

GROUP 54D

CONTROLLER AREA NETWORK (CAN)

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GENERAL INFORMATION

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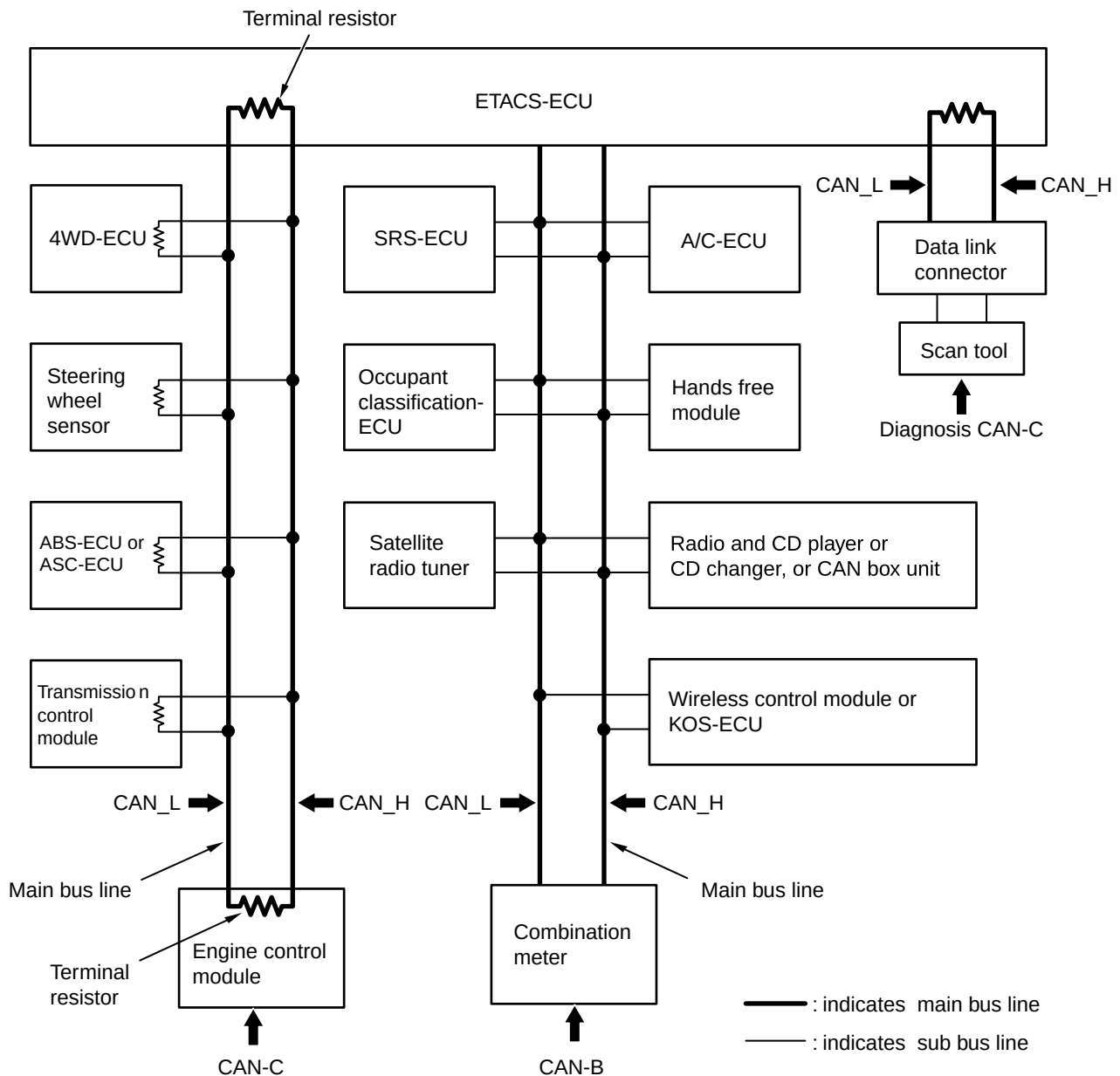
CAN, an abbreviation for Controller Area Network, is an ISO-certified international standard for a serial multiplex communication protocol*. A communication circuit employing the CAN protocol connects each electric control module (ECU), and sensor data can be shared among, which enables more reduction in wiring.

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

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, therefore if the ECU enters damaged mode, communications can be continued in some cases.

STRUCTURE



ZC5017670000

- With OUTLANDER, for the first time with MMC, a gateway function has been integrated to ETACS-ECU as the network central ECU. (Refer to GROUP 54Ad, ETACS-ECU P.54Ad-3.)
- The CAN system consists of the following three networks: CAN-B (middle-speed body network), CAN-C (high-speed power train network), and the diagnosis CAN-C (diagnosis exclusive network). Each ECU is connected to one of the networks depending on its functions.

- 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 two dominant ECUs is the main bus line, and the CAN bus line connecting each ECU is the sub-bus line.

- With CAN-C, the terminal resistors are incorporated in ECU. Resistors with approximately 120 ohms is used for the dominant ECU, and that with 4.7 kilohms is used for the non-dominant ECU.

NOTE:

▪ *Dominant ECU: ETACS-ECU and engine ECU*

▪ *Non-dominant ECU: ECU and sensor on CAN-C network, excluding ETACS-ECU and engine ECU*

- To the CAN bus line, ECU, sensor, and data link connector are connected as follows for each network.

CAN-B

- A/C-ECU
- SRS-ECU
- Occupant classification-ECU
- Hands free module
- Radio and CD player or CD changer <vehicles without Mitsubishi Multi-Communication

System (MMCS)> or CAN box unit <vehicles with Mitsubishi Multi-Communication System (MMCS)>

- Satellite radio tuner <vehicles satellite radio>
- Wireless control module (WCM) <vehicles without KOS> or KOS-ECU <vehicles with KOS>
- Combination meter

CAN-C

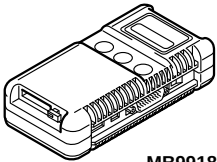
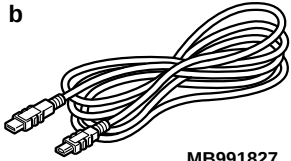
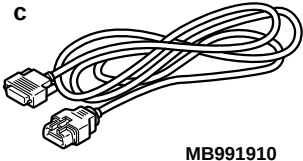
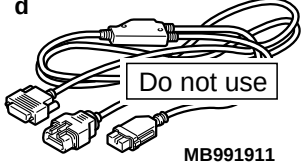
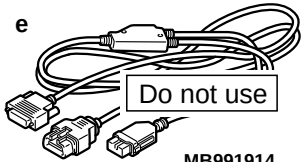
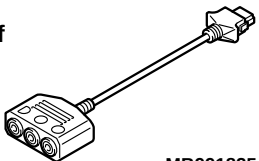
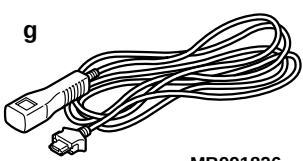
- AWD-ECU
- Steering wheel sensor <vehicles with ASC>
- ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC>
- Transaxle control module (TCM)
- Engine control module (ECM)

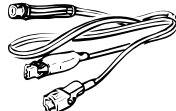
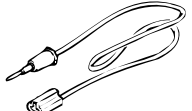
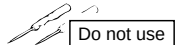
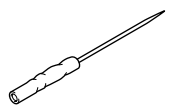
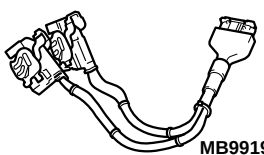
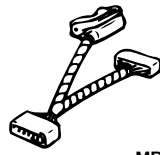
DIAGNOSIS CAN-C

- Data link connector

SPECIAL TOOL

M15408300042USA0000010000

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 YB9919580000	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (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 Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT <i>NOTE: G: MB991826 M. U. T. -III Trigger Harness is not necessary when pushing V. C. I. ENTER key.</i>	⚠ CAUTION M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle. CAN bus diagnostics

Tool	Tool number and name	Supersession	Application
a  b  c  d  YB9912230000	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector. a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection
 MB992006	MB992006 Extra fine probe	-	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.
 MB991970	MB991970 ABS check harness	-	Measure the voltage and resistance at the ABS-ECU
 MB991952	MB991952 ABS check harness	-	Measure the voltage and resistance at the ASC-ECU

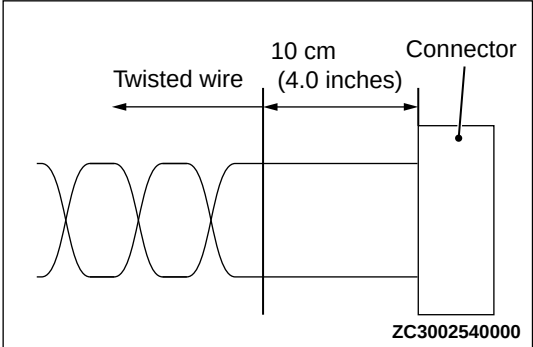
TEST EQUIPMENT

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Test equipment	Name	Use
 ZC3000010000	Digital multimeter	Checking CAN bus circuit (for resistance and voltage measurements)

