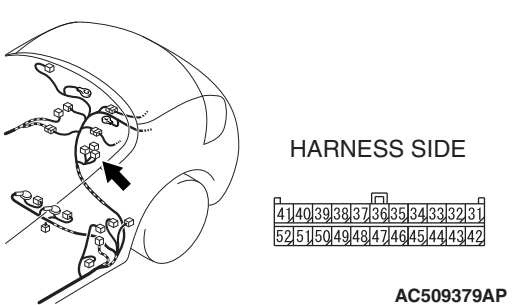
**YES :** Go to Step 18.

**NO :** Repair the wiring harness.

CONNECTOR: C-23



CONNECTOR: D-45

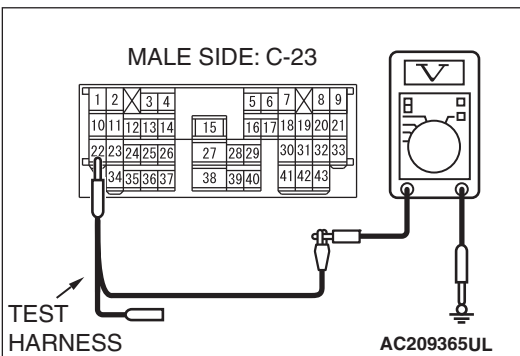


**STEP 18. Check the CAN line between intermediate connector C-23 and convertible top control module connector D-45 for a short to the power supply. Measure the voltage at intermediate connector C-23.**

- (1) Disconnect intermediate connector C-23 and convertible top control module connector D-45, and measure the voltage at the male side of intermediate connector C-23 (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.

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

**OK: 1.0 volt or less**



- (4) Measure the voltage between intermediate connector terminal 23 (CAN\_L) and body ground.

**OK: 1.0 volt or less**

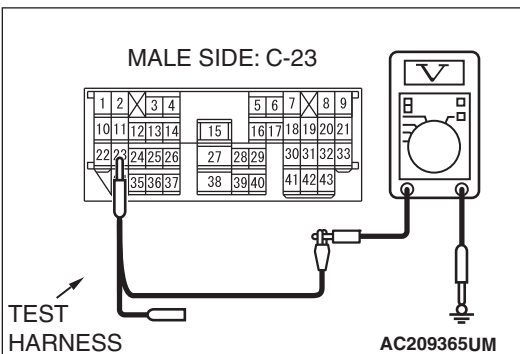
**CAUTION**

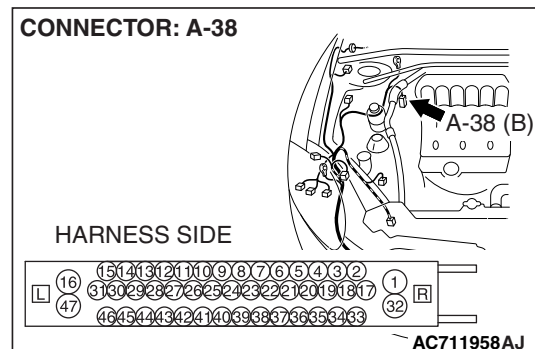
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-9.

**Q: Is the check result normal?**

**YES :** Check the convertible top control module connector D-45, and repair if necessary. If the convertible top control module connector D-45 is in good condition, replace the convertible top control module.

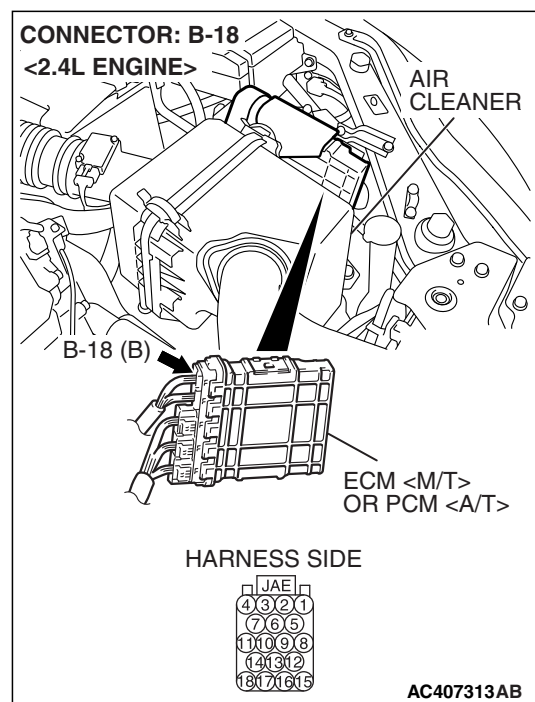
**NO :** Repair the wiring harness.

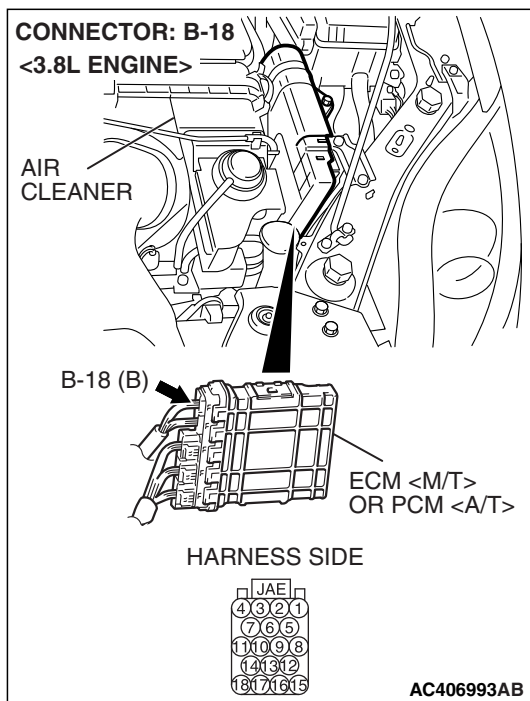




**STEP 19.** Check the CAN line between the ECM <M/T> or PCM <A/T> connector B-18 and TCL/ASC-ECU connector A-38 for a short to the power supply. Measure voltage at ECM <M/T> or PCM <A/T> connector B-18.

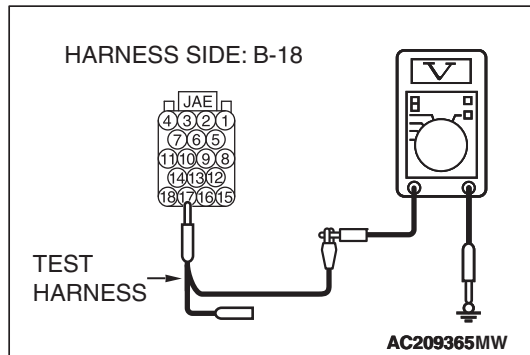
- (1) Disconnect ECM <M/T> or PCM <A/T> connector B-18 and TCL/ASC-ECU connector A-38, and measure the voltage at the harness side of ECM <M/T> or PCM <A/T> connector B-18.





- (2) Turn the ignition switch to the "ON" position.  
(3) Measure the voltage between ECM <M/T> or PCM <A/T> connector terminal 17 (CAN\_H) and body ground.

**OK: 1.0 volt or less**



- (4) Measure the voltage between ECM <M/T> or PCM <A/T> connector terminal 18 (CAN\_L) and body ground.

**OK: 1.0 volt or less**

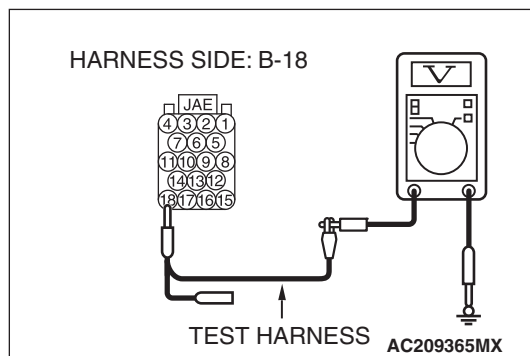
**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Is the check result normal?**

**YES** : Go to Step 20.

**NO** : Repair the wiring harness between ECM <M/T> or PCM <A/T> connector and TCL/ASC-ECU connector.



**STEP 20. Retest the system.****⚠ CAUTION**

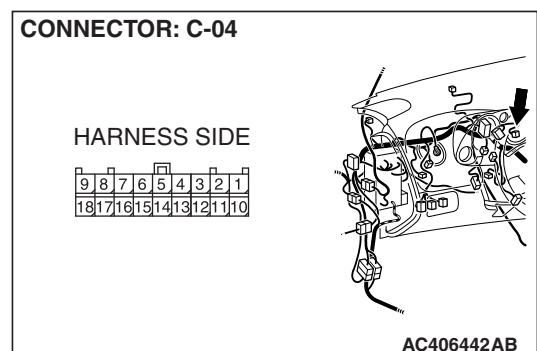
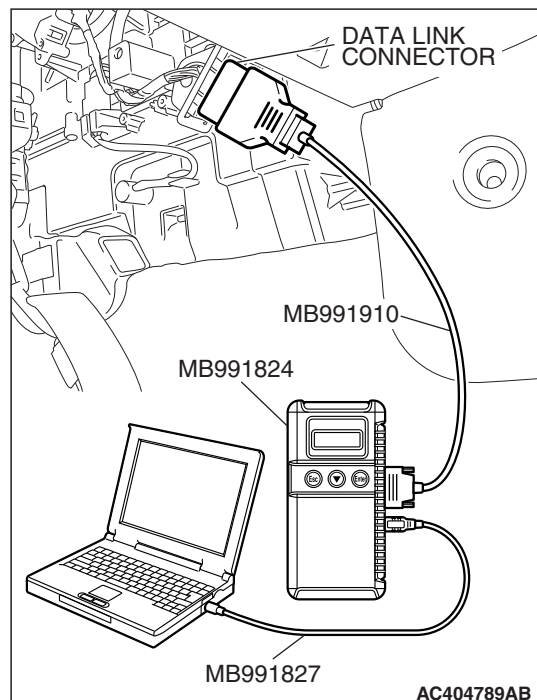
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Diagnose CAN bus lines, and check if scan tool MB991958 screen shows normal state.

**Q: Is the check result normal?**

**YES :** Intermittent malfunction.

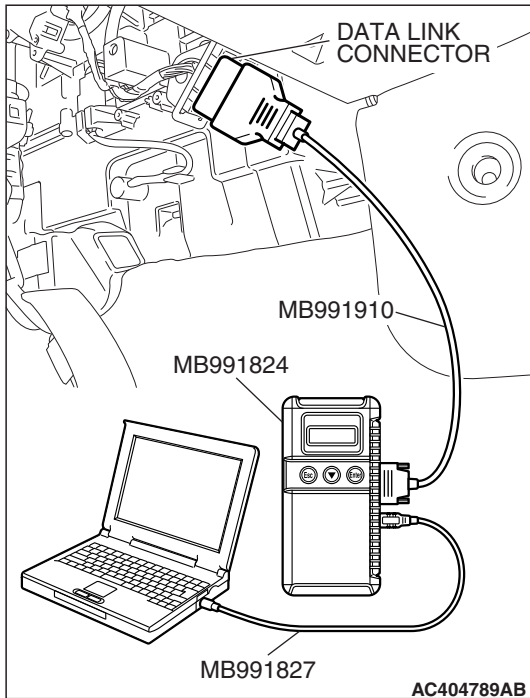
**NO :** Check the TCL/ASC-ECU connector, and repair if necessary. If the TCL/ASC-ECU connector is in good condition, refer to GROUP 35C, TCL/ASC Diagnosis – Symptom procedures, TCL/ASC-ECU power supply circuit system [P.35C-187](#).

**STEP 21. Check the combination meter for a short to the power supply.**

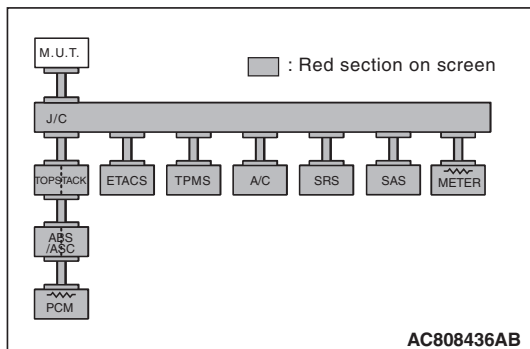
- (1) Disconnect combination meter connector C-04.

**⚠ CAUTION**

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



(2) Connect scan tool MB991958 to the data link connector.

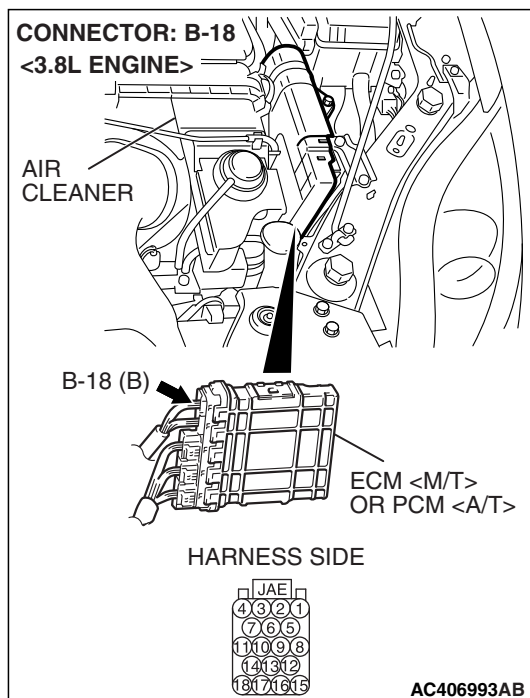
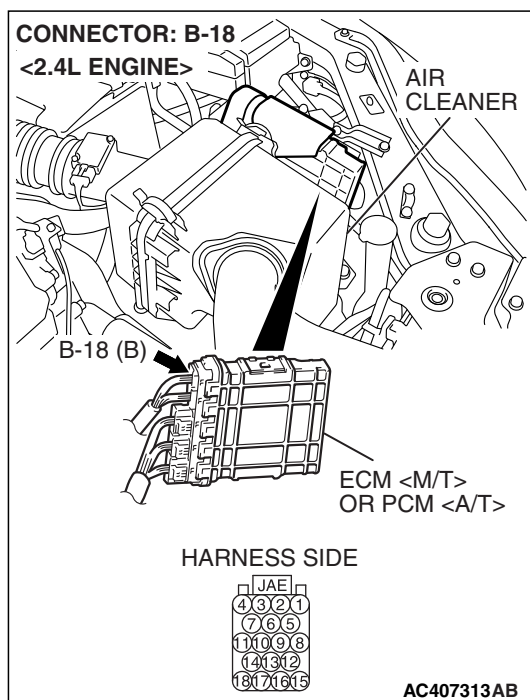


(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Go to Step 22.

**NO :** Go to Step 23.

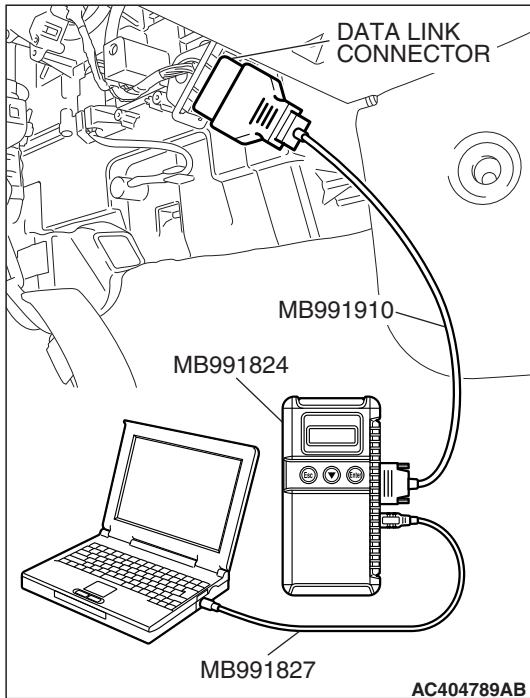


**STEP 22. Check the ECM <M/T> or PCM <A/T> connector for a short to the power supply.**

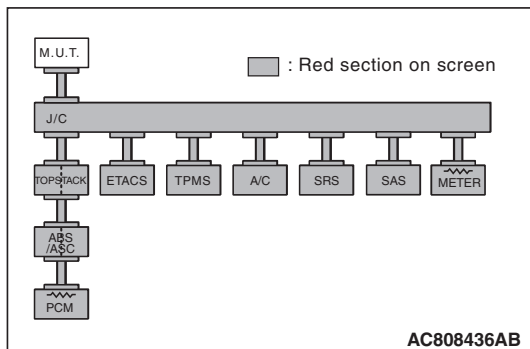
(1) Disconnect ECM <M/T> or PCM <A/T> connector B-18.

**⚠ CAUTION**

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



(2) Connect scan tool MB991958 to the data link connector.



(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Return to Step 1.

**NO :** Go to Step 24.

**STEP 23. Retest the system.****⚠ CAUTION**

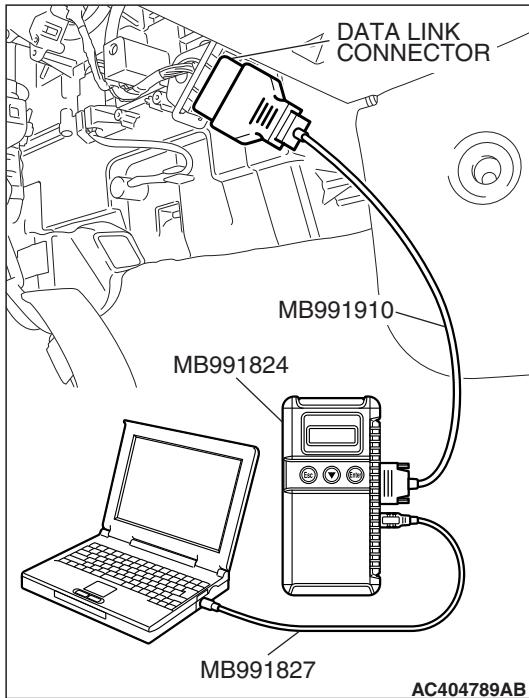
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Diagnose CAN bus lines, and check if scan tool MB991958 screen shows normal state.

**Q: Is the check result normal?**

**YES :** Intermittent malfunction.

**NO :** Check the combination meter connector, and repair if necessary. If the combination meter connector is in good condition, refer to GROUP 54A, Combination Meter Diagnosis – Symptom procedures, Power supply circuit [P.54A-107](#).

**STEP 24. Retest the system.****⚠ CAUTION**

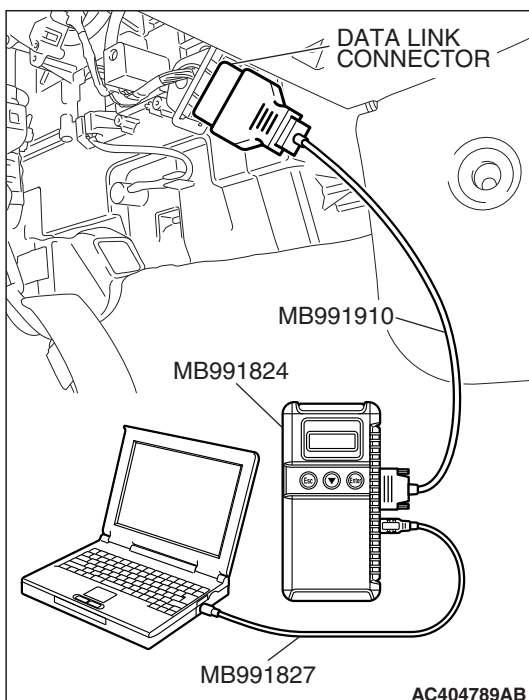
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Diagnose CAN bus lines, and check if scan tool MB991958 screen shows normal state.

**Q: Is the check result normal?**

**YES :** Intermittent malfunction.

**NO :** Check the ECM <M/T> or PCM <A/T> connector, and repair if necessary. If the ECM <M/T> or PCM <A/T> connector is in good condition, replace the ECM <M/T> or PCM <A/T>. When the ECM <M/T> or PCM <A/T> is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

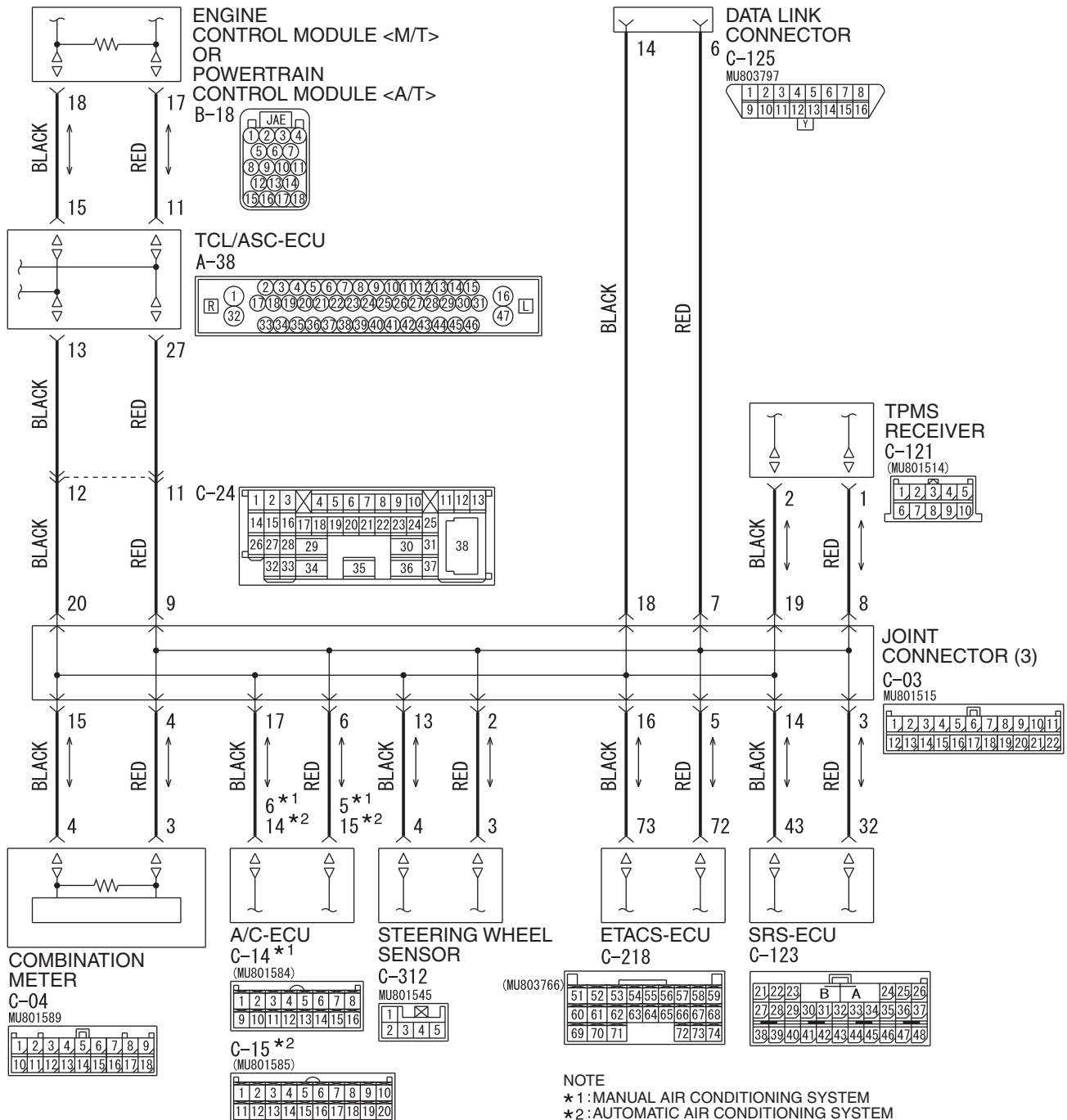


DIAGNOSTIC ITEM 2: Diagnose shorts in the ground to CAN bus line

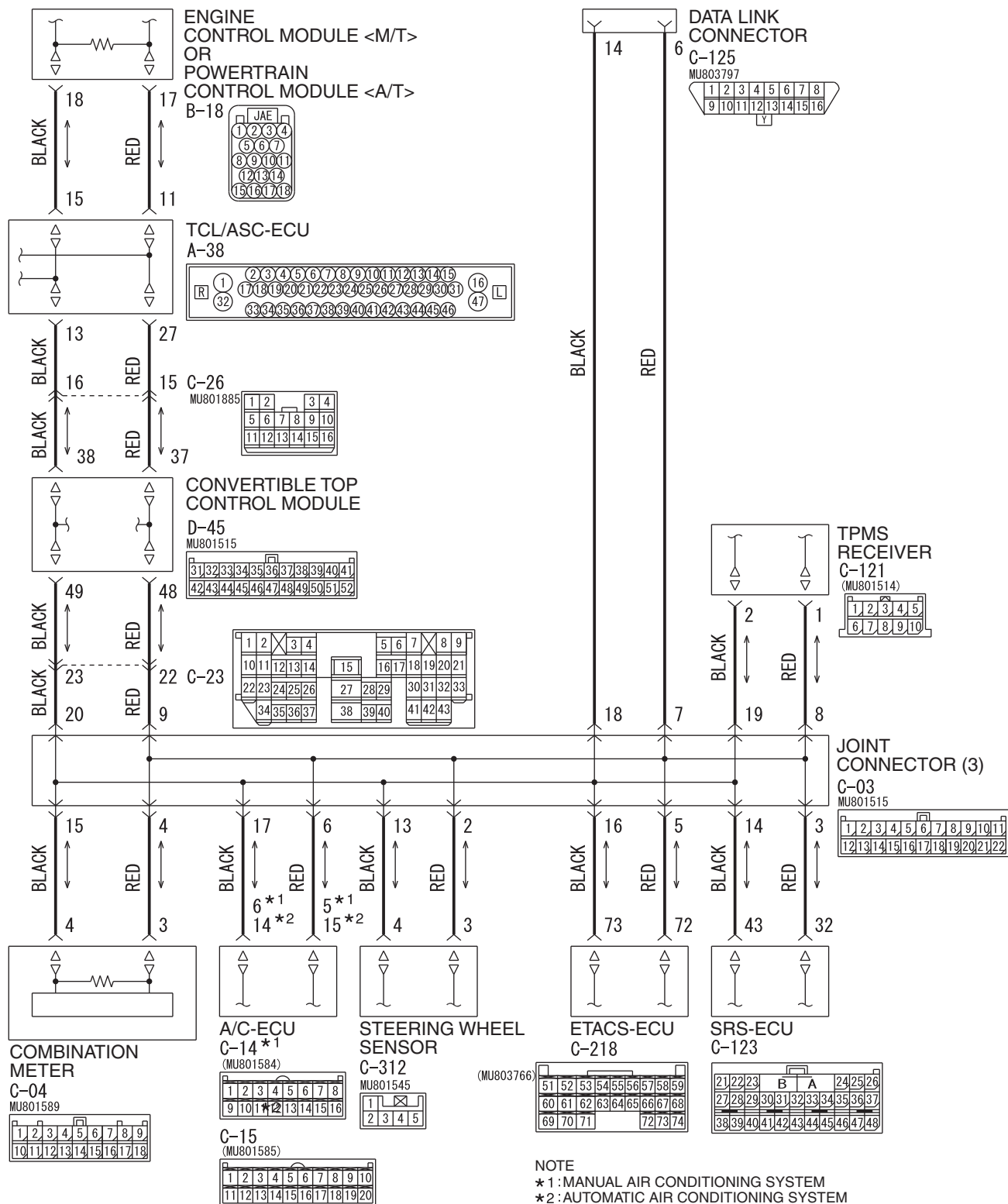
**CAUTION**

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

<ECLIPSE>

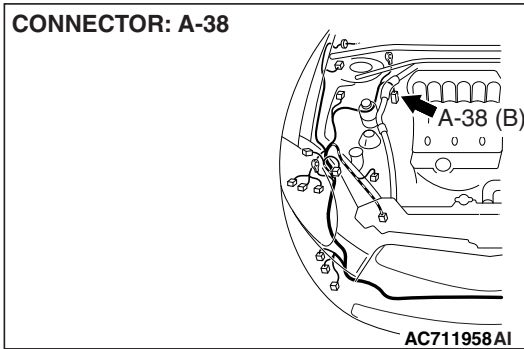


## &lt;ECLIPSE SPYDER&gt;



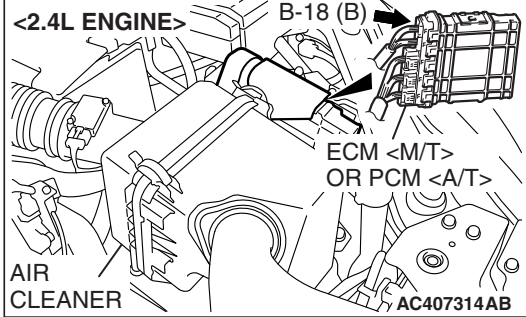
WAP54M001A

CONNECTOR: A-38



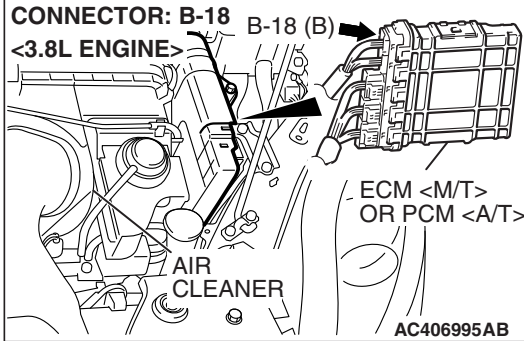
CONNECTOR: B-18

<2.4L ENGINE>

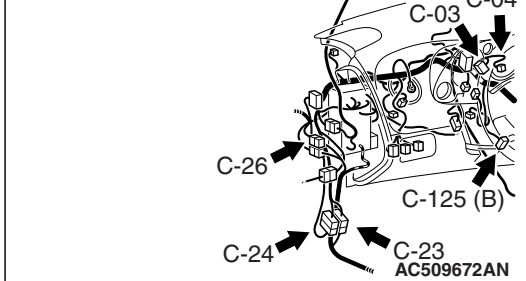


CONNECTOR: B-18

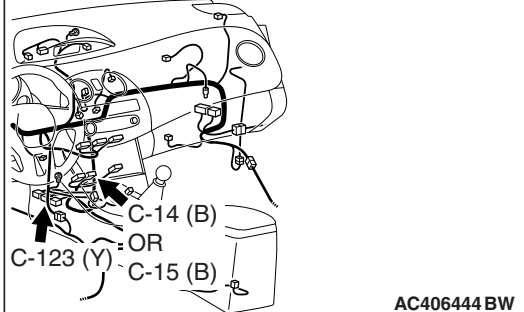
<3.8L ENGINE>



CONNECTORS: C-03, C-04, C-23, C-24,  
C-26, C-125

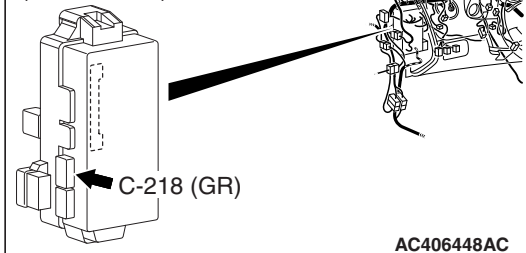


CONNECTORS: C-14, C-15, C-123



CONNECTOR: C-218

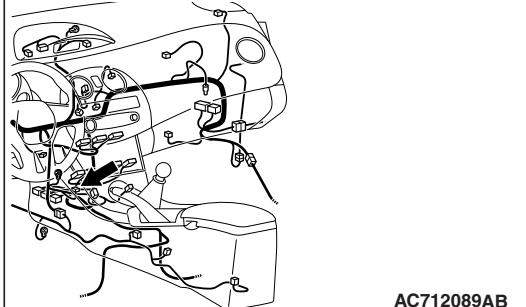
JUNCTION BLOCK  
(REAR VIEW)



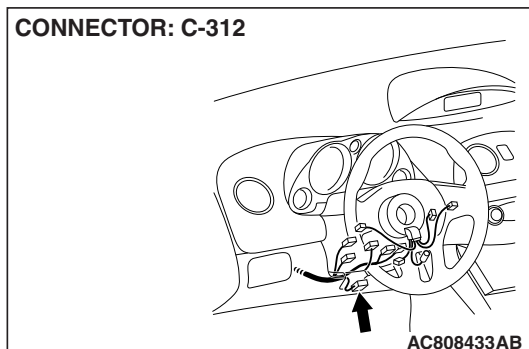
CONNECTOR: D-45 <ECLIPSE SPYDER>



CONNECTOR: C-121



CONNECTOR: C-312



## FUNCTION

When diagnosing the CAN bus lines, the scan tool MB991958 measures the voltage of CAN\_H and CAN\_L line and detects the short to ground.

## TROUBLE JUDGMENT CONDITIONS

The scan tool MB991958 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 volt.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective (CAN bus lines for short to ground)
- The connectors may be defective (short to ground in the connector)
- Each ECU may be defective (short to ground in the ECU)

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A
- MB991923: Power plant ECU Check Harness
- MB991997: ASC Check Harness

**STEP 1. Check the CAN bus lines for short to ground.**  
**Measure the resistance at data link connector C-125.**

### CAUTION

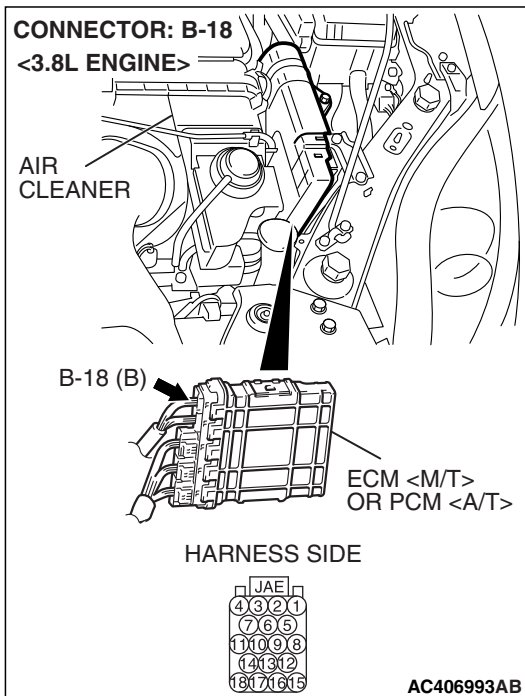
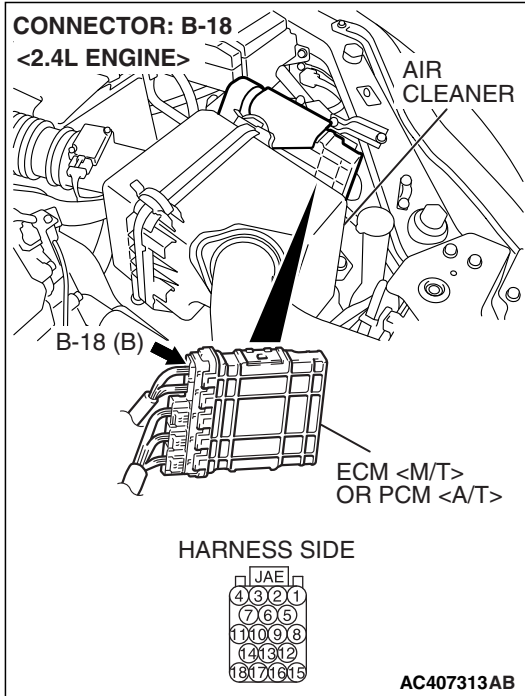
- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

*NOTE: This inspection allows you to check that there is a short to ground in either CAN\_H line or CAN\_L line.*

**CAUTION**

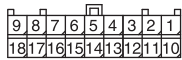
Disconnect the negative battery terminal. For details refer to [P.54C-8](#).

(1) Disconnect the negative battery terminal.

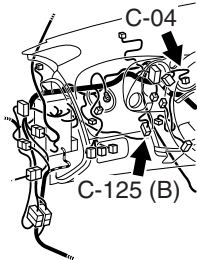
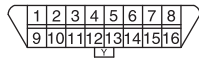


## CONNECTORS: C-04, C-125

## C-04 HARNESS SIDE

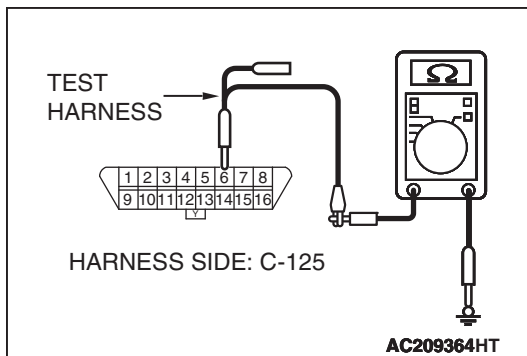


## C-125

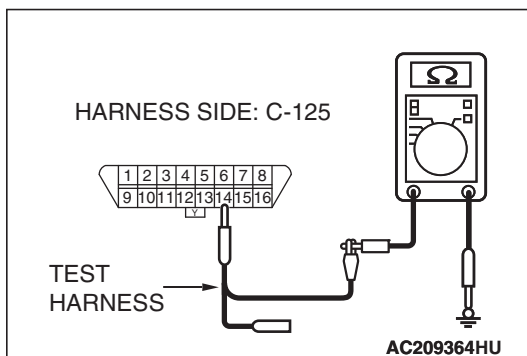


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- (2) Disconnect ECM <M/T> or PCM <A/T> connector B-18 and combination meter connector C-04, and measure the resistance at the harness side of data link connector C-125.
- (3) Measure the resistance between data link connector terminal 6 (CAN\_H) and body ground.

**OK: 1 k $\Omega$  or more**

- (4) Measure the resistance between data link connector terminal 14 (CAN\_L) and body ground.

**OK: 1 k $\Omega$  or more****Q: Is the check result normal?****YES :** Go to Step 21.**NO :** Go to Step 2.

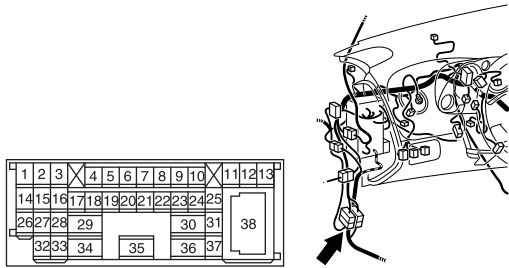
**STEP 2. Check the CAN bus line of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>.**

**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to P.54C-8.**

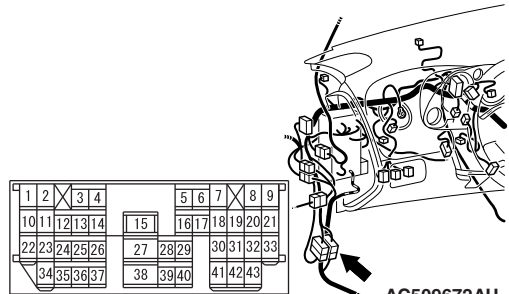
- (1) Disconnect the negative battery terminal.
- (2) Disconnect intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>, and measure the voltage at the male side (at front wiring harness side <ECLIPSE> or floor wiring harness side <ECLIPSE SPYDER>).

**CONNECTOR: C-24 <ECLIPSE>**



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**CONNECTOR: C-23 <ECLIPSE SPYDER>**

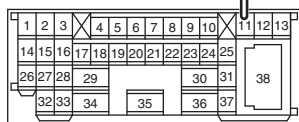


AC509672AU

- (3) Measure the resistance between intermediate connector (C-24) terminal 11 (CAN\_H) and body ground. <ECLIPSE>

**OK: 1 k $\Omega$  or more**

TEST  
HARNESS



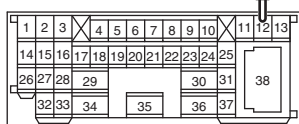
MALE SIDE: C-24

AC209364NM

- (4) Measure the resistance between intermediate connector (C-24) terminal 12 (CAN\_L) and body ground. <ECLIPSE>

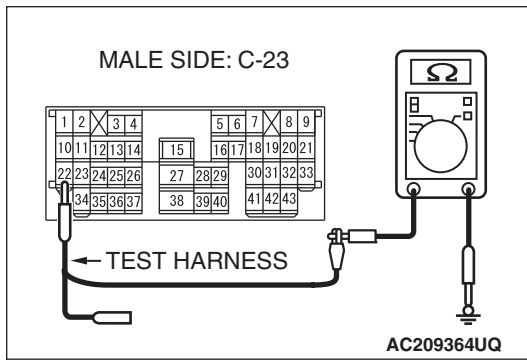
**OK: 1 k $\Omega$  or more**

TEST  
HARNESS



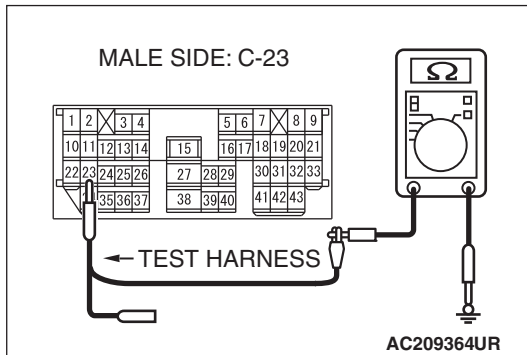
MALE SIDE: C-24

AC209364NN



- (5) Measure the resistance between intermediate connector (C-23) terminal 22 (CAN\_H) and body ground. <ECLIPSE SPYDER>

**OK: 1 k $\Omega$  or more**



- (6) Measure the resistance between intermediate connector (C-23) terminal 23 (CAN\_L) and body ground. <ECLIPSE SPYDER>

**OK: 1 k $\Omega$  or more**

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO <ECLIPSE>** : Go to Step 15.

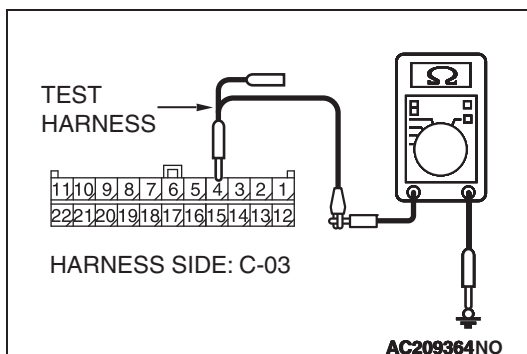
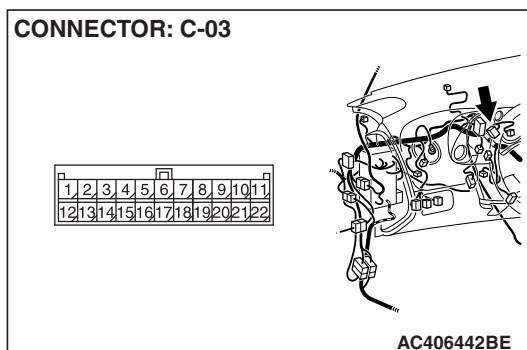
**NO <ECLIPSE SPYDER>** : Go to Step 16.

**STEP 3. Check the CAN line between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-03.**

**⚠ CAUTION**

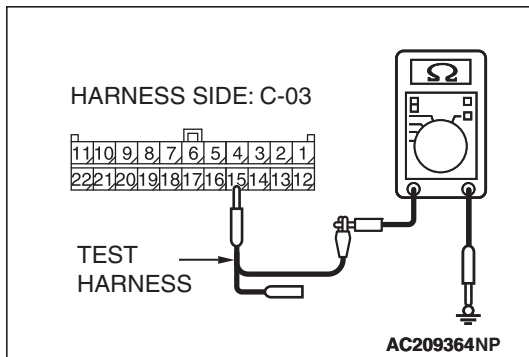
**Disconnect the negative battery terminal. For details refer to P.54C-8.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.



- (3) Measure the resistance between joint connector (3) terminal 4 (CAN\_H) and body ground.

**OK: 1 k $\Omega$  or more**



- (4) Measure the resistance between joint connector (3) terminal 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-9](#).

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Repair the wiring harness between joint connector (3) and the combination meter connector.

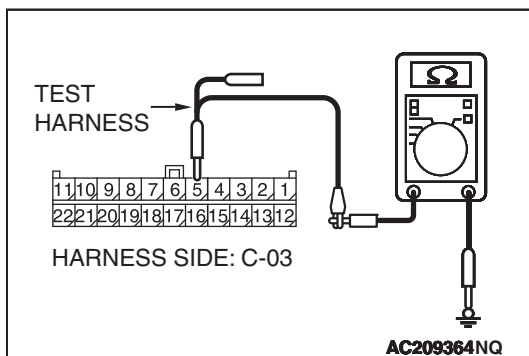
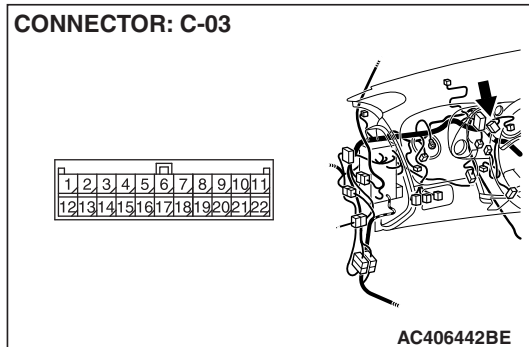
**STEP 4. Check the CAN line between joint connector (3) and the ETACS-ECU for short to ground. Measure the resistance at joint connector (3) C-03.**

**CAUTION**

Disconnect the negative battery terminal. For details refer to [P.54C-8](#).

- (1) Disconnect the negative battery terminal.

- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.



- (3) Measure the resistance between joint connector (3) terminal 5 (CAN\_H) and body ground.

**OK: 1 kΩ or more**

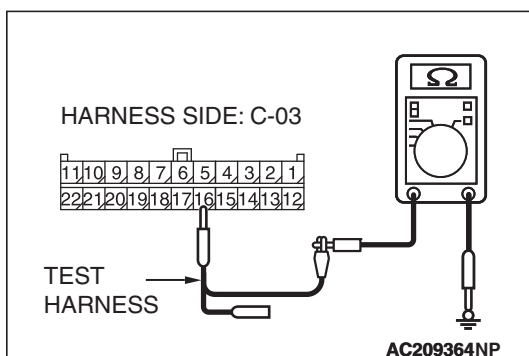
- (4) Measure the resistance between joint connector (3) terminal 16 (CAN\_L) and body ground.

**OK: 1 kΩ or more**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Go to Step 10.



**STEP 5. Check the CAN line between joint connector (3) and the A/C-ECU for short to ground. Measure the resistance at joint connector (3) C-03.**

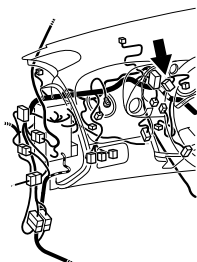
**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to P.54C-8.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

**CONNECTOR: C-03**

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

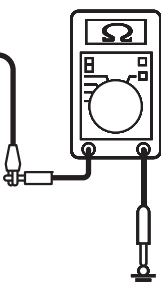


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**TEST HARNESS**

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

**HARNESS SIDE: C-03**



AC209364NS

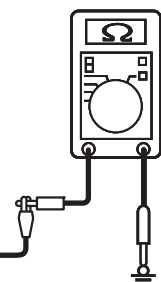
- (3) Measure the resistance between joint connector (3) terminal 6 (CAN\_H) and body ground.

**OK: 1 kΩ or more**

**HARNESS SIDE: C-03**

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

**TEST HARNESS**



AC209364NT

- (4) Measure the resistance between joint connector (3) terminal 17 (CAN\_L) and body ground.

**OK: 1 kΩ or more**

**Q: Is the check result normal?**

**YES :** Go to Step 6.

**NO :** Go to Step 11.

**STEP 6. Check the CAN line between joint connector (3) and the SRS-ECU for short to ground. Measure the resistance at joint connector (3) C-03.**

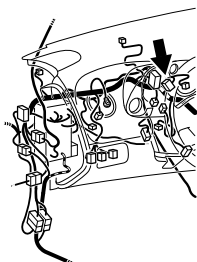
**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to P.54C-8.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

**CONNECTOR: C-03**

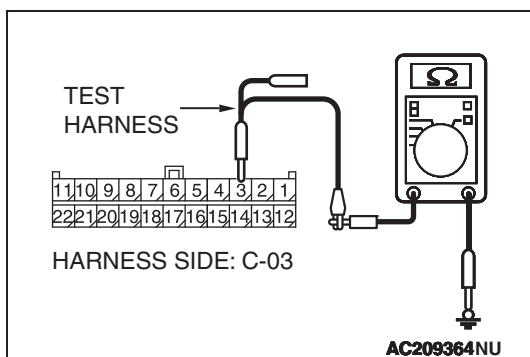
1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



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

**OK: 1 kΩ or more**



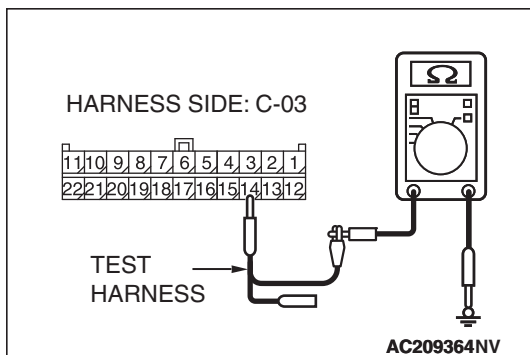
- (4) Measure the resistance between joint connector (3) terminal 14 and body ground.

**OK: 1 kΩ or more**

**Q: Does the resistance measure 1 kΩ or more?**

**YES :** Go to Step 7.

**NO :** Go to Step 12.



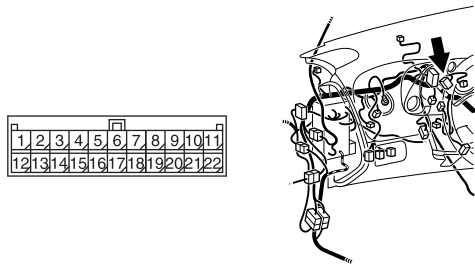
**STEP 7. Check the CAN line between joint connector (3) and the TPMS receiver for short to ground. Measure the resistance at joint connector (3) C-03.**

**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to P.54C-8.**

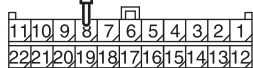
- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

**CONNECTOR: C-03**

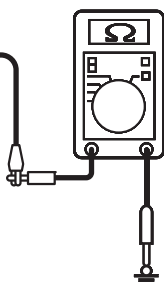


AC406442BE

**TEST HARNESS**



**HARNESS SIDE: C-03**

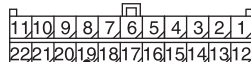


AC209364YF

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

**OK: 1 kΩ or more**

**HARNESS SIDE: C-03**



**TEST HARNESS**



AC209364YG

- (4) Measure the resistance between joint connector (3) terminal 19 and body ground.

**OK: 1 kΩ or more**

**Q: Does the resistance measure 1 kΩ or more?**

**YES :** Go to Step 8.

**NO :** Go to Step 13.

**STEP 8. Check the CAN line between joint connector (3) and the steering wheel sensor for short to ground. Measure the resistance at joint connector (3) C-03.**

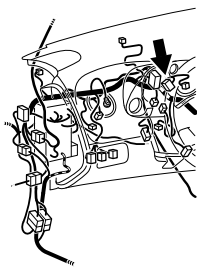
**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to P.54C-8.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

**CONNECTOR: C-03**

1	2	3	4	5	6	7	8	9	10	11	
12	13	14	15	16	17	18	19	20	21	22	

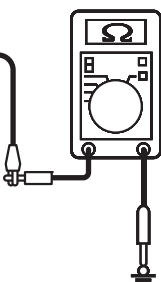


AC406442BE

**TEST  
HARNESS**

11	10	9	8	7	6	5	4	3	2	1	
22	21	20	19	18	17	16	15	14	13	12	

**HARNESS SIDE: C-03**



AC209364ZH

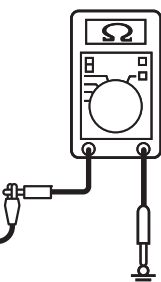
- (3) Measure the resistance between joint connector (3) terminal 2 and body ground.

**OK: 1 kΩ or more**

**HARNESS SIDE: C-03**

11	10	9	8	7	6	5	4	3	2	1	
22	21	20	19	18	17	16	15	14	13	12	

**TEST  
HARNESS**



AC209364ZI

- (4) Measure the resistance between joint connector (3) terminal 13 and body ground.

**OK: 1 kΩ or more**

**Q: Does the resistance measure 1 kΩ or more?**

**YES :** Go to Step 9.

**NO :** Go to Step 14.

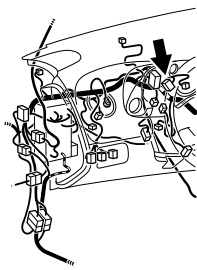
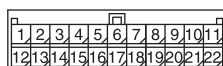
**STEP 9. Check the CAN line between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-03.**

**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to P.54C-8.**

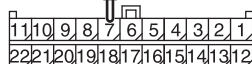
- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

**CONNECTOR: C-03**

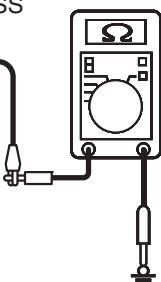


AC406442BE

**TEST HARNESS**



**HARNESS SIDE: C-03**

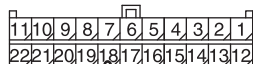


AC209364NY

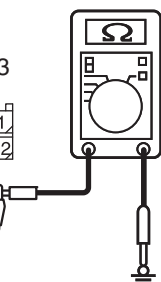
- (3) Measure the resistance between joint connector (3) terminal 7 (CAN\_H) and body ground.

**OK: 1 kΩ or more**

**HARNESS SIDE: C-03**



**TEST HARNESS**



AC209364NZ

- (4) Measure the resistance between joint connector (3) terminal 18 (CAN\_L) and body ground.

**OK: 1 kΩ or more**

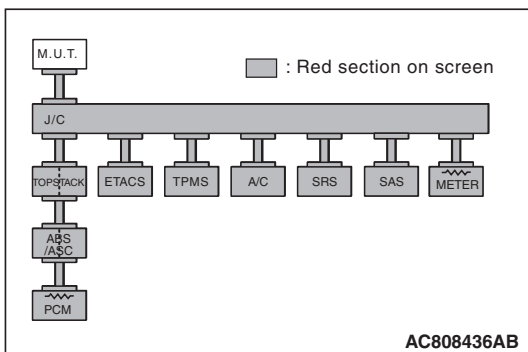
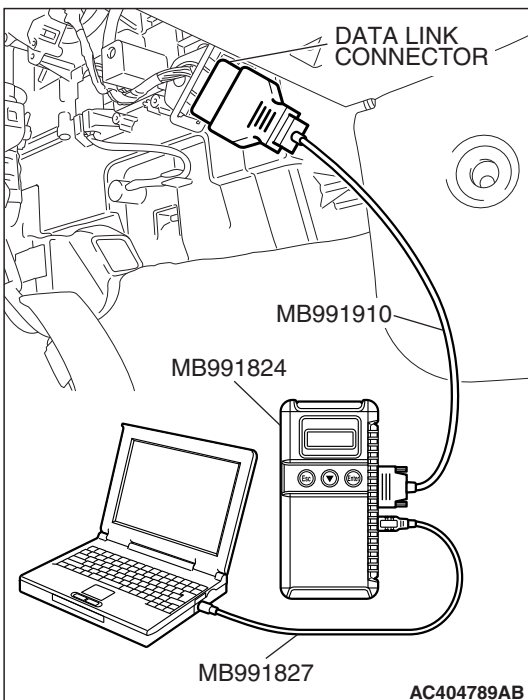
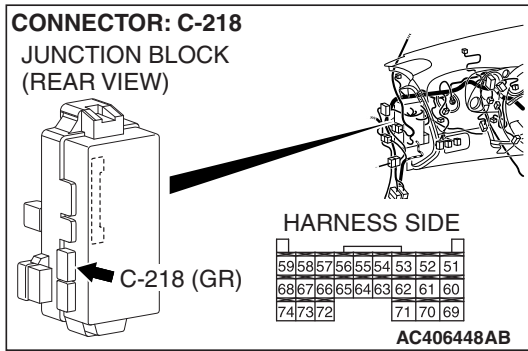
**⚠ CAUTION**

**Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-9.**

**Q: Does the resistance measure 1 kΩ or more?**

**YES :** Repair the wiring harness between joint connector (3) and the intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>.

**NO :** Repair the wiring harness between joint connector (3) and the data link connector.



**STEP 10. Check the ETACS-ECU for a short to ground.**

(1) Disconnect ETACS-ECU connector C-218.

**CAUTION**

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

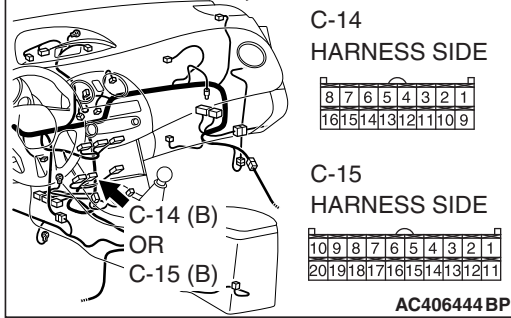
(2) Connect scan tool MB991958 to the data link connector.

(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

**NO :** Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU. When the ETACS-ECU is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

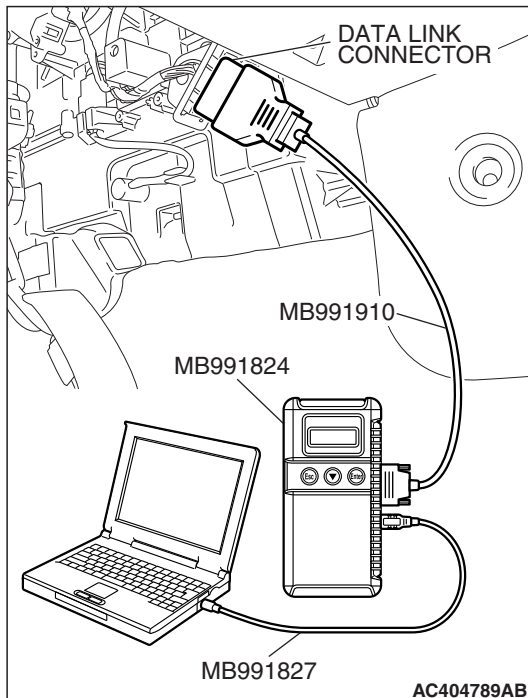
**CONNECTORS: C-14, C-15****STEP 11. Check the A/C-ECU for a short to ground.**

- (1) Disconnect A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>.

**CAUTION**

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

- (2) Connect scan tool MB991958 to the data link connector.

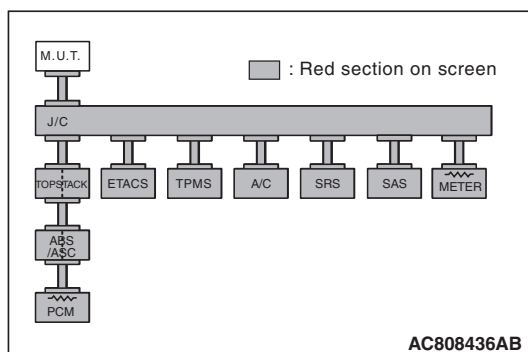


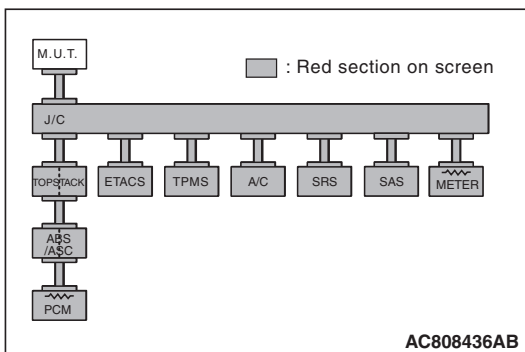
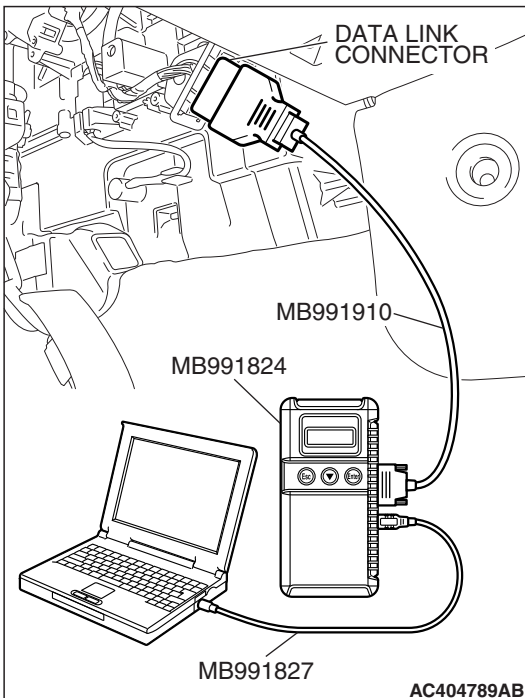
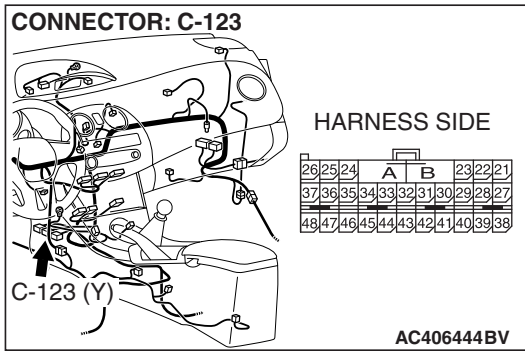
- (3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) and the A/C-ECU connector.

**NO :** Check the A/C-ECU connector, and repair if necessary. If the A/C-ECU connector is in good condition, replace the A/C-ECU.





**STEP 12. Check the SRS-ECU for a short to ground.**

(1) Disconnect SRS-ECU connector C-123.

**CAUTION**

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

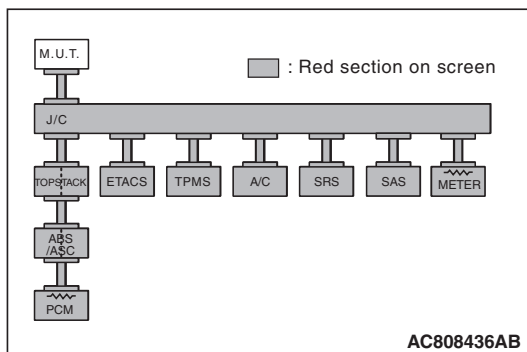
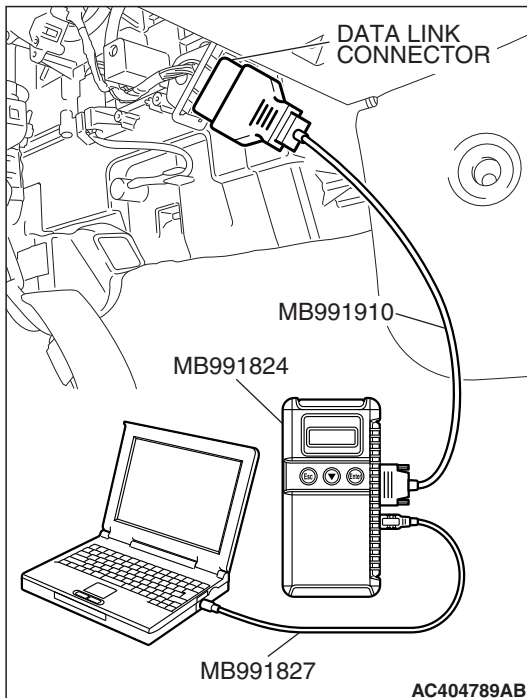
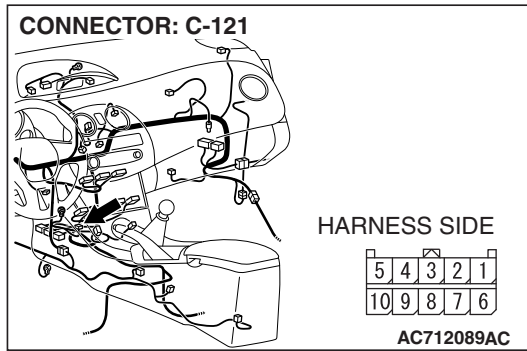
(2) Connect scan tool MB991958 to the data link connector.

(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) and the SRS-ECU connector.

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

**STEP 13. Check the TPMS receiver for a short to ground.**

(1) Disconnect TPMS receiver connector C-121.

**CAUTION**

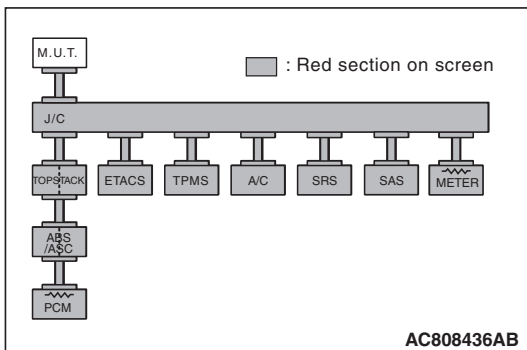
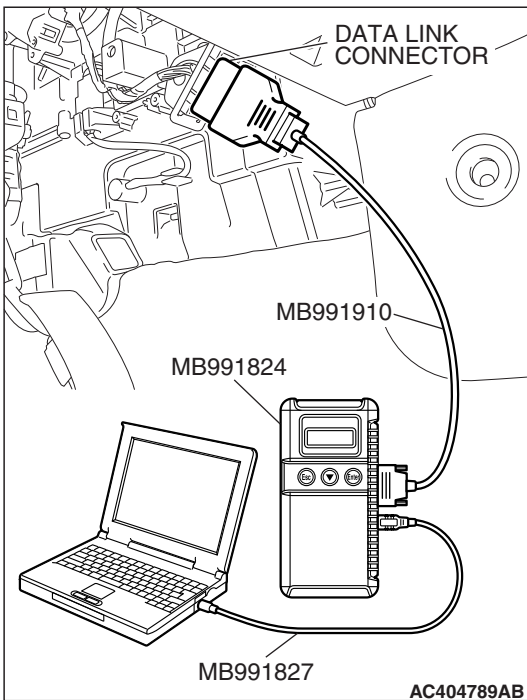
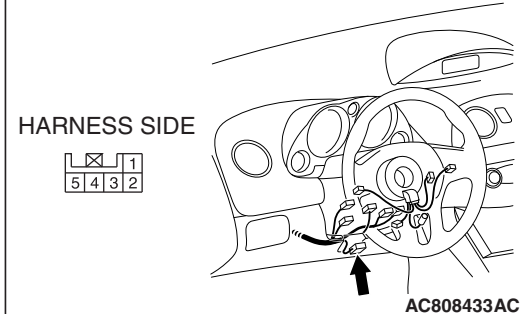
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(2) Connect scan tool MB991958 to the data link connector.

(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?****YES :** Repair the wiring harness between joint connector (3) and the TPMS receiver connector.**NO :** Check the TPMS receiver connector, and repair if necessary. If the TPMS receiver connector is in good condition, replace the TPMS receiver.

CONNECTOR: C-312



**STEP 14. Check the steering wheel sensor for a short to ground.**

(1) Disconnect steering wheel sensor connector C-312.

**CAUTION**

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

(2) Connect scan tool MB991958 to the data link connector.

(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Repair the wiring harness between joint connector (3) 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, replace the steering wheel sensor.

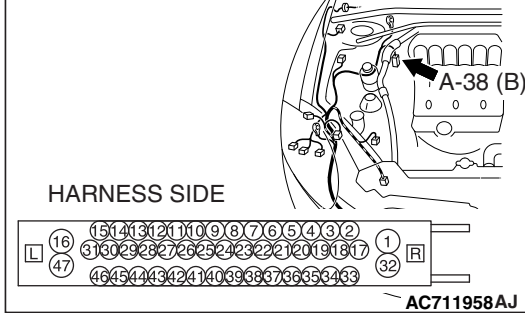
**STEP 15. Check the CAN line between intermediate connector C-24 and TCL/ASC-ECU connector A-38 for a short to ground. Measure the resistance at intermediate connector C-24.**

**⚠ CAUTION**

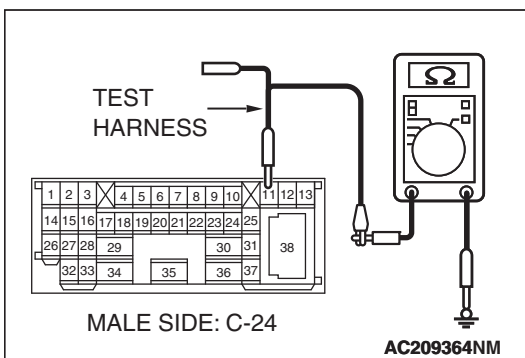
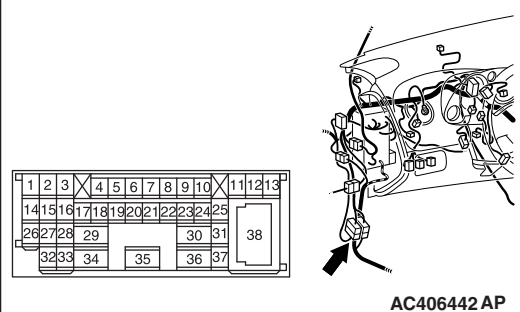
**Disconnect the negative battery terminal. For details refer to P.54C-8.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect intermediate connector C-24 and TCL/ASC-ECU connector A-38, and measure the resistance at the male side of intermediate connector C-24 (at front wiring harness side).

**CONNECTOR: A-38**

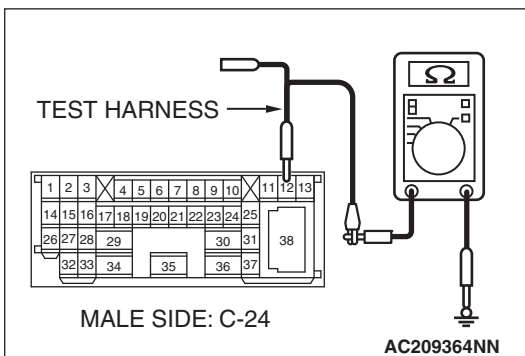


**CONNECTOR: C-24**



- (3) Measure the resistance between intermediate connector terminal 11 (CAN\_H) and body ground.

**OK: 1 kΩ or more**



- (4) Measure the resistance between intermediate connector terminal 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-9.**

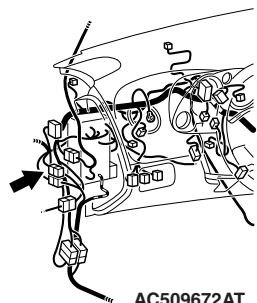
**Q: Is the check result normal?**

**YES :** Go to Step 19.

**NO :** Repair the wiring harness.

CONNECTOR: C-26

1	2		3	4
5	6	7	8	9
11	12	13	14	15
				16



AC509672AT

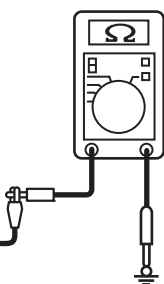
**STEP 16. Check the CAN line of the front wiring harness for a short to the power supply. Measure the resistance at intermediate connector C-26.**

- (1) Disconnect intermediate connector C-26, and measure the resistance at the male side (at floor wiring harness side).
- (2) Turn the ignition switch to the "ON" position.

MALE SIDE: C-26

TEST  
HARNESS →

1	2		3	4
5	6	7	8	9
11	12	13	14	15
				16



AC209364US

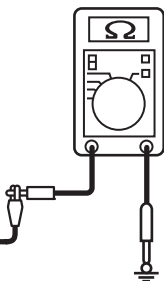
- (3) Measure the resistance between intermediate connector terminal 15 (CAN\_H) and body ground.

**OK: 1 kΩ or more**

MALE SIDE: C-26

TEST  
HARNESS →

1	2		3	4
5	6	7	8	9
11	12	13	14	15
				16



AC209364UT

- (4) Measure the resistance between intermediate connector terminal 16 (CAN\_L) and body ground.

**OK: 1 kΩ or more**

**Q: Is the check result normal?**

**YES :** Go to Step 19.

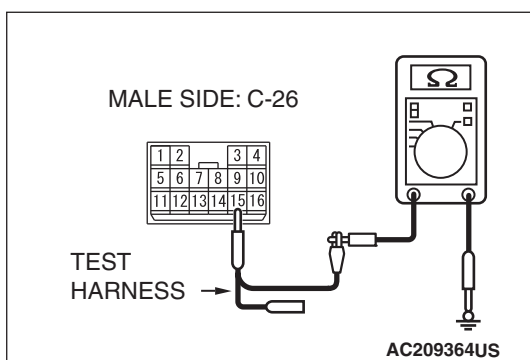
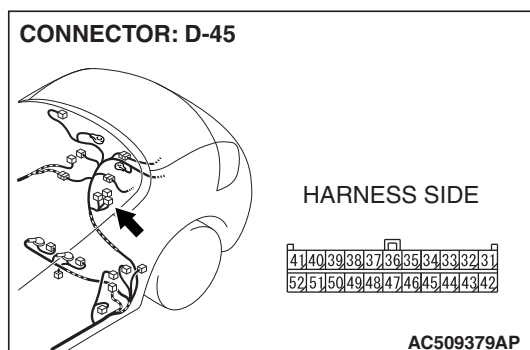
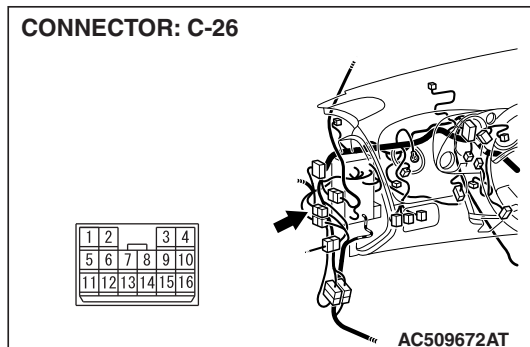
**NO :** Go to Step 17.

**STEP 17. Check the CAN line between intermediate connector C-26 and convertible top control module connector D-45 for a short to ground. Measure the resistance at intermediate connector C-26.**

**⚠ CAUTION**

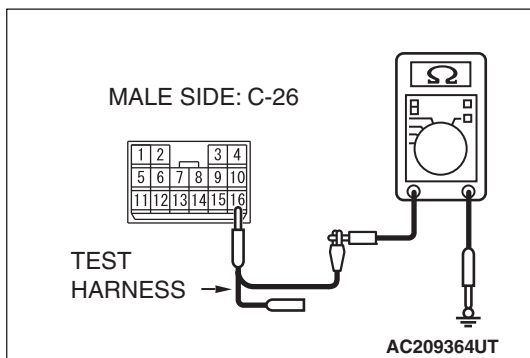
**Disconnect the negative battery terminal. For details refer to P.54C-8.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect intermediate connector C-26 and convertible top control module connector D-45, and measure the resistance at the male side of intermediate connector C-26 (at floor wiring harness side).



- (3) Measure the resistance between intermediate connector terminal 15 (CAN\_H) and body ground.

**OK: 1 kΩ or more**



- (4) Measure the resistance between intermediate connector terminal 16 (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-9.**

**Q: Is the check result normal?**

**YES :** Go to Step 18.

**NO :** Repair the wiring harness.

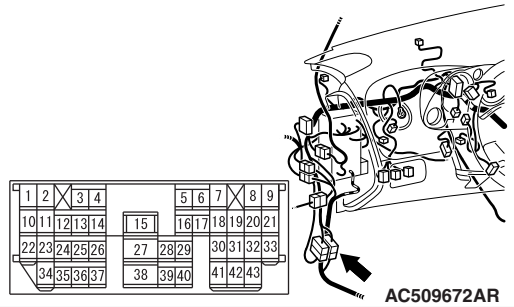
**STEP 18. Check the CAN line between intermediate connector C-23 and convertible top control module connector D-45 for a short to ground. Measure the resistance at intermediate connector C-23.**

**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to P.54C-8.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect intermediate connector C-23 and convertible top control module connector D-45, and measure the resistance at the male side of intermediate connector C-23 (at floor wiring harness side).

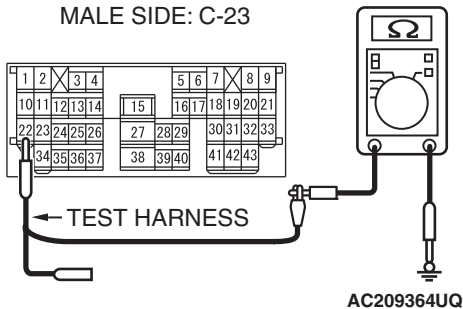
**CONNECTOR: C-23**



**CONNECTOR: D-45**



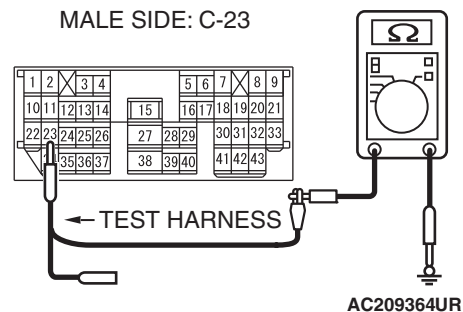
**MALE SIDE: C-23**



- (3) Measure the resistance between intermediate connector terminal 22 (CAN\_H) and body ground.

**OK: 1 k $\Omega$  or more**

**MALE SIDE: C-23**



- (4) Measure the resistance between intermediate connector terminal 23 (CAN\_L) and body ground.

**OK: 1 k $\Omega$  or more**

**⚠ CAUTION**

**Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-9.**

**Q: Is the check result normal?**

**YES :** Check the convertible top control module connector D-45, and repair if necessary. If the convertible top control module connector D-45 is in good condition, replace the convertible top control module.

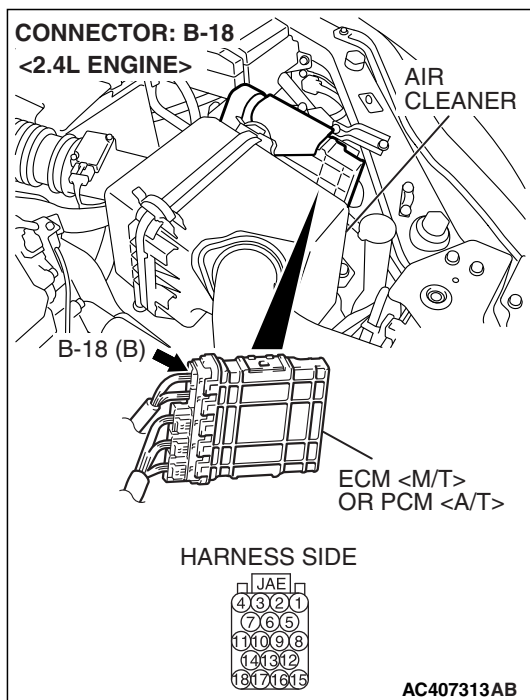
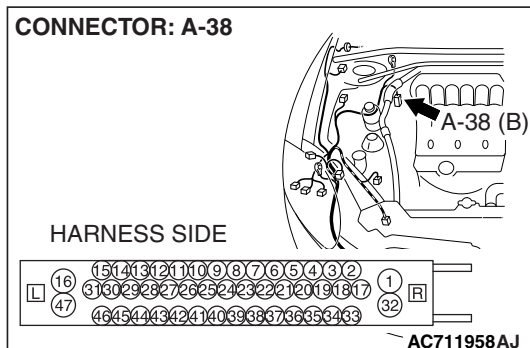
NO : Repair the wiring harness.

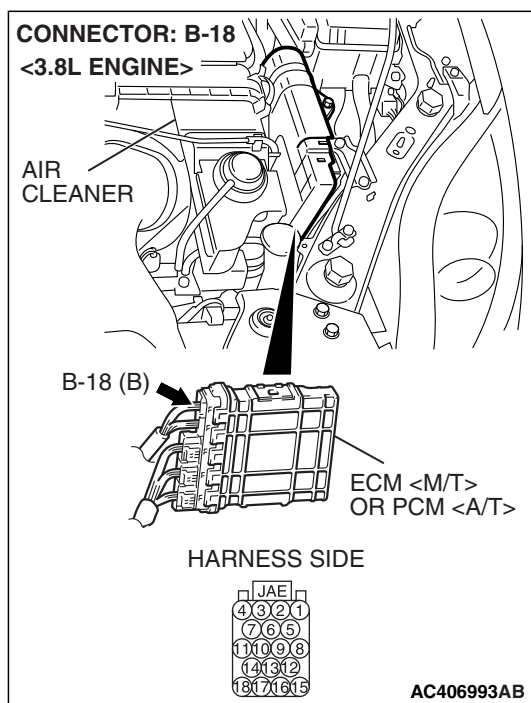
**STEP 19.** Check the CAN line between the ECM <M/T> or PCM <A/T> connector B-18 and TCL/ASC-ECU connector A-38 for a short to ground. Measure the resistance at ECM <M/T> or PCM <A/T> connector B-18.

**CAUTION**

Disconnect the negative battery terminal. For details refer to [P.54C-8](#).

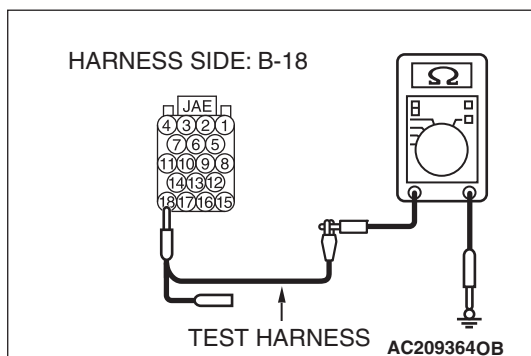
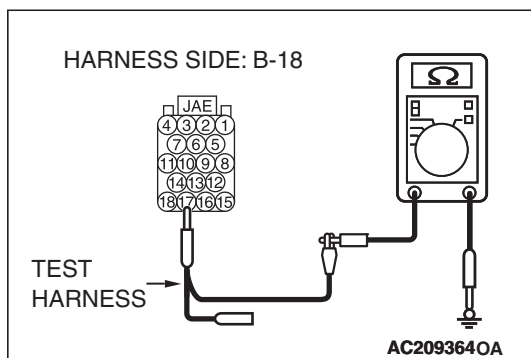
(1) Disconnect the negative battery terminal.





- (2) Disconnect ECM <M/T> or PCM <A/T> connector B-18 and TCL/ASC-ECU connector A-38, and measure the resistance at the harness side of ECM <M/T> or PCM <A/T> connector B-18.
- (3) Measure the resistance between ECM <M/T> or PCM <A/T> connector terminal 17 and body ground.

**OK: 1 k $\Omega$  or more**



- (4) Measure the resistance between ECM <M/T> or PCM <A/T> connector terminal 18 and body ground.

**OK: 1 k $\Omega$  or more**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Is the check result normal?**

**YES** : Go to Step 20.

**NO** : Repair the wiring harness between ECM <M/T> or PCM <A/T> connector and TCL/ASC-ECU connector.

**STEP 20. Retest the system.****⚠ CAUTION**

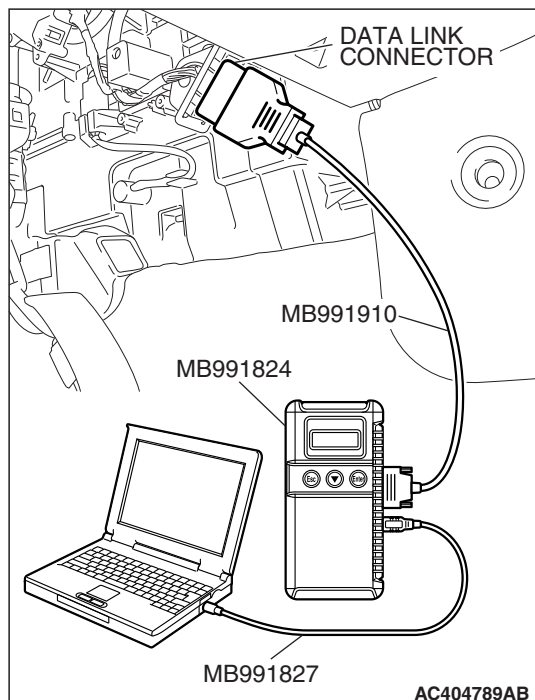
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Diagnose CAN bus lines, and check if scan tool MB991958 screen shows normal state.

**Q: Is the check result normal?**

**YES :** Intermittent malfunction.

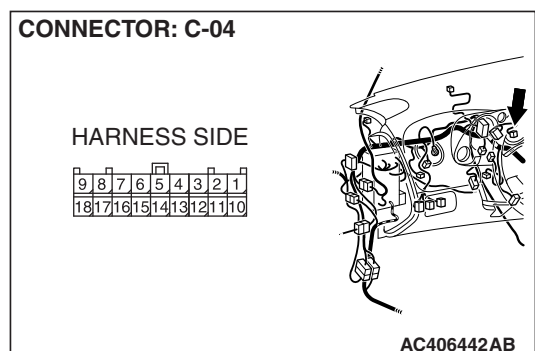
**NO :** Check the TCL/ASC-ECU connector, and repair if necessary. If the TCL/ASC-ECU connector is in good condition, replace the TCL/ASC-ECU.

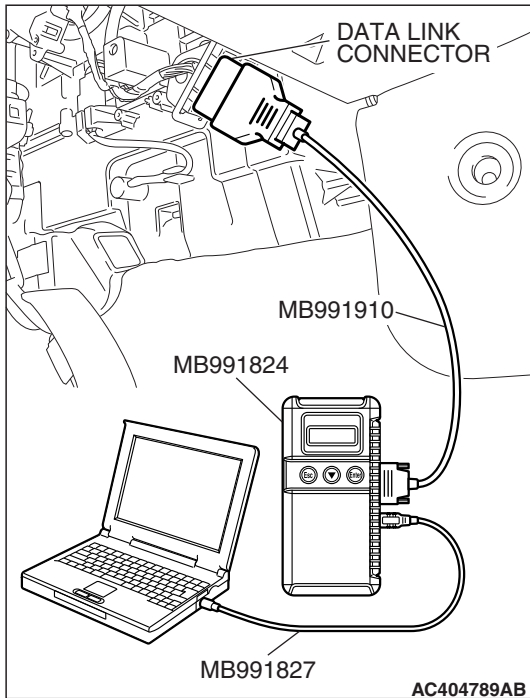
**STEP 21. Check the combination meter for a short to ground.**

- (1) Disconnect combination meter connector C-04.

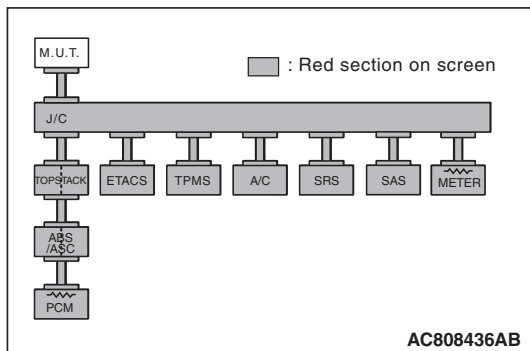
**⚠ CAUTION**

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





(2) Connect scan tool MB991958 to the data link connector.

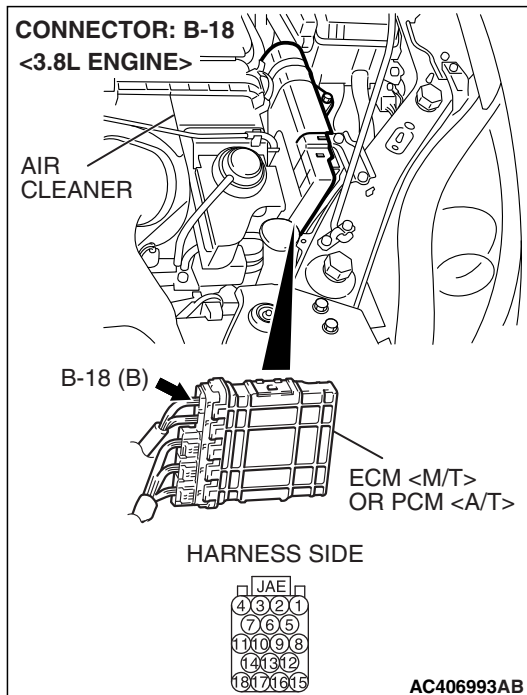
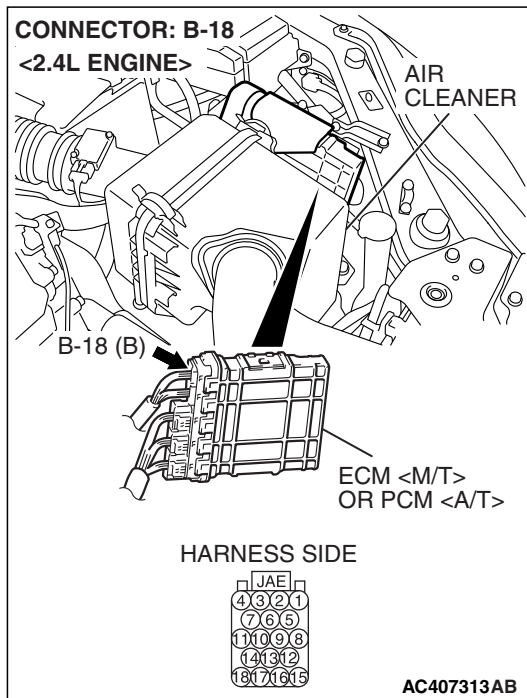


(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Go to Step 22.