SERVICE PRECAUTIONS

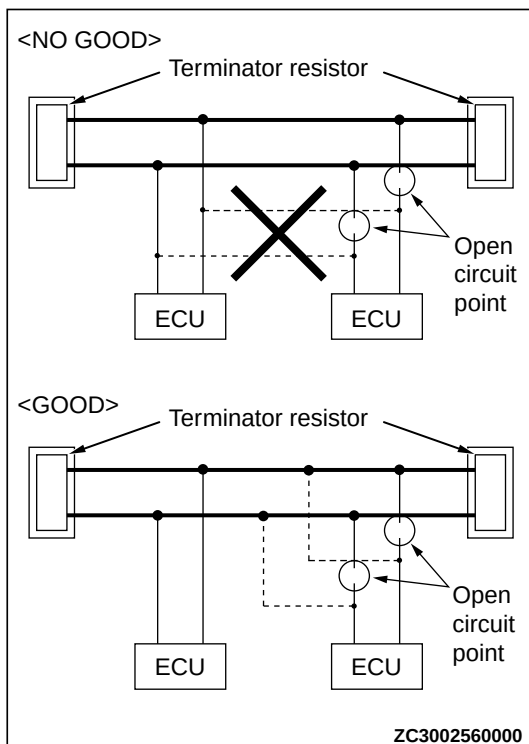
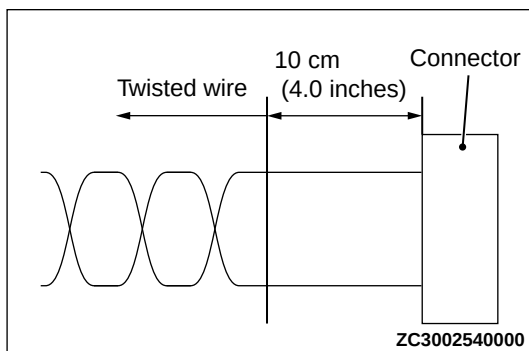
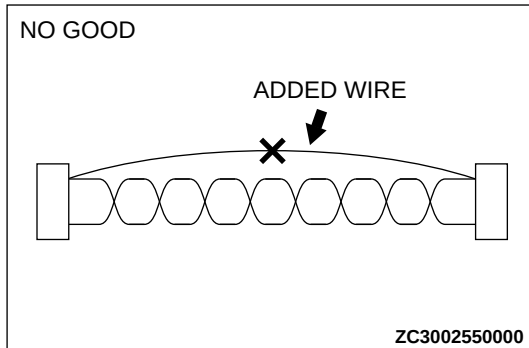
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Warnings in diagnosis section	Details regarding warnings
⚠ CAUTION When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do, a component connected to the CAN bus line may be broken.	-
⚠ CAUTION A digital multimeter should be used.	When measuring resistance value or voltage in CAN bus lines, use a digital multimeter. If not using a digital multimeter, the equipments, which are connected through the CAN communication lines, may be damaged.
⚠ CAUTION When measuring the resistance, disconnect the negative battery terminal.	Disconnect the negative battery terminal when measuring the resistance value in the CAN bus line. If you fail to do so, the equipments, which are connected through the CAN communication lines, may be damaged.
⚠ CAUTION The test wiring harness should be used.	Always use the test harness when measuring the voltage or resistance value at the female connector. If you fail to do so, connectors may be damaged.
⚠ CAUTION The strand end of the twist wire should be within 10 cm from the connector.	 If you repair the wire due to a defective connector or its terminal or harness wire, you should cut the wire so that the strand end of the twist wire should be within 10 cm (4 inches) from the connector as shown. If it exceeds 10 cm (4 inches), twist the wiring harness just like the original twisted wire. If the strand end exceeds 10 cm (4 inches), a communication error may be caused.
⚠ CAUTION Strictly observe the specified wiring harness repair procedure.	When you repair a CAN bus line, observe the precautions on how to repair the CAN bus line strictly. Refer to P.54D-9. 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

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PRECAUTIONS ON HOW TO REPAIR THE CAN BUS LINES



PRECAUTIONS ON HOW TO REPAIR THE TERMINATOR RESISTOR

If one-side terminator resistor is broken, the CAN communication will continue although noise

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

suppression is deteriorated. No diagnostic trouble code may be set even if the terminator resistor was broken. If a damage is found, replace the ECU which incorporates the defective terminator resistor.

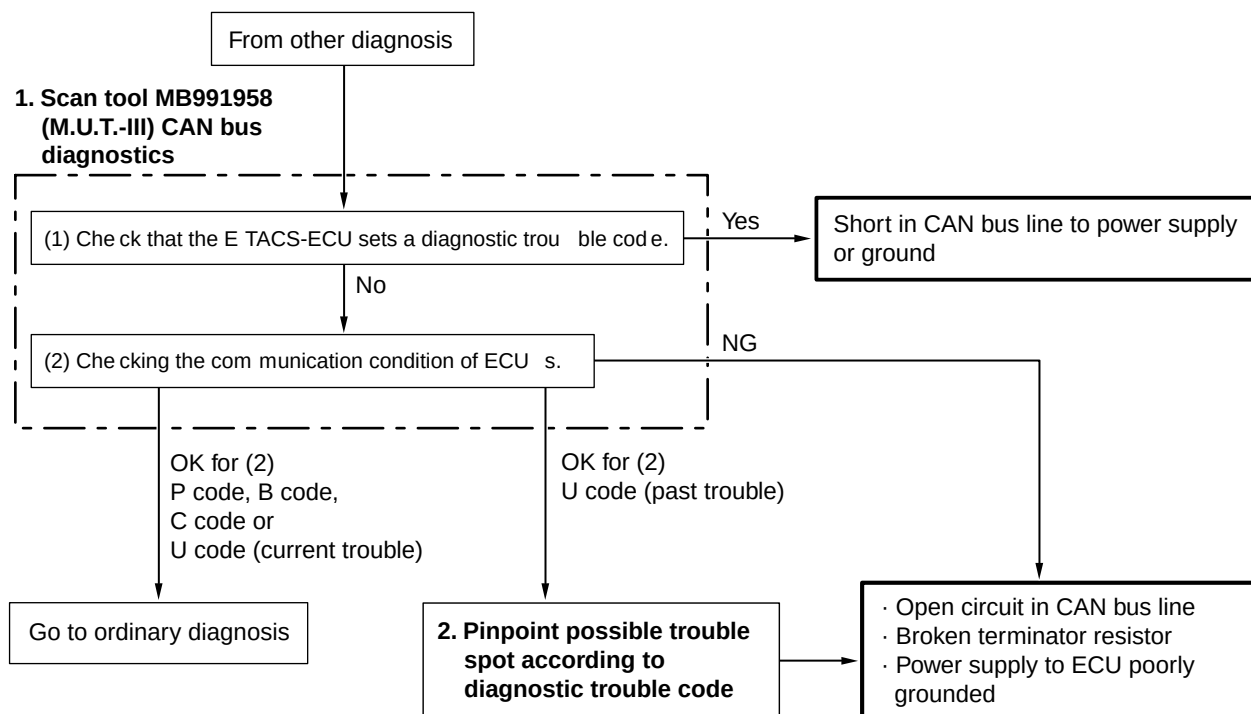
EXPLANATION ABOUT THE SCAN TOOL (M.U.T.-III) CAN BUS DIAGNOSTICS

M15408300001USA0000010000

Scan tool MB991958 CAN bus diagnostics carries out the two checks below automatically, and then displays

current condition of the CAN bus lines according to the check results.

CAN BUS LINE DIAGNOSTIC FLOW



ZC5017880000

1. Scan tool CAN bus diagnostics

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

NOTE: After you determine whether the CAN-C lines are in good condition, then determine whether the CAN-B lines are in good condition. Then confirm each judgment result on the scan tool screen.

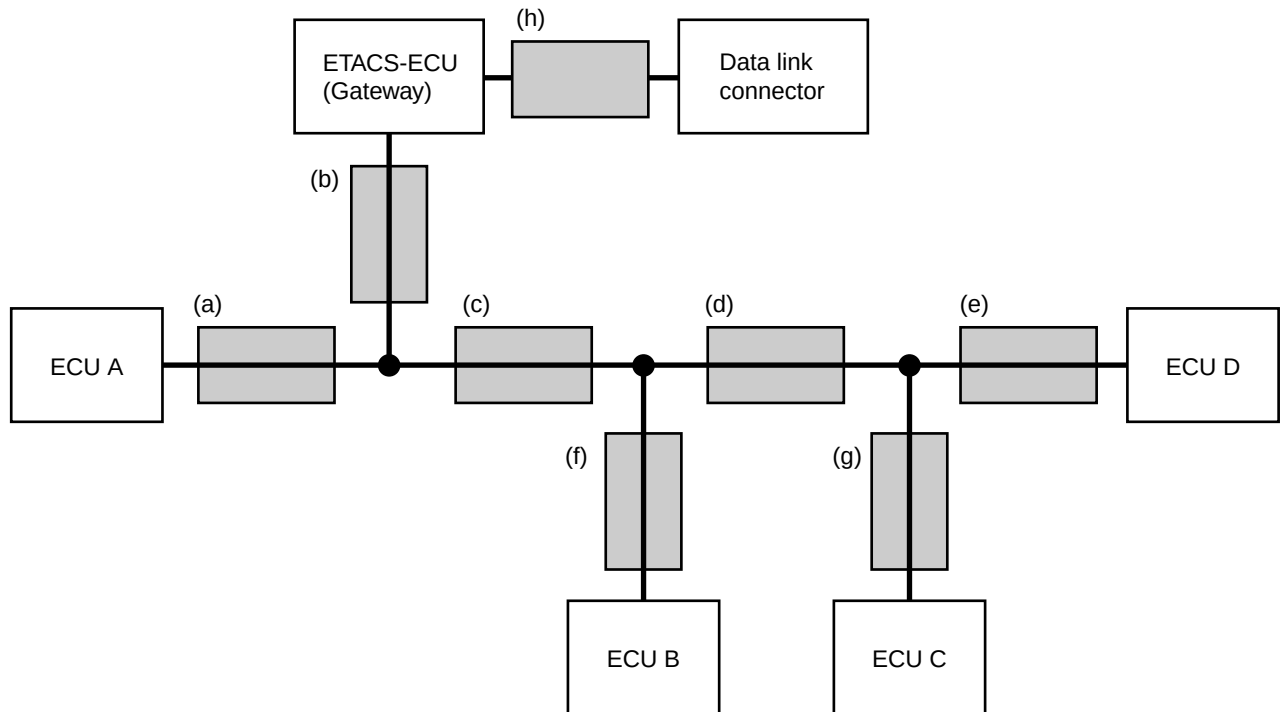
(1) Check that the ETACS-ECU sets a diagnostic trouble code.