**NO :** Go to Step 23.

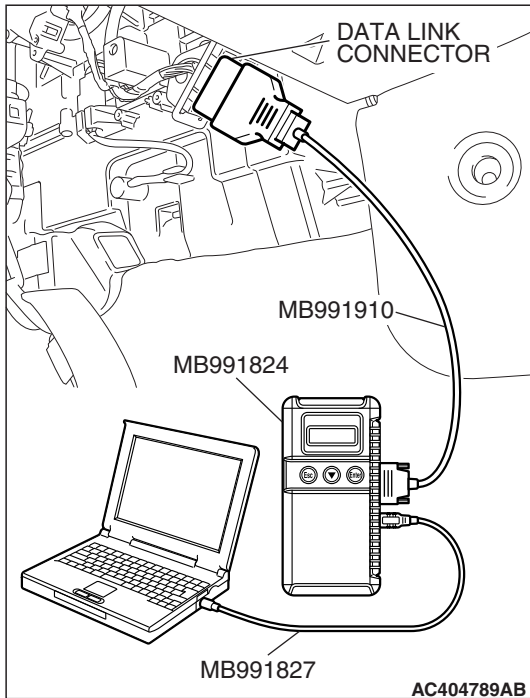


**STEP 22. Check the ECM <M/T> or PCM <A/T> for a short to ground.**

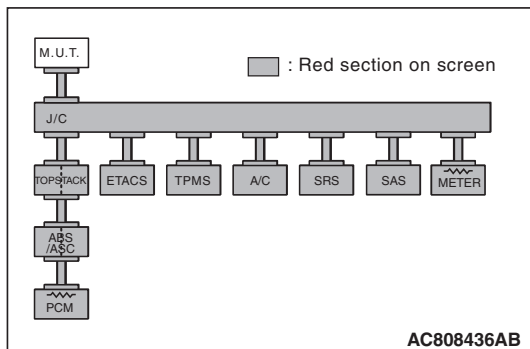
(1) Disconnect ECM <M/T> or PCM <A/T> connector B-18.

**CAUTION**

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



(2) Connect scan tool MB991958 to the data link connector.

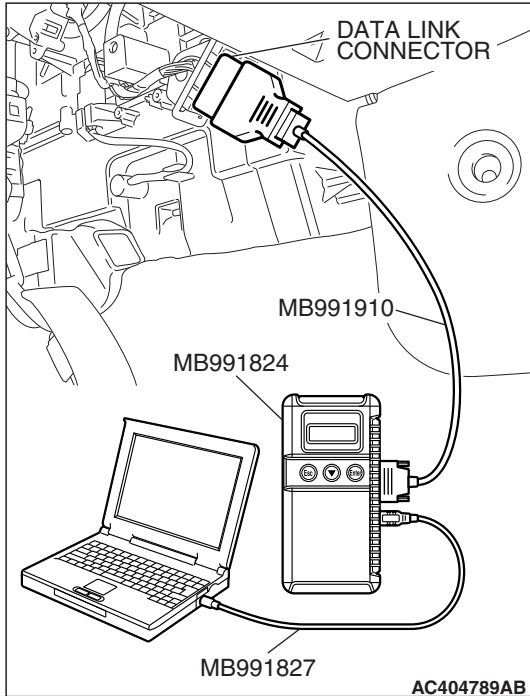


(3) Diagnose CAN bus lines, and check if scan tool MB991958 screen is as shown in the illustration.

**Q: Does scan tool MB991958 screen correspond to the illustration?**

**YES :** Return to Step 1.

**NO :** Go to Step 24.

**STEP 23. Retest the system.****⚠ CAUTION**

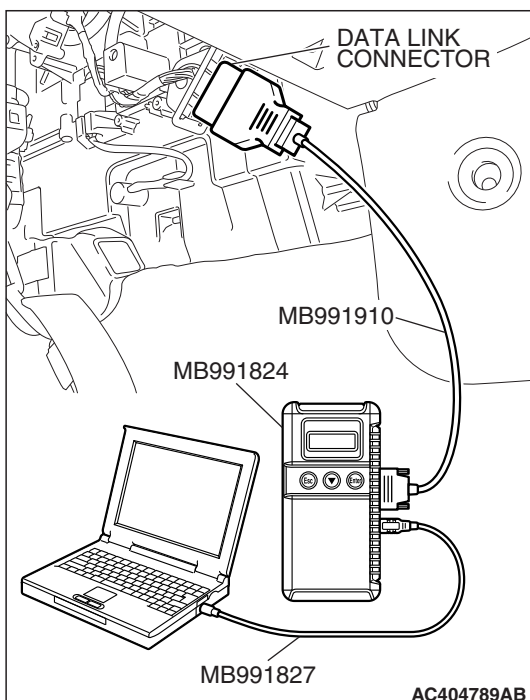
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Diagnose CAN bus lines, and check if scan tool MB991958 screen shows normal state.

**Q: Is the check result normal?**

**YES :** Intermittent malfunction.

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

**STEP 24. Retest the system.****⚠ CAUTION**

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Diagnose CAN bus lines, and check if scan tool MB991958 screen shows normal state.

**Q: Is the check result normal?**

**YES :** Intermittent malfunction.

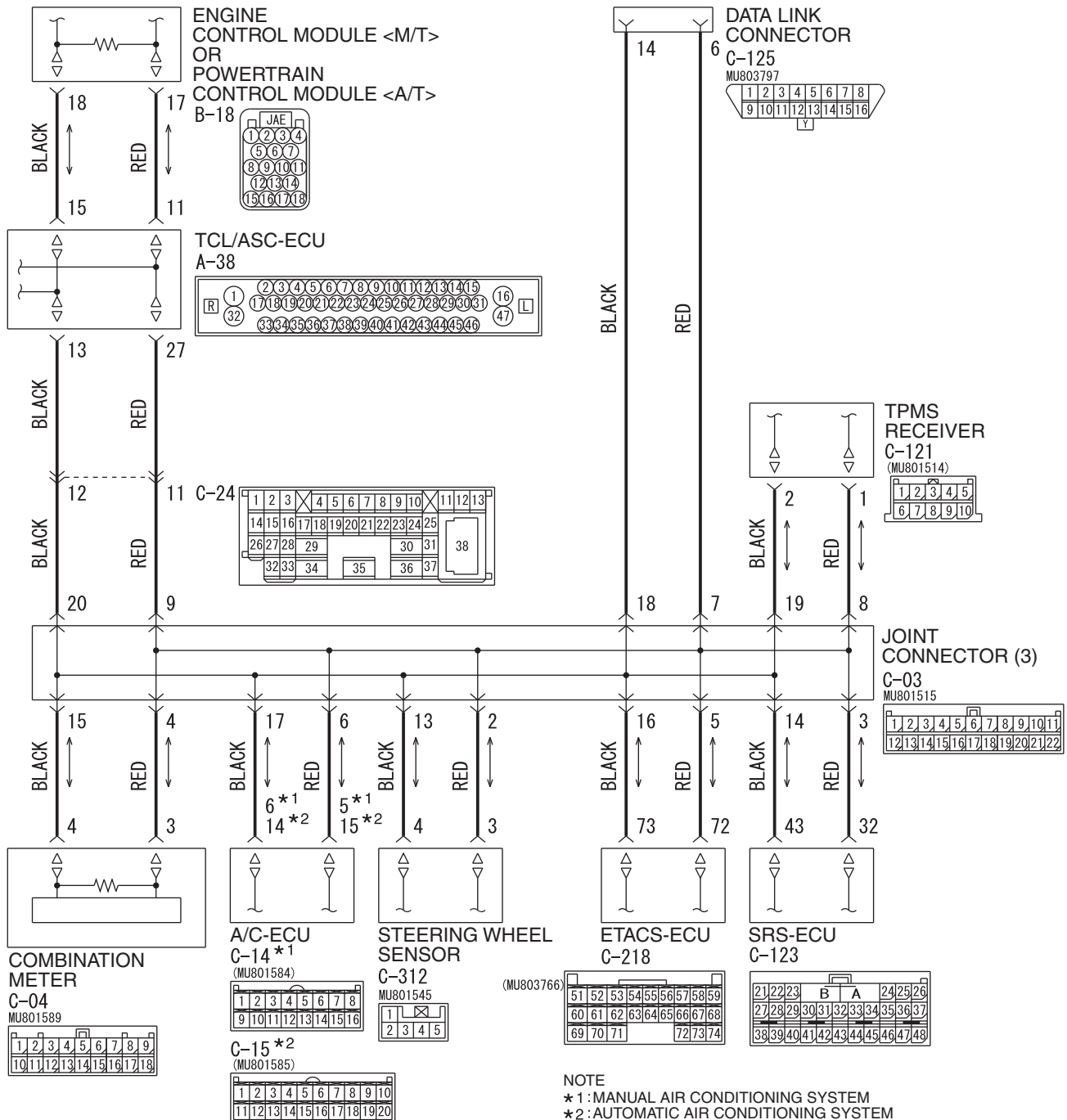
**NO :** Check the ECM <M/T> or PCM <A/T> connector, and repair if necessary. If the ECM <M/T> or PCM <A/T> connector is in good condition, replace the ECM <M/T> or PCM <A/T>. When the ECM <M/T> or PCM <A/T> is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

DIAGNOSTIC ITEM 3: Diagnose shorts between CAN\_H and L lines

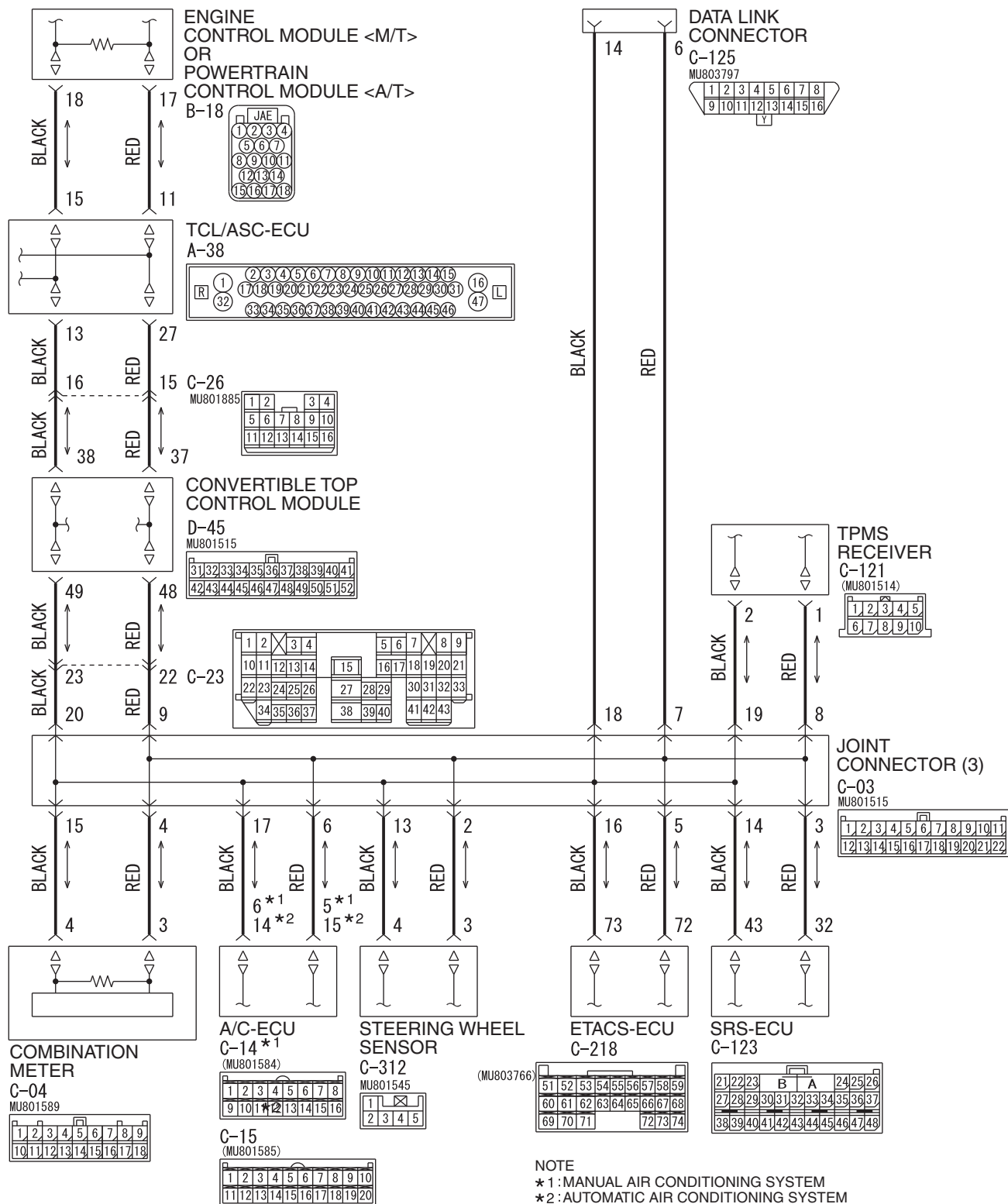
**CAUTION**

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

<ECLIPSE>

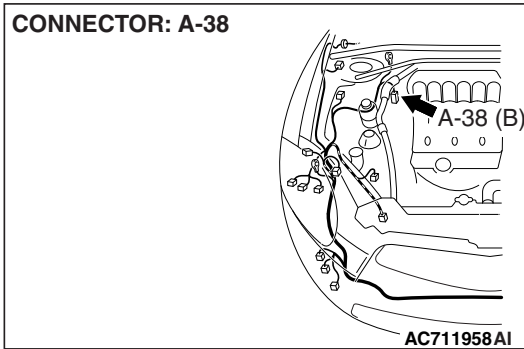


## &lt;ECLIPSE SPYDER&gt;



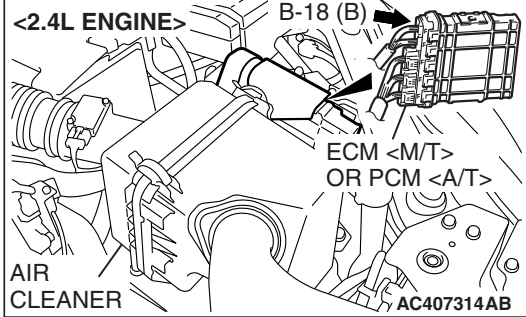
WAP54M001A

CONNECTOR: A-38



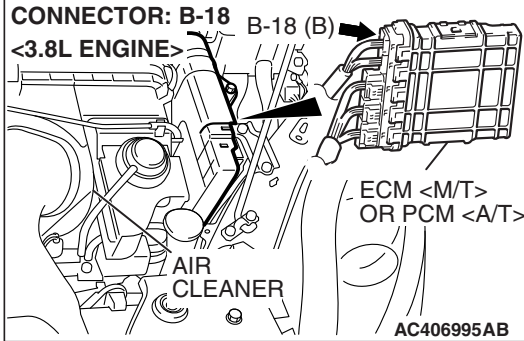
CONNECTOR: B-18

<2.4L ENGINE>

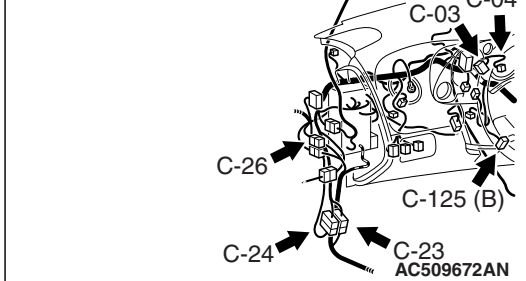


CONNECTOR: B-18

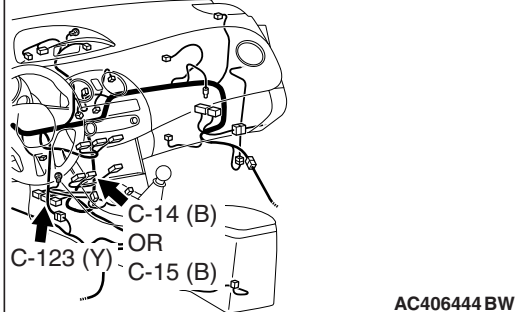
<3.8L ENGINE>



CONNECTORS: C-03, C-04, C-23, C-24,  
C-26, C-125

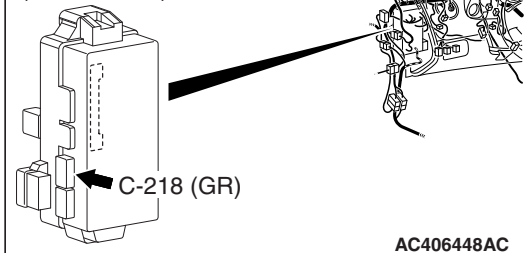


CONNECTORS: C-14, C-15, C-123

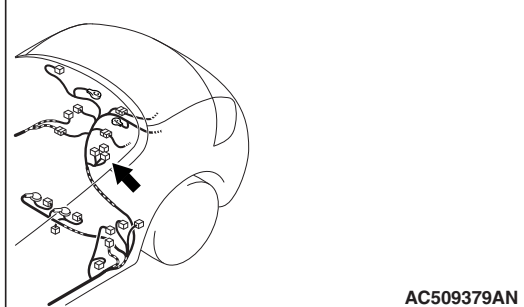


CONNECTOR: C-218

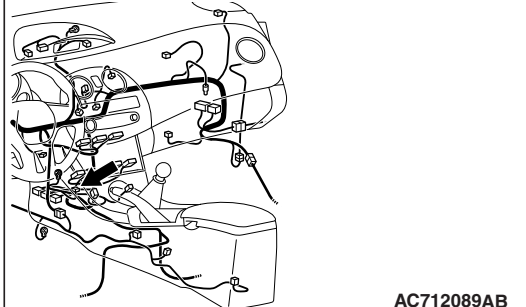
JUNCTION BLOCK  
(REAR VIEW)



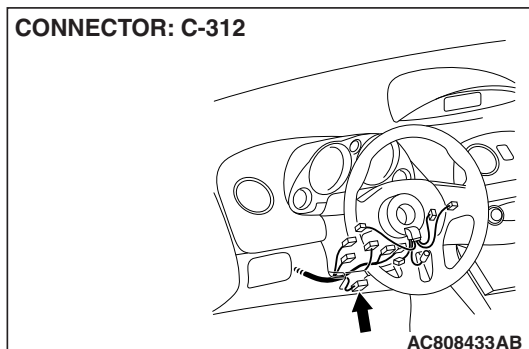
CONNECTOR: D-45 <ECLIPSE SPYDER>



CONNECTOR: C-121



CONNECTOR: C-312



## FUNCTION

If a line-to-line short is present in the CAN bus lines, this diagnosis result will be set.

## TROUBLE JUDGMENT CONDITIONS

Short circuit may be present between the CAN\_L and H lines when the resistance between the CAN bus lines (CAN\_L and H lines) is less than 2  $\Omega$ . In addition, an open circuit may be occurred between the data link connector and the joint connector (3).

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [a short between CAN\_H and CAN\_L line, open circuit between the data link connector and the joint connector (3)]

*NOTE: The scan tool MB991958 cannot receive all the periodically sent data from each ECU by the open circuit of harness between the data link connector and the joint connector (3). In addition, the scan tool MB991958 measures the voltage itself and shows 2.5 volts due to the open circuit of harness. Therefore, it is judged as a short between CAN\_H and CAN\_L line.*

- The connector may be defective (short in the connector)
- Each ECU may be defective (short between CAN\_H and CAN\_L line)

## DIAGNOSIS

### Required Special Tools:

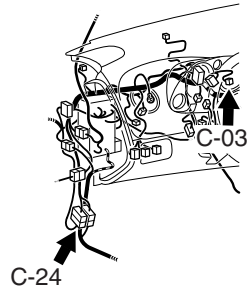
- MB991223: Harness Set
- MB992006: Extra fine probe
- MB991923: Power plant ECU Check Harness
- MB991997: ASC Check Harness

**STEP 1. Check joint connector (3) C-03 and intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>.**

**⚠ CAUTION**

The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to [P.54C-8](#).

**CONNECTORS: C-03, C-24**



**C-03**

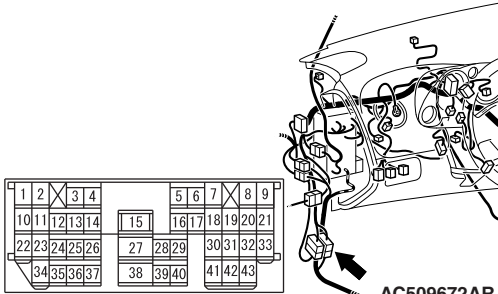
1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

**C-24**

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	
26	27	28	29					30	31		38	
32	33	34		35				36	37			

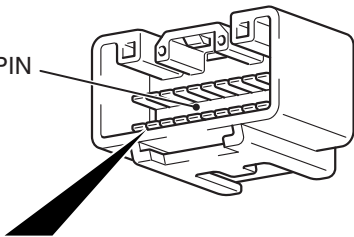
AC406443AD

**CONNECTOR: C-23**



AC509672AR

**SHORT PIN**



1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

AC209350AD

Visually check if there is a short between lines due to the foreign obstacles or deformation of short pin in the connector.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the connector, or replace the joint connector (3).

**STEP 2.** Check the lines between the CAN\_H and L lines of the front wiring harness for a short circuit. Measure the resistance at intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>.

**⚠ CAUTION**

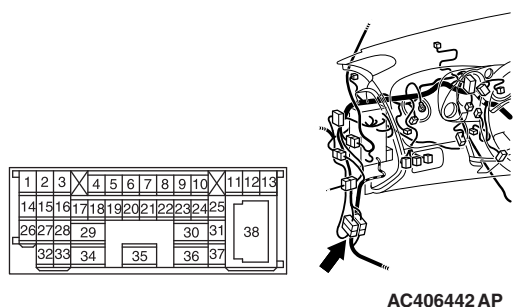
- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

**⚠ CAUTION**

**Disconnect the negative battery terminal.** For details refer to [P.54C-8](#).

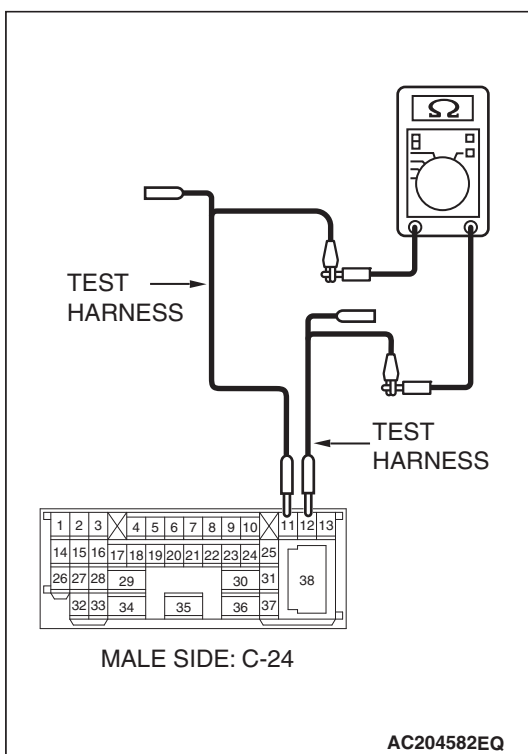
- (1) Disconnect the negative battery terminal.
- (2) Disconnect intermediate connector C-24 <ECLIPSE> or C-23 <ECLIPSE SPYDER>, and measure the resistance at the male side (at front wiring harness side <ECLIPSE> or floor wiring harness side <ECLIPSE SPYDER>).

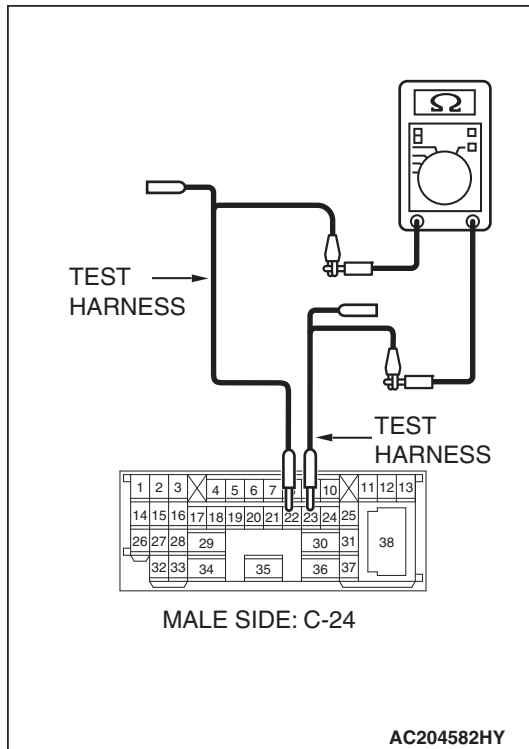
**CONNECTOR: C-24**



- (3) Measure the resistance between intermediate connector terminals 11 and 12 <ECLIPSE>.

**OK:  $120 \pm 20$  ohms**





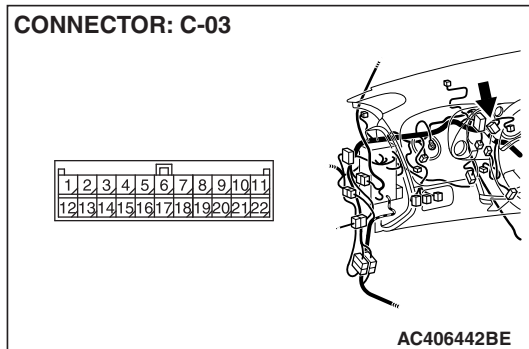
(4) Measure the resistance between intermediate connector terminals 22 and 23 <ECLIPSE SPYDER>.

**OK:  $120 \pm 20$  ohms**

**Q: Is the check result normal?**

**YES :** Go to Step 3.

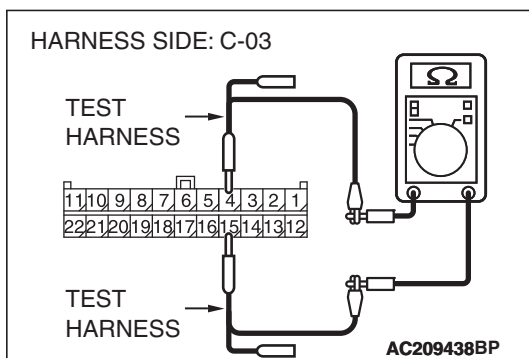
**NO :** Go to Step 16.



**STEP 3. Check the CAN\_H and L lines between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-03.**

(1) Disconnect the negative battery terminal.

(2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.



(3) Measure the resistance between joint connector (3) terminals 4 and 15.

**OK:  $120 \pm 20$  ohms**

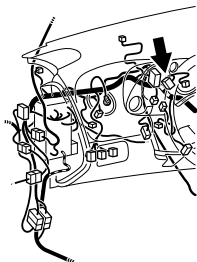
**Q: Is the check result normal?**

**YES :** Go to Step 4.

**NO :** Go to Step 10.

## CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

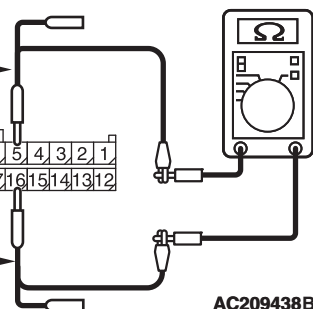


AC406442BE

## HARNESS SIDE: C-03

TEST  
HARNESS

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

TEST  
HARNESS

AC209438BQ

**STEP 4. Check the CAN\_H and L lines between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-03.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

- (3) Measure the resistance between joint connector (3) terminals 5 and 16.

**OK: 1 kΩ or more**

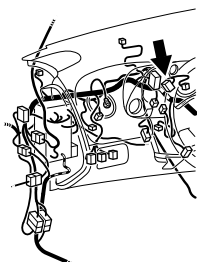
**Q: Is the check result normal?**

**YES :** Go to Step 5.

**NO :** Go to Step 11.

## CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

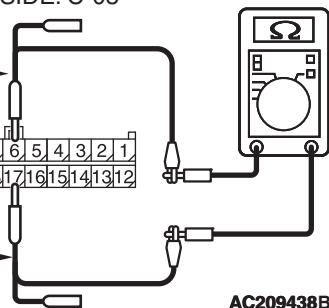


AC406442BE

## HARNESS SIDE: C-03

TEST  
HARNESS

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

TEST  
HARNESS

AC209438BR

**STEP 5. Check the CAN\_H and L lines between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-03.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

- (3) Measure the resistance between joint connector (3) terminals 6 and 17.

**OK: 1 kΩ or more**

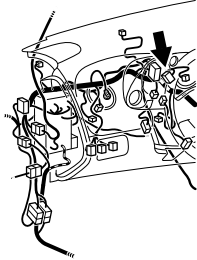
**Q: Is the check result normal?**

**YES :** Go to Step 6.

**NO :** Go to Step 12.

CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



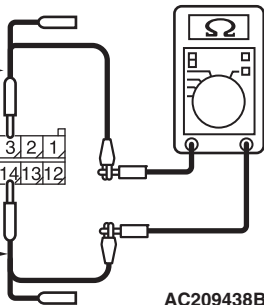
AC406442BE

HARNESS SIDE: C-03

TEST  
HARNESS

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

TEST  
HARNESS



AC209438BS

**STEP 6. Check the CAN\_H and L lines between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-03.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

- (3) Measure the resistance between joint connector (3) terminals 3 and 14.

**OK: 1 kΩ or more**

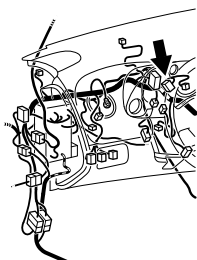
**Q: Is the check result normal?**

**YES :** Go to Step 7.

**NO :** Go to Step 13.

CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



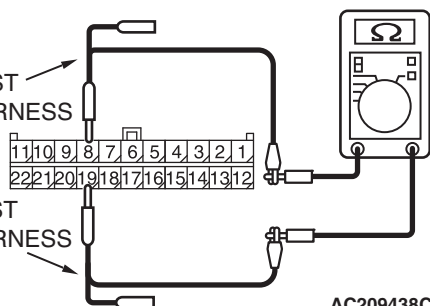
AC406442BE

HARNESS SIDE: C-03

TEST  
HARNESS

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

TEST  
HARNESS



AC209438CS

**STEP 7. Check the CAN\_H and L lines between joint connector (3) and the TPMS receiver for a short circuit. Measure the resistance at joint connector (3) C-03.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

- (3) Measure the resistance between joint connector (3) terminals 8 and 19.

**OK: 1 kΩ or more**

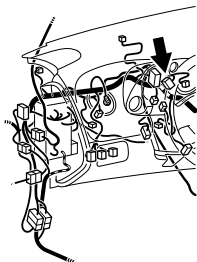
**Q: Is the check result normal?**

**YES :** Go to Step 8.

**NO :** Go to Step 14.

## CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

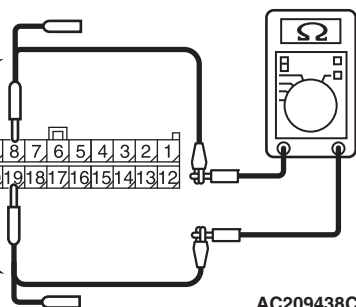


AC406442BE

## HARNESS SIDE: C-03

TEST  
HARNESS

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

TEST  
HARNESS

AC209438CS

**STEP 8. Check the CAN\_H and L lines between joint connector (3) and the steering wheel sensor for a short circuit. Measure the resistance at joint connector (3) C-03.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

- (3) Measure the resistance between joint connector (3) terminals 2 and 13.

**OK: 1 kΩ or more**

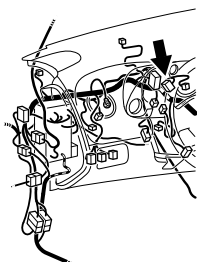
**Q: Is the check result normal?**

**YES :** Go to Step 9.

**NO :** Go to Step 15.

## CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

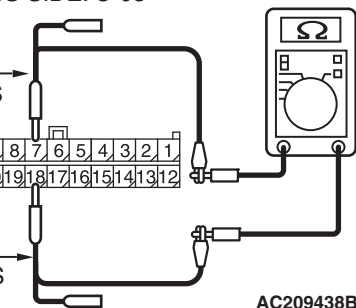


AC406442BE

## HARNESS SIDE: C-03

TEST  
HARNESS

11	10	9	8	7	6	5	4	3	2	1
22	21	20	19	18	17	16	15	14	13	12

TEST  
HARNESS

AC209438BU

**STEP 9. Check the CAN\_H and L lines between joint connector (3) and the data link connector for a short circuit. Measure the resistance at joint connector (3) C-03.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance at the wiring harness side of joint connector (3) C-03.

- (3) Measure the resistance between joint connector (3) terminals 7 and 18.

**OK: 1 kΩ or more**

**Q: Is the check result normal?**

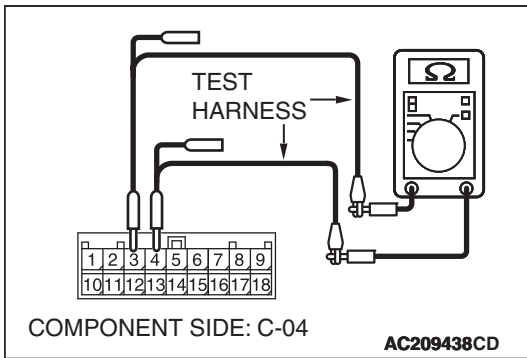
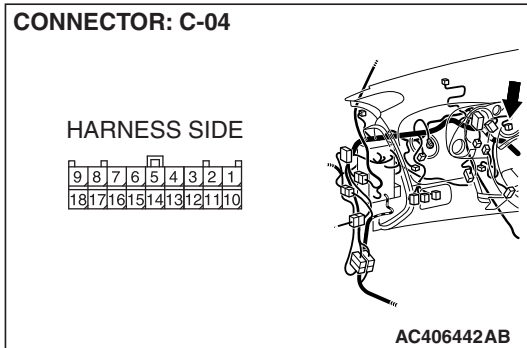
**YES :** Go to Step 23.

**NO :** Repair the wiring harness between joint connector (3) and the data link connector.

**STEP 10. Check the combination meter for short circuit. Measure the resistance at combination meter connector C-04.**

*NOTE: The failure could be caused by the open circuit of harness between combination meter and joint connector (3), therefore, check the open circuit as well as the short.*

- (1) Disconnect the negative battery terminal.
- (2) Disconnect combination meter C-04, and measure the resistance at the component side of combination meter connector C-04.



- (3) Measure the resistance between combination meter connector terminals 3 and 4.

**OK: 120 ± 20 ohms**

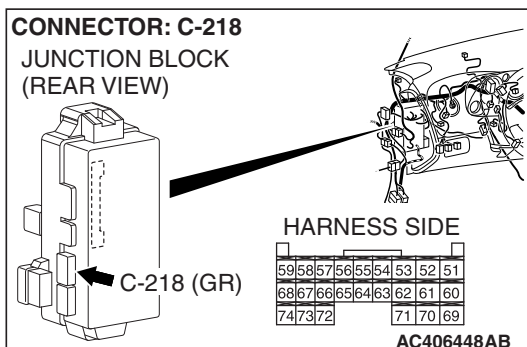
**Q: Is the check result normal?**

**YES :** Check the combination meter connector, and repair if necessary. Repair the open circuit of harness between the joint connector (3) and the combination meter connector or the short between lines if the combination meter connector is normal.

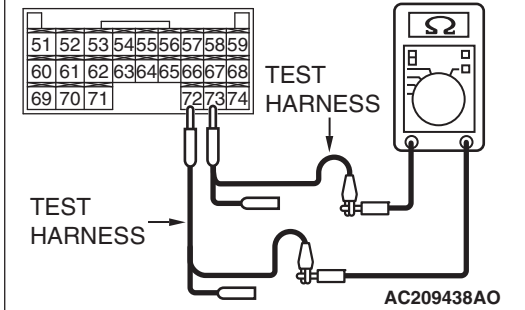
**NO :** Check the combination meter connector, and repair if necessary. If the combination meter connector is in good condition, replace the combination meter.

**STEP 11. Check the ETACS-ECU for short circuit. Measure the resistance at ETACS-ECU connector C-218.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect ETACS-ECU connector C-218, and measure the resistance at the component side of ETACS-ECU connector C-218.



COMPONENT SIDE: C-218



- (3) Measure the resistance between ETACS-ECU connector terminals 72 and 73.

**OK: 1 k $\Omega$  or more**

**Q: Is the check result normal?**

- YES :** Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.
- NO :** Check the ETACS-ECU connector, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU. When the ETACS-ECU is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

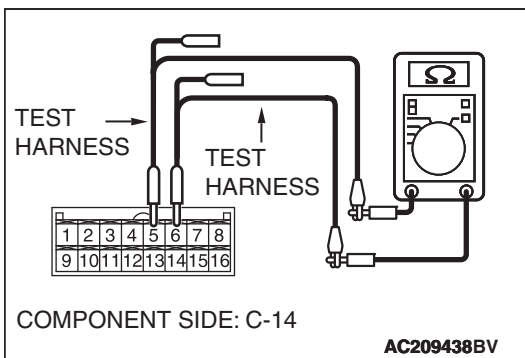
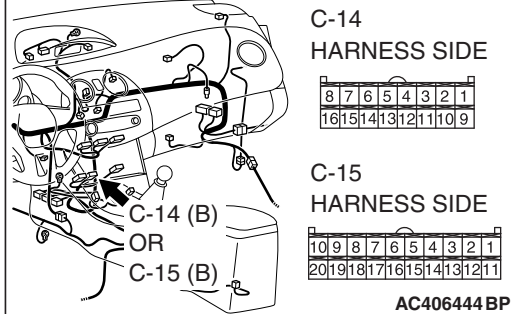
**STEP 12. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>.**

**CAUTION**

A digital multimeter should be used. For details refer to [P.54C-8](#).

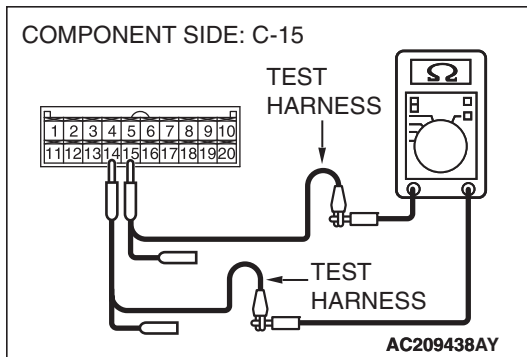
- (1) Disconnect the negative battery terminal.
- (2) Disconnect A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>, and measure the resistance at the component side of A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>.

CONNECTORS: C-14, C-15



- (3) Measure the resistance between A/C-ECU connector terminals 5 and 6. <manual air conditioning system>

**OK: 1 k $\Omega$  or more**



- (4) Measure the resistance between A/C-ECU connector terminals 14 and 15. <automatic air conditioning system>

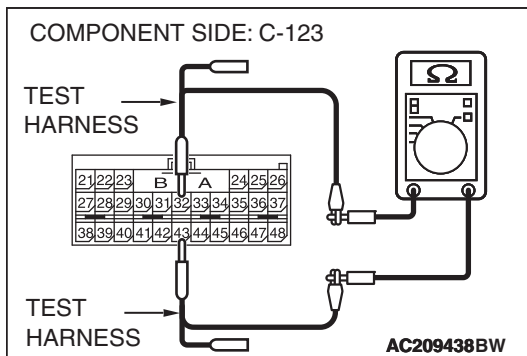
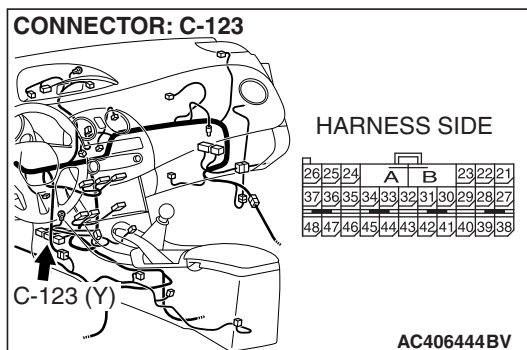
**OK: 1 k $\Omega$  or more**

**Q: Is the check result normal?**

- YES :** Check the A/C-ECU connector, and repair if necessary. If the A/C-ECU connector is in good condition, repair the wiring harness between joint connector (3) and the A/C-ECU connector.
- NO :** Check the A/C-ECU connector, and repair if necessary. If the A/C-ECU connector is in good condition, replace the A/C-ECU.

**STEP 13. Check the SRS-ECU for short circuit. Measure the resistance at SRS-ECU connector C-123.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect SRS-ECU connector C-123, and measure the resistance at the component side of SRS-ECU connector C-123.



- (3) Measure the resistance between SRS-ECU connector terminals 32 and 43.

**OK: 1 k $\Omega$  or more**

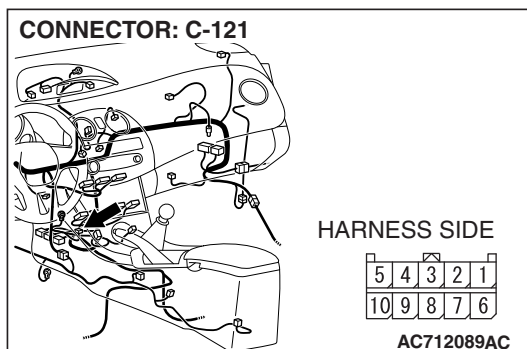
**Q: Is the check result normal?**

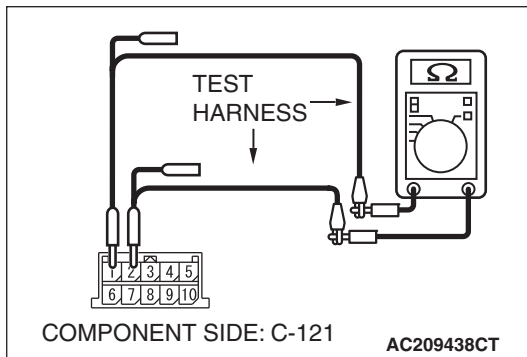
- YES :** Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, repair the wiring harness between joint connector (3) and SRS-ECU connector.
- NO :** Check the SRS-ECU connector, and repair if necessary. If the SRS-ECU connector is in good condition, replace the SRS-ECU.

**STEP 14. Check the TPMS receiver for short circuit.**

**Measure the resistance at TPMS receiver connector C-121.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect TPMS receiver connector C-121, and measure the resistance at the component side of TPMS receiver connector C-121.





- (3) Measure the resistance between TPMS receiver connector terminals 1 and 2.

**OK: 1 kΩ or more**

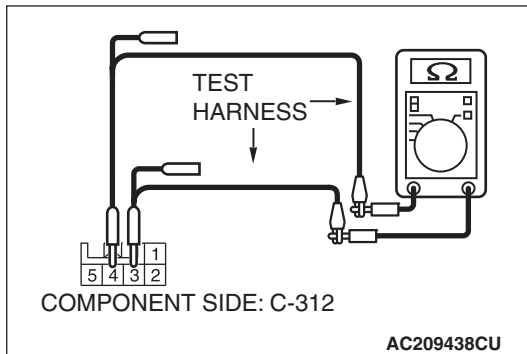
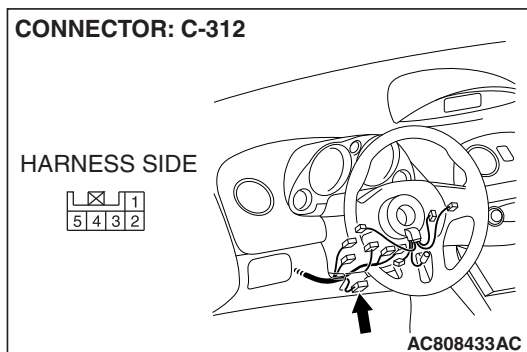
**Q: Is the check result normal?**

**YES :** Check the TPMS receiver connector, and repair if necessary. If the TPMS receiver connector is in good condition, repair the wiring harness between joint connector (3) and TPMS receiver connector.

**NO :** Check the TPMS receiver connector, and repair if necessary. If the TPMS receiver connector is in good condition, replace the TPMS receiver.

**STEP 15. Check the steering wheel sensor for short circuit. Measure the resistance at TPMS receiver connector C-312.**

- (1) Disconnect the negative battery terminal.  
(2) Disconnect steering wheel sensor connector C-312, and measure the resistance at the component side of steering wheel sensor connector C-312.



- (3) Measure the resistance between steering wheel sensor connector terminals 3 and 4.

**OK: 1 kΩ or more**

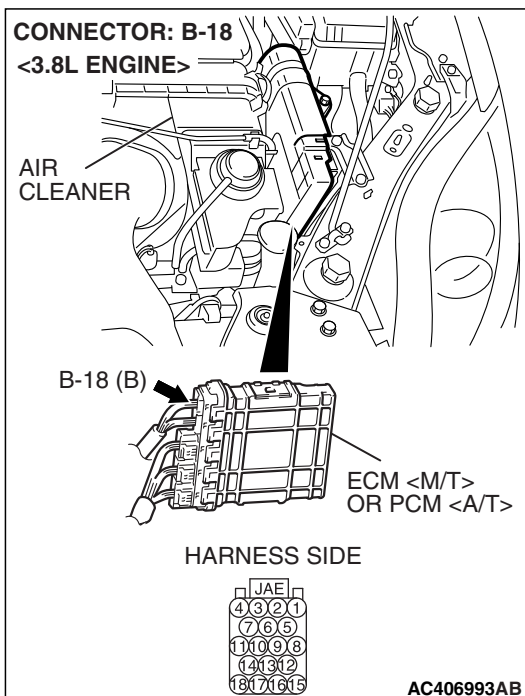
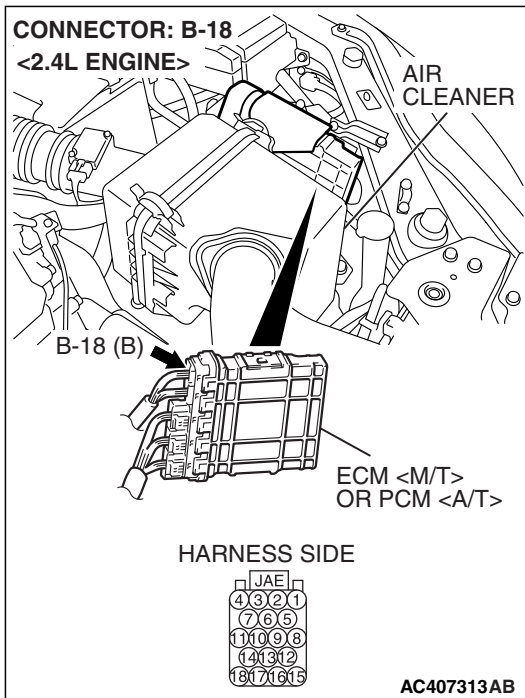
**Q: Is the check result normal?**

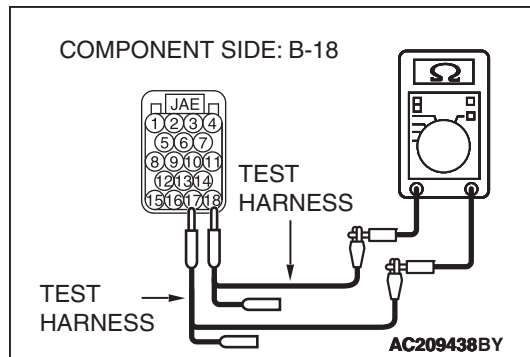
**YES :** Check the steering wheel sensor connector, and repair if necessary. If the steering wheel sensor connector is in good condition, repair the wiring harness between joint connector (3) and steering wheel sensor connector.