You can narrow down the points to be diagnosed by confirming an ETACS-ECU diagnostic trouble code.

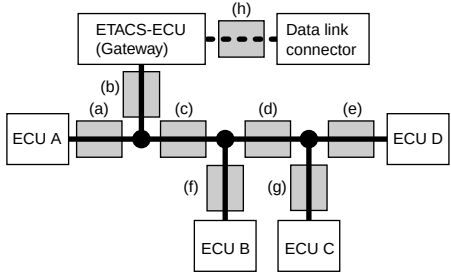
(2) Checking the communication condition of ECUs

Scan tool MB991958 narrows down troubles in circuit by itself. Its strategies are as follows.

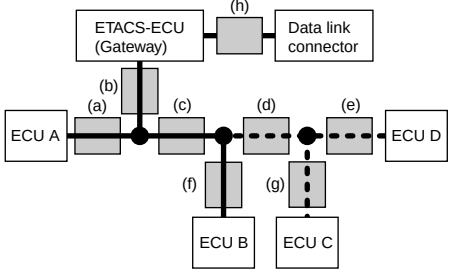
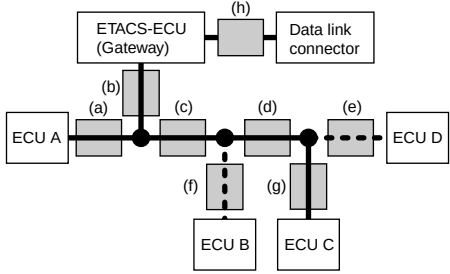
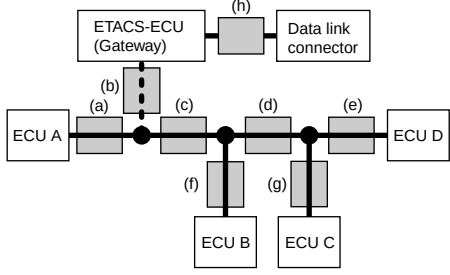
Reference circuit



ZC5017890000

ECU which cannot communicate with the scan tool	Possible trouble spot	Logic for narrowing down trouble spot
ETACS-ECU and all ECUs	CAN bus line (h) and power supply system to ETACS-ECU	The ETACS-ECU and the other ECUs use the CAN bus line (h) when they communicate with scan tool MB991958. Since none of the ETACS-ECU and the other ECUs can communicate with scan tool MB991958, CAN bus line (h) or the power supply circuit to the ETACS-ECU may be faulty.  ZC501790000

ECU which cannot communicate with the scan tool	Possible trouble spot	Logic for narrowing down trouble spot	
ECU A	CAN bus line (a) and power supply system to ECU A	ECU A communicates with the scan tool 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.	ZC501790001
ECU C	CAN bus line (g) and power supply system to ECU C	The ECU C communicates with scan tool MB991958 via CAN bus lines (b), (c), (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. ECU C communicates with scan tool MB991958 via CAN bus lines (b), (c), (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.	ZC501790002

ECU which cannot communicate with the scan tool	Possible trouble spot	Logic for narrowing down trouble spot
ECU C and ECU D	Trouble in CAN bus line (d)	ECUs C and D communicate with 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 C and ECU D. 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.  ZC501790003
ECU B and ECU D	CAN bus line (e) or (f) or power supply system to ECU B or D	ECUs C 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 (f) 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 D.  ZC501790004
All ECU (except ETACS-ECU)	CAN bus line (b)	The other ECUs except the ETACS-ECU use CAN bus lines (b) and (h) when they communicate with scan tool MB991958. It must be assumed that CAN bus line (b) is defective since the ETACS-ECU can communicate with scan tool MB991958.  ZC501790005

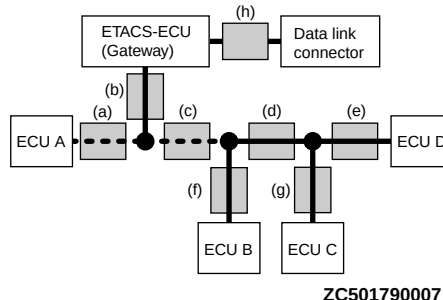
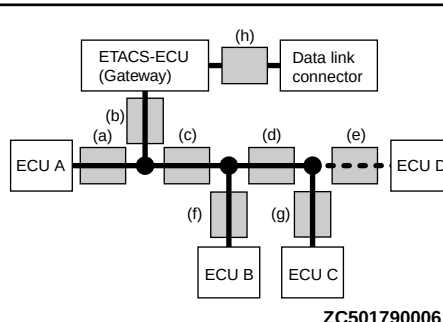
2. Pinpoint possible trouble spot according to diagnostic trouble code

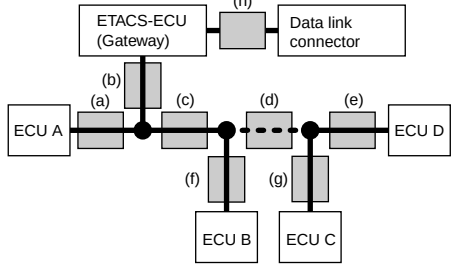
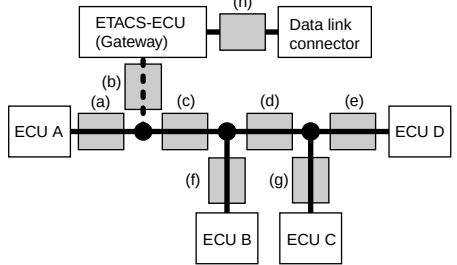
If diagnostic trouble code related to CAN communication is set as past trouble, isolate opens as described below.

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

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

Diagnostic trouble code to be set	Possible trouble spot	Logic for narrowing down trouble spot
Time-out diagnostic trouble code associated with ECU D is stored in ECU A, ECU B and ECU C.	Trouble in CAN bus line (e) and power supply system to ECU D	When time-out diagnostic trouble code associated with ECU D is stored in ECU A, B and C, or time-out diagnostic trouble code associated with ECUs A, B and C is stored in ECU D, or "bus off" diagnostic trouble code is stored in ECU D, CAN bus line (e) is suspected. When diagnostic trouble code is not stored in ECU D, the power supply to ECU D is suspected.
Time-out diagnostic trouble code associated with ECUs A, B and C is stored in ECU D.		
"Bus off" diagnostic trouble code is stored in ECU D.		
Time-out diagnostic trouble code associated with ECU A is stored in ECUs B, C and D.	Trouble in CAN bus line (a) and power supply system to ECU A.	When time-out diagnostic trouble code associated with ECU A is stored in ECUs B, C and D, or time-out diagnostic trouble code associated with ECUs B, C and D is stored in ECU A, or "bus off" diagnostic trouble code is stored in ECU A, CAN bus line (a) or (c) is suspected. When diagnostic trouble code is not stored in ECU A, the power supply to ECU A is suspected.
Time-out diagnostic trouble code associated with ECUs B, C and D is stored in ECU A.		



Diagnostic trouble code to be set	Possible trouble spot	Logic for narrowing down trouble spot
"Bus off" diagnostic trouble code is stored in ECU A.		
Time-out diagnostic trouble codes associated with ECUs C and D are stored in ECU A and ECU B.	Trouble in CAN bus line (d)	If time-out diagnostic trouble codes associated with ECUs C and D are stored in ECUs A and B, or time-out codes associated with ECUs A and B are stored in ECUs C and D, CAN bus line (d) is suspected. CAN bus line (g) or (e) and power supply systems to ECU C or D are also suspected as second cause.  ZC501790008
Time-out diagnostic trouble codes associated with ECUs A and B are stored in ECU C and ECU D.		
Time-out diagnostic trouble codes associated with ECUs A, B, C and D are stored in ETACS-ECU.	Trouble in CAN bus line (b)	It must be assumed that a fault was present in CAN bus line (b) when the ETACS-ECU has set a time-out diagnostic trouble code for ECU A, B, C or D.  ZC501790005
Time-out diagnostic trouble codes associated with ETACS-ECU is stored in ECU A, B, C and ECU D.		

DIAGNOSTIC TROUBLE CODE DIAGNOSIS

M15408300045USA0000010000

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.