**NO :** Check the steering wheel sensor connector, and repair if necessary. If the steering wheel sensor connector is in good condition, replace the steering wheel sensor.

**STEP 16. Check the ECM <M/T> or PCM <A/T> for short circuit. Measure the resistance at ECM <M/T> or PCM <A/T> connector B-18.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect ECM <M/T> or PCM <A/T> connector B-18, and measure the resistance at the component side of ECM <M/T> or PCM <A/T> connector B-18.





- (3) Measure the resistance between ECM <M/T> or PCM <A/T> connector terminals 17 and 18.

**OK:  $120 \pm 20$  ohms**

**Q: Is the check result normal?**

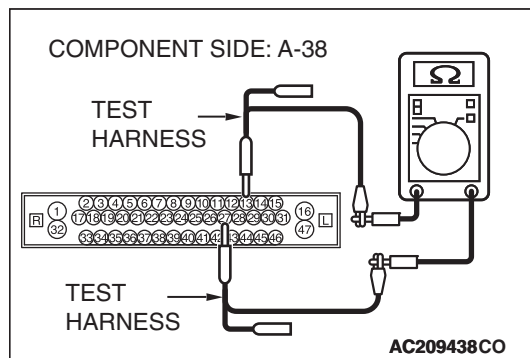
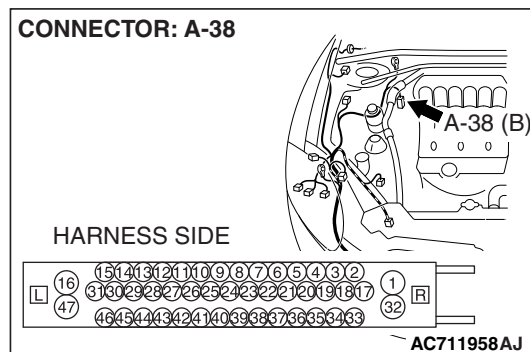
**YES :** Check the ECM <M/T> or PCM <A/T> connector, and repair if necessary. If the ECM <M/T> or PCM <A/T> connector is in good condition, go to Step 15.

**NO :** Check the ECM <M/T> or PCM <A/T> connector, and repair if necessary. If the ECM <M/T> or PCM <A/T> connector is in good condition, replace the ECM <M/T> or PCM <A/T>. When the ECM <M/T> or PCM <A/T> is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

### STEP 17. Check the TCL/ASC-ECU for short circuit.

**Measure the resistance at TCL/ASC-ECU connector A-38.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect TCL/ASC-ECU connector A-38, and measure the resistance at the component side of TCL/ASC-ECU connector A-38.



- (3) Measure the resistance between TCL/ASC-ECU connector terminals 13 and 27.

**OK: 1 k $\Omega$  or more**

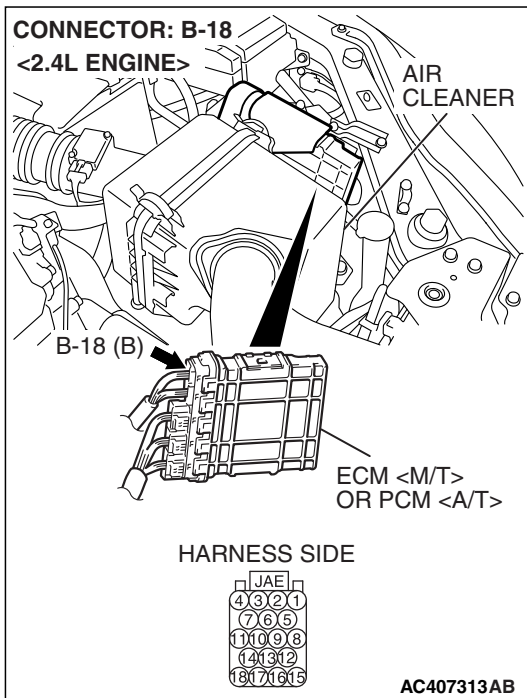
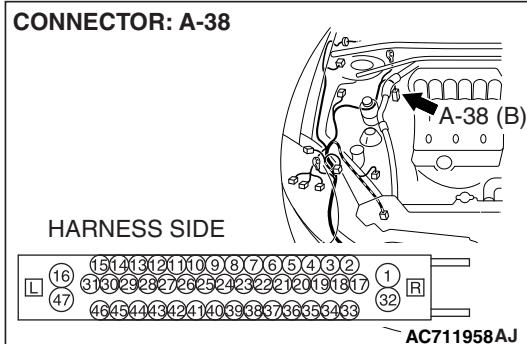
**Q: Is the check result normal?**

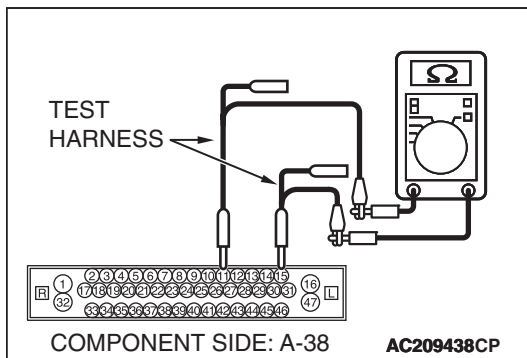
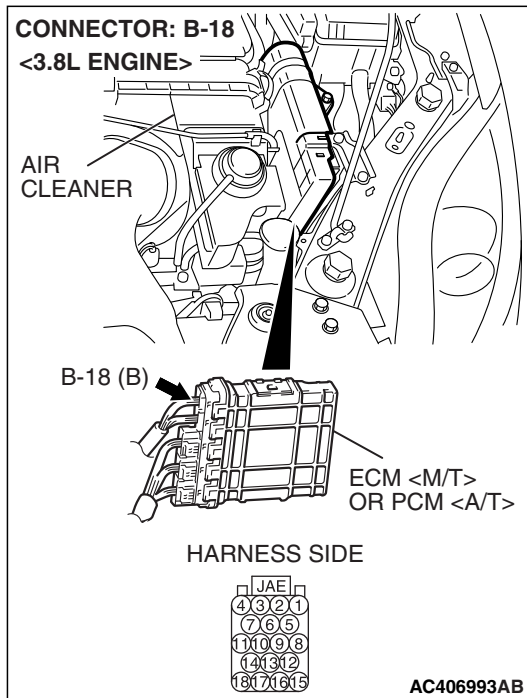
**YES :** Check the TCL/ASC-ECU connector, and repair if necessary. If the TCL/ASC-ECU connector is in good condition, go to Step 18.

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

**STEP 18. Check the CAN\_L and H lines between the ECM <M/T> or PCM <A/T> connector B-18 and the TCL/ASC-ECU connector A-38 for a short circuit. Measure the resistance at TCL/ASC-ECU connector A-38.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect ECM connector <M/T> or PCM connector <A/T> B-18 and TCL/ASC-ECU connector A-38, and measure the resistance at the harness side of TCL/ASC-ECU connector A-38.





- (3) Measure the resistance between TCL/ASC-ECU connector terminals 11 and 15.

**OK: 1 k $\Omega$  or more**

**Q: Is the check result normal?**

**YES <ECLIPSE>** : Go to Step 19.

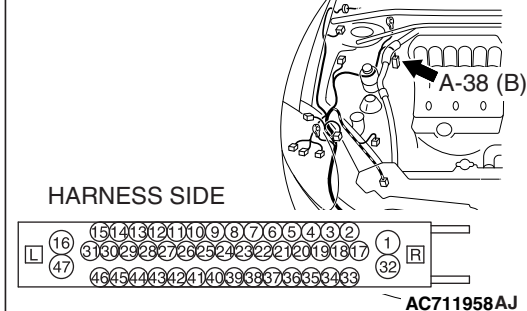
**YES <ECLIPSE SPYDER>** : Go to Step 20.

**NO** : Repair the wiring harness between ECM connector <M/T> or PCM connector <A/T> and TCL/ASC-ECU connector.

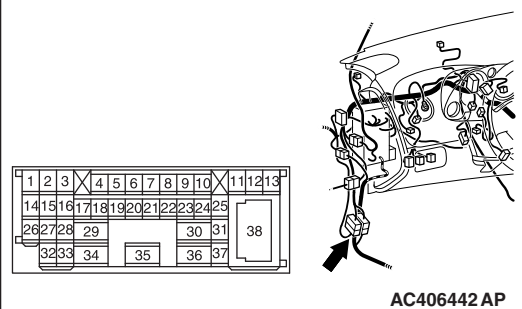
**STEP 19. Check the CAN\_L and H lines between the TCL/ASC-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-24.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect intermediate connector C-24 and TCL/ASC-ECU connector A-38, and measure the resistance at the male side of intermediate connector C-24 (at front wiring harness side).

**CONNECTOR: A-38**



**CONNECTOR: C-24**

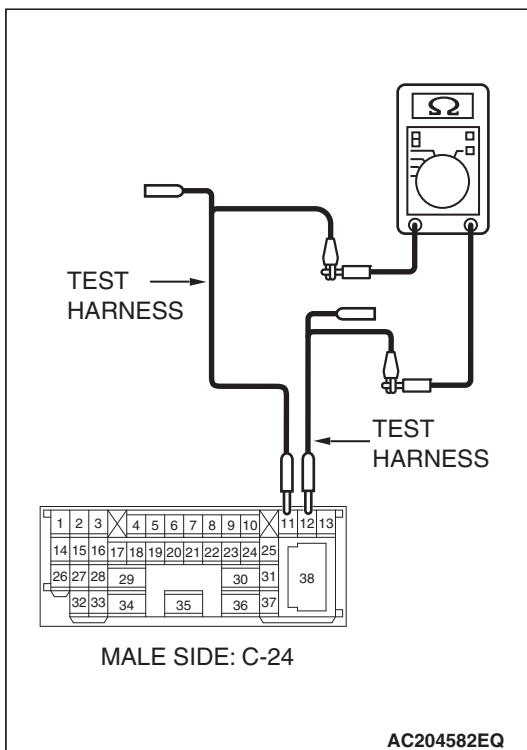


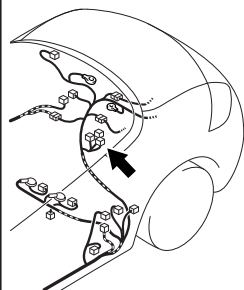
- (3) Measure the resistance between intermediate connector terminals 11 and 12.

**OK: 1 kΩ or more**

**Q: Is the check result normal?**

- YES :** Repair the wiring harness between joint connector (3) and data link connector.
- NO :** Repair the wiring harness between intermediate connector C-24 and TCL/ASC-ECU connector.



**CONNECTOR: D-45**

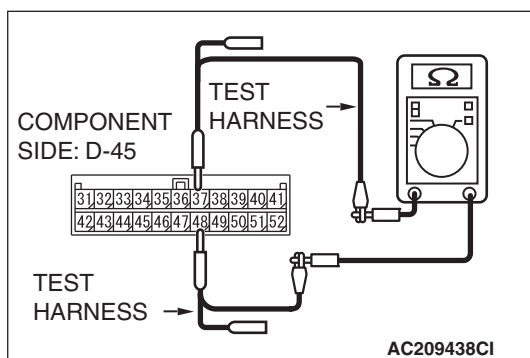
HARNESS SIDE

41	40	39	38	37	36	35	34	33	32	31
52	51	50	49	48	47	46	45	44	43	42

AC509379AP

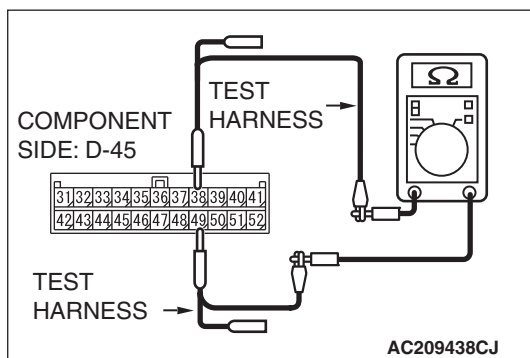
**STEP 20. Check the convertible top control module for short circuit. Measure the resistance at convertible top control module connector D-45.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect convertible top control module connector D-45, and measure the resistance at the component side of convertible top control module connector D-45.



AC209438CI

- (3) Measure the resistance between convertible top control module connector terminals 37 and 48.

**OK: 1 kΩ or more**

AC209438CJ

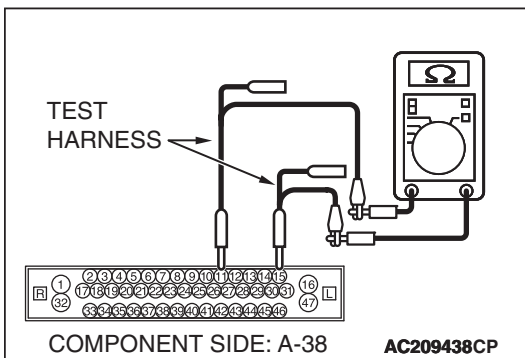
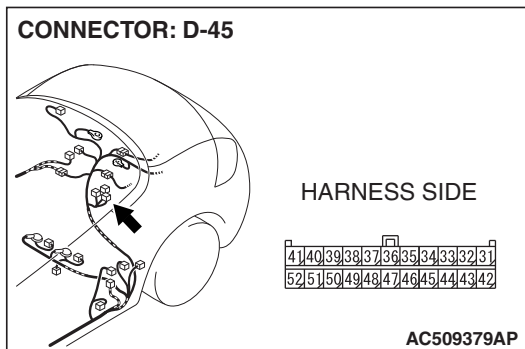
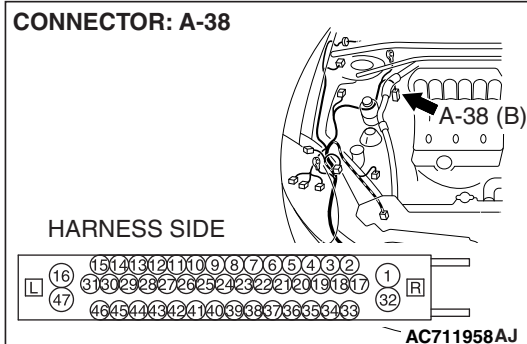
- (4) Measure the resistance between convertible top control module connector terminals 38 and 49.

**OK: 1 kΩ or more****Q: Is the check result normal?**

- YES** : Check the convertible top control module connector, and repair if necessary. If the convertible top control module connector is in good condition, go to Step 21.
- NO** : Check the convertible top control module connector, and repair if necessary. If the convertible top control module connector is in good condition, replace the convertible top control module.

**STEP 21. Check the CAN\_L and H lines between the convertible top control module connector and the TCL/ASC-ECU connector for a short circuit. Measure the resistance at TCL/ASC-ECU connector A-38.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect convertible top control module D-45 and TCL/ASC-ECU connector A-38, and measure the resistance at the harness side of TCL/ASC-ECU connector A-38.



- (3) Measure the resistance between TCL/ASC-ECU connector terminals 11 and 15.

**OK: 1 k $\Omega$  or more**

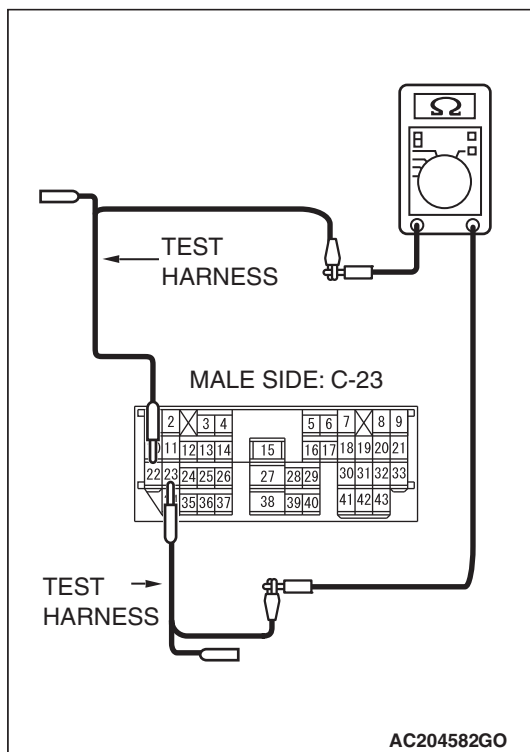
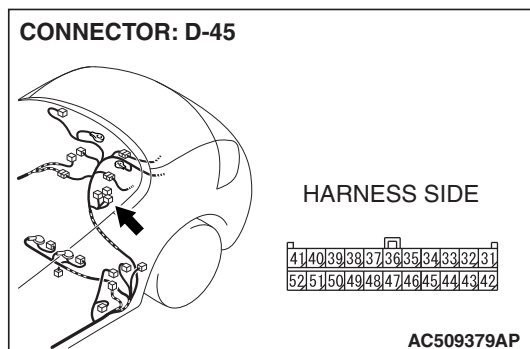
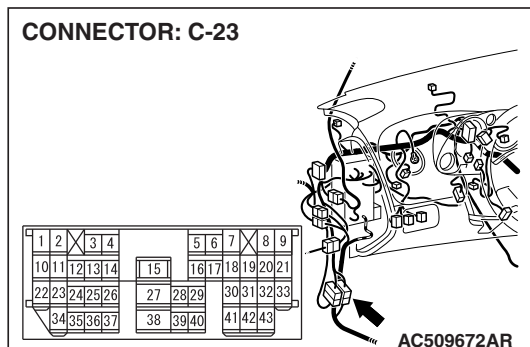
**Q: Is the check result normal?**

**YES :** Go to Step 22.

**NO :** Check the intermediate connector C-26, and repair if necessary. If the intermediate connector C-26 in good condition, repair the wiring harness between TCL/ASC-ECU connector A-38 and convertible top control module connector D-45.

**STEP 22. Check the CAN\_L and H lines between the convertible top control module connector D-45 and the intermediate connector C-23 for a short circuit. Measure the resistance at intermediate connector C-23.**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect intermediate connector C-23 and convertible top control module connector D-45, and measure the resistance at the male side of intermediate connector C-23 (at front wiring harness side).



- (3) Measure the resistance between intermediate connector C-23 terminals 22 and 23.

**OK: 1 k $\Omega$  or more**

**Q: Is the check result normal?**

- YES :** Repair the wiring harness between joint connector (3) and data link connector.
- NO :** Repair the wiring harness between intermediate connector C-23 and convertible top control module connector D-45.

**STEP 23.** Check the CAN bus lines joint connector (3) and the data link connector. Measure the resistance between joint connector (3) C-03 and data link connector C-125.

**⚠ CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

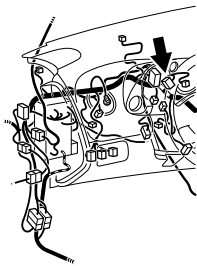
**⚠ CAUTION**

**Disconnect the negative battery terminal.** For details refer to [P.54C-8](#).

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03, and measure the resistance between the wiring harness side connector of data link connector C-125 and joint connector (3) C-03.

**CONNECTOR: C-03**

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

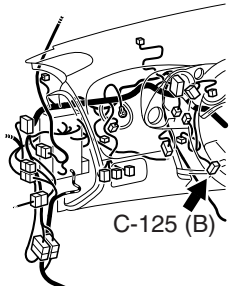


AC406442BE

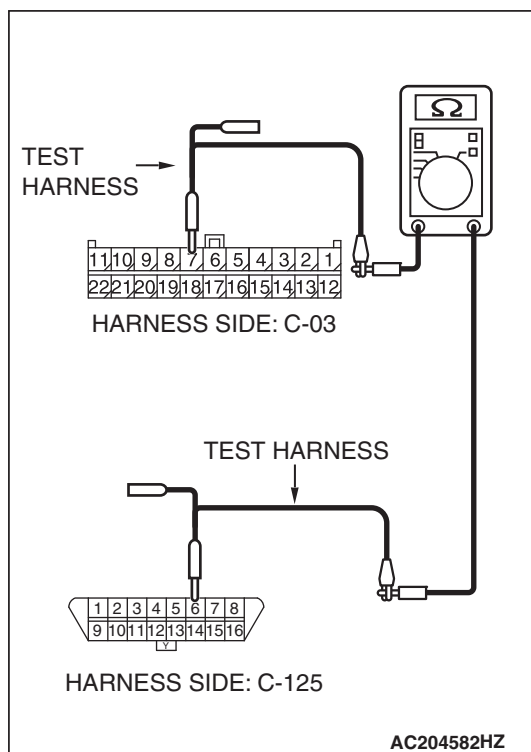
**CONNECTOR: C-125**

C-125

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

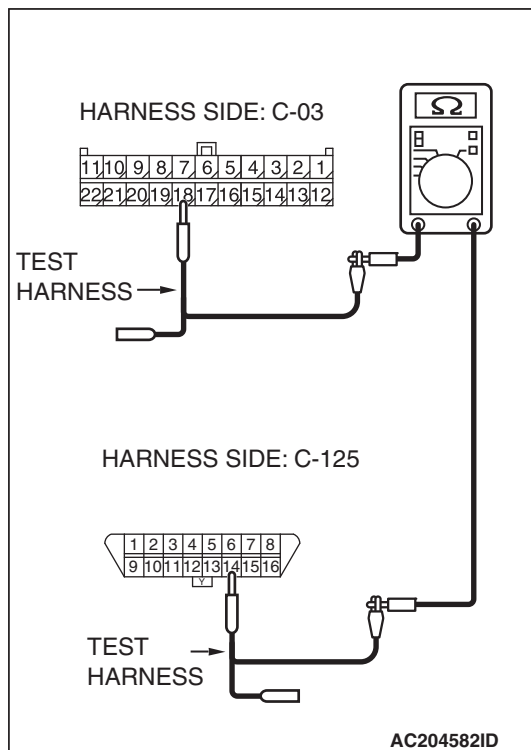


AC509672BG



- (3) Measure the resistance between joint connector (3) C-03 (terminal 7) and data link connector C-125 (terminal 6).

**OK: 2 ohms or less**



- (4) Measure the resistance between joint connector (3) C-03 (terminal 18) and data link connector C-125 (terminal 14).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

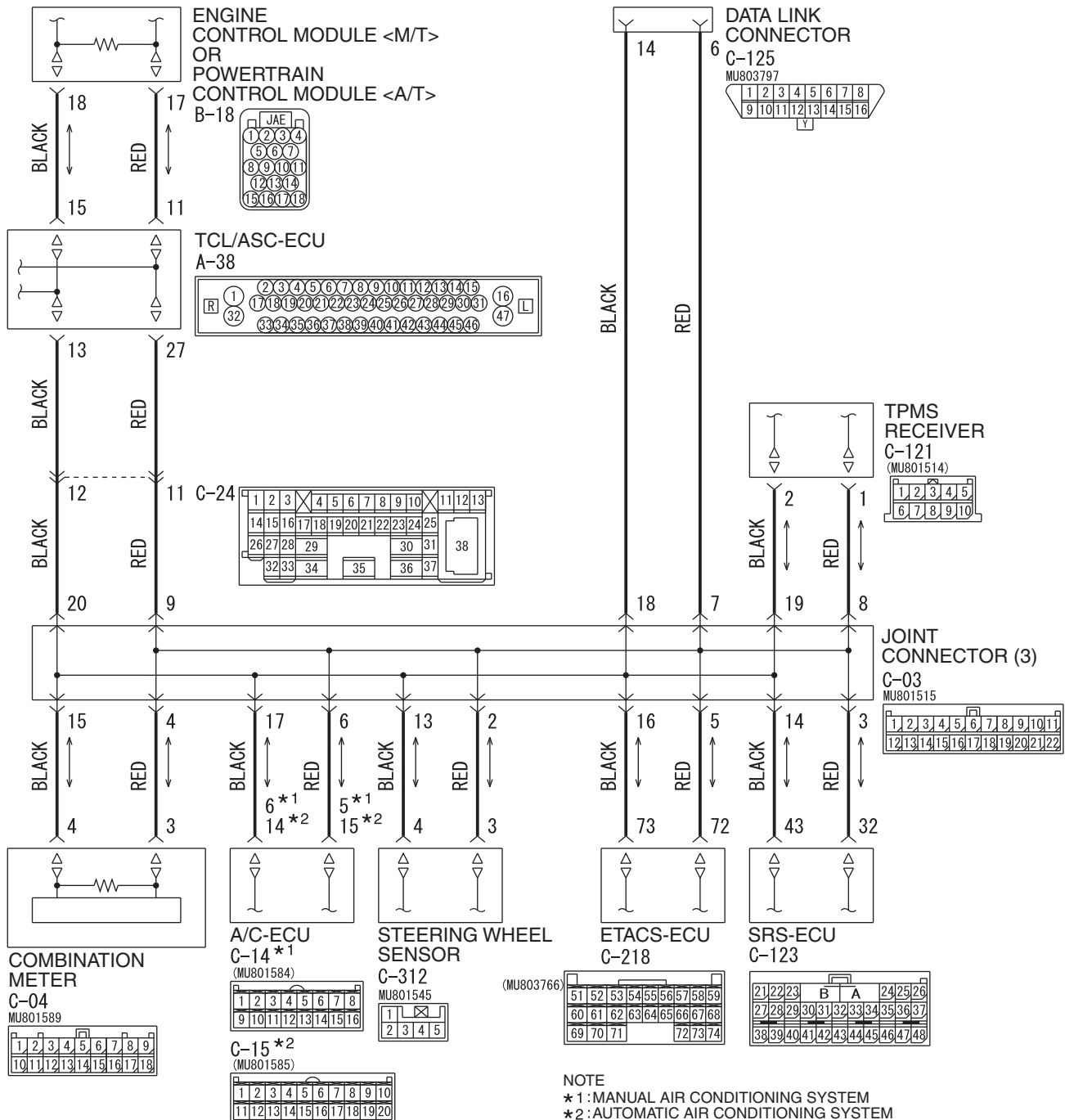
- YES :** Repair the wiring harness between joint connector (3) and the intermediate connector.
- NO :** Repair the wiring harness between joint connector (3) C-03 and the data link connector C-125.

DIAGNOSTIC ITEM 4: Diagnose the terminator resistors

**CAUTION**

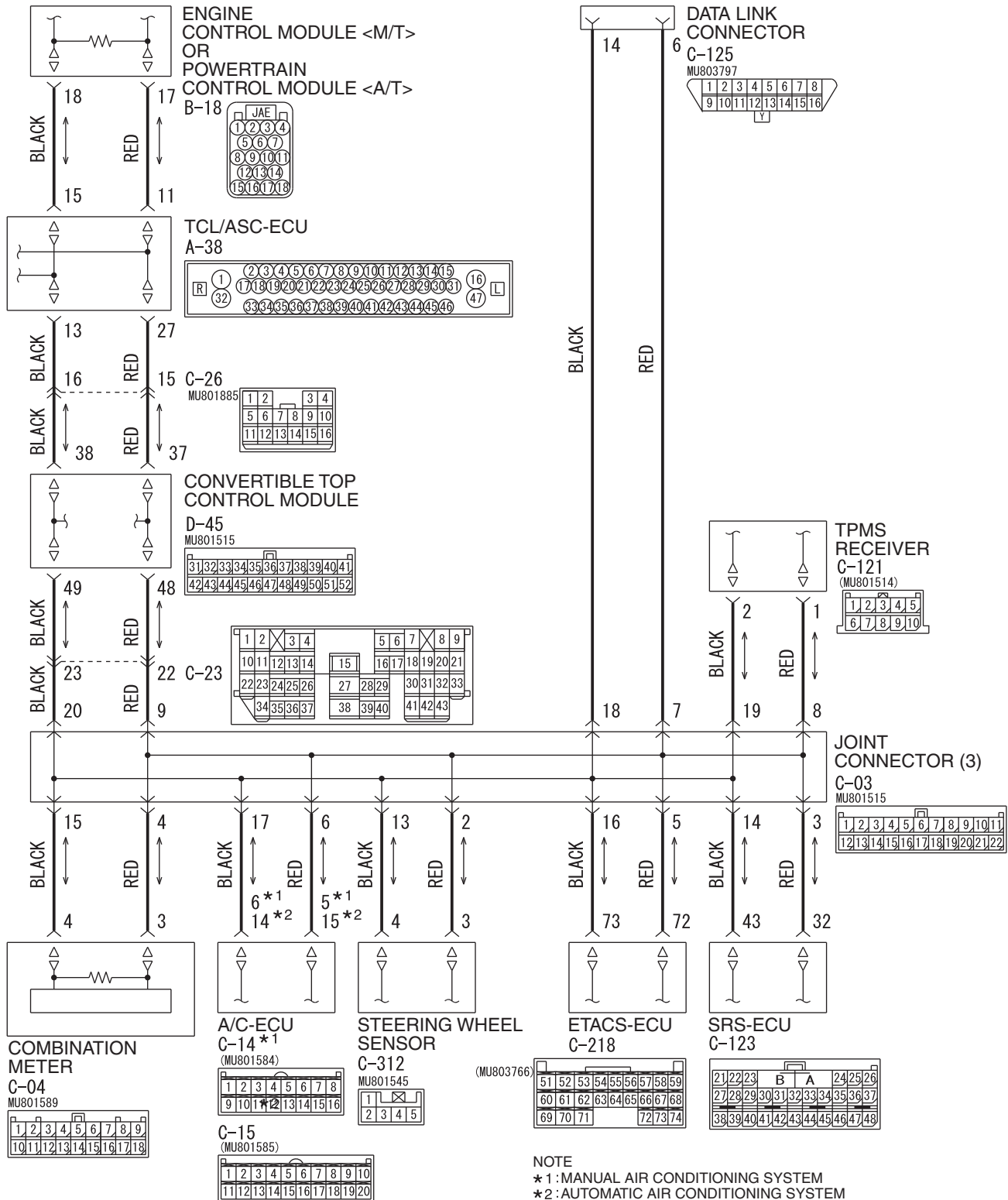
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<ECLIPSE>

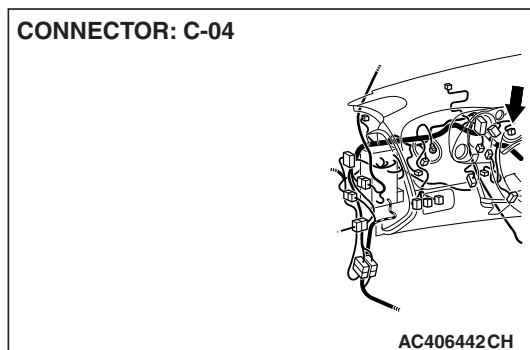
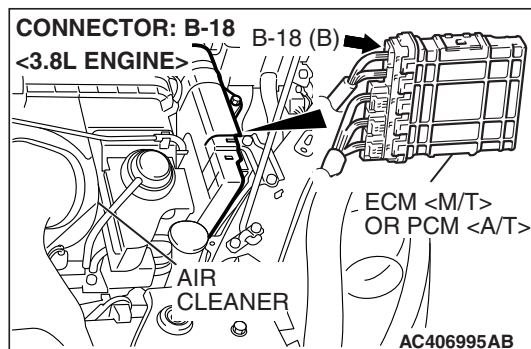
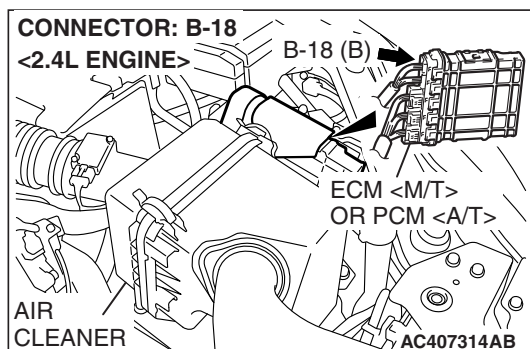


WAP54M000A

## &lt;ECLIPSE SPYDER&gt;



WAP54M001A



## FUNCTION

The resistance in the communication errors condition cannot be measured by the CAN bus diagnostics, therefore, judge the terminator resistor only when receiving the each ECU periodically sent data normally.

## TROUBLE JUDGMENT CONDITIONS

The scan tool MB991958 judges the trouble when the periodically sent data from each ECU can be received normally but the resistance value between CAN\_H and CAN\_L line is other than from 50 ohms to 70 ohms.

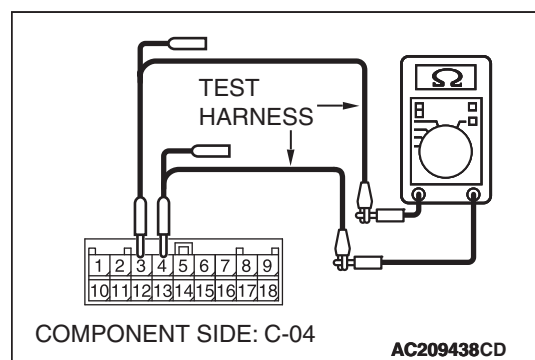
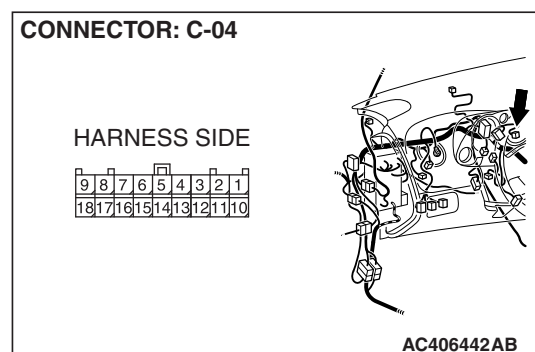
## TROUBLESHOOTING HINTS

- The combination meter may be defective (malfunction of the terminator resistor)
- The ECM <M/T> or PCM <A/T> may be defective (malfunction of the terminator resistor)
- The wiring harness may be defective (larger resistance of harness between the combination meter and the ECM <M/T> or PCM <A/T>)

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra fine probe
- MB991923: Power plant ECU Check Harness



**STEP 1. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-04.**

**⚠ CAUTION**

A digital multimeter should be used. For details refer to **P.54C-8**.

- (1) Disconnect combination meter C-04, and measure the resistance at the component side of combination meter connector C-04.

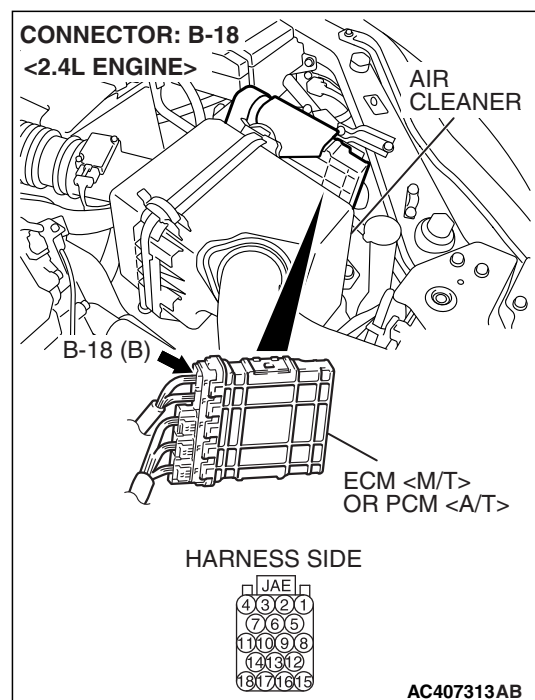
- (2) Measure the resistance between combination meter connector terminals 3 and 4.

**OK:  $120 \pm 20$  ohms**

**Q: Does the resistance measure  $120 \pm 20$  ohms?**

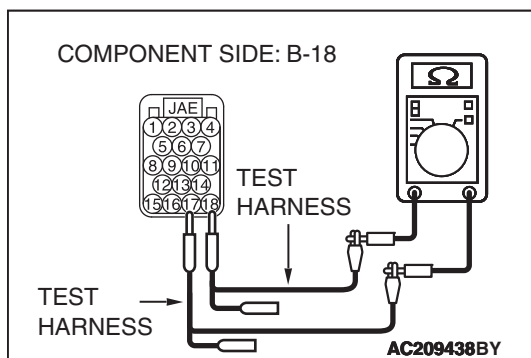
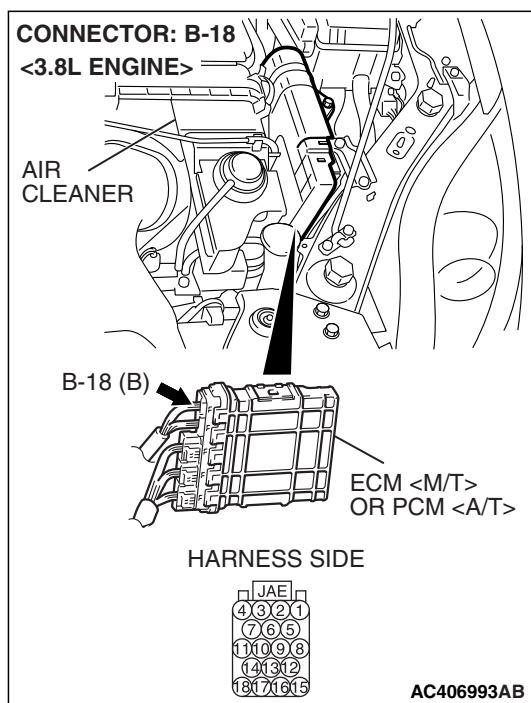
**YES :** Go to Step 2.

**NO :** Replace the combination meter.



**STEP 2. Check the terminator resistor inside the ECM <M/T> or PCM <A/T>. Measure the resistance at ECM <M/T> or PCM <A/T> connector B-18.**

- (1) Disconnect ECM <M/T> or PCM <A/T> connector B-18, and measure the resistance at the component side of ECM <M/T> or PCM <A/T> connector B-18.



(2) Measure the resistance between ECM <M/T> or PCM <A/T> connector terminals 17 and 18.

**OK:  $120 \pm 20$  ohms**

**Q: Does the resistance measure  $120 \pm 20$  ohms?**

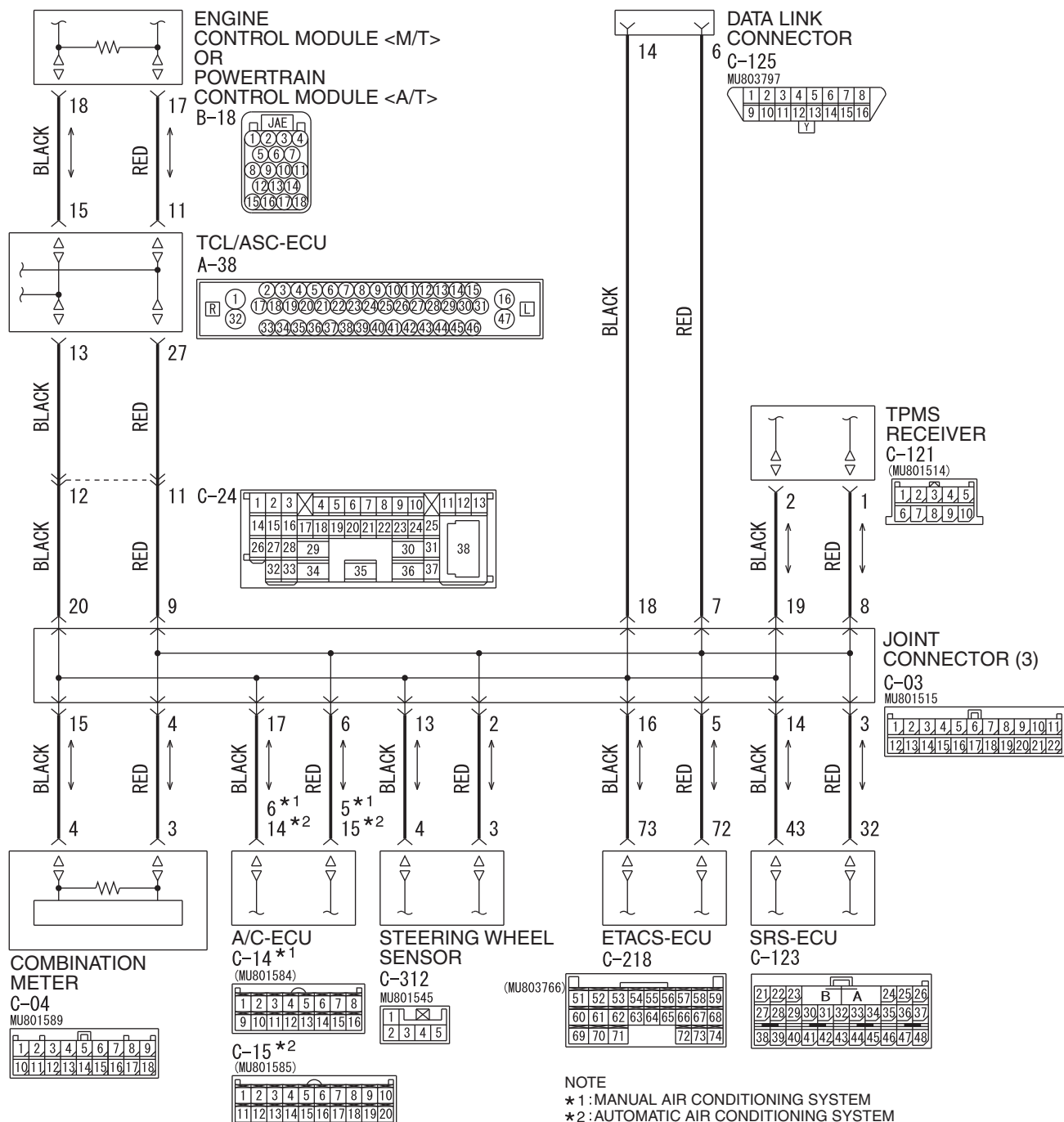
**YES :** Repair the wiring harness between combination meter connector and the ECM <M/T> or PCM <A/T> connector.

**NO :** Replace the ECM <M/T> or PCM <A/T>. When the ECM <M/T> or PCM <A/T> is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

**DIAGNOSTIC ITEM 5: 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 so, a component connected to the CAN bus line may be damaged.

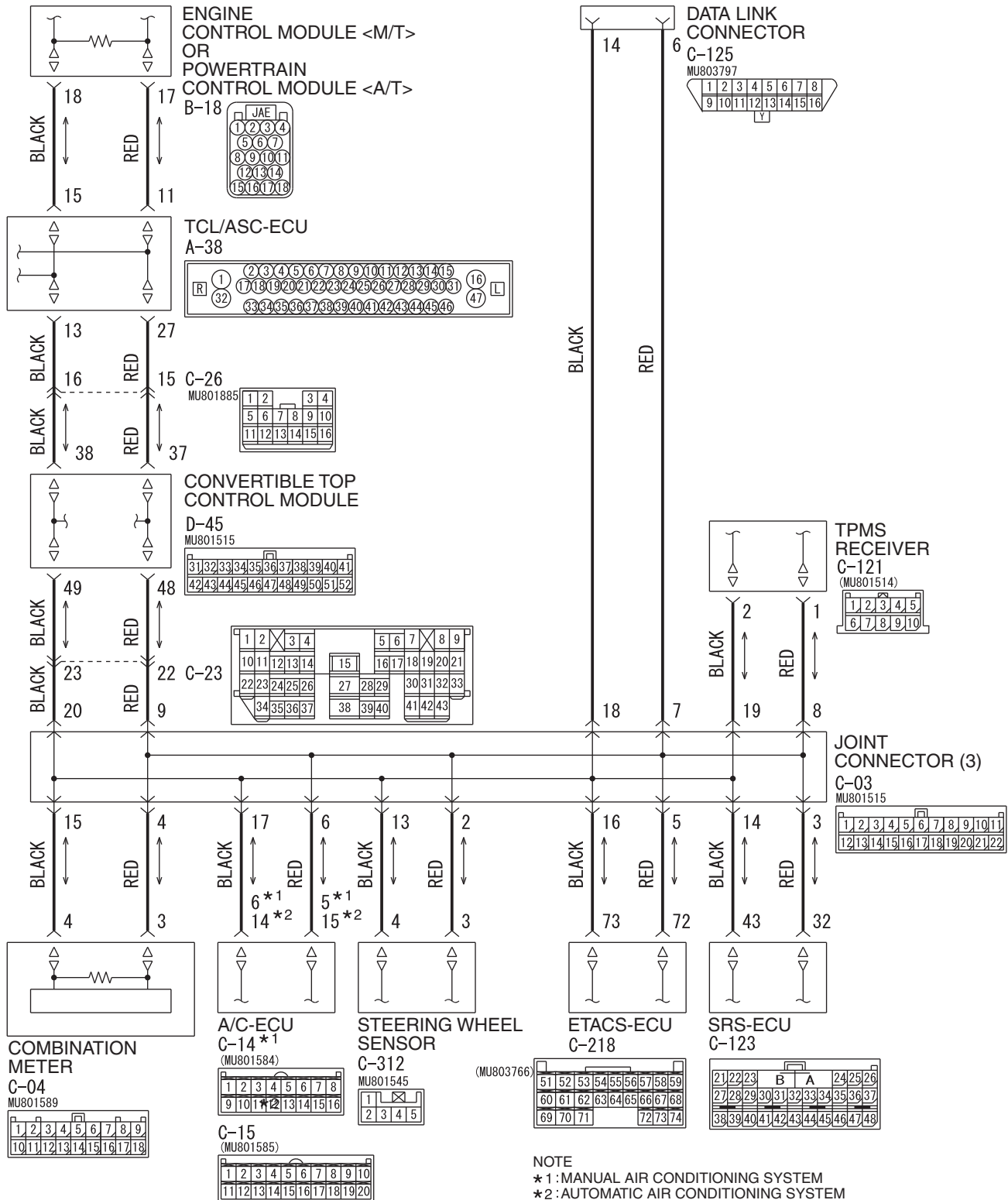
&lt;ECLIPSE&gt;



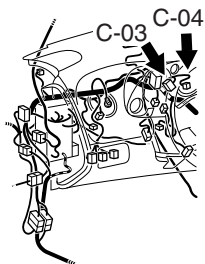
## NOTE

- \*1 : MANUAL AIR CONDITIONING SYSTEM  
\*2 : AUTOMATIC AIR CONDITIONING SYSTEM

<ECLIPSE SPYDER>



## CONNECTORS: C-03, C-04



AC406442CI

## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the combination meter" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive the combination meter data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from combination meter cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between combination meter and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or combination meter connector]
- Power supply circuit malfunction of the combination meter
- The combination meter may be defective

## DIAGNOSIS

## Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra fine probe

**STEP 1. Check joint connector (3) C-03 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

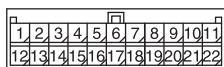
**Q: Are joint connector (3) C-03 and combination meter connector C-04 in good condition?**

**YES :** Go to Step 2.

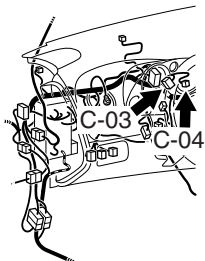
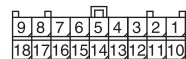
**NO :** Repair the damaged parts. Replace the joint connector as necessary.

## CONNECTORS: C-03, C-04

C-03

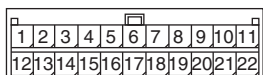
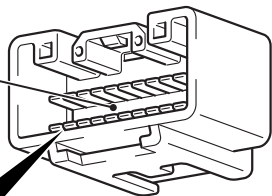


C-04 HARNESS SIDE



AC406442BD

SHORT PIN



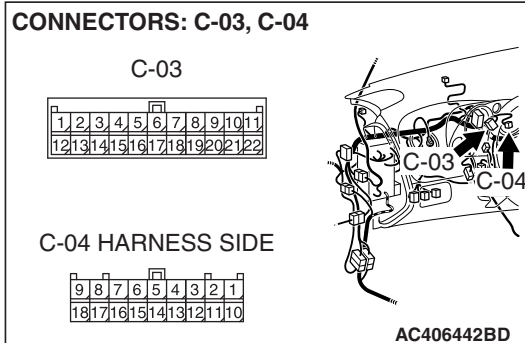
AC209350AD

**STEP 2. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-03 and combination meter connector C-04.**

**CAUTION**

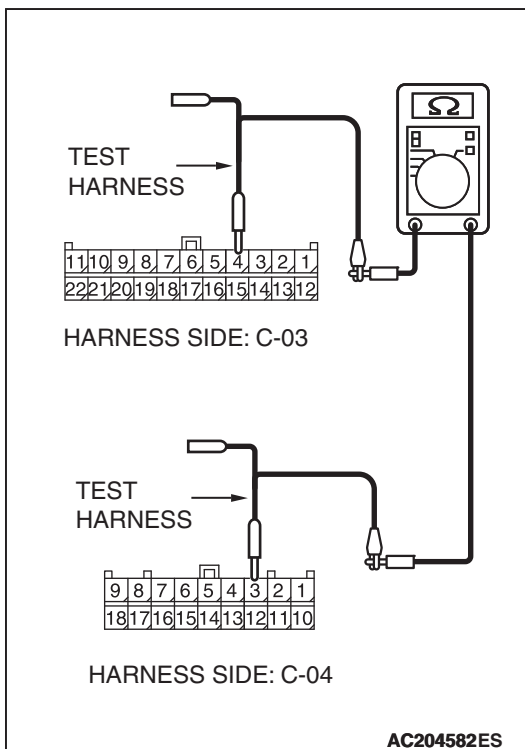
- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

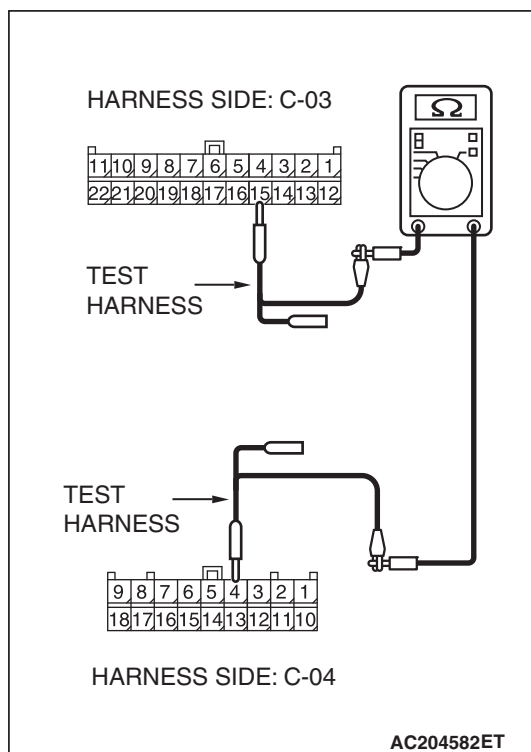
- (1) Disconnect joint connector (3) C-03 and combination meter connector C-04, and measure the resistance between each wiring harness side connector.



- (2) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 3.

**OK: 2 ohms or less**





- (3) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 4.

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

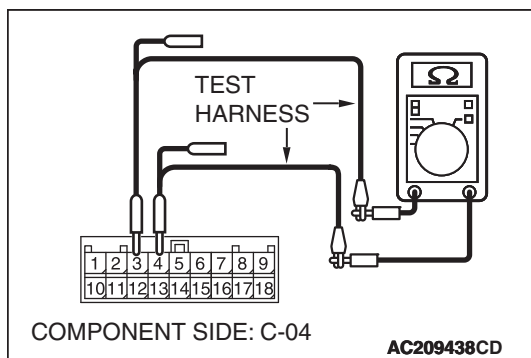
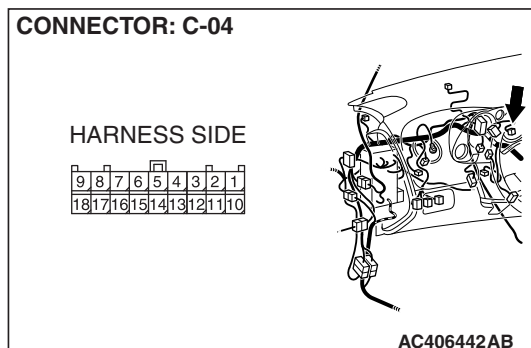
**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Go to Step 3.

**NO :** Repair the wiring harness between joint connector (3) and the combination meter connector.

**STEP 3. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-04.**

- (1) Disconnect combination meter C-04, and measure the resistance at the component side of combination meter connector C-04.



- (2) Measure the resistance between combination meter connector terminals 3 and 4.

**OK: 120 ± 20 ohms**

**Q: Does the resistance measure 120 ± 20 ohms?**

**YES :** Refer to GROUP 54A, Combination Meter Diagnosis – Symptom procedures, Power supply circuit [P.54A-107](#).

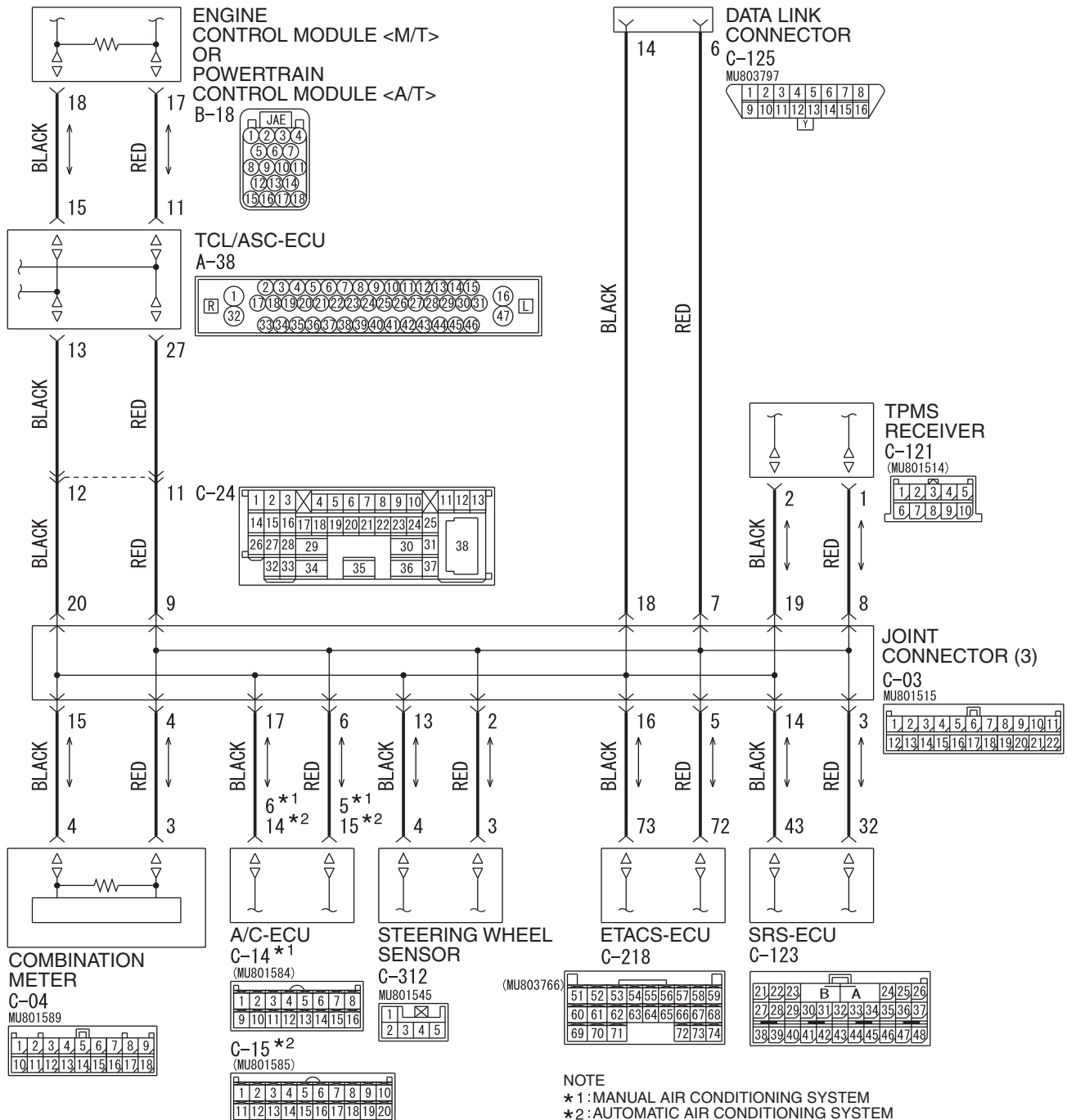
**NO :** Replace the combination meter.

DIAGNOSTIC ITEM 6: Diagnose when the scan tool cannot receive the data sent by ETACS-ECU.

**CAUTION**

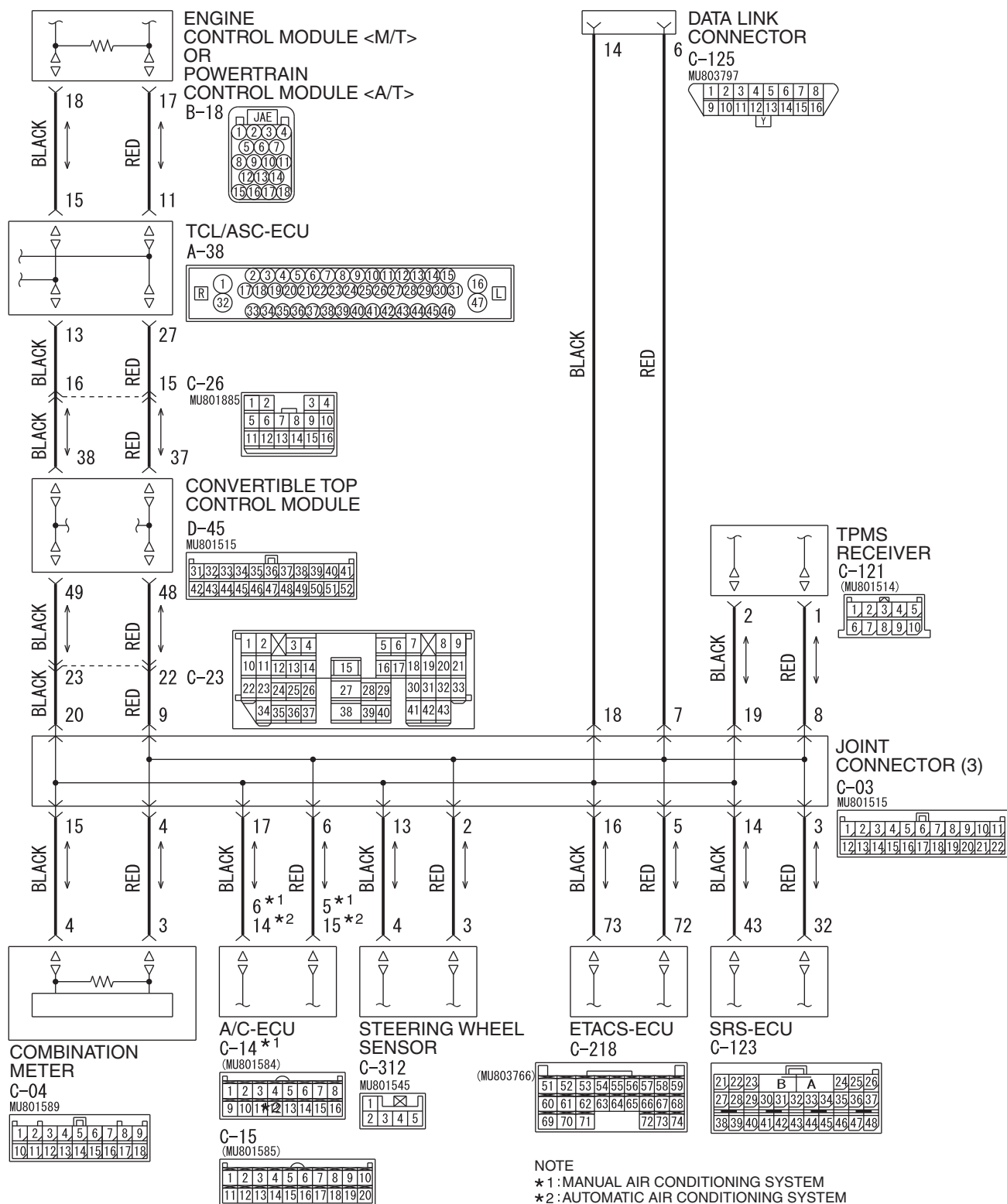
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<ECLIPSE>



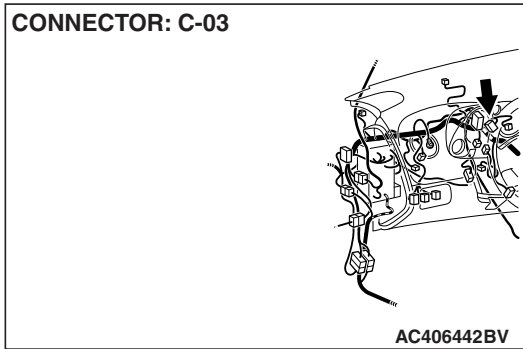
WAP54M000A

## &lt;ECLIPSE SPYDER&gt;

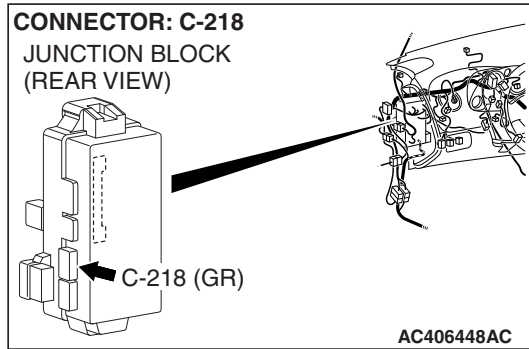


WAP54M001A

CONNECTOR: C-03



CONNECTOR: C-218  
JUNCTION BLOCK  
(REAR VIEW)



## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the ETACS-ECU" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive the ETACS-ECU data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from ETACS-ECU cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between ETACS-ECU and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or ETACS-ECU connector]
- Power supply circuit malfunction of the ETACS-ECU
- The ETACS-ECU may be defective

## DIAGNOSIS

### Required Special Tools:

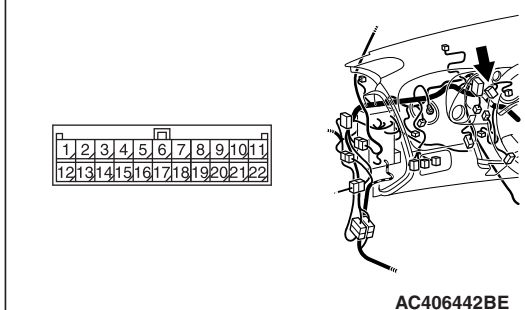
- MB991223: Harness Set
- MB992006: Extra fine probe

**STEP 1. Check joint connector (3) C-03 and ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

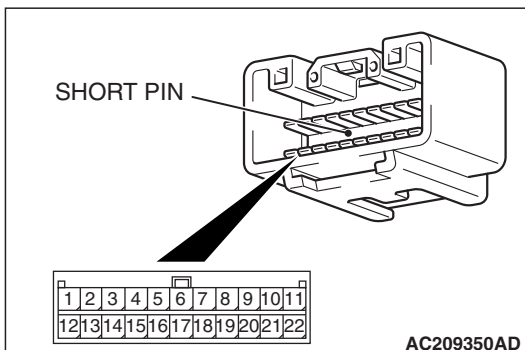
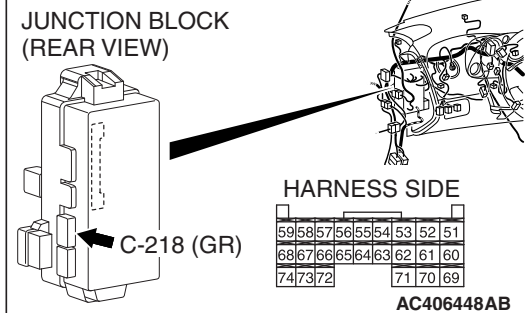
**⚠ CAUTION**

The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to [P.54C-8](#).

**CONNECTOR: C-03**



**CONNECTOR: C-218**



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

**Q: Are joint connector (3) C-03 and ETACS-ECU connector C-218 in good condition?**

**YES :** Go to Step 2.

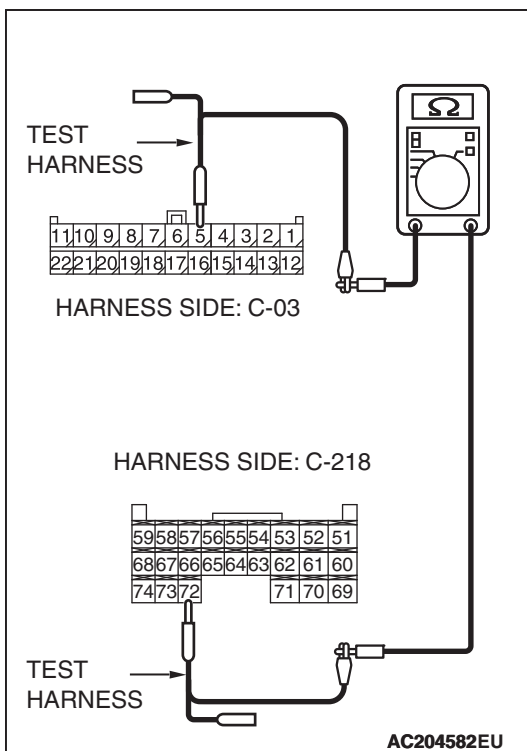
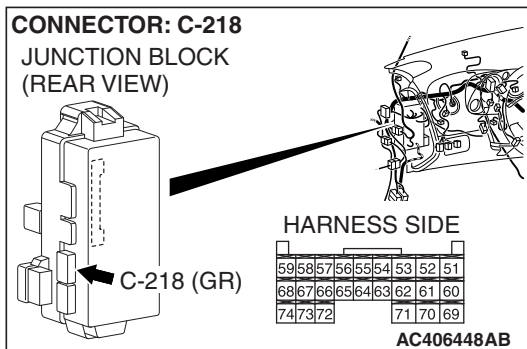
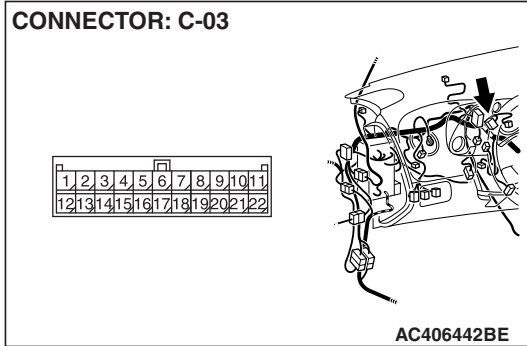
**NO :** Repair the damaged parts. Replace the joint connector as necessary.

**STEP 2. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-03 and ETACS-ECU connector C-218.**

**⚠ CAUTION**

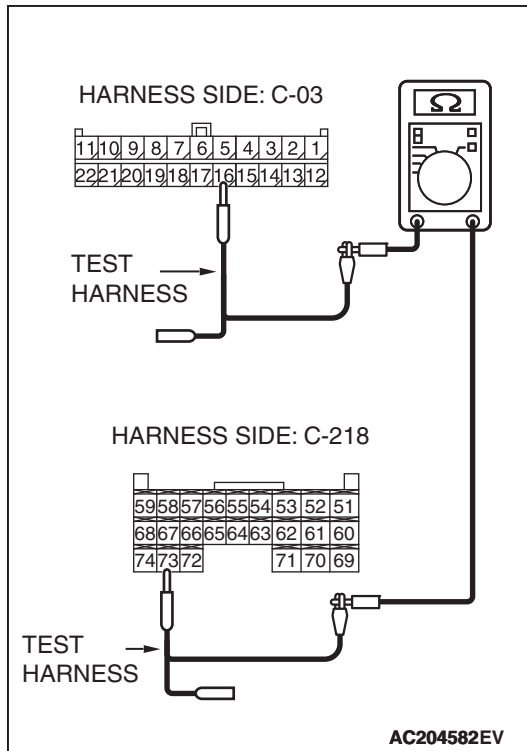
- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

- (1) Disconnect joint connector (3) C-03 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-03 and ETACS-ECU connector C-218.



- (2) Measure the resistance between joint connector (3) terminal 5 and ETACS-ECU connector terminal 72.

**OK: 2 ohms or less**



- (3) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Diagnose the ETACS-ECU. Refer to GROUP 54B, SWS Diagnosis – Symptom procedures, Communication with the ETACS-ECU is not possible [P.54B-74](#).

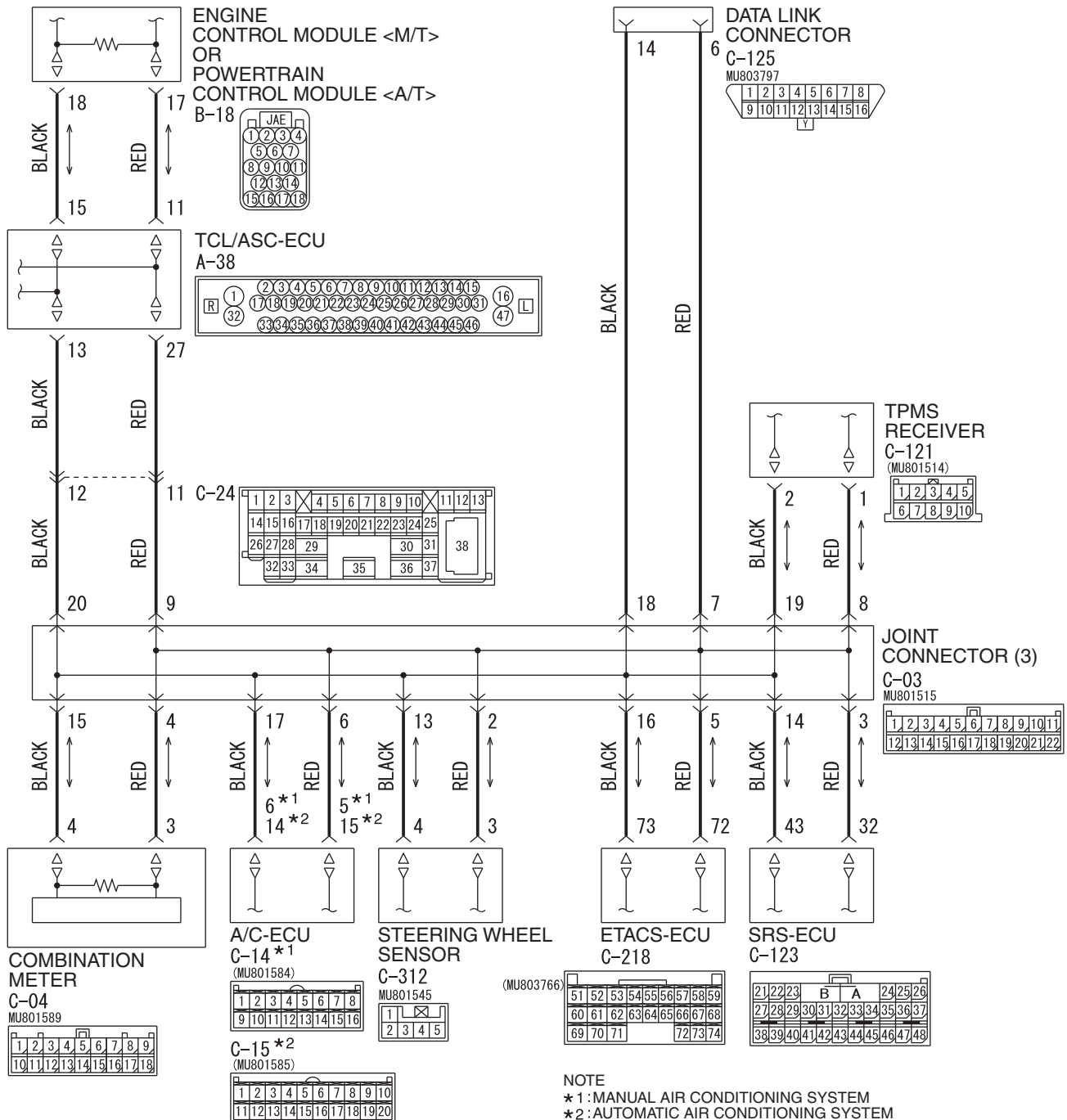
**NO :** Repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

DIAGNOSTIC ITEM 7: Diagnose when the scan tool cannot receive the data sent by A/C-ECU.

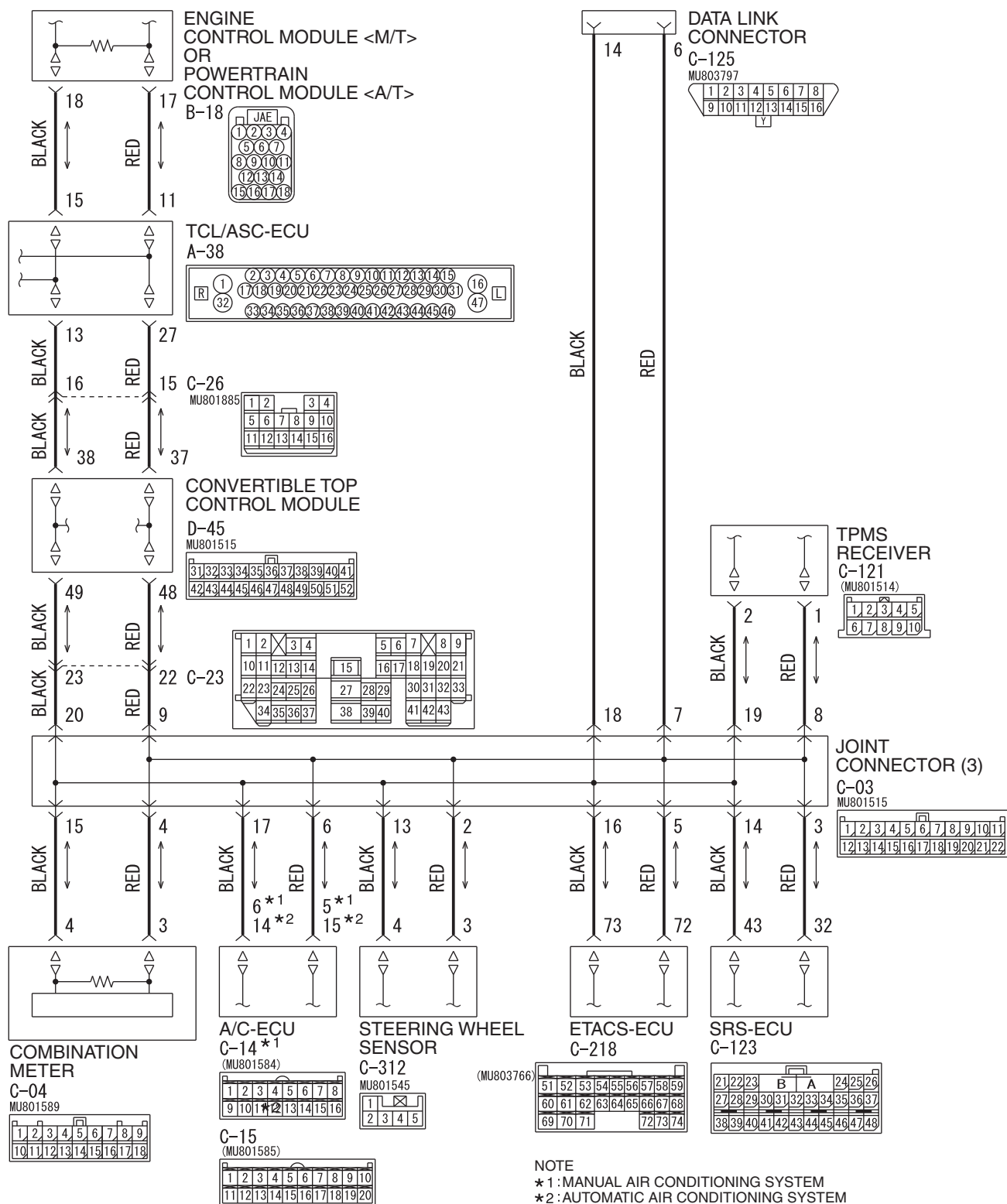
**CAUTION**

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

<ECLIPSE>

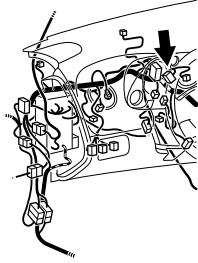


## &lt;ECLIPSE SPYDER&gt;



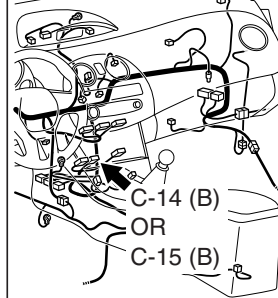
WAP54M001A

CONNECTOR: C-03



AC406442BV

CONNECTORS: C-14, C-15



AC406444CX

## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the A/C-ECU" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive the A/C-ECU data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from A/C-ECU cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between A/C-ECU and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or A/C-ECU connector]
- Power supply circuit malfunction of the A/C-ECU
- The A/C-ECU may be defective

## DIAGNOSIS

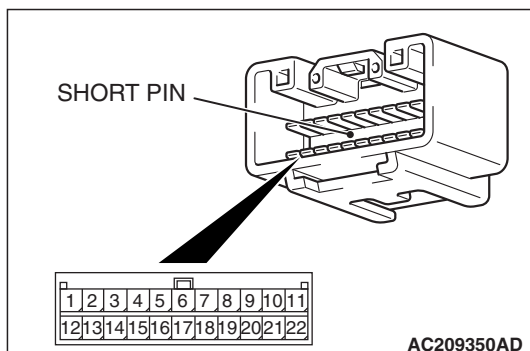
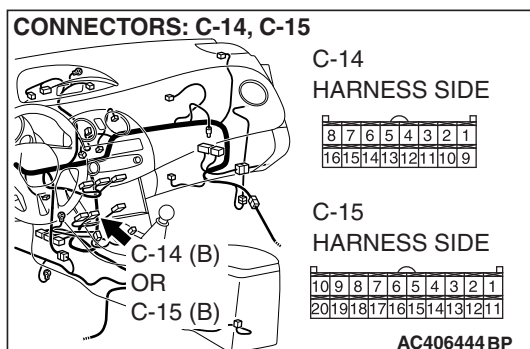
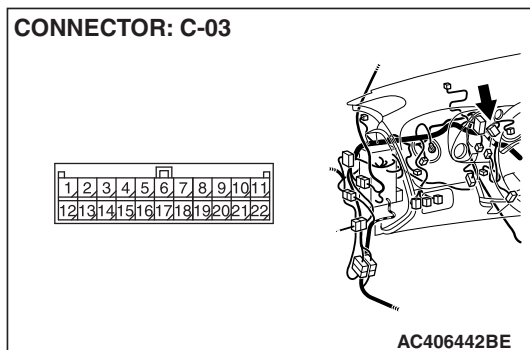
### Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra fine probe

**STEP 1.** Check joint connector (3) C-03 and A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**⚠ CAUTION**

The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to **P.54C-8**.



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

**Q:** Are joint connector (3) C-03 and A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system> in good condition?

**YES :** Go to Step 2.

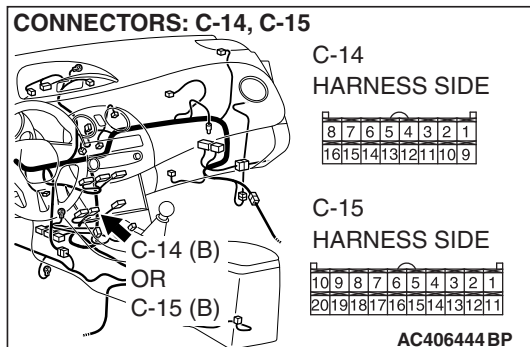
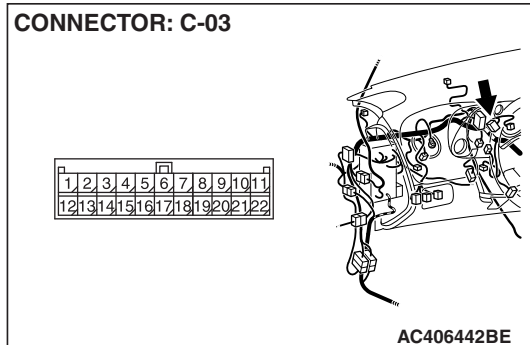
**NO :** Repair the damaged parts. Replace the joint connector as necessary.

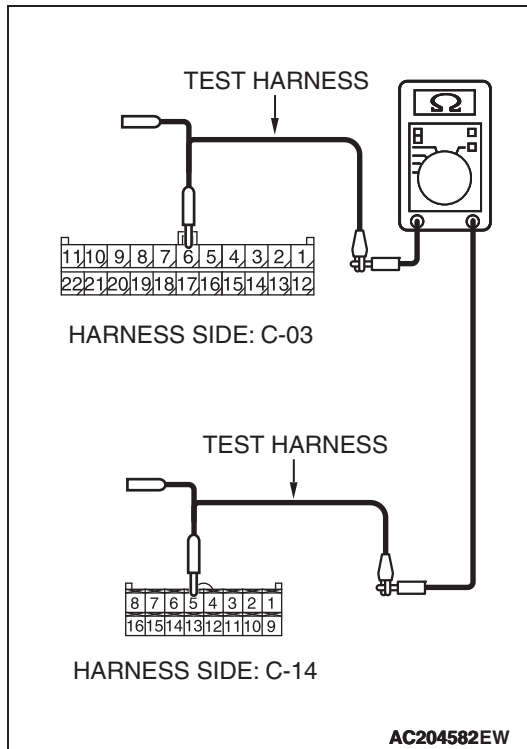
**STEP 2.** Check the CAN bus lines between joint connector (3) C-03 and the A/C-ECU. Measure the resistance between joint connector (3) C-03 and A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>.

**CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

- (1) Disconnect joint connector (3) C-03 and A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>, and measure the resistances at the wiring harness sides of joint connector (3) C-03 and A/C-ECU connector C-14 <manual air conditioning system> or C-15 <automatic air conditioning system>.



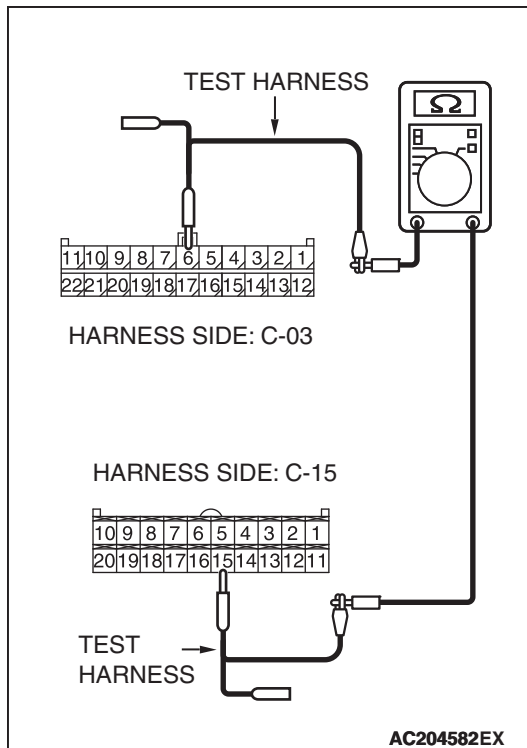


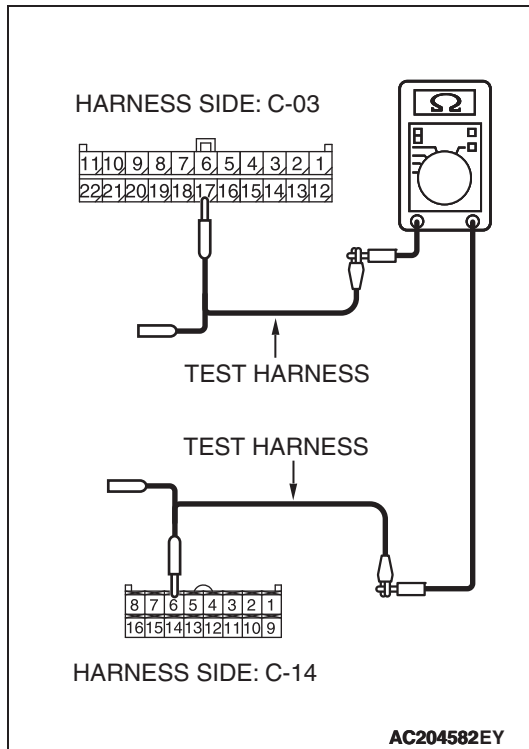
- (2) Measure the resistance between joint connector (3) C-03 (terminal 6) and A/C-ECU connector C-14 (terminal 5) <manual air conditioning system> or A/C-ECU connector C-15 (terminal15) <automatic air conditioning system>.

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).





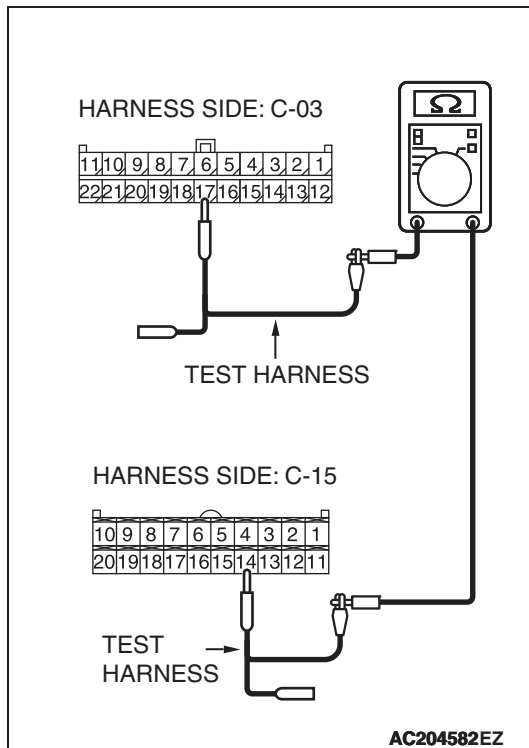
- (3) Measure the resistance between joint connector (3) C-03 (terminal 17) and A/C-ECU connector C-14 (terminal 6) <manual air conditioning system> or A/C-ECU connector C-15 (terminal 14) <automatic air conditioning system>.

**OK: 2 ohms or less**

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C Diagnosis – Symptom procedures, Malfunction of the A/C-ECU power supply system [P.55A-98](#) <manual air conditioning system> or GROUP 55B, Automatic A/C Diagnosis – Symptom procedures, Malfunction of the A/C-ECU power supply system [P.55B-106](#) <automatic air conditioning system>.