- ETACS-ECU
- ECM
- TCM
- ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC>
- AWD-ECU
- Steering wheel sensor <vehicles with ASC>
- A/C-ECU

- SRS-ECU
- Occupant classification-ECU
- Hands free module <vehicles with hands free system>
- Radio and CD player or CD changer <vehicles without Mitsubishi Multi-Communication System (MMCS)> or CAN box unit <vehicles with Mitsubishi Multi-Communication System (MMCS)>
- Satellite radio tuner <vehicles satellite radio>
- WCM <vehicles without KOS> or KOS-ECU <vehicles with KOS>
- Combination meter

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

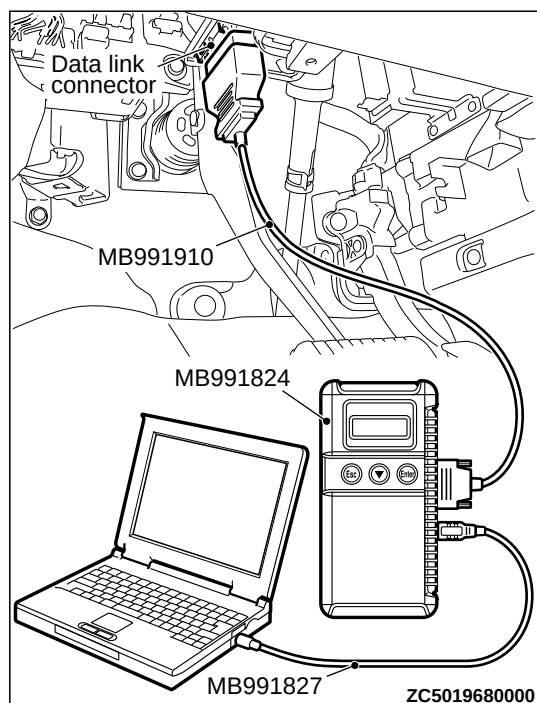
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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 scan tool system on the personal computer.

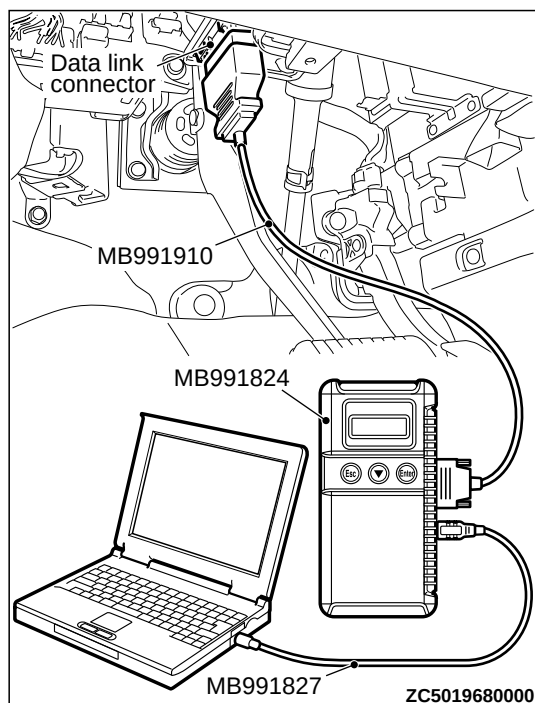
NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.



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

M15408300002USA0000010000

⚠ CAUTION

A diagnostic trouble code may not also be set in the CAN-B lines under the conditions below. If no diagnostic trouble code has been set due to electrical noise, confirm diagnostic item 26 P. 54D-153.

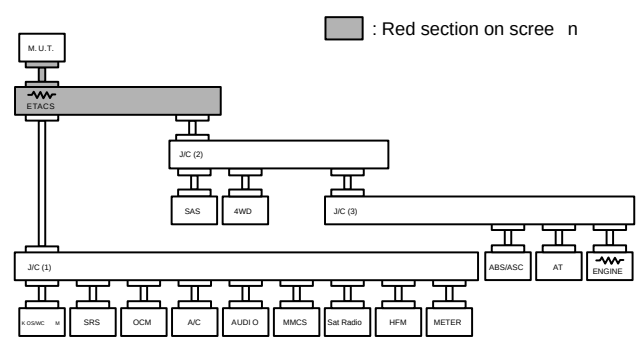
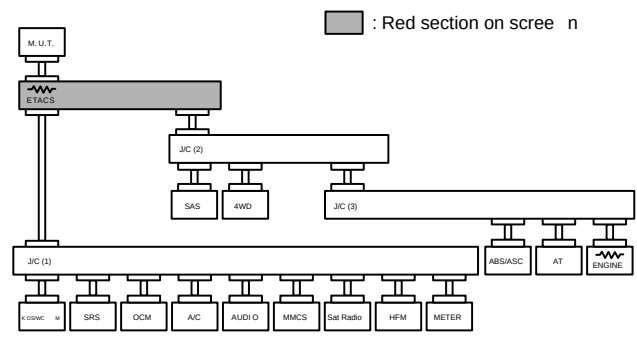
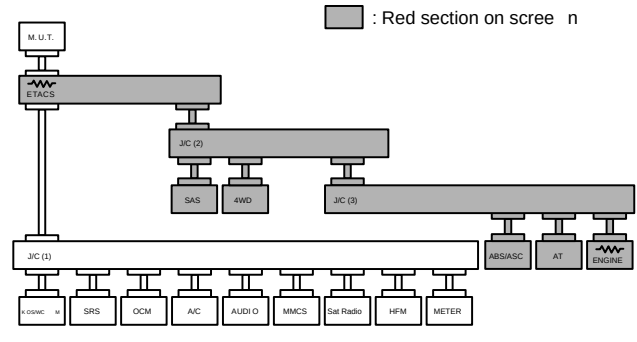
- Open circuit at the CAN_H side of the CAN-B bus lines
- Open circuit at the CAN_L side of the CAN-B bus line
- Short to ground at the CAN_H side of the CAN-B bus line

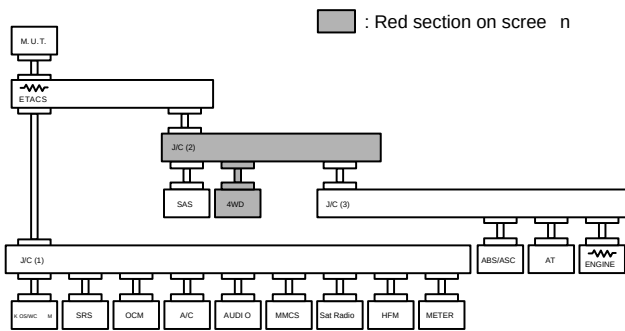
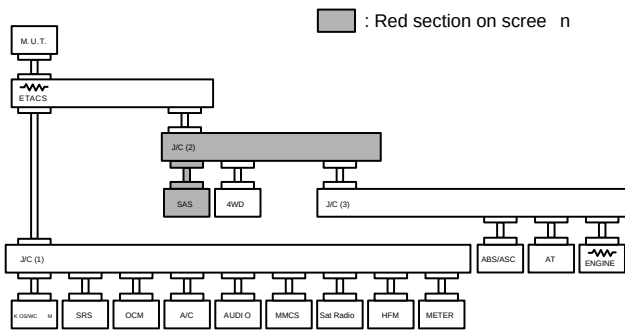
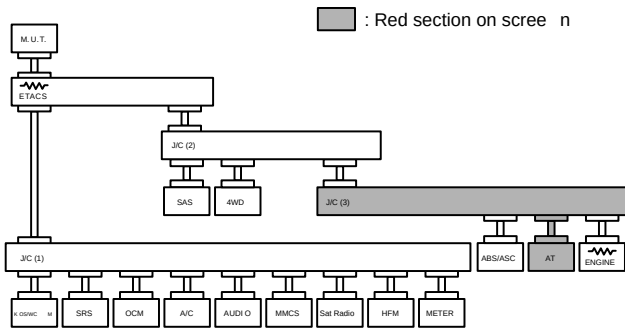
⚠ CAUTION

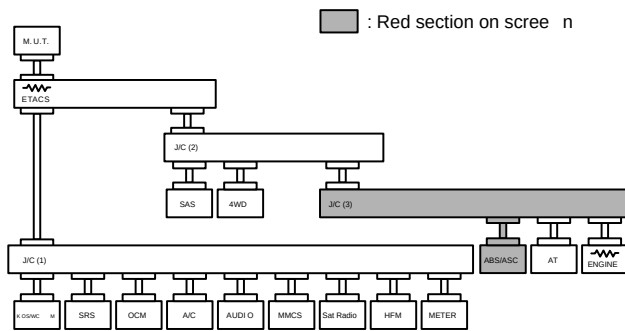
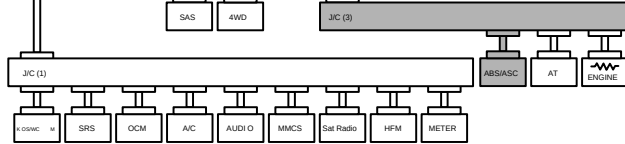
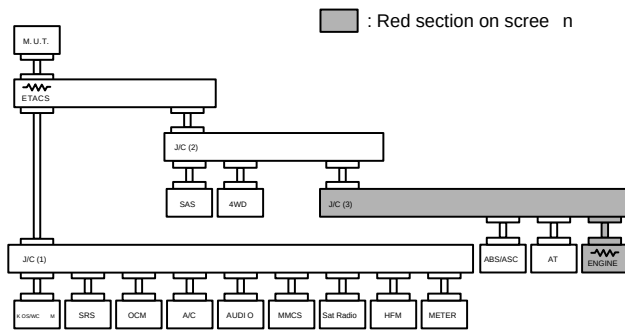
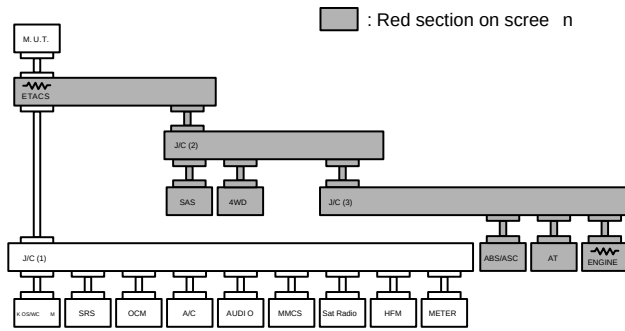
During diagnosis, a diagnostic trouble code associated with another system may be set when

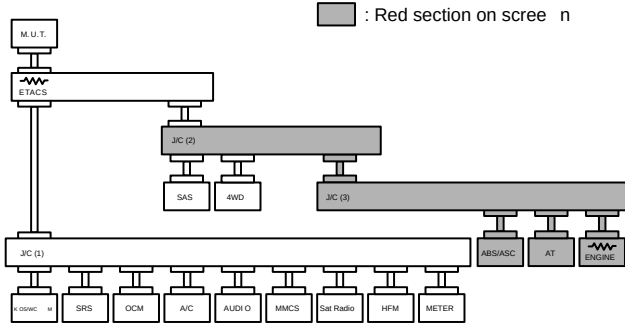
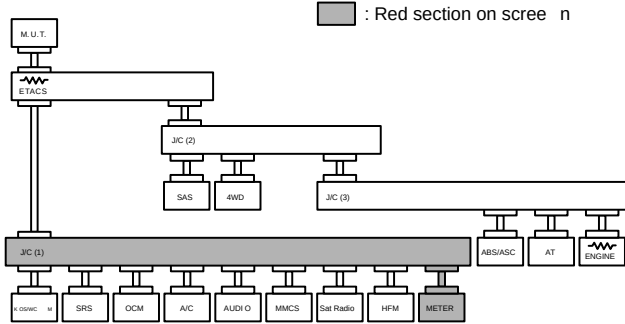
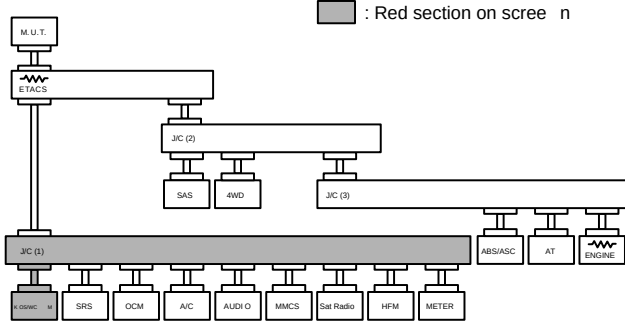
the ignition switch is turned on with connector(s) disconnected. After completing the repair, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

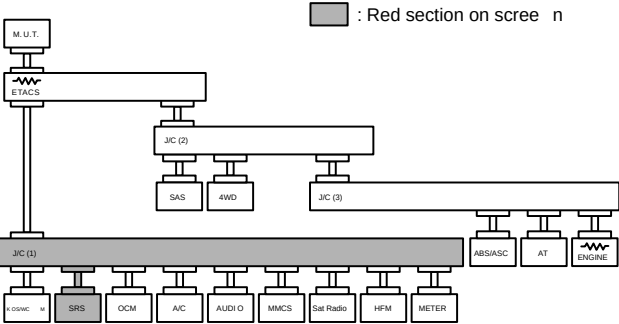
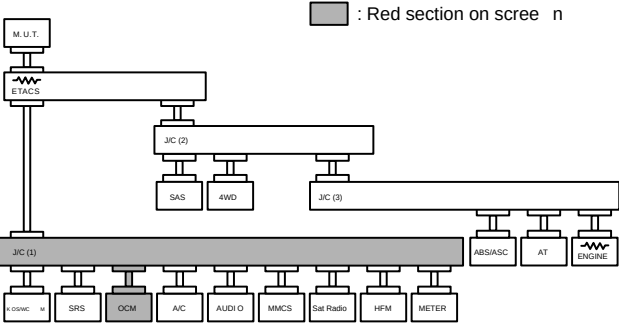
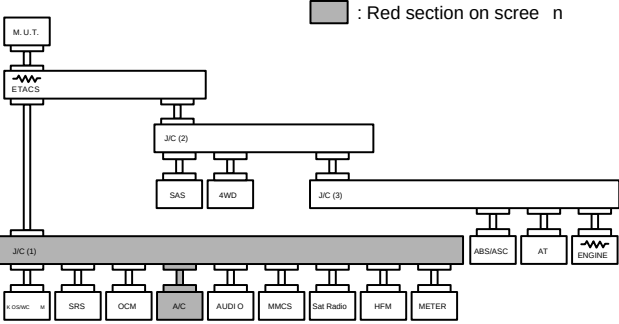
This diagnosis applies only to the CAN bus lines. If a different system is defective, proceed to the applicable diagnosis section for each system. Observe the diagnosis procedure below only when the CAN bus line is defective.

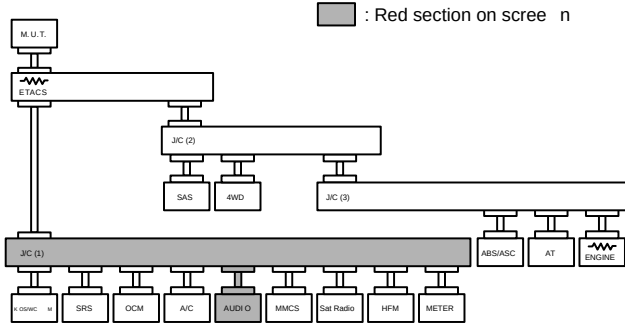
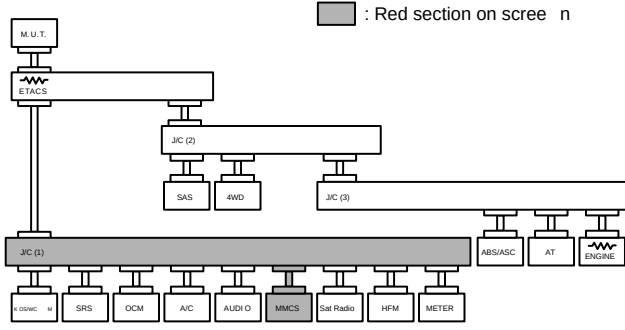
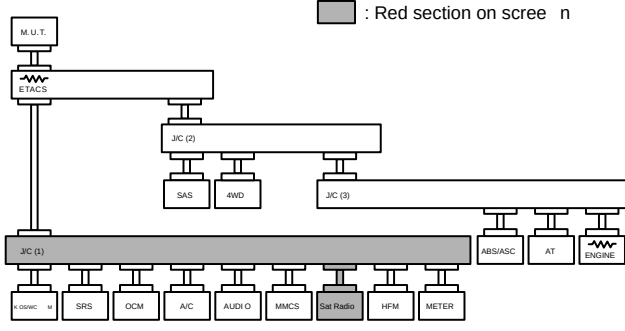
Scan tool screen		Diagnosis detail	Reference page
(The ECUs that are not adopted are not displayed).	Comment		
 ■ : Red section on screen ZC5018550000	Short circuit to battery in red displayed area is estimated.	Diagnostic item 1 Diagnose when the scan tool cannot receive the data sent by ETACS-ECU	P.54D-25
 ■ : Red section on screen ZC5018550001	Grounding in red displayed area is estimated.	Diagnostic item 2 Malfunction of the ETACS-ECU	P.54D-29
 ■ : Red section on screen ZC5018550002	CAN-C: A bus-off failure is present in the gateway ECU.	Diagnostic item 3 Abnormal short between the CAN-C bus lines	P.54D-30
	CAN-C: Grounding in red displayed area is estimated	Diagnostic item 4 Diagnose shorts in the ground to CAN-C bus line	P.54D-41
	CAN-C: Short circuit to battery in red displayed area is estimated	Diagnostic item 5 Diagnose shorts in the power supply to CAN-C bus line	P.54D-53

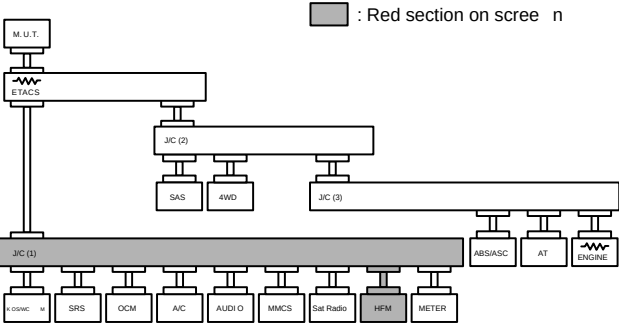
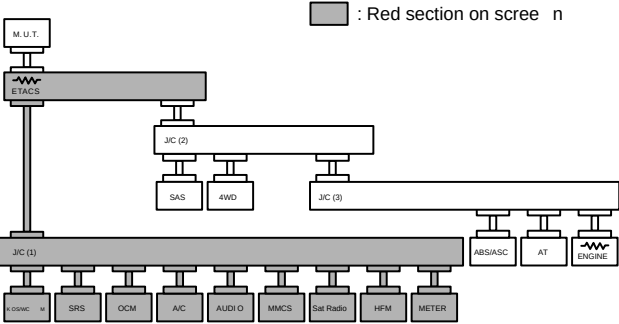
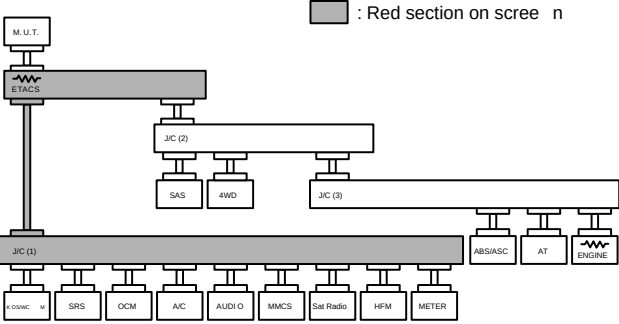
Scan tool screen		Diagnosis detail	Reference page
(The ECUs that are not adopted are not displayed).	Comment		
 ■ : Red section on screen ZC5018550003	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 6 Diagnose when the scan tool cannot receive the data sent by AWD-ECU	P.54D-65
 ■ : Red section on screen ZC5018550004	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 7 Diagnose when the scan tool cannot receive the data sent by steering wheel sensor	P.54D-68
 ■ : Red section on screen ZC5018550005	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 8 Diagnose when the scan tool cannot receive the data sent by TCM	P.54D-71