**NO :** Repair the wiring harness between joint connector (3) C-03 and the A/C-ECU connector C-14 or C-15.

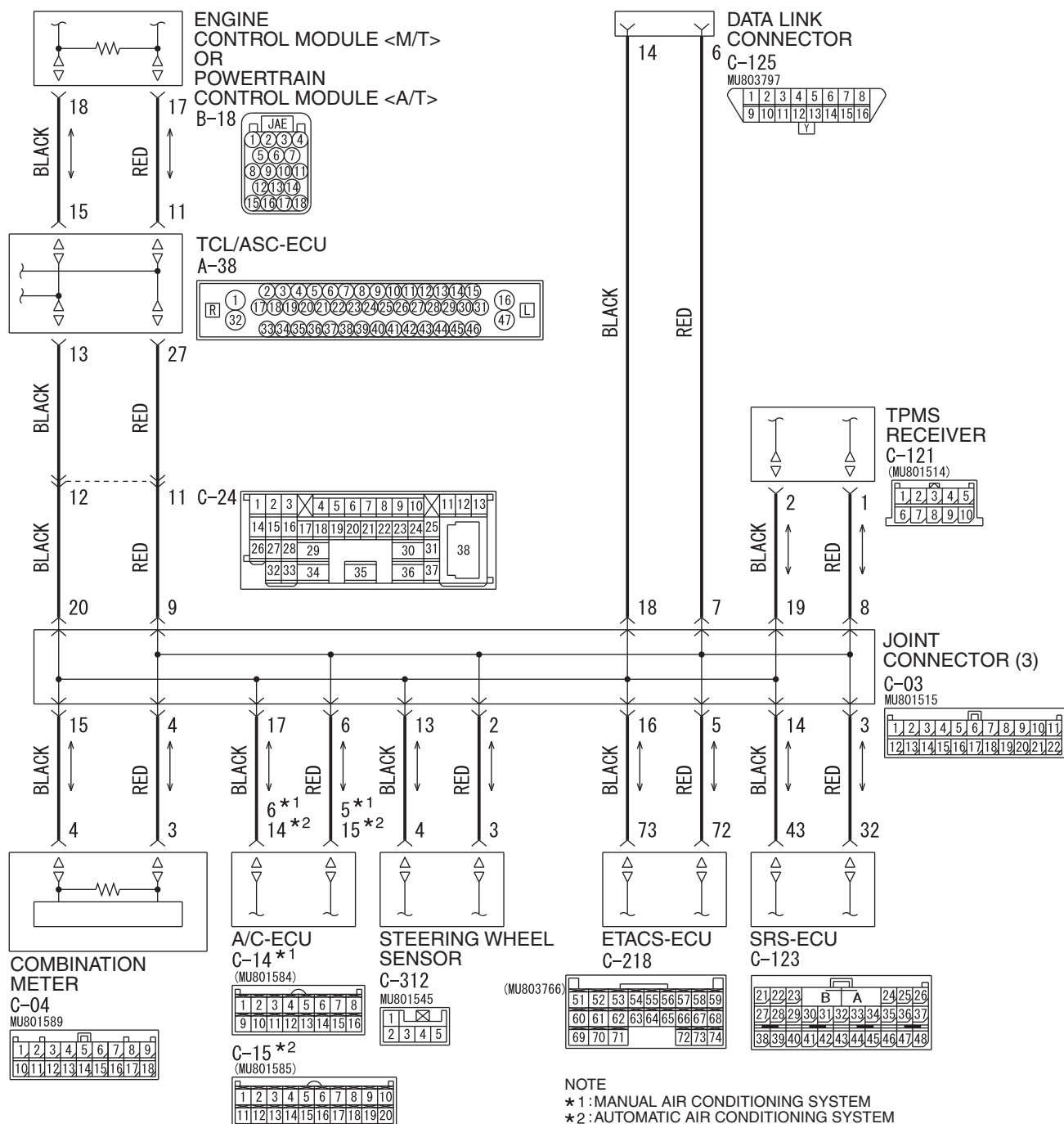


## DIAGNOSTIC ITEM 8: Diagnose when the scan tool cannot receive the data sent by SRS-ECU.

**CAUTION**

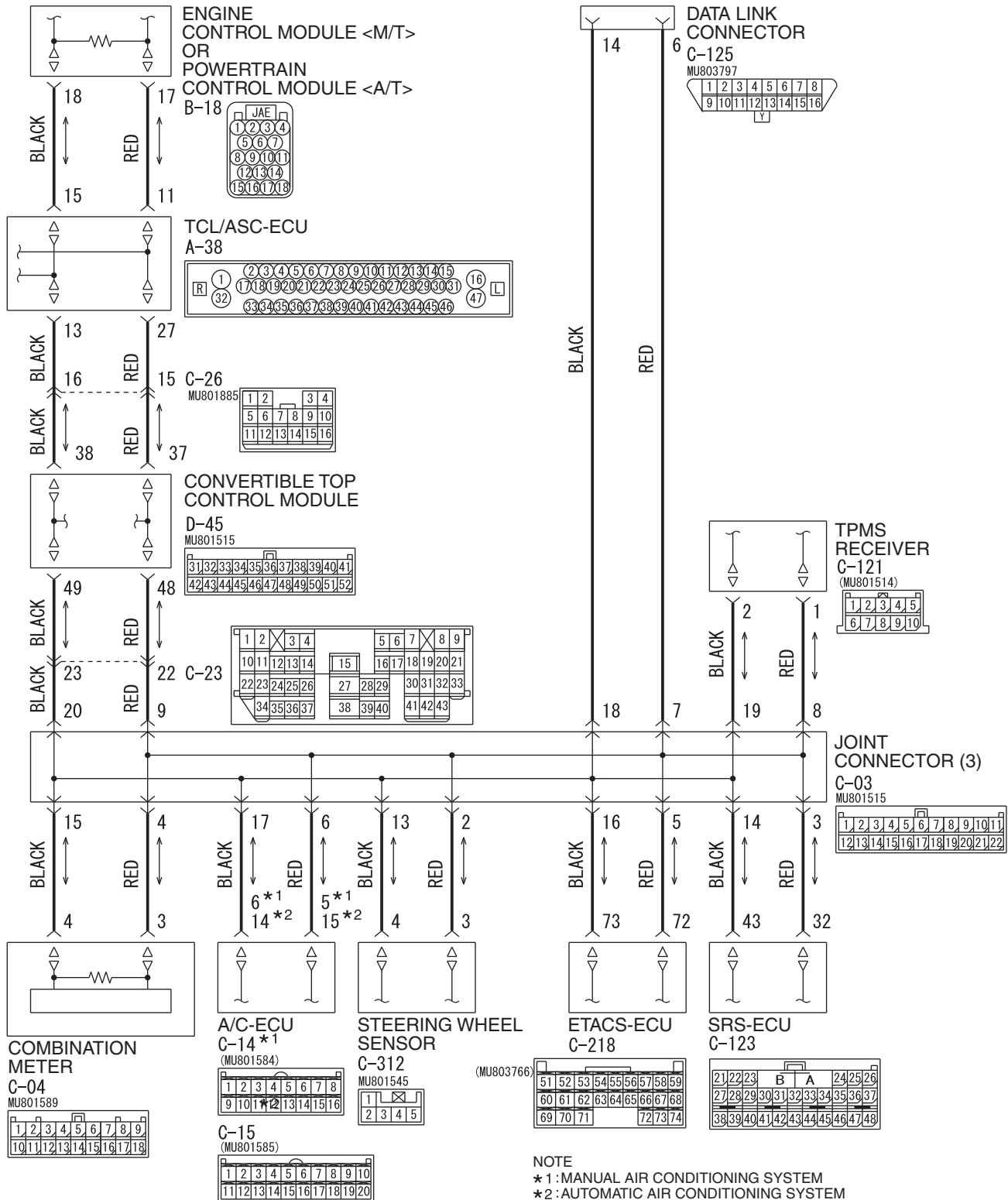
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

&lt;ECLIPSE&gt;

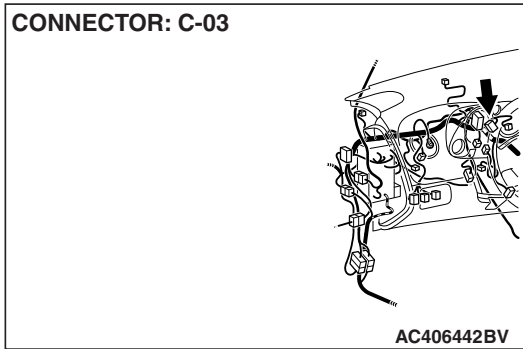


WAP54M000A

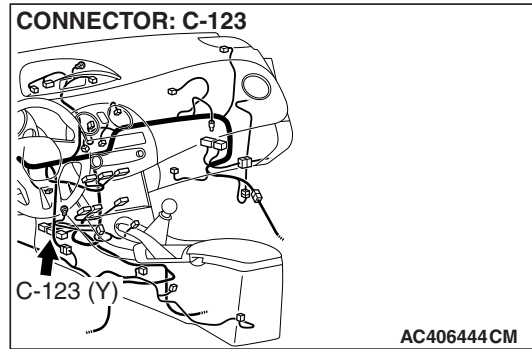
<ECLIPSE SPYDER>



CONNECTOR: C-03



CONNECTOR: C-123

**FUNCTION**

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the SRS-ECU" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive the SRS-ECU data only.

**TROUBLE JUDGMENT CONDITIONS**

Scan tool MB991958 judges the trouble when the periodically sent data from SRS-ECU cannot be received and sent.

**TROUBLESHOOTING HINTS**

- The wiring harness may be defective [open circuit between SRS-ECU and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or SRS-ECU connector]
- Power supply circuit malfunction of the SRS-ECU
- The SRS-ECU may be defective

**DIAGNOSIS****Required Special Tools:**

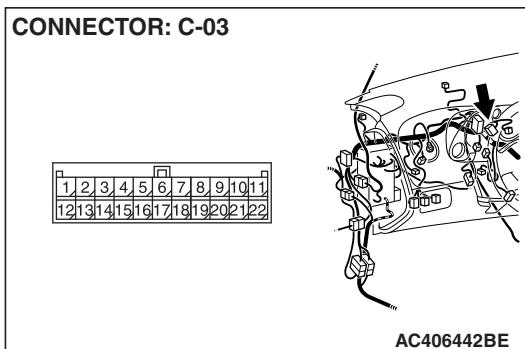
- MB991223: Harness Set
- MB992006: Extra fine probe

**STEP 1. Check joint connector (3) C-03 and SRS-ECU connector C-123 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

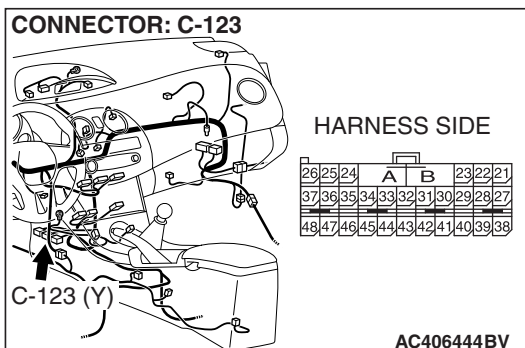
**⚠ CAUTION**

The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to [P.54C-8](#).

CONNECTOR: C-03

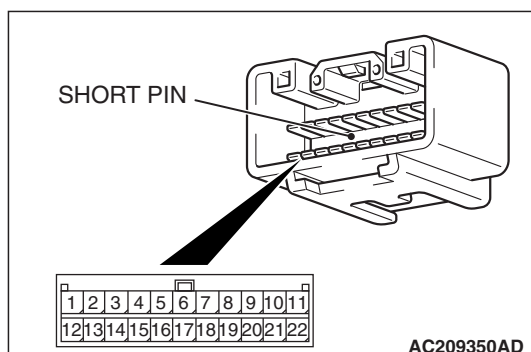


CONNECTOR: C-123



HARNESS SIDE

26	25	24	A	B	23	22	21
37	36	35	34	33	32	31	30
29	28	27					
48	47	46	45	44	43	42	41
40	39	38					



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

**Q: Are joint connector (3) C-03 and SRS-ECU connector C-123 in good condition?**

**YES :** Go to Step 2.

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

**STEP 2. Check the CAN bus lines joint connector (3) and the SRS-ECU. Measure the resistance between joint connector (3) C-03 and SRS-ECU connector C-123.**

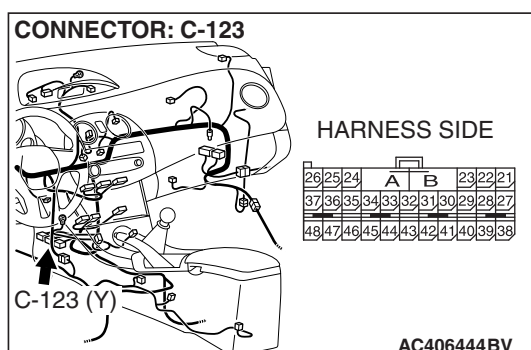
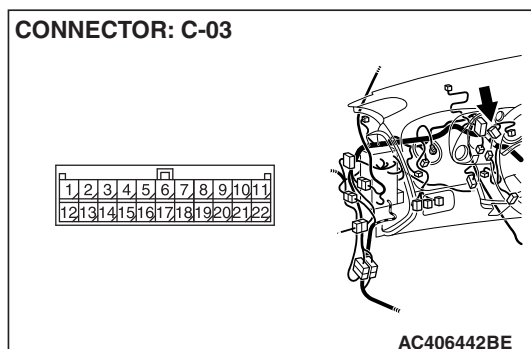
**CAUTION**

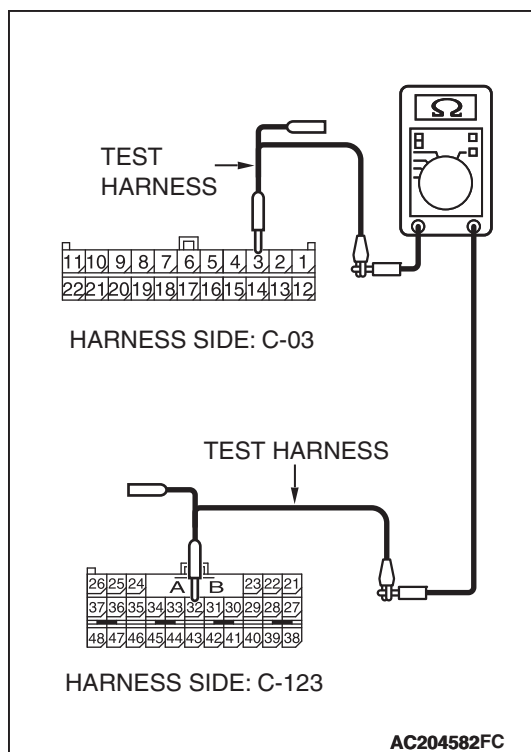
- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

**CAUTION**

**Disconnect the negative battery terminal. For details refer to [P.54C-8](#).**

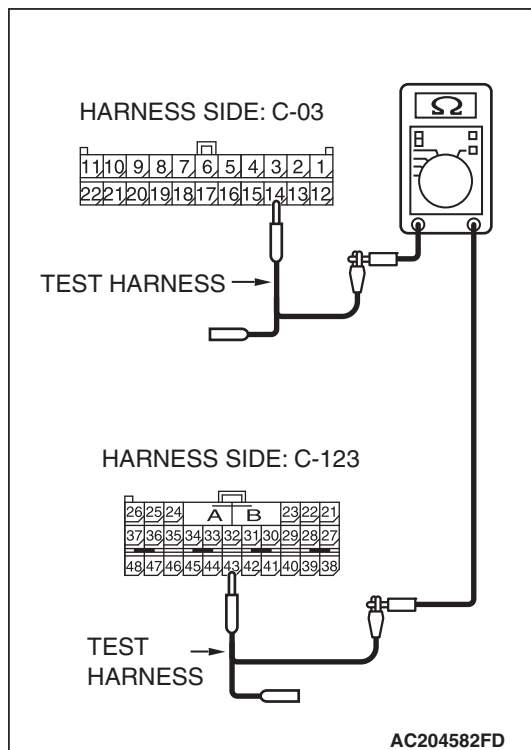
- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03 and SRS-ECU connector C-123, and measure the resistance between the wiring harness side connector of SRS-ECU connector C-123 and joint connector (3) C-03.





- (3) Measure the resistance between joint connector (3) C-03 (terminal 3) and SRS-ECU connector C-123 (terminal 32).

**OK: 2 ohms or less**



- (4) Measure the resistance between joint connector (3) C-03 (terminal 14) and SRS-ECU connector C-123 (terminal 43).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Diagnose the supplemental restraint system. Refer to GROUP 52B, Supplemental restraint system – Symptom procedures , Power supply circuit system [P.52B-393](#).

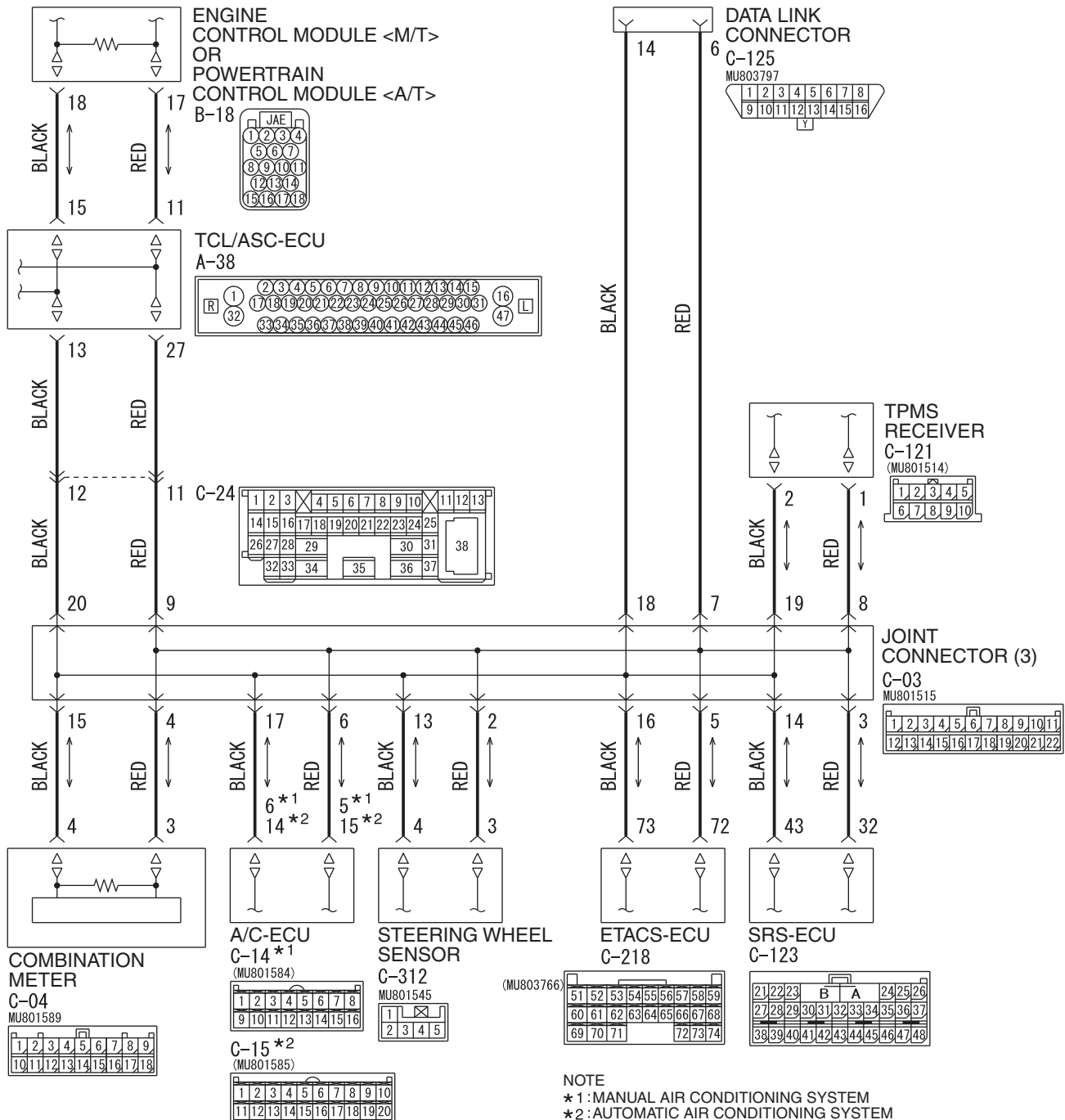
**NO :** Repair the wiring harness between joint connector (3) C-03 and the SRS-ECU connector C-123.

DIAGNOSTIC ITEM 9: Diagnose when the scan tool cannot receive the data sent by TPMS receiver.

**CAUTION**

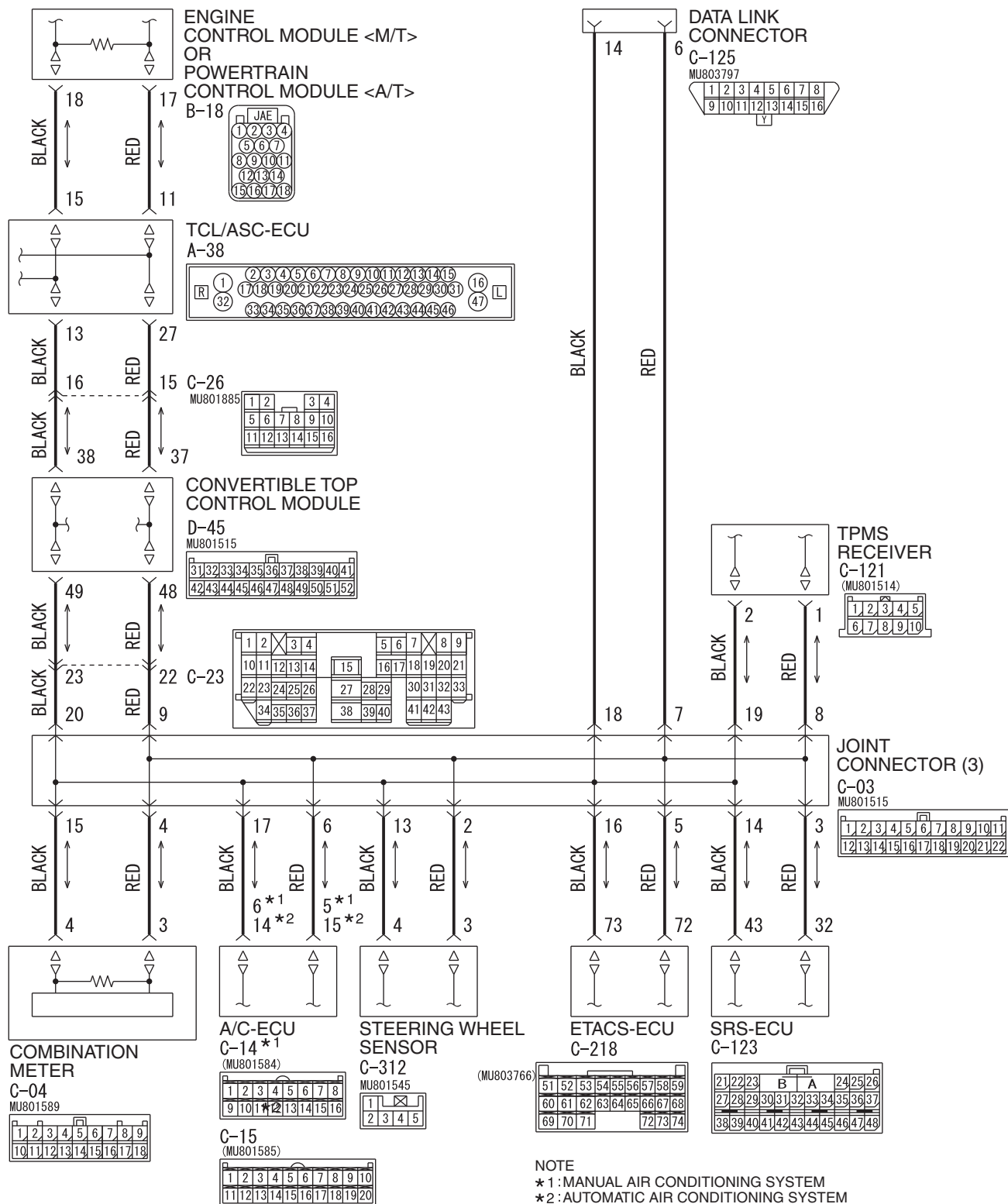
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<ECLIPSE>



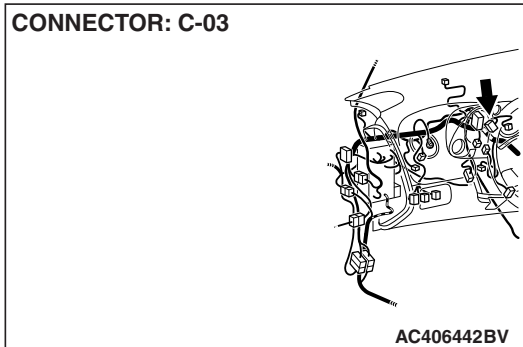
WAP54M000A

## &lt;ECLIPSE SPYDER&gt;

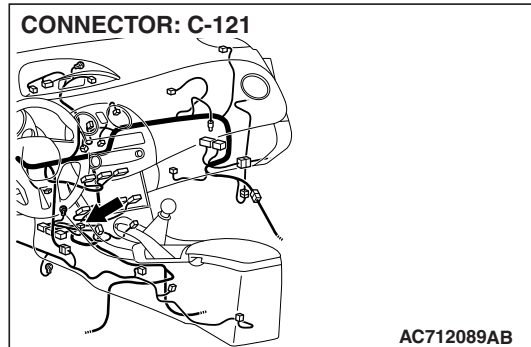


WAP54M001A

CONNECTOR: C-03



CONNECTOR: C-121



## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the TPMS receiver" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive the TPMS receiver data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from TPMS receiver cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between TPMS receiver and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or TPMS receiver connector]
- Power supply circuit malfunction of the TPMS receiver
- The TPMS receiver may be defective

## DIAGNOSIS

### Required Special Tools:

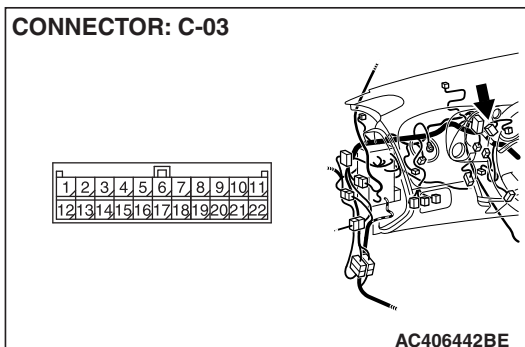
- MB991223: Harness Set
- MB992006: Extra fine probe

**STEP 1. Check joint connector (3) C-03 and TPMS receiver connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

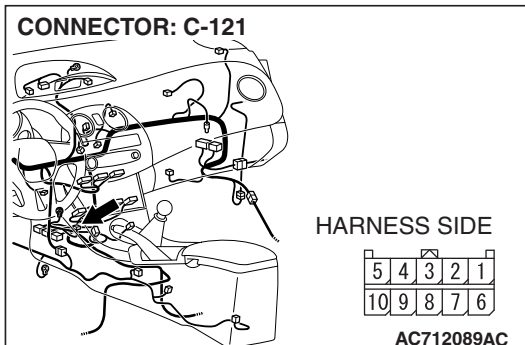
### ⚠ CAUTION

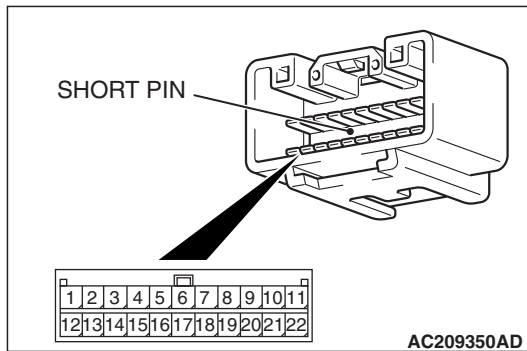
The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to [P.54C-8](#).

CONNECTOR: C-03



CONNECTOR: C-121





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

**Q: Are joint connector (3) C-03 and TPMS receiver connector C-121 in good condition?**

**YES :** Go to Step 2.

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

**STEP 2. Check the CAN bus lines joint connector (3) and the TPMS receiver. Measure the resistance between joint connector (3) C-03 and TPMS receiver connector C-121.**

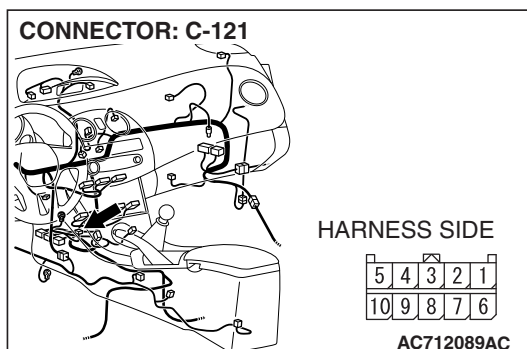
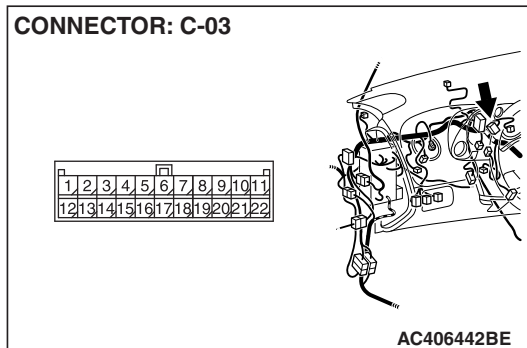
**⚠ CAUTION**

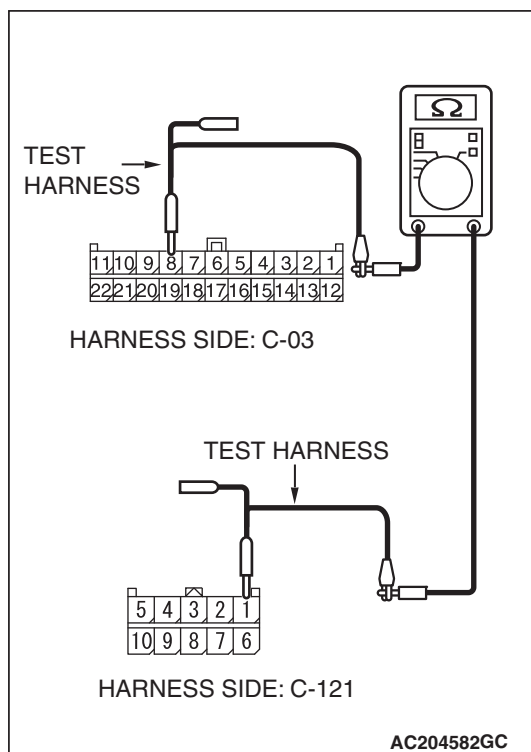
- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to [P.54C-8](#).**

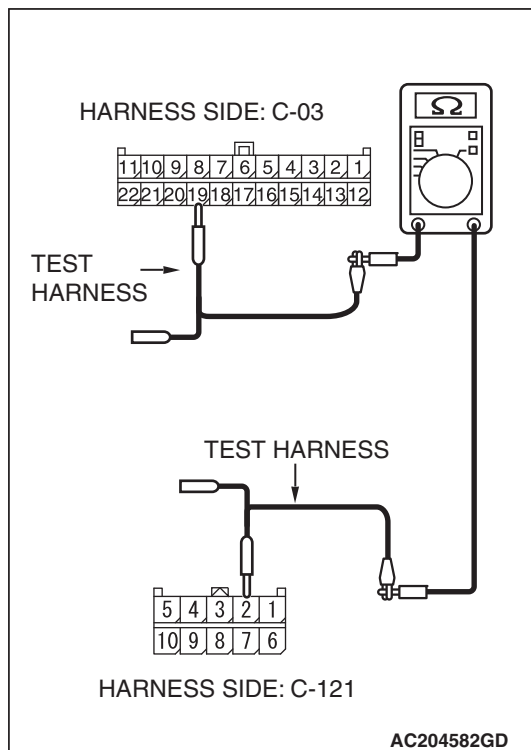
- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03 and TPMS receiver connector C-121, and measure the resistance between the wiring harness side connector of TPMS receiver connector C-121 and joint connector (3) C-03.





- (3) Measure the resistance between joint connector (3) C-03 (terminal 8) and TPMS receiver connector C-121 (terminal 1).

**OK: 2 ohms or less**



- (4) Measure the resistance between joint connector (3) C-03 (terminal 19) and TPMS receiver connector C-121 (terminal 2).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Diagnose the tire pressure monitoring system. Refer to GROUP 31, TPMS Diagnosis – Symptom procedures, Communication between the scan tool and the TPMS is not possible [P.31-45](#).

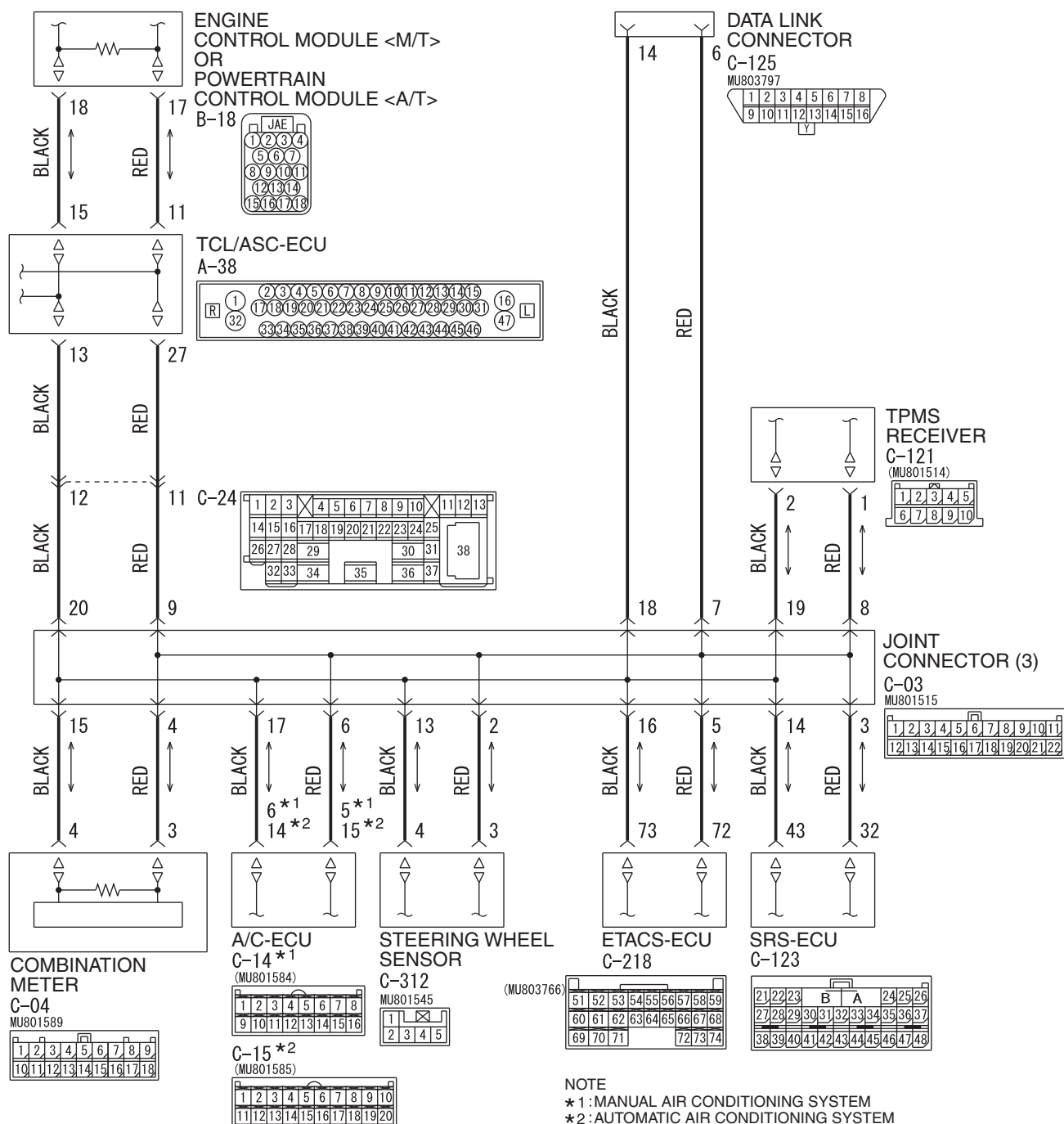
**NO :** Repair the wiring harness between joint connector (3) C-03 and the TPMS receiver connector C-121.

**DIAGNOSTIC ITEM 10: Diagnose when the scan tool cannot receive the data sent by the ECM <M/T> or the PCM <A/T>.**

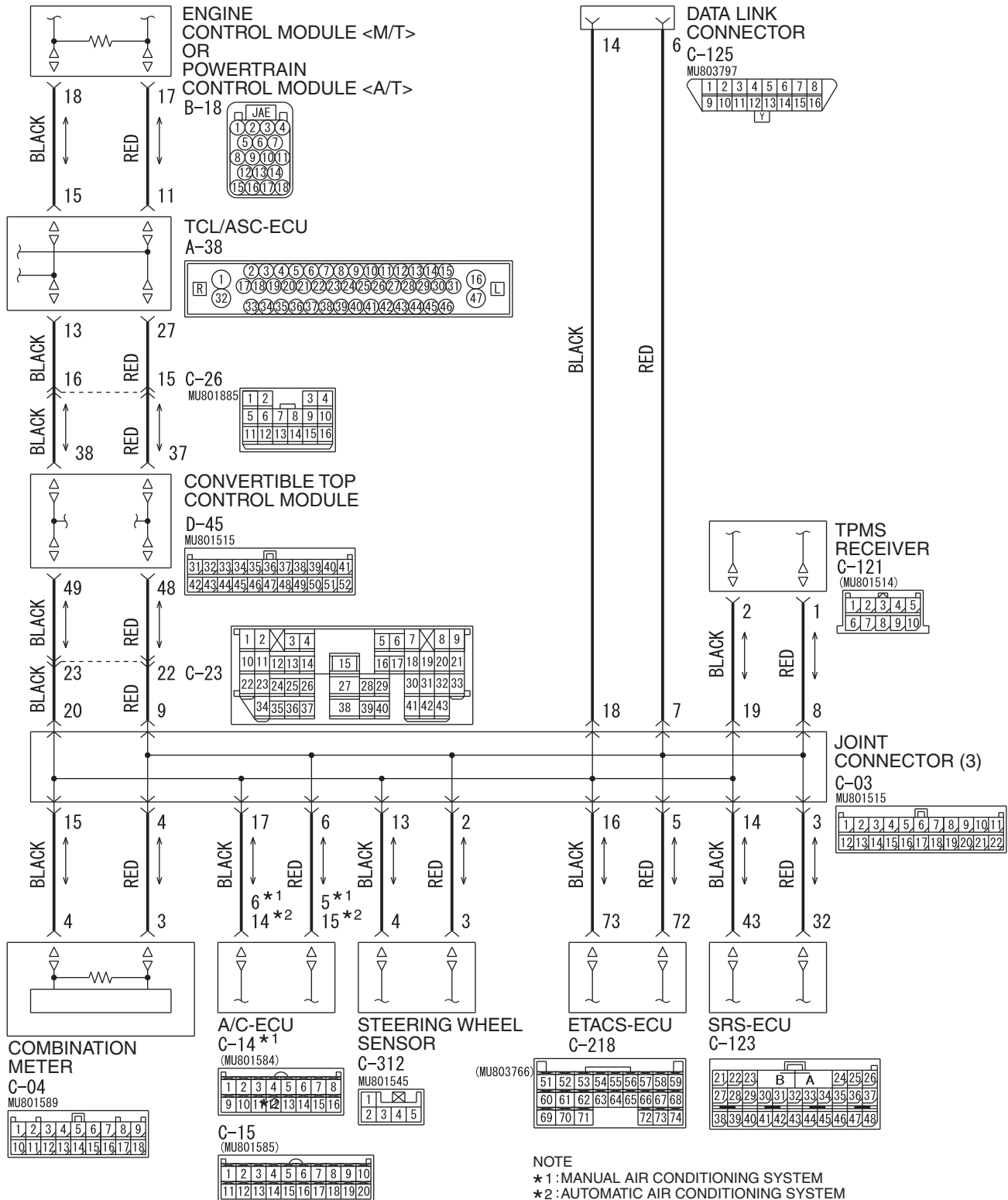
**CAUTION**

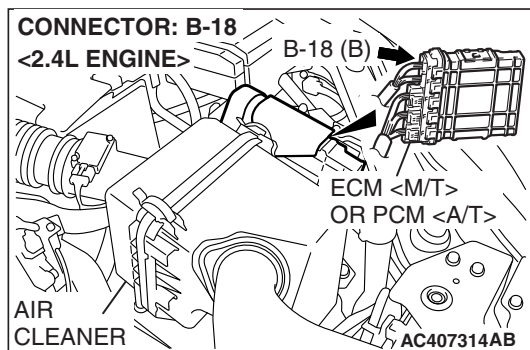
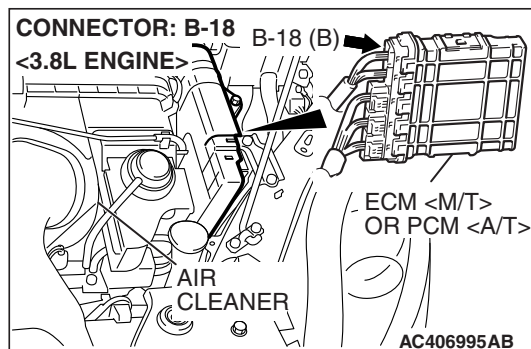
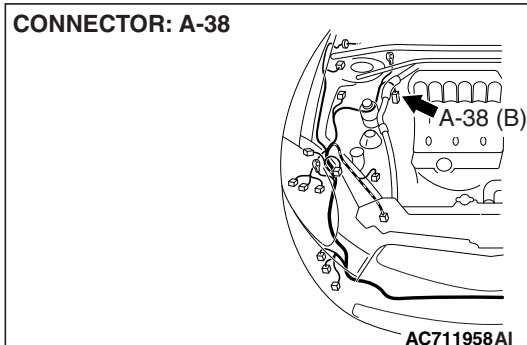
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

<ECLIPSE>



<ECLIPSE SPYDER>





## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the ECM <M/T> or PCM <A/T>" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive the ECM <M/T> or PCM <A/T> data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from the ECM <M/T> or PCM <A/T> cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective (open circuit between TCL/ASC-ECU and ECM <M/T> or PCM <A/T>)
- The connector may be defective (poor connection of ECM <M/T> or PCM <A/T> connector and TCL/ASC-ECU connector)
- Power supply circuit malfunction of the ECM <M/T> or PCM <A/T>
- The ECM <M/T> or PCM <A/T> may be defective

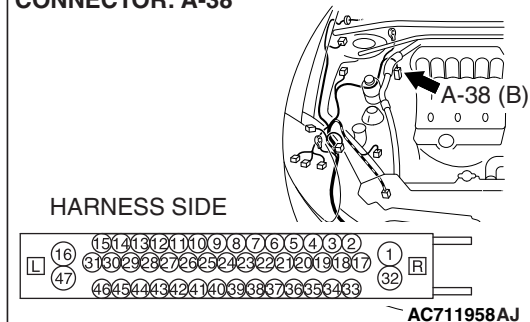
## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra fine probe
- MB991923: Power plant ECU Check Harness
- MB991997: ASC Check Harness

**STEP 1.** Check TCL/ASC-ECU connector A-38 and ECM connector <M/T> or PCM connector <A/T> B-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CONNECTOR: A-38



**CAUTION**

The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to **P.54C-8**.

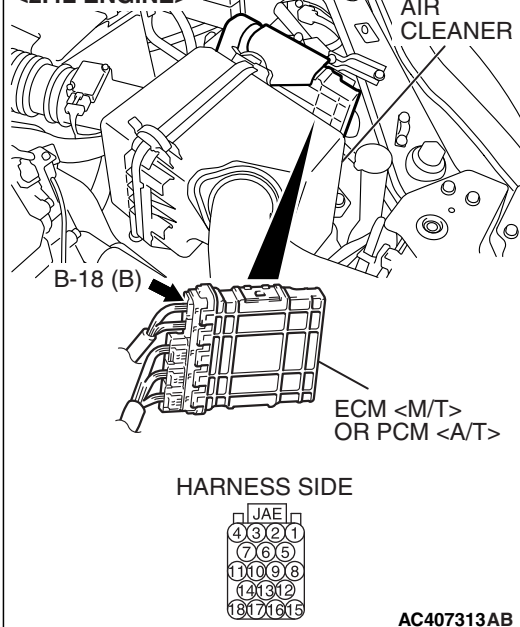
**Q:** Are TCL/ASC-ECU connector A-38 and ECM connector <M/T> or PCM connector <A/T> B-18 in good condition?

**YES :** Go to Step 2.

**NO :** Repair the damaged parts.

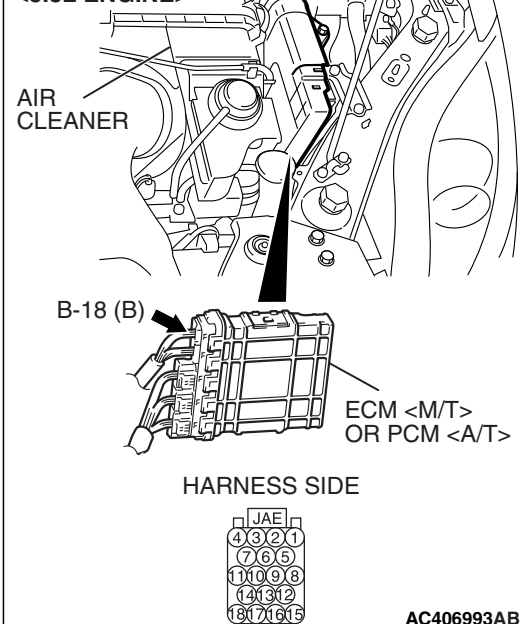
CONNECTOR: B-18

<2.4L ENGINE>



CONNECTOR: B-18

<3.8L ENGINE>

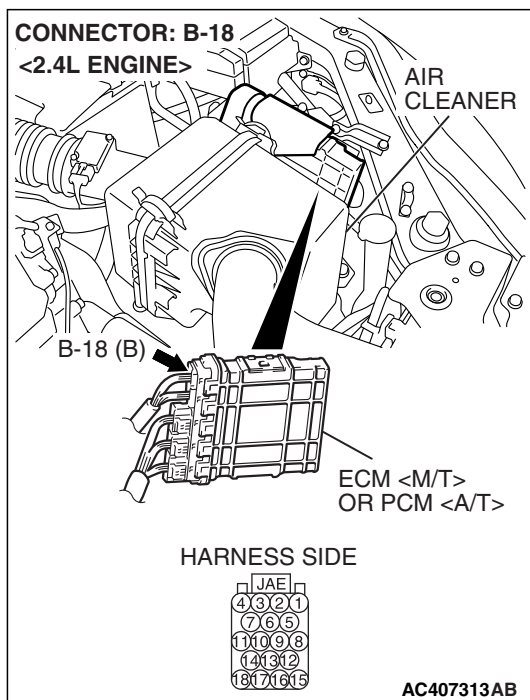
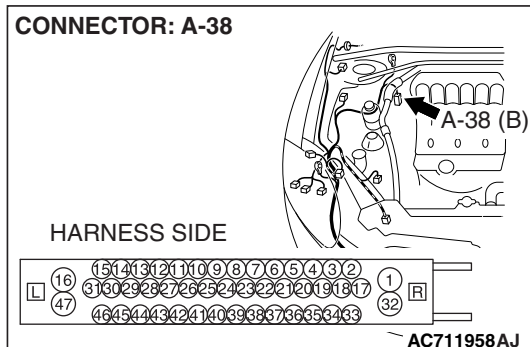


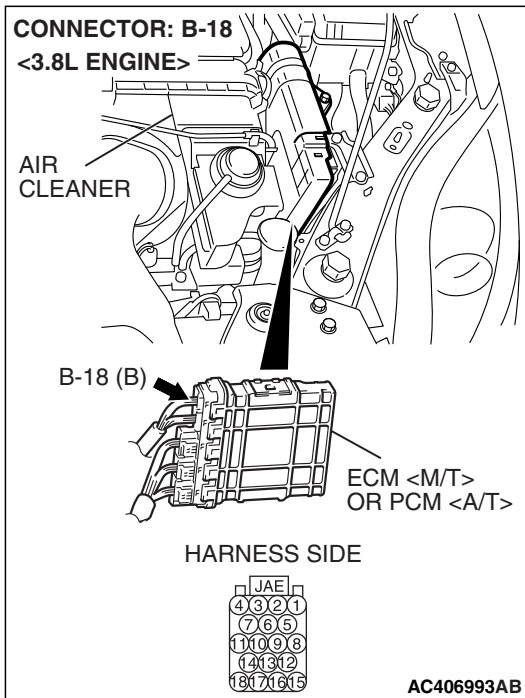
**STEP 2.** Check the CAN bus lines between the TCL/ASC-ECU and the ECM <M/T> or PCM <A/T>. Measure the resistance between TCL/ASC-ECU connector A-38 and ECM connector <M/T> or PCM connector <A/T> B-18.

**CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

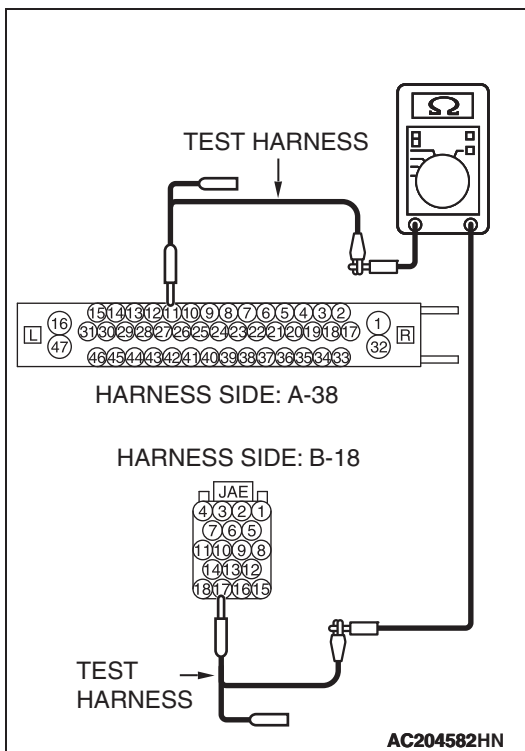
- (1) Disconnect TCL/ASC-ECU connector A-38 and ECM <M/T> or PCM connector <A/T> B-18, and measure the resistance between each wiring harness side connector.

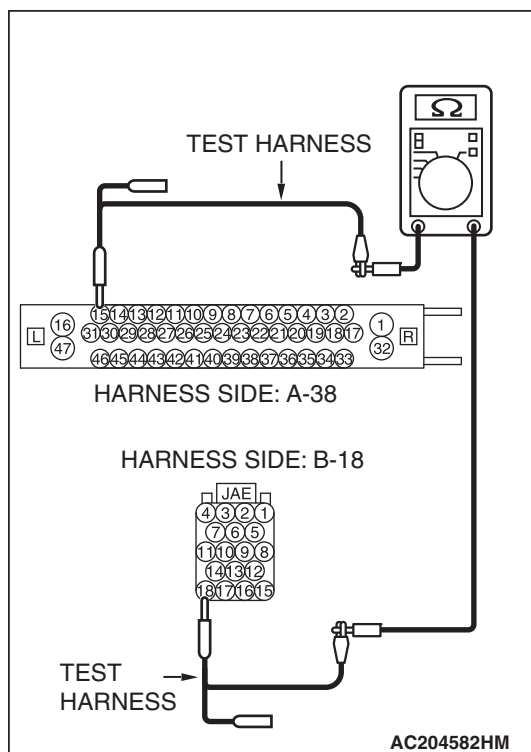




- (2) Measure the resistance between TCL/ASC-ECU connector A-38 (terminal 11) and ECM connector <M/T> or PCM connector <A/T> B-18 (terminal 17).

**OK: 2 ohms or less**





- (3) Measure the resistance between TCL/ASC-ECU connector A-38 (terminal 15) and ECM connector <M/T> or PCM connector <A/T> B-18 (terminal 18).

**OK: 2 ohms or less**

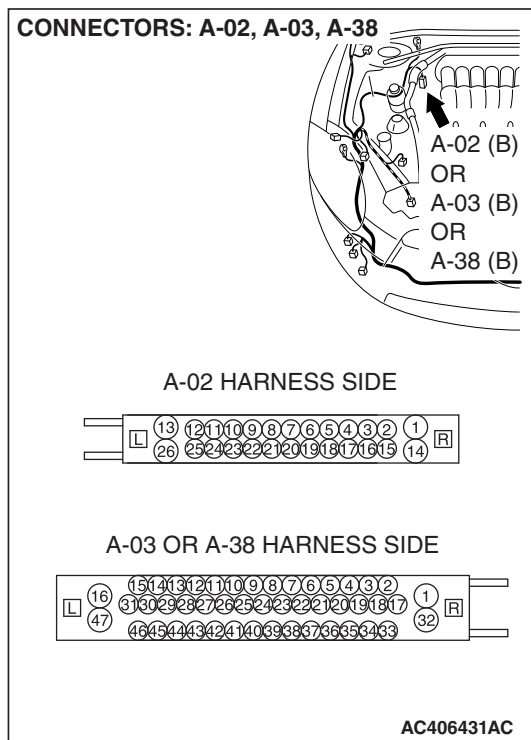
**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

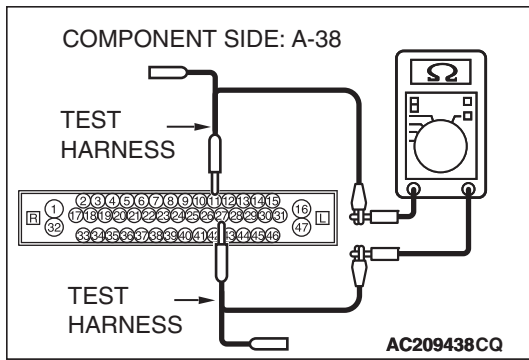
**YES :** Go to Step 3.

**NO :** Repair the wiring harness between the TCL/ASC-ECU connector A-38 and the ECM connector <M/T> or PCM connector <A/T> B-18.



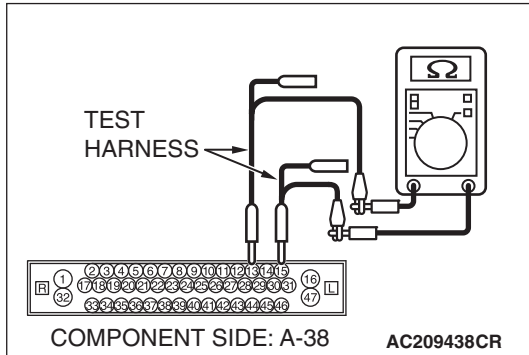
**STEP 3. Check the CAN bus lines inside the TCL/ASC-ECU. Measure the resistance at TCL/ASC-ECU connector A-38.**

- (1) Disconnect TCL/ASC-ECU A-38, and measure the resistance at the component side of TCL/ASC-ECU connector A-38.



- (2) Measure the resistance between TCL/ASC-ECU connector A-38 (terminals 11 and 27).

**OK: 2 ohms or less**



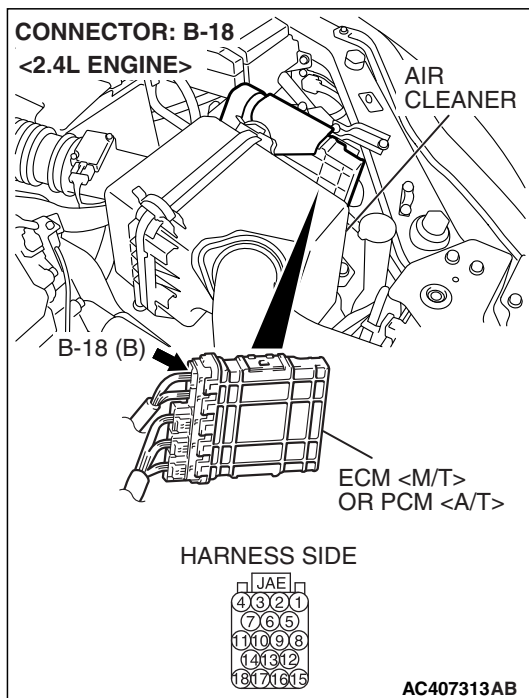
- (3) Measure the resistance between TCL/ASC-ECU connector A-38 (terminals 13 and 15).

**OK: 2 ohms or less**

**Q: Do all the resistances measure 2 ohms or less?**

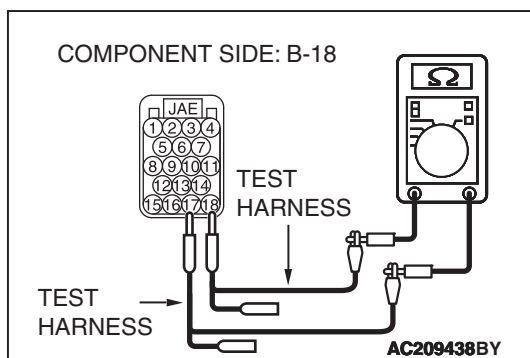
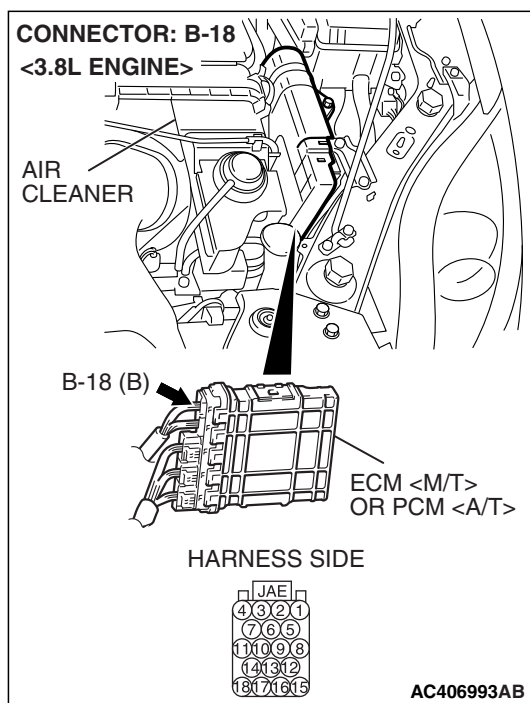
**YES :** Go to Step 4.

**NO :** Replace the TCL/ASC-ECU.



**STEP 4. Check the terminator resistor inside the ECM <M/T> or PCM <A/T>. Measure the resistance at ECM <M/T> or PCM <A/T> connector B-18.**

- (1) Disconnect ECM <M/T> or PCM <A/T> connector B-18, and measure the resistance at the component side of ECM <M/T> or PCM <A/T> connector B-18.



(2) Measure the resistance between ECM <M/T> or PCM <A/T> connector B-18 (terminals 17 and 18).

**OK:  $120 \pm 20$  ohms**

**Q: Does the resistance measure  $120 \pm 20$  ohms?**

**YES :** Diagnose the engine. Refer to GROUP 13A, MFI Diagnosis – Symptom procedures, Communication with PCM only is not possible [P.13A-1057](#) <2.4L engine> or GROUP 13B, MFI Diagnosis – Symptom procedures, Communication with ECM <M/T> or PCM <A/T> only is not possible [P.13B-1097](#) <3.8L engine>.

**NO :** Replace the ECM <M/T> or PCM <A/T>. When the ECM <M/T> or PCM <A/T> is replaced, register the encrypted code. Refer to GROUP 54A, Encrypted Code Registration Criteria Table [P.54A-19](#).

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**DIAGNOSTIC ITEM 11: Diagnose when the scan tool cannot receive the data sent by TCL/ASC-ECU.**

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**⚠ CAUTION**

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

**FUNCTION**

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from TCL/ASC-ECU" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive TCL/ASC-ECU data only.

**TROUBLE JUDGMENT CONDITIONS**

Scan tool MB991958 judges the trouble when the periodically sent data from TCL/ASC-ECU cannot be received and sent.

**TROUBLESHOOTING HINTS**

- The wiring harness may be defective [open circuit between TCL/ASC-ECU and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or TCL/ASC-ECU connector]
- Power supply circuit malfunction of TCL/ASC-ECU
- The TCL/ASC-ECU may be defective (internal open circuit)
- The TCL/ASC-ECU may be defective

**DIAGNOSIS**

- Diagnose the ASC system. Refer to GROUP 35C, TCL/ASC Diagnosis – Symptom procedures, TCL/ASC-ECU power supply circuit system [P.35C-187](#).

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**DIAGNOSTIC ITEM 12: Diagnose when the scan tool cannot receive the data sent by convertible top control module. <ECLIPSE SPYDER>**

---

**⚠ CAUTION**

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

**FUNCTION**

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from convertible top control module " when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive convertible top control module data only.

**TROUBLE JUDGMENT CONDITIONS**

Scan tool MB991958 judges the trouble when the periodically sent data from convertible top control module cannot be received and sent.

**TROUBLESHOOTING HINTS**

- The wiring harness may be defective [open circuit between convertible top control module and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or convertible top control module connector]
- Power supply circuit malfunction of convertible top control module
- The convertible top control module may be defective (internal open circuit)
- The convertible top control module may be defective

**DIAGNOSIS**

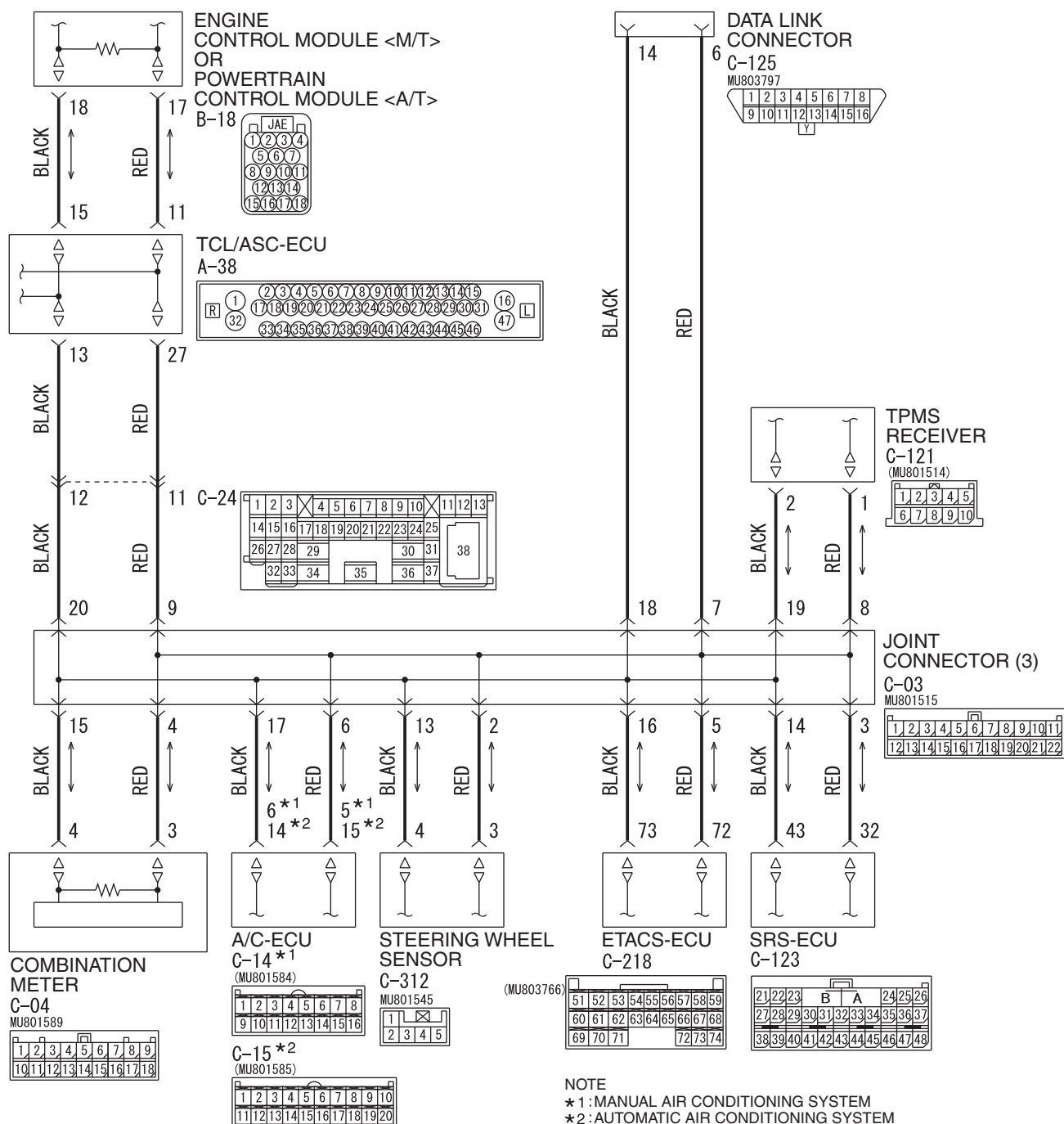
Diagnose the convertible top control system. Refer to GROUP 42, Convertible top Diagnosis <Oil pressure system and/or electrical system> – Symptom procedures, Convertible top does not operate [P.42-223](#).

**DIAGNOSTIC ITEM 13: Diagnose when the scan tool cannot receive the data sent by the ECM <M/T> or the PCM <A/T> and TCL/ASC-ECU. <ECLIPSE>**

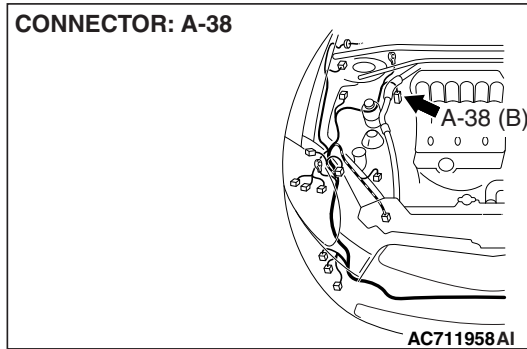
**CAUTION**

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

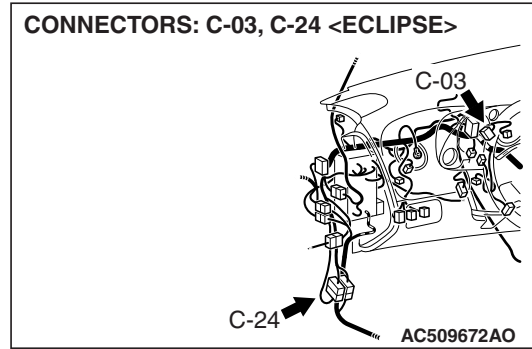
<ECLIPSE>



CONNECTOR: A-38



CONNECTORS: C-03, C-24 <ECLIPSE>



## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the ECM <M/T> or PCM <A/T> and TCL/ASC-ECU" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive TCL/ASC-ECU and ECM <M/T> or PCM <A/T> data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from TCL/ASC-ECU and ECM <M/T> or PCM <A/T> cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between TCL/ASC-ECU and joint connector (3) or open circuit between TCL/ASC-ECU and ECM <M/T> or PCM <A/T>]
- The connector may be defective [poor connection of joint connector (3) or TCL/ASC-ECU connector]
- The TCL/ASC-ECU may be defective (internal open circuit)
- The ECM <M/T> or PCM <A/T> may be defective (internal open circuit)

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra fine probe
- MB991923: Power plant ECU Check Harness
- MB991997: ASC Check Harness

**STEP 1. Check joint connector (3) C-03 and TCL/ASC-ECU connector A-38 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

### **⚠ CAUTION**

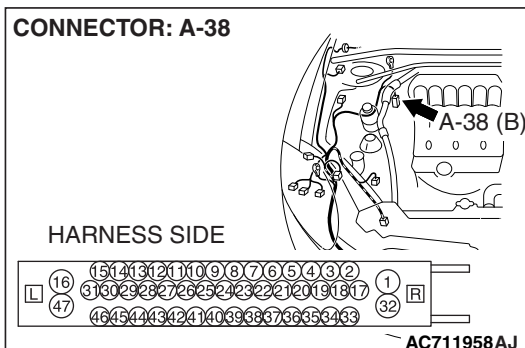
The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to **P.54C-8**.

**Q: Are joint connector (3) C-03 and TCL/ASC-ECU connector A-38 in good condition?**

**YES :** Go to Step 2.

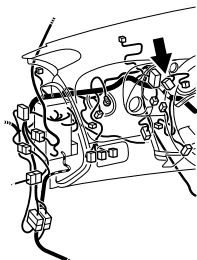
**NO :** Repair the damaged parts. Replace the joint connector as necessary.

CONNECTOR: A-38



## CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



AC406442BE

**STEP 2. Check the CAN bus lines between intermediate connector C-24 and joint connector (3). Measure the resistance between intermediate connector C-24 and joint connector (3) C-03.**

## ⚠ CAUTION

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

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

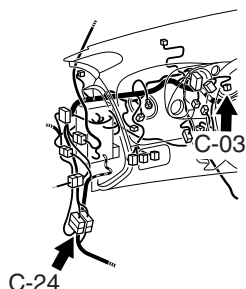
## ⚠ CAUTION

**Disconnect the negative battery terminal. For details refer to [P.54C-8](#).**

(2) Disconnect the negative battery terminal.

(3) Disconnect intermediate connector C-24 and joint connector (3) C-03, and measure the resistance between the wiring harness side connector of joint connector (3) C-03 and the female side connector of intermediate connector C-24 (at instrument panel wiring harness side).

## CONNECTORS: C-03, C-24



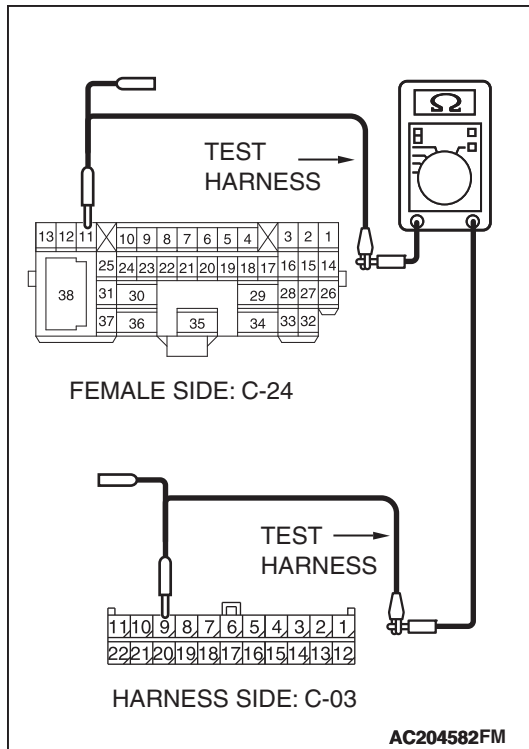
C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

C-24

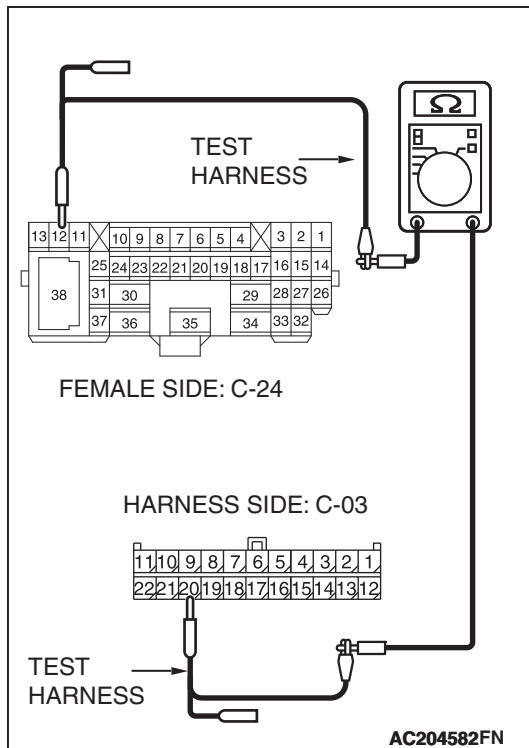
1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	
26	27	28	29				30	31		38		
32	33	34	35			36	37					

AC406443AD



- (4) Measure the resistance between intermediate connector C-24 (terminal 11) and joint connector (3) C-03 (terminal 9).

**OK: 2 ohms or less**



- (5) Measure the resistance between intermediate connector C-24 (terminal 12) and joint connector (3) C-03 (terminal 20).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-9.

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Go to Step 3.

**NO :** Repair the wiring harness between intermediate connector C-24 and the joint connector (3) C-03.

**STEP 3.** Check the CAN bus lines between intermediate connector C-24 and the TCL/ASC-ECU. Measure the resistance between intermediate connector C-24 and TCL/ASC-ECU connector A-38.

**⚠ CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

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

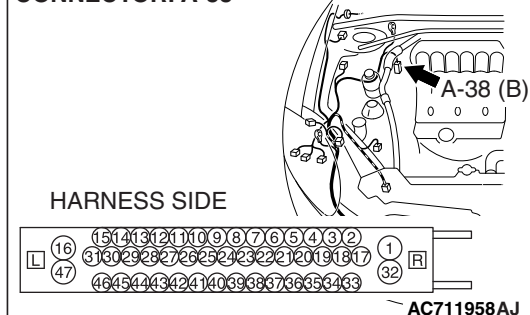
**⚠ CAUTION**

**Disconnect the negative battery terminal.** For details refer to [P.54C-8](#).

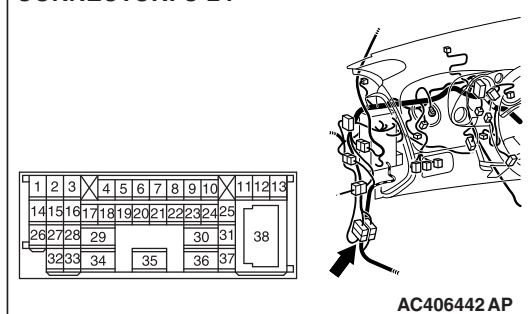
(2) Disconnect the negative battery terminal.

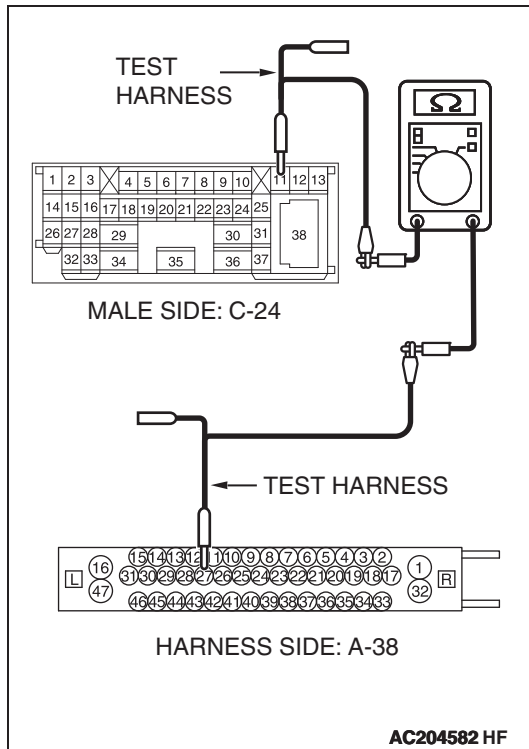
(3) Disconnect intermediate connector C-24 and TCL/ASC-ECU connector A-38, and measure the resistance between the wiring harness side connector of TCL/ASC-ECU connector A-38 and the male side connector of intermediate connector C-24 (at front wiring harness side).

**CONNECTOR: A-38**



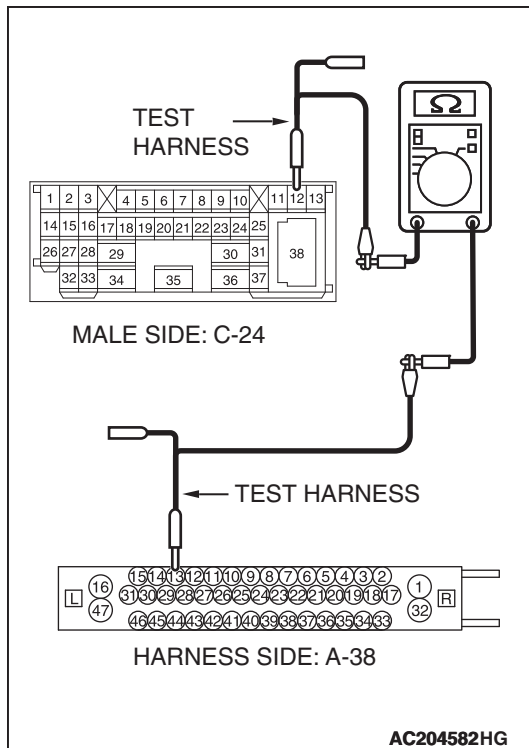
**CONNECTOR: C-24**





- (4) Measure the resistance between intermediate connector C-24 (terminal 11) and TCL/ASC-ECU connector A-38 (terminal 27).

**OK: 2 ohms or less**



- (5) Measure the resistance between intermediate connector C-24 (terminal 12) and TCL/ASC-ECU connector A-38 (terminal 13).

**OK: 2 ohms or less**

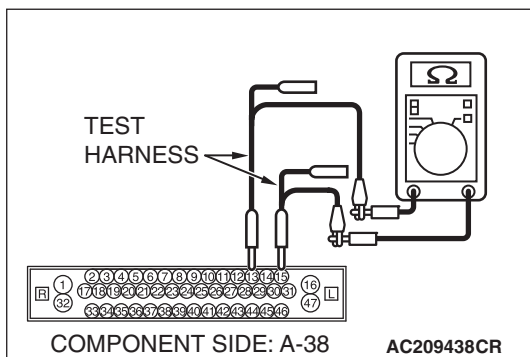
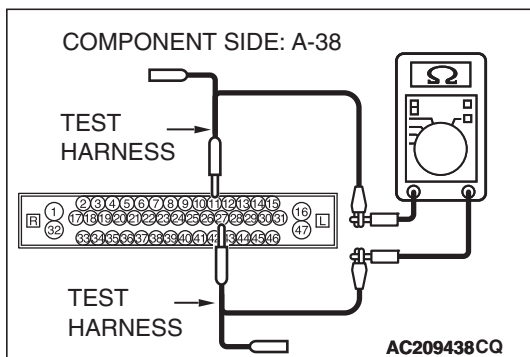
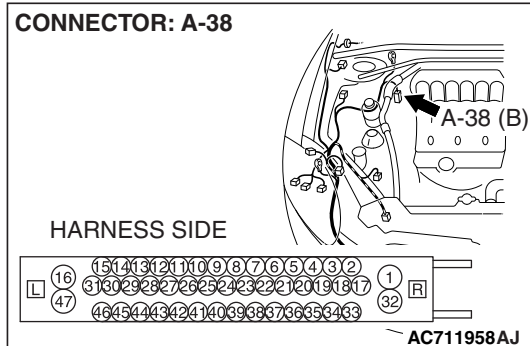
**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Go to Step 4.

**NO :** Repair the wiring harness between intermediate connector C-24 and the TCL/ASC-ECU connector A-38.



**STEP 4. Check the CAN bus lines inside the TCL/ASC-ECU. Measure the resistance at TCL/ASC-ECU connector A-38.**

(1) Disconnect TCL/ASC-ECU A-38, and measure the resistance at the component side of TCL/ASC-ECU connector A-38.

(2) Measure the resistance between TCL/ASC-ECU connector A-38 (terminals 11 and 27).

**OK: 2 ohms or less**

(3) Measure the resistance between TCL/ASC-ECU connector A-38 (terminals 13 and 15).

**OK: 2 ohms or less**

**Q: Do all the resistances measure 2 ohms or less?**

**YES** : Intermittent malfunction.

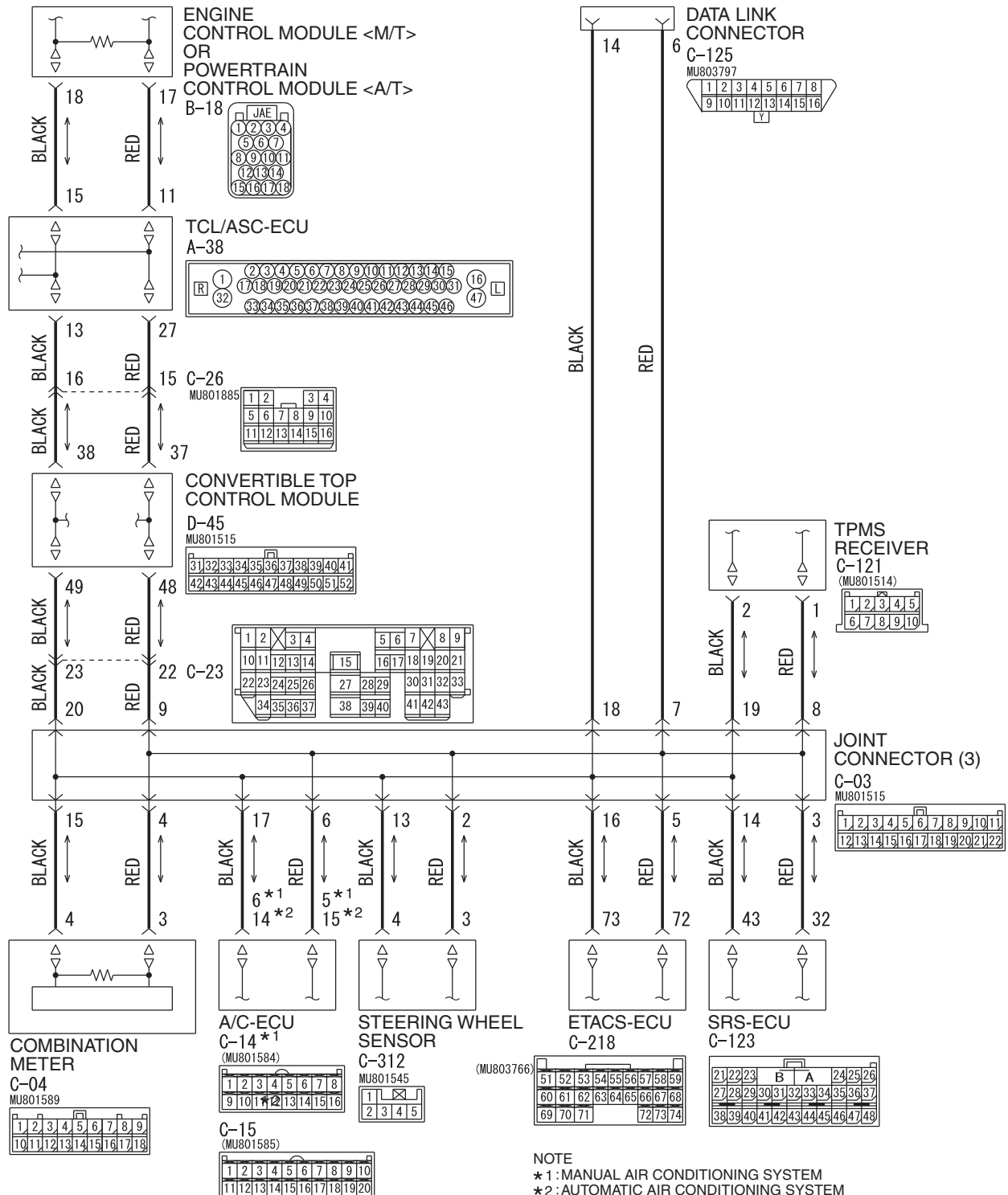
**NO** : Replace the TCL/ASC-ECU.

**DIAGNOSTIC ITEM 14: Diagnose when the scan tool cannot receive the data sent by the ECM <M/T> or the PCM <A/T> and TCL/ASC-ECU. <ECLIPSE SPYDER>**

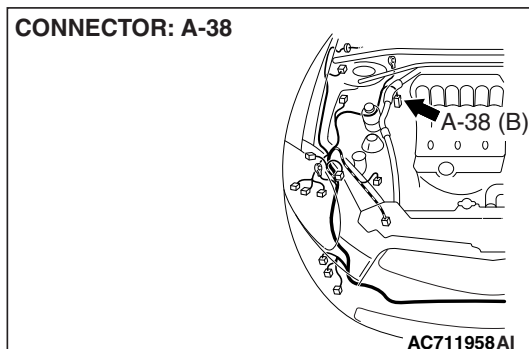
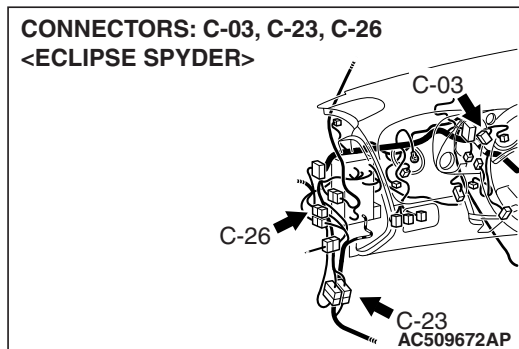
**CAUTION**

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

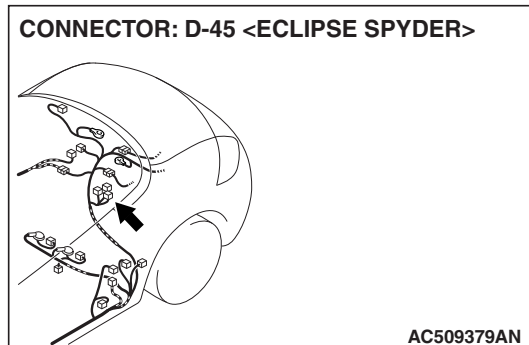
<ECLIPSE SPYDER>



CONNECTOR: A-38

CONNECTORS: C-03, C-23, C-26  
<ECLIPSE SPYDER>

CONNECTOR: D-45 &lt;ECLIPSE SPYDER&gt;



## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the ECM <M/T> or PCM <A/T> and TCL/ASC-ECU" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive TCL/ASC-ECU and ECM <M/T> or PCM <A/T> data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from TCL/ASC-ECU and ECM <M/T> or PCM <A/T> cannot be received and sent.

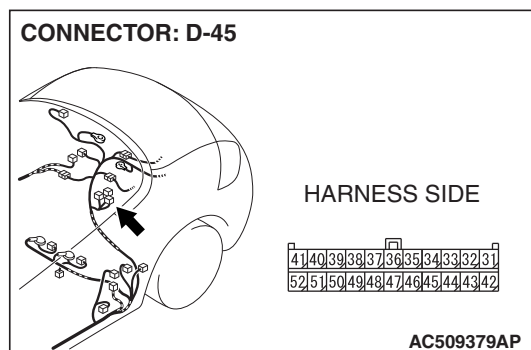
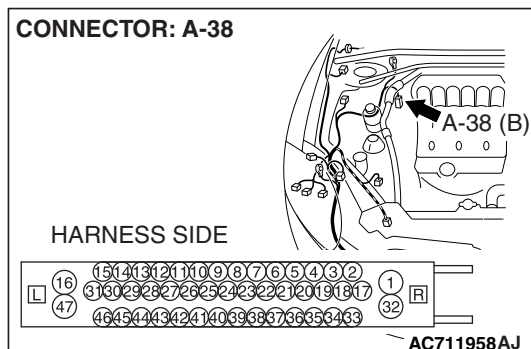
## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between TCL/ASC-ECU and convertible top control module or open circuit between TCL/ASC-ECU and ECM <M/T> or PCM <A/T>]
- The connector may be defective [poor connection of convertible top control module or TCL/ASC-ECU connector or ECM <M/T> or PCM <A/T>]
- The convertible top control module may be defective (internal open circuit)
- The TCL/ASC-ECU may be defective (internal open circuit)
- The ECM <M/T> or PCM <A/T> may be defective (internal open circuit)

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra fine probe
- MB991923: Power plant ECU Check Harness
- MB991997: ASC Check Harness



**STEP 1.** Check convertible top control module connector D-45 and TCL/ASC-ECU connector A-38 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**CAUTION**

The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to [P.54C-8](#).

**Q:** Are convertible top control module connector D-45 and TCL/ASC-ECU connector A-38 in good condition?

**YES :** Go to Step 2.

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

**STEP 2.** Check the CAN bus lines between intermediate connector C-26 and convertible top control module connector D-45. Measure the resistance between intermediate connector C-26 and convertible top control module connector D-45.

**CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

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

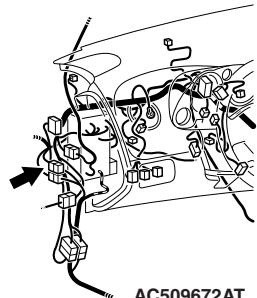
**CAUTION**

Disconnect the negative battery terminal. For details refer to [P.54C-8](#).

(2) Disconnect the negative battery terminal.

## CONNECTOR: C-26

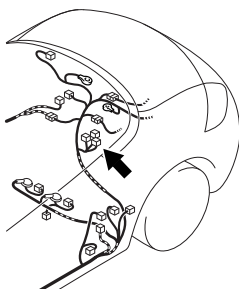
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16



AC509672AT

- (3) Disconnect intermediate connector C-26 and convertible top control module D-45, and measure the resistance between the wiring harness side connector of convertible top control module D-45 and the male side connector of intermediate connector C-26 (at floor wiring harness side).

## CONNECTOR: D-45



HARNESS SIDE

41	40	39	38	37	36	35	34	33	32	31
52	51	50	49	48	47	46	45	44	43	42

AC509379AP

- (4) Measure the resistance between intermediate connector C-26 (terminal 15) and convertible top control module D-45 (terminal 37).

**OK: 2 ohms or less**

## MALE SIDE: C-26

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

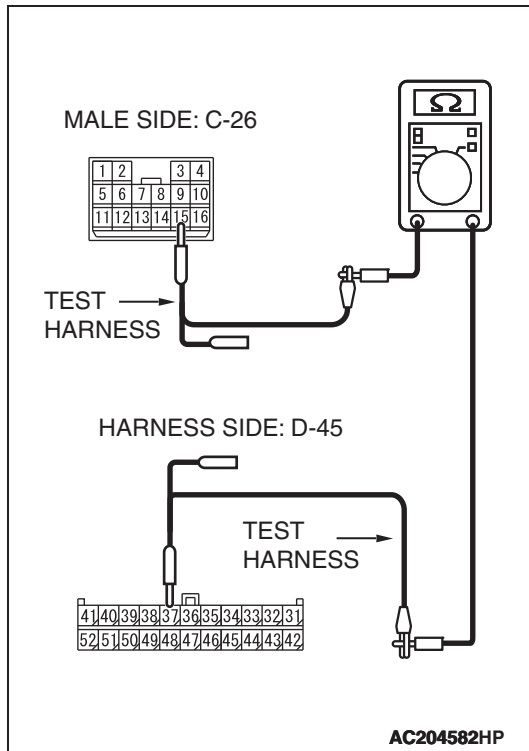
TEST →  
HARNESS

## HARNESS SIDE: D-45

41	40	39	38	37	36	35	34	33	32	31
52	51	50	49	48	47	46	45	44	43	42

TEST →  
HARNESS

AC204582HO



- (5) Measure the resistance between intermediate connector C-26 (terminal 16) and convertible top control module D-45 (terminal 38).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Go to Step 3.

**NO :** Repair the wiring harness between intermediate connector C-26 and the convertible top control module D-45.

**STEP 3. Check the CAN bus lines between intermediate connector C-26 and the TCL/ASC-ECU. Measure the resistance between intermediate connector C-26 and TCL/ASC-ECU connector A-38.**

**CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

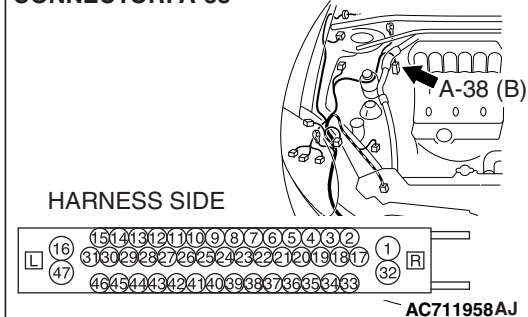
- (1) Turn the ignition switch to the "LOCK" (OFF) position.

**CAUTION**

Disconnect the negative battery terminal. For details refer to [P.54C-8](#).

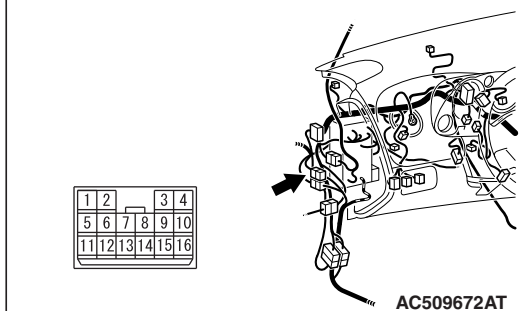
- (2) Disconnect the negative battery terminal.