Scan tool screen		Diagnosis detail	Reference page
(The ECUs that are not adopted are not displayed).	Comment		
 ZC5018550006	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 9 Diagnose when the scan tool cannot receive the data sent by ABS-ECU	P.54D-74
 ZC5018550007	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 10 Diagnose when the scan tool cannot receive the data sent by ASC-ECU	P.54D-77
 ZC5018550007	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 11 Diagnose when the scan tool cannot receive the data sent by ECM	P.54D-80
 ZC5018550002	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 12 Diagnose the lines between the ETACS-ECU and joint connector (CAN2)	P.54D-83

Scan tool screen		Diagnosis detail	Reference page
(The ECUs that are not adopted are not displayed).	Comment		
 ZC5018550008	CAN-C: Disconnection in red displayed area is estimated.	Diagnostic item 13 Diagnose the lines between joint connector (CAN2) and joint connector (CAN3)	P.54D-86
 ZC5018550009	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 14 Diagnose when the scan tool cannot receive the data sent by combination meter	P.54D-89
 ZC5018550010	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 15 Diagnose when the scan tool cannot receive the data sent by KOS-ECU Diagnostic item 16 Diagnose when the scan tool cannot receive the data sent by WCM	P.54D-92 P.54D-95

Scan tool screen		Diagnosis detail	Reference page
(The ECUs that are not adopted are not displayed).	Comment		
 ■ : Red section on screen ZC5018550011	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 17 Diagnose when the scan tool cannot receive the data sent by SRS-ECU	P.54D-98
 ■ : Red section on screen ZC5018550012	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 18 Diagnose when the scan tool cannot receive the data sent by occupant classification-ECU	P.54D-101
 ■ : Red section on screen ZC5018550013	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 19 Diagnose when the scan tool cannot receive the data sent by A/C-ECU	P.54D-104

Scan tool screen		Diagnosis detail	Reference page
(The ECUs that are not adopted are not displayed).	Comment		
 ZC5018550014	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 20 Diagnose when the scan tool cannot receive the data sent by radio and CD player or CD changer	P.54D-107
 ZC5018550015	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 21 Diagnose when the scan tool cannot receive the data sent by CAN box unit	P.54D-110
 ZC5018550016	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 22 Diagnose when the scan tool cannot receive the data sent by satellite radio tuner	P.54D-113

Scan tool screen		Diagnosis detail	Reference page
(The ECUs that are not adopted are not displayed).	Comment		
 ZC5018550017	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 23 Diagnose when the scan tool cannot receive the data sent by hands free module	P.54D-116
 ZC5018550018	CAN-B: A failure in the red section, or a bus-off failure is present in the gateway ECU.	Diagnostic item 24 Short to power supply or ground in both CAN_H and CAN_L lines.	P.54D-119
 ZC5018550019	CAN-B: Disconnection in red displayed area is estimated.	Diagnostic item 25 Diagnose the ETACS-ECU, joint connector (CAN1) or lines between ETACS-ECU and joint connector (CAN1)	P.54D-149

CAN BUS DIAGNOSTICS

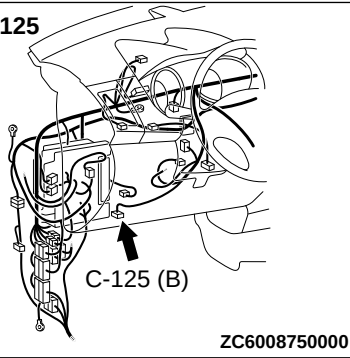
M15408300006USA0000010000

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

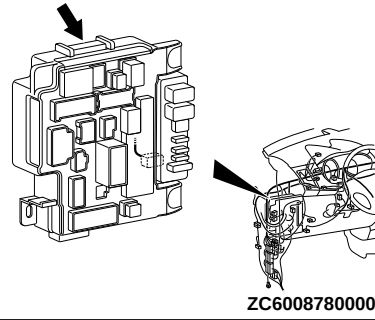
CAN Communication Circuit



Connector: C-125



Connector: C-301

**FUNCTION**

When the CAN bus diagnosis is carried out, the scan tool communicates with the ETACS-ECU. If a communication flag is not set for the ETACS-ECU, the ETACS-ECU will be diagnosed as a communication error.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the ETACS-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector (data link connector or ETACS-ECU connector improperly connected)
- Malfunction of the wiring harness (open circuit, short to ground, short to power supply between the data link connector and the ETACS-ECU connector, line-to-line short, or power supply to the ETACS-ECU)
- Malfunction of ETACS-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

STEP 1. Check data link connector C-125 and ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are data link connector C-125 and ETACS-ECU connector C-301 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between data link connector C-125 and ETACS-ECU connector C-301.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect the scan tool and ETACS-ECU connector C-301, and check the wiring harness.
- (2) Check the wiring harness between data link connector C-125 (terminal No.6) and ETACS-ECU connector C-301 (terminal No.5) <CAN_H>
- (3) Check the wiring harness between data link connector C-125 (terminal No.14) and ETACS-ECU connector C-301 (terminal No.4) <CAN_L>

Q: Is the wiring harness between data link connector C-125 and ETACS-ECU connector C-301 in good condition?

YES: Go to Step 3.

NO: Repair the wiring harness between data link connector C-125 and ETACS-ECU connector C-301.

STEP 3. Check the wiring harness between data link connector C-125 and ETACS-ECU connector C-301 for a short to ground. Measure the resistance at data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

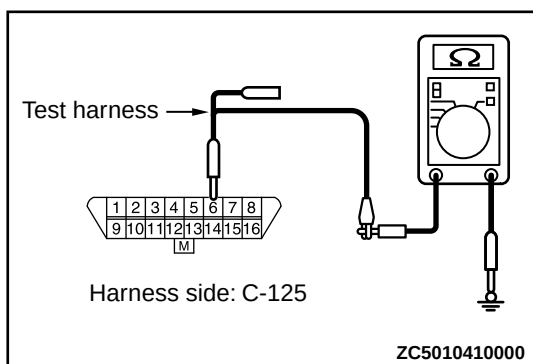
A digital multimeter should be used. For details refer to P. 54D-8.

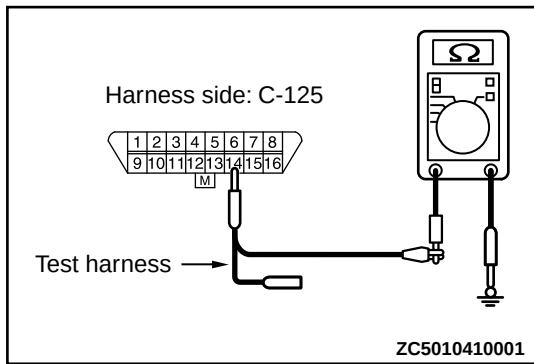
⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect the scan tool and ETACS-ECU connector C-301, and measure the resistance at the wiring harness side of data link connector C-125.
- (2) Measure the resistance between data link connector terminal 6 and body ground. <CAN_H>

OK: 1 kilohm or more





- (3) Measure the resistance between data link connector terminal 14 and body ground. <CAN_L>

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 4.

NO: Repair the wiring harness between data link connector C-125 and ETACS-ECU connector C-301.

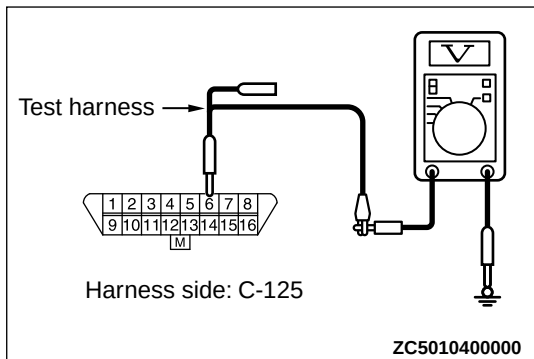
STEP 4. Check the wiring harness between data link connector C-125 and ETACS-ECU connector C-301 for a short to the power supply. Measure the voltage at data link connector C-125.

- (1) Disconnect the scan tool and ETACS-ECU connector C-301, and measure the resistance at the wiring harness side of data link connector C-125.

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

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

OK: 5 volts or less



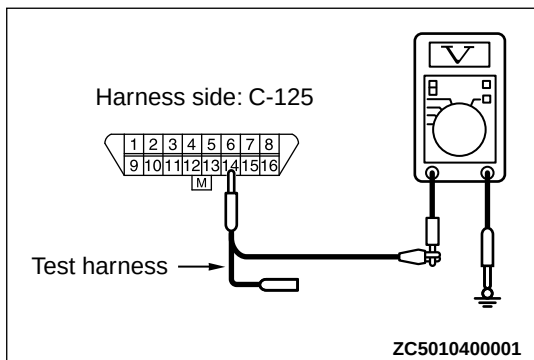
- (4) Measure the voltage between data link connector terminal 14 and body ground. <CAN_L>

OK: 5 volts or less

Q: Do all the voltage measure 5 volts or less?

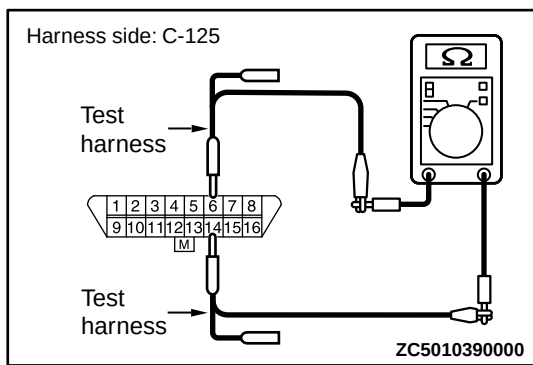
YES: Go to Step 5.

NO: Repair the wiring harness between data link connector C-125 and ETACS-ECU connector C-301.



STEP 5. Check the wiring harness between data link connector C-125 and ETACS-ECU connector C-301 for line-to-line short. Measure the resistance at data link connector C-125.

- (1) Disconnect the scan tool and ETACS-ECU connector C-301, and measure the resistance at the wiring harness side of data link connector C-125.



- (2) Measure the resistance between data link connector terminal 6 and 14.

OK: Continuity exists (2 ohm or less)

Q: Do the resistance measure 2 ohm or less?

YES: Go to Step 6.

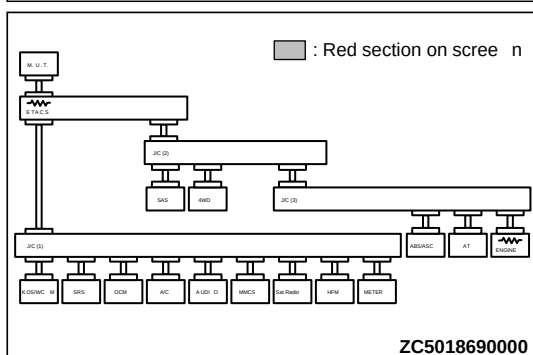
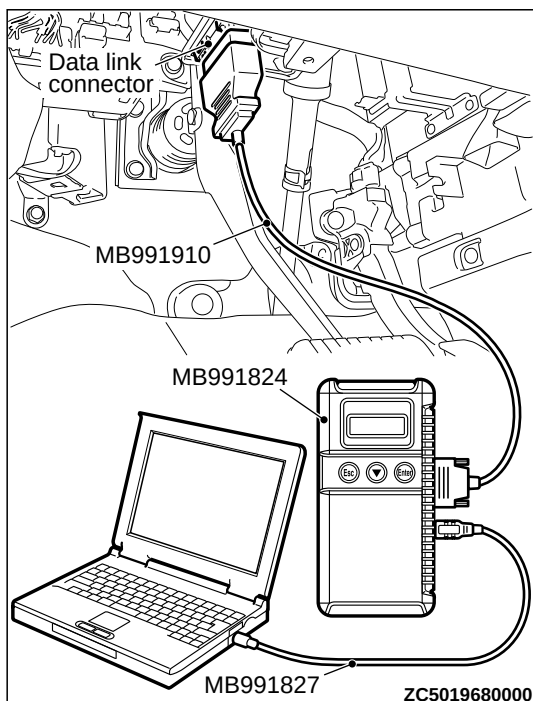
NO: Repair the wiring harness between data link connector C-125 and ETACS-ECU connector C-301.

STEP 6. Using scan tool MB991958, diagnose the CAN bus line.

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

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

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

NO: Replace the ETACS-ECU.

DIAGNOSTIC ITEM 2: Malfunction of the ETACS-ECU.

M15408300007USA0000010000

CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do, a component connected to the CAN bus line may be broken.

FUNCTION

When the CAN bus diagnosis is carried out, the scan tool sets communication "OK" flags in the patch between the ETACS-ECU and active other ECUs. If a communication "OK" flag is not set for the ECUs other than the ETACS-ECU, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If no communication flags are set for the ECUs (on the CAN-B or CAN-C lines) other than the ETACS-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINT

- Malfunction of the ETACS-ECU

DIAGNOSIS**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

Recheck for other system diagnostic trouble code.**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.

Check whether ETACS-ECU-related DTC is set.

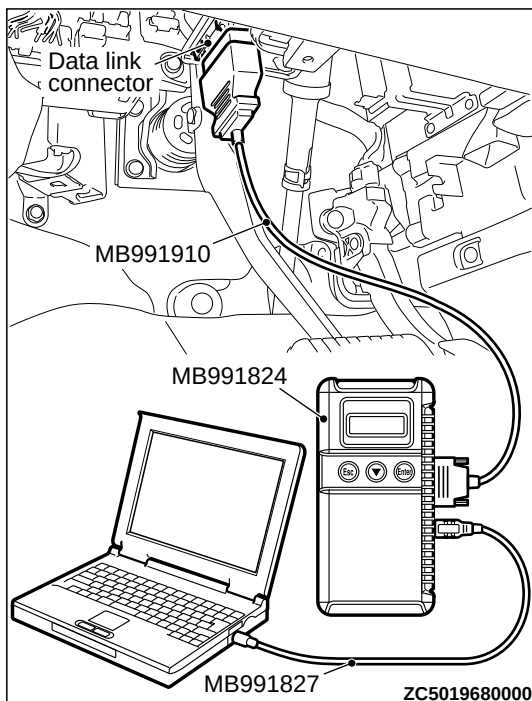
- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

The DTC other than the U code is set.: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, ETACS-ECU P.54Ad-8.

Only U-code DTC is set.: Check the power supply circuit of the ETACS-ECU. Refer to GROUP 54Ad, ETACS-ECU P.54Ad-8.

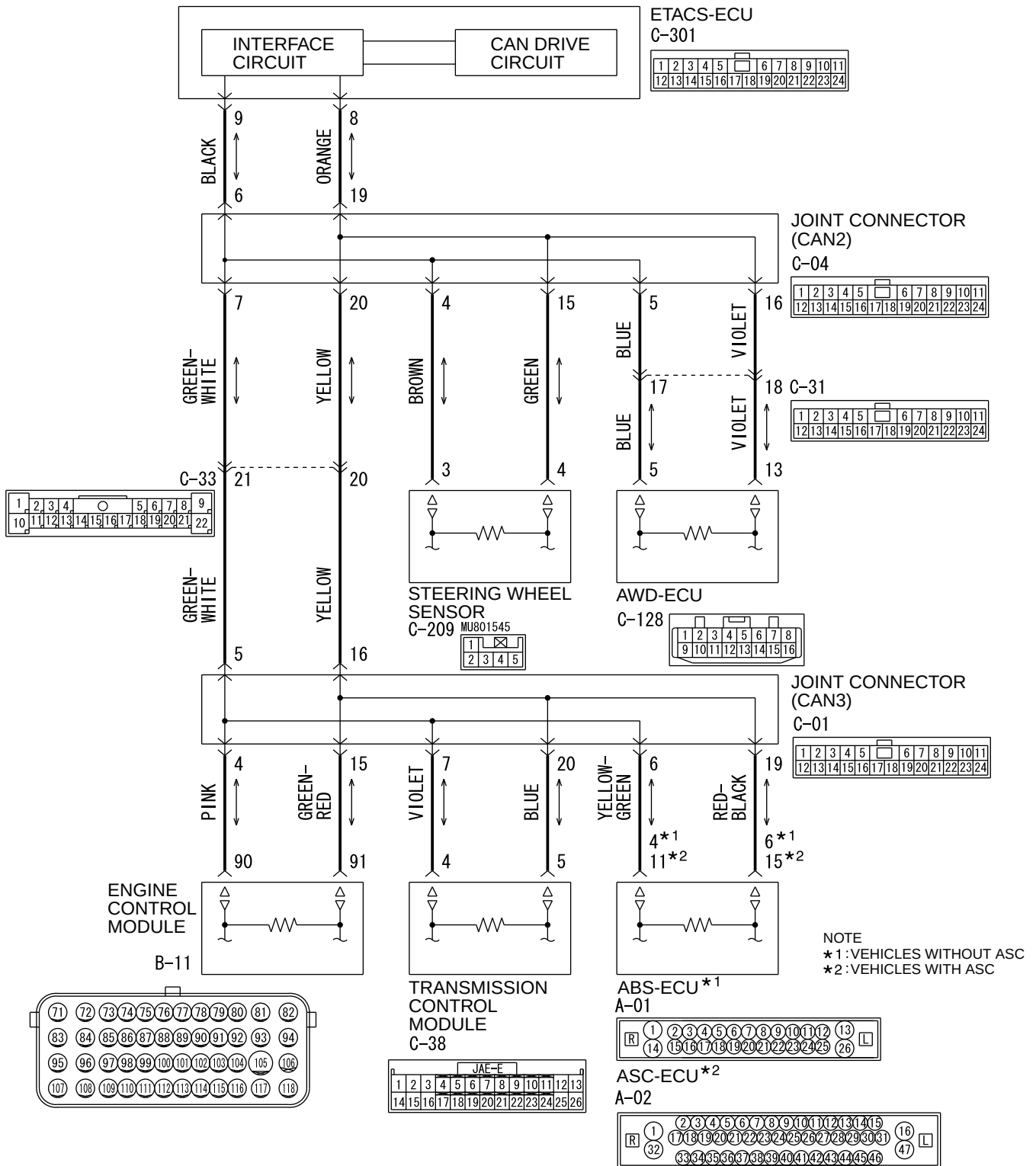
The DTC is not set.: Check the power supply circuit of the ETACS-ECU. Refer to GROUP 54Ad, ETACS-ECU P.54Ad-8.