## CONNECTOR: A-38

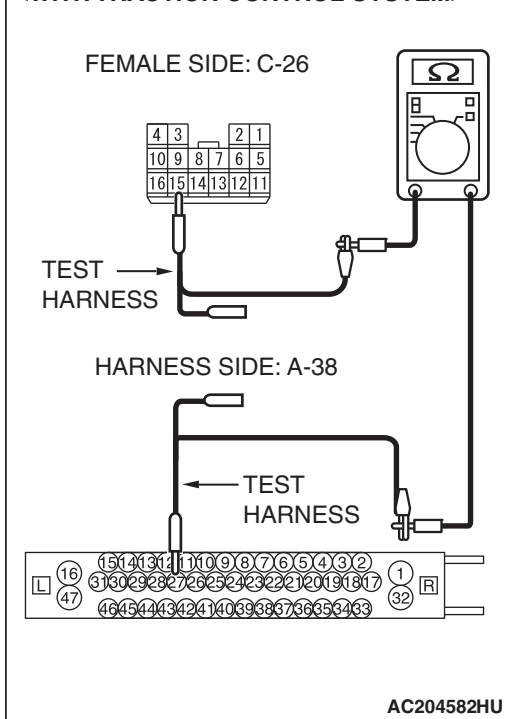


- (3) Disconnect intermediate connector C-26 and TCL/ASC-ECU connector A-38, and measure the resistance between the wiring harness side connector of TCL/ASC-ECU connector A-38 and the female side connector of intermediate connector C-26 (at front wiring harness side).

## CONNECTOR: C-26



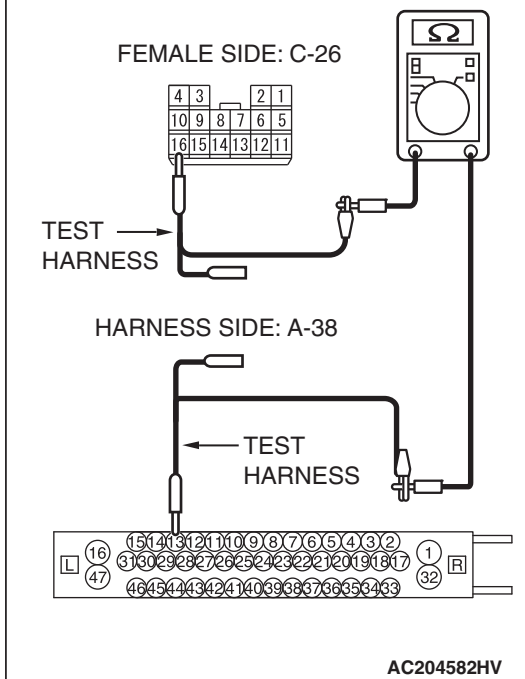
## &lt;WITH TRACTION CONTROL SYSTEM&gt;



- (4) Measure the resistance between intermediate connector C-26 (terminal 15) and TCL/ASC-ECU connector A-38 (terminal 27).

**OK: 2 ohms or less**

<WITH TRACTION CONTROL SYSTEM>



- (5) Measure the resistance between intermediate connector C-26 (terminal 16) and TCL/ASC-ECU connector A-38 (terminal 13).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

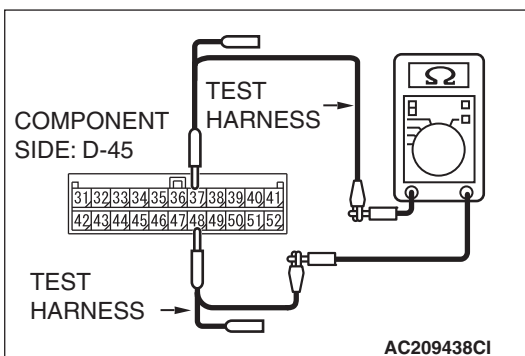
**YES :** Go to Step 4.

**NO :** Repair the wiring harness between intermediate connector C-26 and the TCL/ASC-ECU connector A-38.

**STEP 4. Check the CAN bus lines inside the convertible top control module. Measure the resistance at convertible top control module connector D-45.**

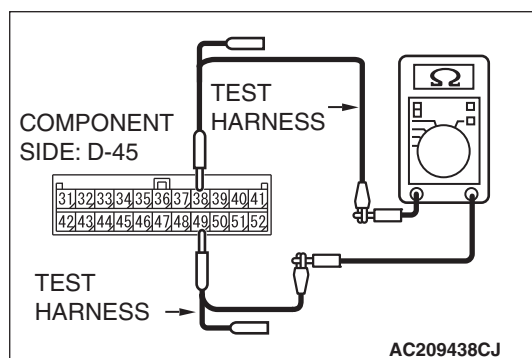
- (1) Disconnect convertible top control module connector D-45, and measure the resistance at the component side of convertible top control module connector D-45.

**CONNECTOR: D-45**



- (2) Measure the resistance between convertible top control module connector D-45 (terminals 48 and 37).

**OK: 2 ohms or less**



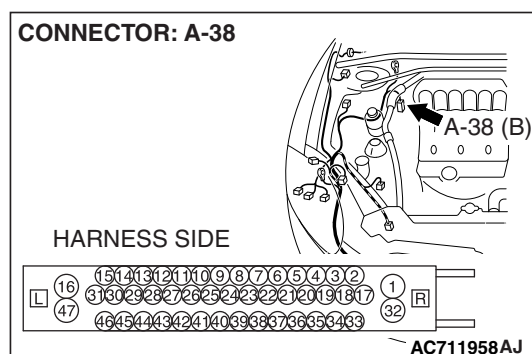
- (3) Measure the resistance between convertible top control module connector D-45 (terminals 49 and 38).

**OK: 2 ohms or less**

**Q: Do all the resistances measure 2 ohms or less?**

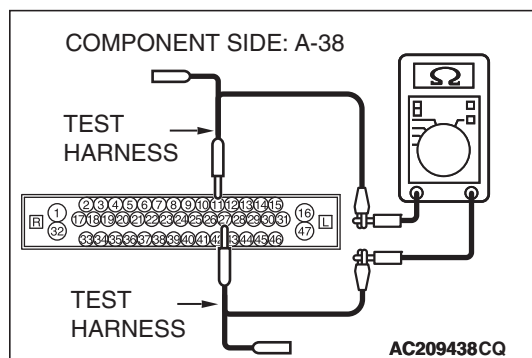
**YES :** Go to Step 5.

**NO :** Replace the convertible top control module.



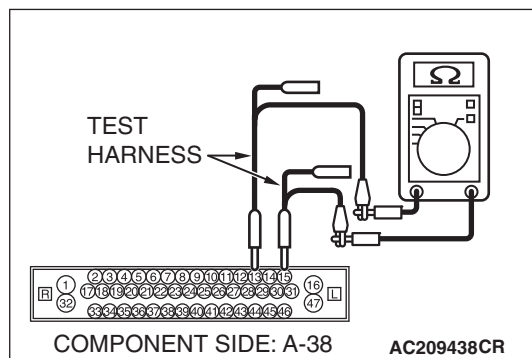
**STEP 5. Check the CAN bus lines inside the TCL/ASC-ECU. Measure the resistance at TCL/ASC-ECU connector A-38.**

- (1) Disconnect TCL/ASC-ECU A-38, and measure the resistance at the component side of TCL/ASC-ECU connector A-38.



- (2) Measure the resistance between TCL/ASC-ECU connector A-38 (terminals 11 and 27).

**OK: 2 ohms or less**



- (3) Measure the resistance between TCL/ASC-ECU connector A-38 (terminals 13 and 15).

**OK: 2 ohms or less**

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Intermittent malfunction.

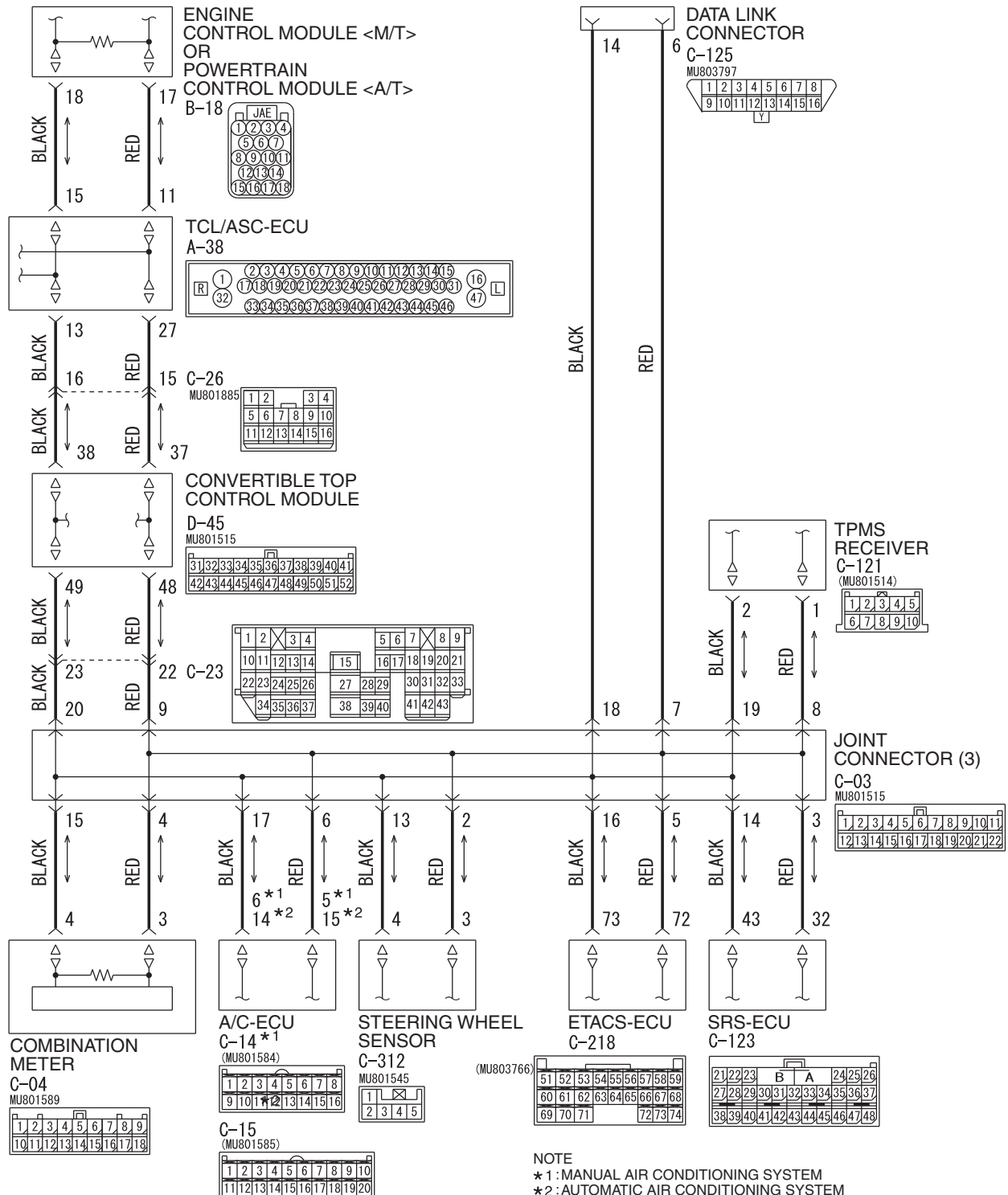
**NO :** Replace the TCL/ASC-ECU.

**DIAGNOSTIC ITEM 15:** Diagnose when the scan tool cannot receive the data sent by the ECM <M/T> or the PCM <A/T>, and TCL/ASC-ECU, and convertible top control module. <ECLIPSE SPYDER>

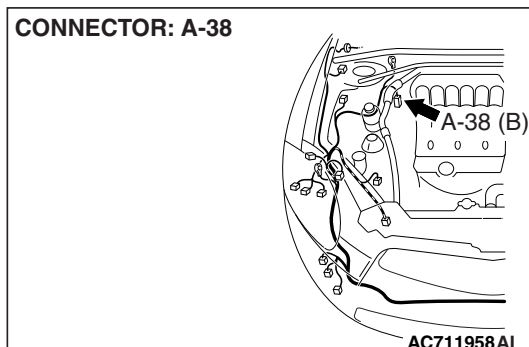
**CAUTION**

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

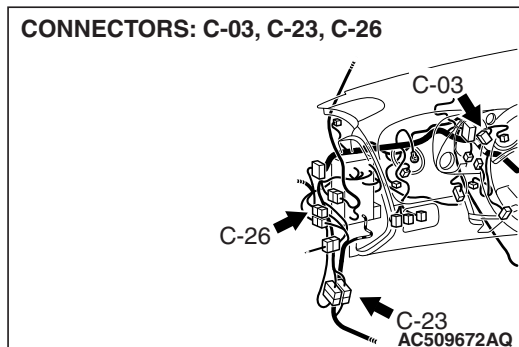
<ECLIPSE SPYDER>



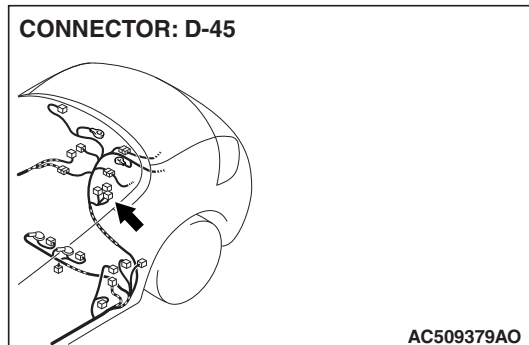
CONNECTOR: A-38



CONNECTORS: C-03, C-23, C-26



CONNECTOR: D-45



## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the ECM <M/T> or PCM <A/T>, TCL/ASC and convertible top control module" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive convertible top control module, TCL/ASC-ECU and ECM <M/T> or PCM <A/T> data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from convertible top control module, TCL/ASC-ECU and ECM <M/T> or PCM <A/T> cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between TCL/ASC-ECU and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or convertible top control module connector or TCL/ASC-ECU connector]
- The TCL/ASC-ECU connector may be defective (internal open circuit)
- The convertible top control module may be defective (internal open circuit)
- The ECM <M/T> or PCM <A/T> may be defective (internal open circuit)

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra fine probe
- MB991923: Power plant ECU Check Harness
- MB991997: ASC Check Harness

**STEP 1.** Check joint connector (3) C-03, convertible top control module connector D-45 and TCL/ASC-ECU connector A-38 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**CAUTION**

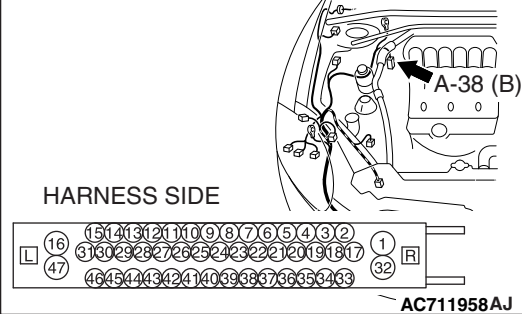
The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to [P.54C-8](#).

**Q:** Are joint connector (3) C-03, convertible top control module connector D-45 and TCL/ASC-ECU connector A-38 in good condition?

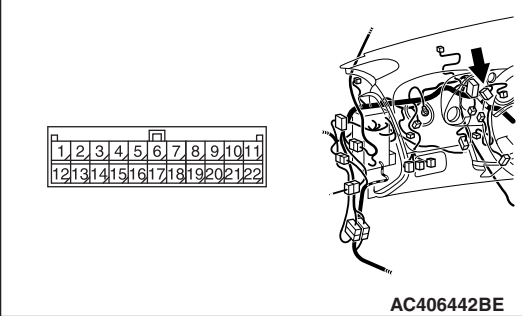
**YES :** Go to Step 2.

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

**CONNECTOR: A-38**



**CONNECTOR: C-03**



**CONNECTOR: D-45**



**STEP 2. Check the CAN bus lines between intermediate connector C-23 and joint connector (3). Measure the resistance between intermediate connector C-23 and joint connector (3) C-03.**

**⚠ CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

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

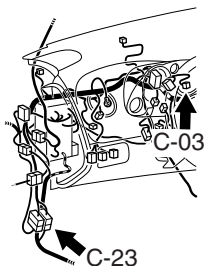
**⚠ CAUTION**

**Disconnect the negative battery terminal. For details refer to [P.54C-8](#).**

(2) Disconnect the negative battery terminal.

(3) Disconnect intermediate connector C-23 and joint connector (3) C-03, and measure the resistance between the wiring harness side connector of joint connector (3) C-03 and the female side connector of intermediate connector C-23 (at instrument panel wiring harness side).

**CONNECTORS: C-03, C-23**



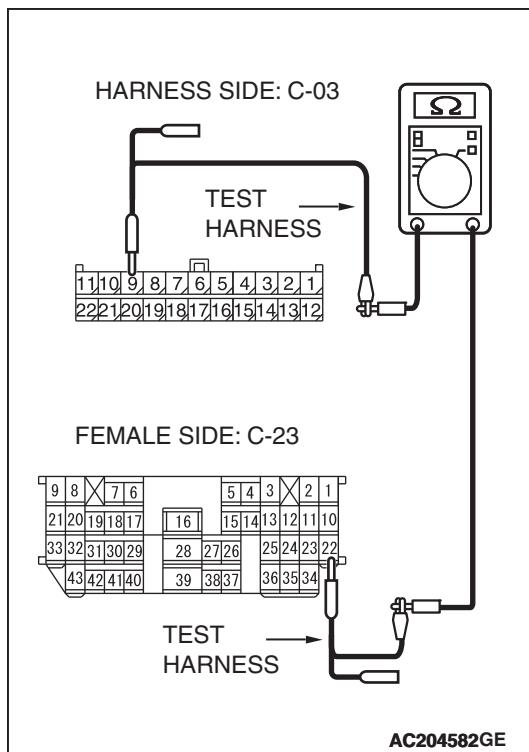
**C-03**

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

**C-23**

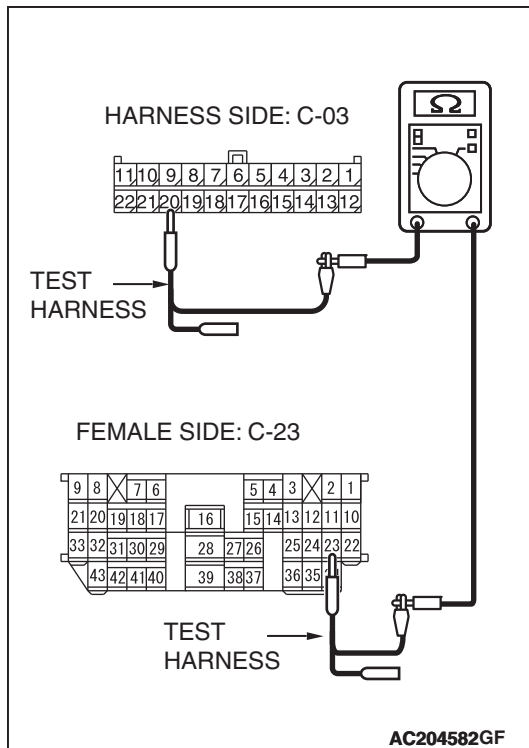
1	2	X	3	4				5	6	7	X	8	9
10	11	12	13	14	15			16	17	18	19	20	21
22	23	24	25	26	27	28	29			30	31	32	33
34	35	36	37		38	39	40			41	42	43	

AC406443AG



- (4) Measure the resistance between intermediate connector C-23 (terminal 22) and joint connector (3) C-03 (terminal 9).

**OK: 2 ohms or less**



- (5) Measure the resistance between intermediate connector C-23 (terminal 23) and joint connector (3) C-03 (terminal 20).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Go to Step 3.

**NO :** Repair the wiring harness between intermediate connector C-23 and the joint connector (3) C-03.

**STEP 3.** Check the CAN bus lines between intermediate connector C-23 and the convertible top control module connector D-45. Measure the resistance between intermediate connector C-23 and convertible top control module connector D-45.

**⚠ CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

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

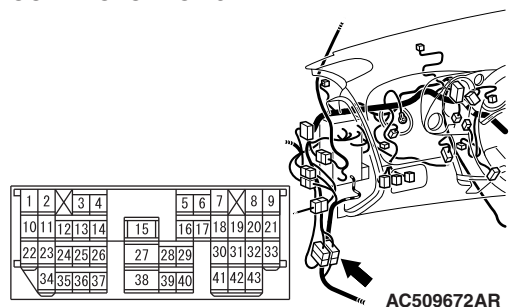
**⚠ CAUTION**

**Disconnect the negative battery terminal.** For details refer to [P.54C-8](#).

(2) Disconnect the negative battery terminal.

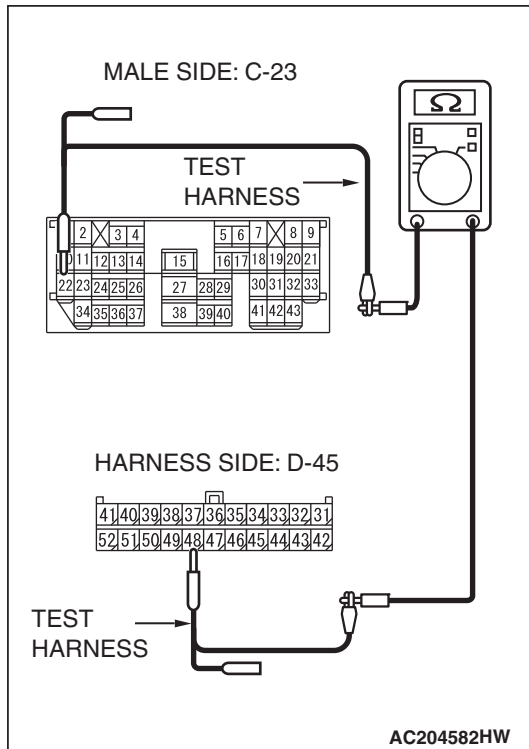
(3) Disconnect intermediate connector C-23 and convertible top control module connector D-45, and measure the resistance between the wiring harness side connector of convertible top control module connector D-45 and the male side connector of intermediate connector C-23 (at floor wiring harness side).

**CONNECTOR: C-23**



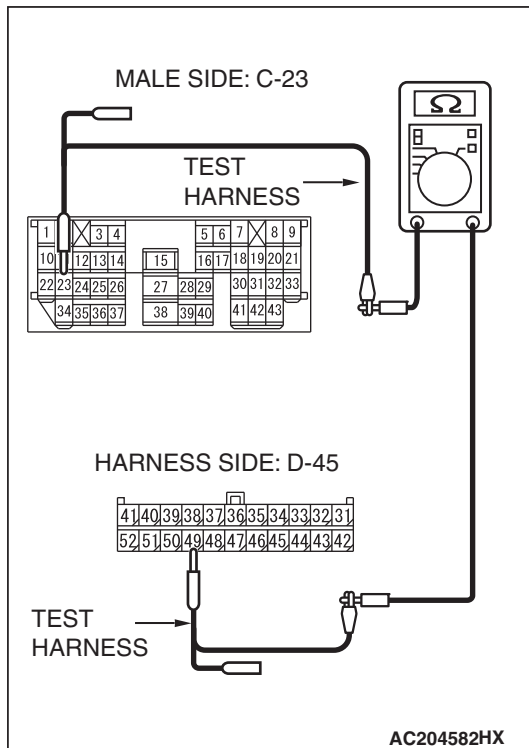
**CONNECTOR: D-45**





- (4) Measure the resistance between intermediate connector C-23 (terminal 22) and convertible top control module connector D-45 (terminal 48).

**OK: 2 ohms or less**



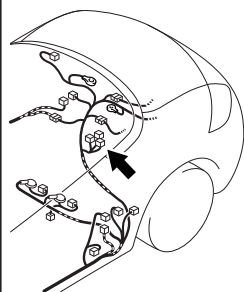
- (5) Measure the resistance between intermediate connector C-23 (terminal 23) and convertible top control module connector D-45 (terminal 49).

**OK: 2 ohms or less**

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Go to Step 4.

**NO :** Repair the wiring harness between intermediate connector C-23 and the convertible top control module connector D-45.

**CONNECTOR: D-45**

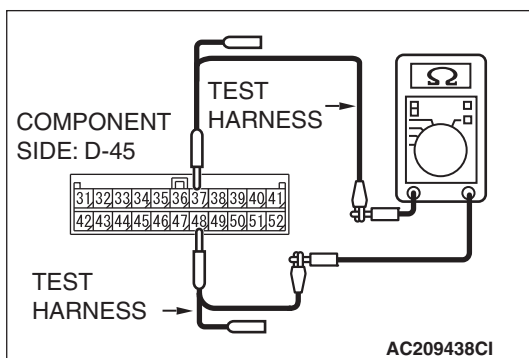
HARNESS SIDE

41	40	39	38	37	36	35	34	33	32	31
52	51	50	49	48	47	46	45	44	43	42

AC509379AP

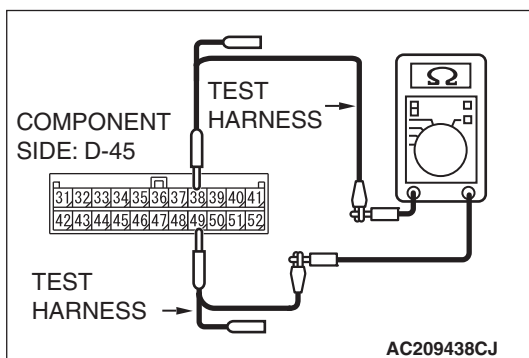
**STEP 4. Check the CAN bus lines inside the convertible top control module. Measure the resistance at convertible top control module connector D-45.**

- (1) Disconnect convertible top control module connector D-45, and measure the resistance at the component side of convertible top control module connector D-45.



- (2) Measure the resistance between convertible top control module connector D-45 (terminals 48 and 37).

**OK: 2 ohms or less**



- (3) Measure the resistance between convertible top control module connector D-45 (terminals 49 and 38).

**OK: 2 ohms or less**

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Intermittent malfunction.

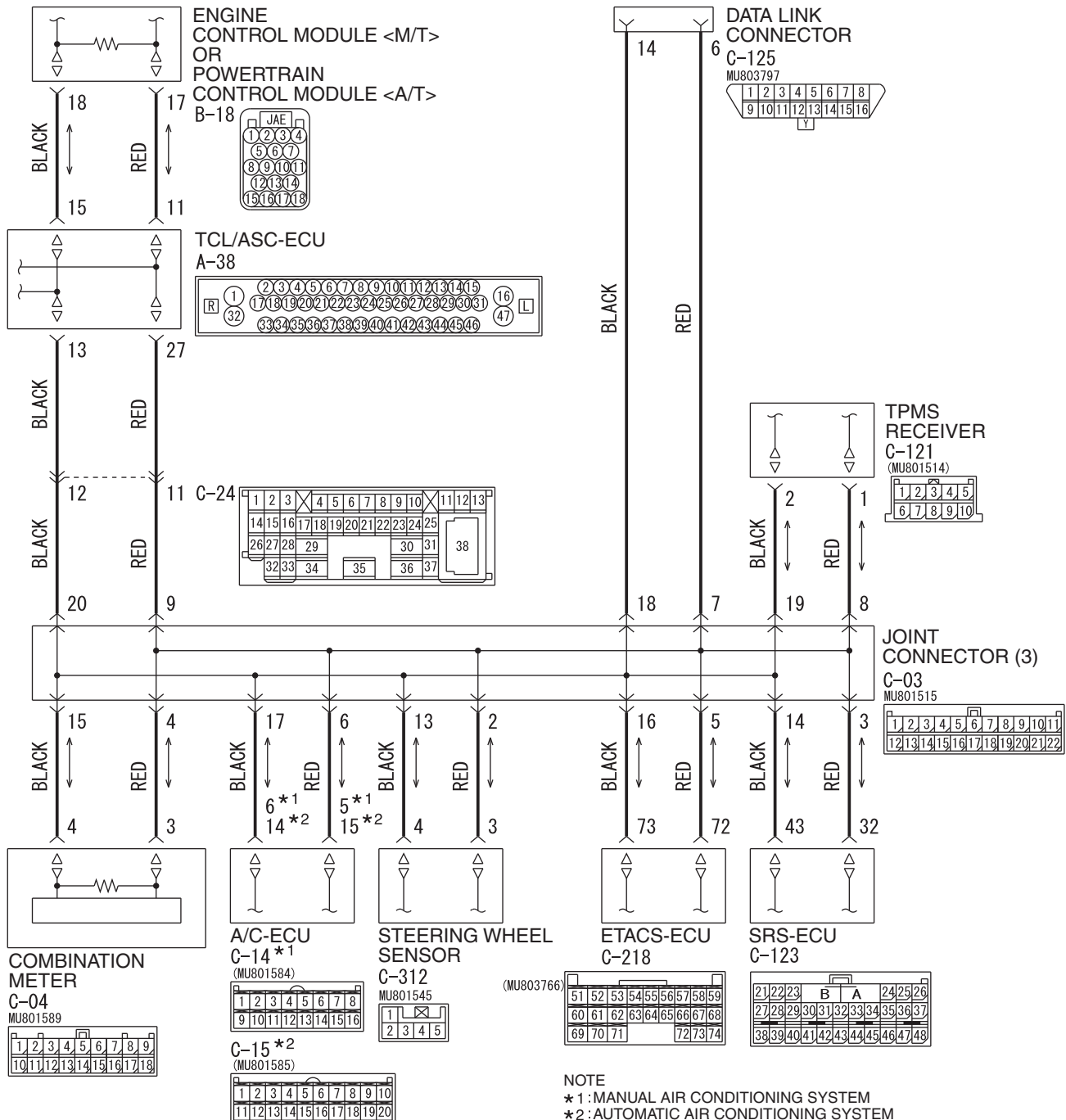
**NO :** Replace the convertible top control module.

**DIAGNOSTIC ITEM 16: Diagnose when the scan tool cannot receive the data sent by steering wheel sensor.**

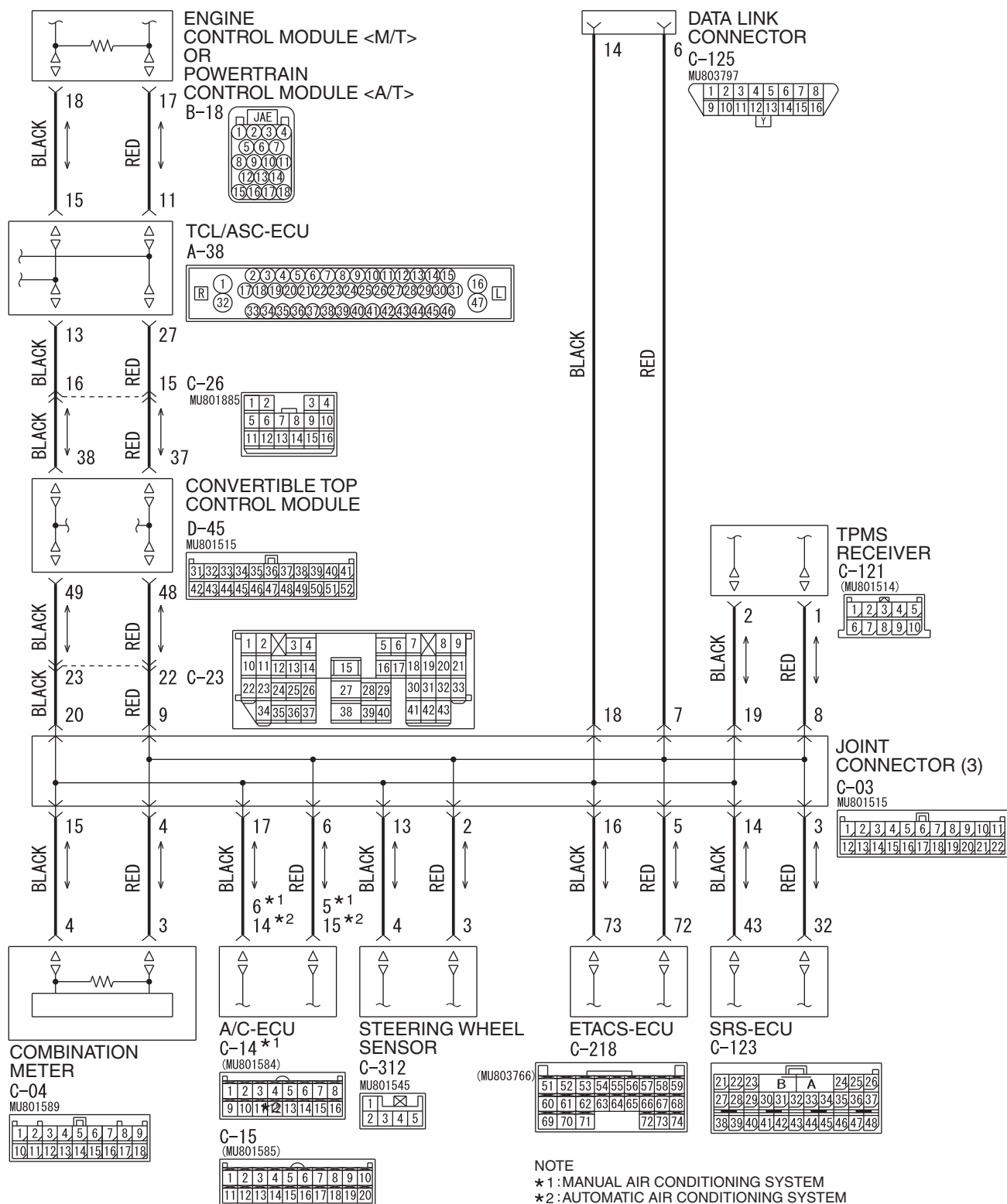
**CAUTION**

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

<ECLIPSE>

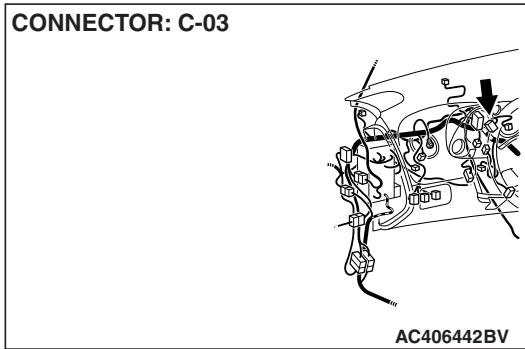


## &lt;ECLIPSE SPYDER&gt;

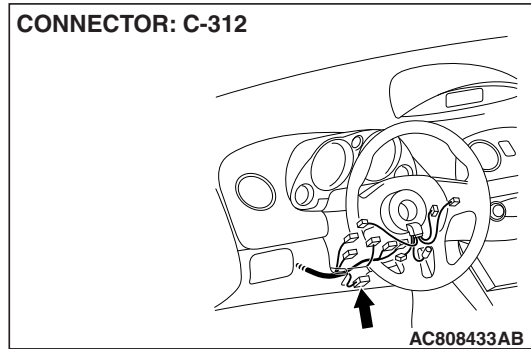


WAP54M001A

CONNECTOR: C-03



CONNECTOR: C-312



## FUNCTION

The diagnostic result demonstrates that "the scan tool cannot receive the sent data from the steering wheel sensor" when the scan tool MB991958 checks the periodically sent data from each ECU and cannot receive the steering wheel sensor data only.

## TROUBLE JUDGMENT CONDITIONS

Scan tool MB991958 judges the trouble when the periodically sent data from steering wheel sensor cannot be received and sent.

## TROUBLESHOOTING HINTS

- The wiring harness may be defective [open circuit between steering wheel sensor and joint connector (3)]
- The connector may be defective [poor connection of joint connector (3) or steering wheel sensor connector]
- Power supply circuit malfunction of the steering wheel sensor
- The steering wheel sensor may be defective

## DIAGNOSIS

### Required Special Tools:

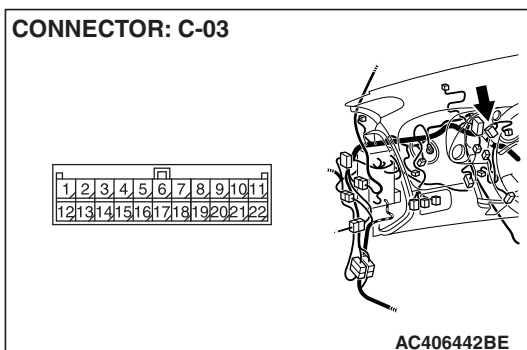
- MB991223: Harness Set
- MB992006: Extra fine probe

**STEP 1. Check joint connector (3) C-03 and steering wheel sensor connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

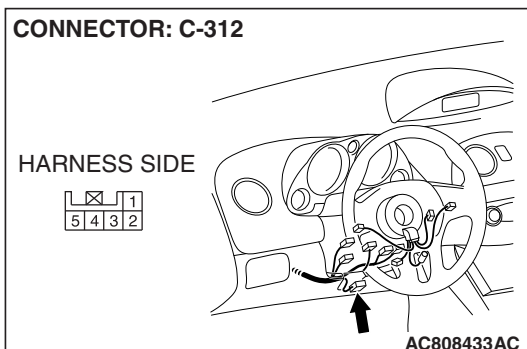
### ⚠ CAUTION

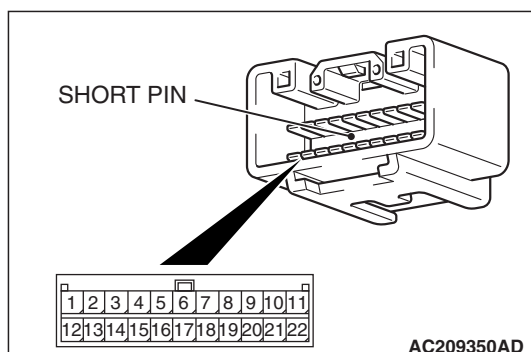
The strand end of the twisted wire should be within 10 cm (4.0 inches) from the connector. For details refer to [P.54C-8](#).

CONNECTOR: C-03



CONNECTOR: C-312



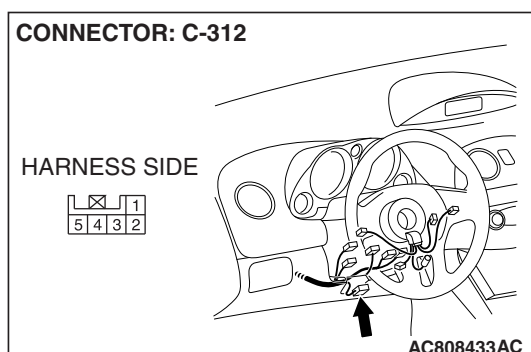
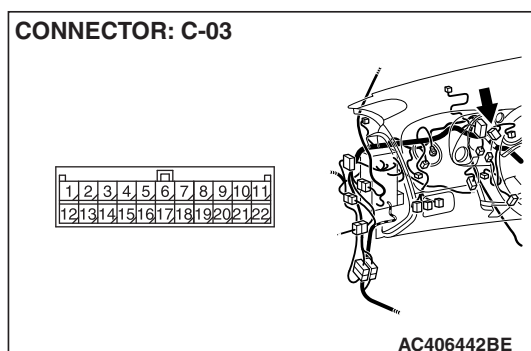


Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

**Q: Are joint connector (3) C-03 and steering wheel sensor connector C-312 in good condition?**

**YES :** Go to Step 2.

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



**STEP 2. Check the CAN bus lines joint connector (3) and the steering wheel sensor. Measure the resistance between joint connector (3) C-03 and steering wheel sensor connector C-312.**

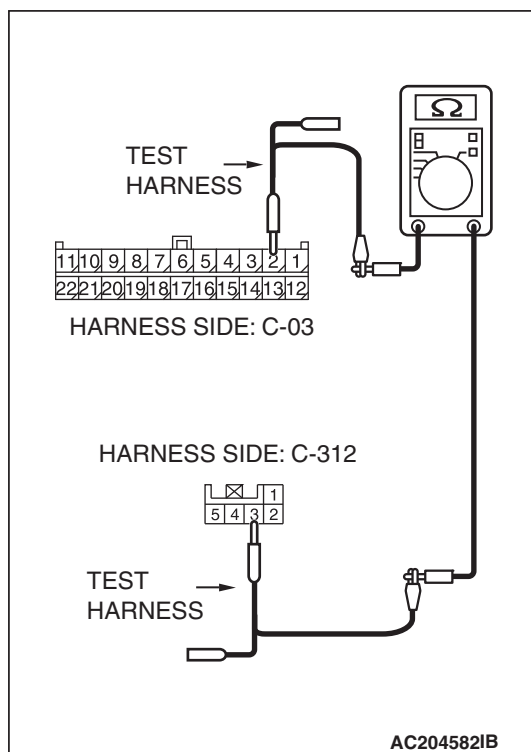
**CAUTION**

- A digital multimeter should be used. For details refer to [P.54C-8](#).
- The test wiring harness should be used. For details refer to [P.54C-8](#).

**CAUTION**

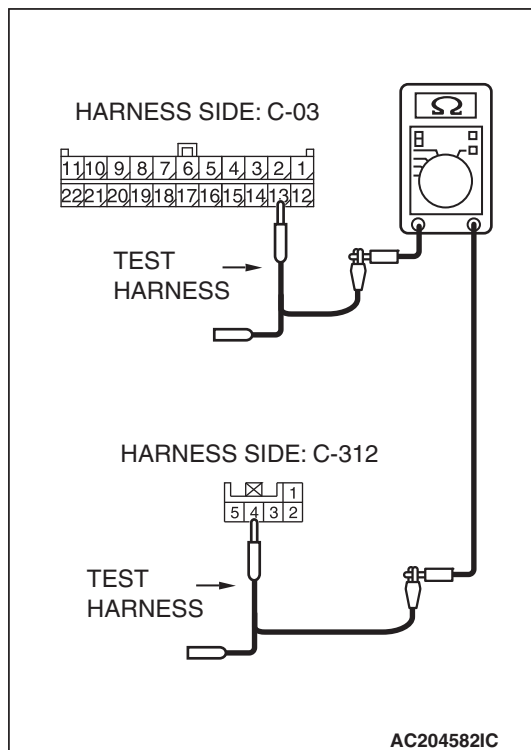
**Disconnect the negative battery terminal. For details refer to [P.54C-8](#).**

- (1) Disconnect the negative battery terminal.
- (2) Disconnect joint connector (3) C-03 and steering wheel sensor connector C-312, and measure the resistance between the wiring harness side connector of steering wheel sensor connector C-312 and joint connector (3) C-03.



- (3) Measure the resistance between joint connector (3) C-03 (terminal 2) and steering wheel sensor connector C-312 (terminal 3).

**OK: 2 ohms or less**



- (4) Measure the resistance between joint connector (3) C-03 (terminal 13) and steering wheel sensor connector C-312 (terminal 4).

**OK: 2 ohms or less**

**CAUTION**

Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-9](#).

**Q: Do all the resistances measure 2 ohms or less?**

**YES :** Diagnose the tire pressure monitoring system. Refer to GROUP 35C, TCL/ASC Diagnosis – Symptom procedures, Steering wheel sensor power supply circuit system [P.35C-194](#).

**NO :** Repair the wiring harness between joint connector (3) C-03 and the steering wheel sensor connector C-312.

# CAN COMMUNICATION-RELATED DTC CODE (U CODE) TABLE

M1548300301497

CODE NO.	DIAGNOSTIC ITEM	OUTPUT ECU	ACTION
U1073	Bus Off	ECM <M/T> or PCM <A/T>, SRS-ECU, TCL/ASC-ECU, Steering wheel sensor, Convertible top control module, Combination meter, ETACS-ECU, A/C-ECU	CAN main bus line diagnostics
U1100	ECM <M/T> or PCM <A/T> time-out (related to engine)	TCL/ASC-ECU, Combination meter, ETACS-ECU, A/C-ECU	
U1101	ECM <M/T> or PCM <A/T> time-out (related to automatic transaxle)	TCL/ASC-ECU, Combination meter, ETACS-ECU	
U1104	Steering wheel sensor time-out	TCL/ASC-ECU	
U1108	Combination meter time-out	ECM <M/T> or PCM <A/T>, ETACS-ECU	
U1109	ETACS-ECU time-out	ECM <M/T> or PCM <A/T>, Combination meter	
U1110	A/C-ECU time-out	ECM <M/T> or PCM <A/T>, ETACS-ECU	
U1111*	Multi-center display unit (middle-grade type) time-out	ETACS-ECU, A/C-ECU	
U1112	SRS-ECU time-out	Combination meter	
U1114	TPMS receiver time-out		
U1117	Immobilizer-ECU time-out	ECM <M/T> or PCM <A/T>	
U1120	Failure information on ECM <M/T> or PCM <A/T> (related to engine)	TCL/ASC-ECU, Combination meter, A/C-ECU	Diagnose CAN main bus lines and confirm input signals.
U1128	Failure information on combination meter	ETACS-ECU	
U1206	Flag invalid	Combination meter	
U1434	Failure information on TPMS receiver		

NOTE: \*: This diagnostic trouble code is always set, but it does not indicate a problem.