**DIAGNOSTIC ITEM 3: Abnormal short between the CAN-C bus lines.****CAUTION**

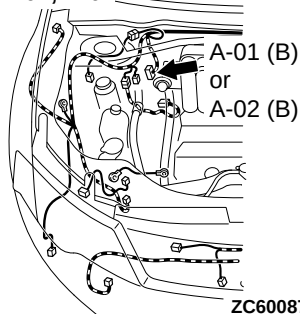
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

CAN Communication Circuit

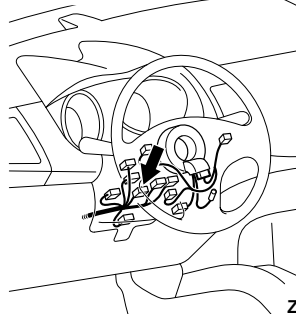


Connectors: A-01, A-02



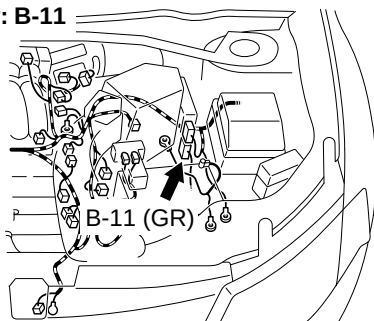
ZC6008710000

Connector: C-209



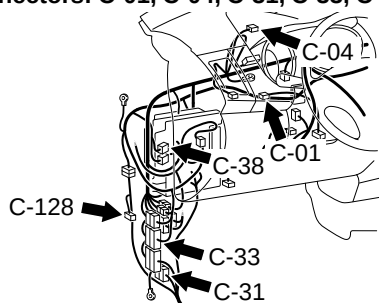
ZC6008770000

Connector: B-11



ZC6008740000

Connectors: C-01, C-04, C-31, C-33, C-38, C-128



ZC6008750001

FUNCTION

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

TROUBLE JUDGEMENT CONDITIONS

If only diagnostic trouble code U0001 is set, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector (joint connectors or ECU connectors improperly connected)
- Malfunction of the wiring harness (line-to-line short in the CAN-C main or sub bus lines)
- Malfunction of the ECU (ECU on CAN-C lines failed)

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
- MB991970: ABS Check Harness

STEP 1. Check joint connector (CAN2) C-04 and joint connector (CAN3) C-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q:Are joint connector (CAN2) C-04 and joint connector (CAN3) C-01 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and steering wheel sensor connector C-209 for line-to-line short. Measure the resistance at joint connector (CAN2) C-04.

⚠ CAUTION

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

⚠ CAUTION

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

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

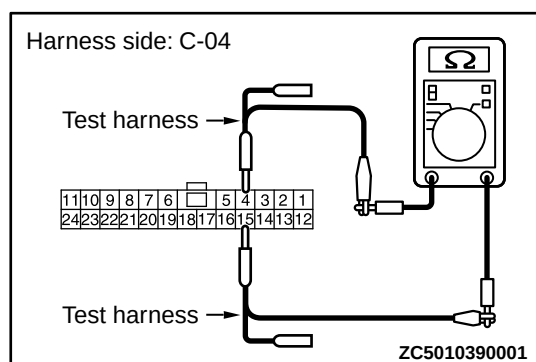
- (1) Disconnect joint connector (CAN2), and check that there is continuity at the harness side of joint connector (CAN2).
- (2) Check that there is continuity between joint connector (CAN2) terminals 4 and 15.

OK: No continuity

Q:Is the check result normal?

YES: Go to Step 3.

NO: Go to Step 8.



STEP 3. Check the wiring harness between joint connector (CAN2) C-04 and AWD-ECU connector C-128 for line-to-line short. Measure the resistance at joint connector (CAN2) C-04.

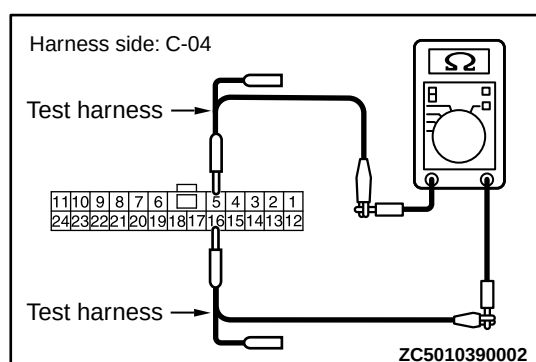
- (1) Disconnect joint connector (CAN2), and check that there is continuity at the harness side of joint connector (CAN2).
- (2) Check that there is continuity between joint connector (CAN2) terminals 5 and 16.

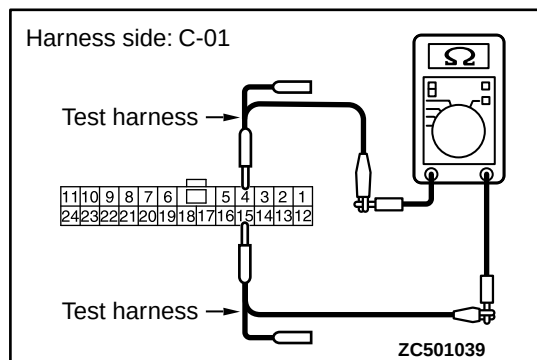
OK: No continuity

Q:Is the check result normal?

YES: Go to Step 4.

NO: Go to Step 9.





STEP 4. Check the wiring harness between joint connector (CAN3) C-01 and ECM connector B-11 for line-to-line short. Measure the resistance at joint connector (CAN3) C-01.

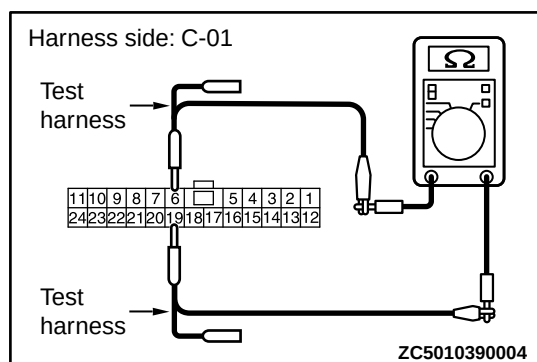
- (1) Disconnect joint connector (CAN3), and check that there is continuity at the harness side of joint connector (CAN3).
- (2) Check that there is continuity between joint connector (CAN3) terminals 4 and 15.

OK: No continuity

Q: Is the check result normal?

YES: Go to Step 5.

NO: Go to Step 10.



STEP 5. Check the wiring harness between joint connector (CAN3) C-01 and ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC> for line-to-line short. Measure the resistance at joint connector (CAN3) C-01.

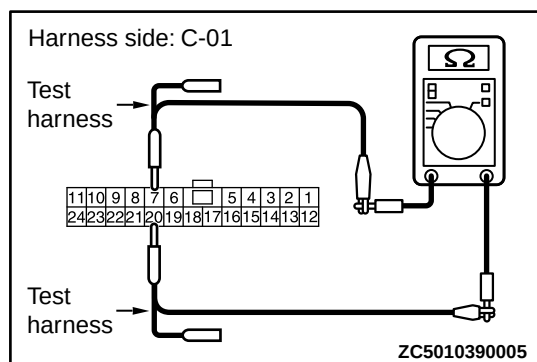
- (1) Disconnect joint connector (CAN3), and check that there is continuity at the harness side of joint connector (CAN3).
- (2) Check that there is continuity between joint connector (CAN3) terminals 6 and 19.

OK: No continuity

Q: Is the check result normal?

YES: Go to Step 6.

NO: Go to Step 11.



STEP 6. Check the wiring harness between joint connector (CAN3) C-01 and TCM connector C-38 for line-to-line short. Measure the resistance at joint connector (CAN3) C-01.

- (1) Disconnect joint connector (CAN3), and check that there is continuity at the harness side of joint connector (CAN3).
- (2) Check that there is continuity between joint connector (CAN3) terminals 7 and 20.

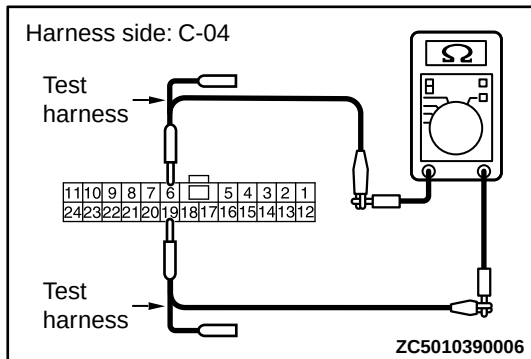
OK: No continuity

Q: Is the check result normal?

YES: Go to Step 7.

NO: Go to Step 12.

STEP 7. Check the wiring harness between joint connector (CAN2) C-04 and ETACS-ECU connector C-301 for line-to-



line short. Measure the resistance at joint connector (CAN2) C-04.

- (1) Disconnect joint connector (CAN2), and check that there is continuity at the harness side of joint connector (CAN2).
- (2) Check that there is continuity between joint connector (CAN2) terminals 6 and 19.

OK: No continuity

Q: Is the check result normal?

YES: Check intermediate connector C-27, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between joint connector (CAN2) C-04 and joint connector (CAN3) C-01.

NO: Go to Step 13.

STEP 8. Using scan tool MB991958, diagnose the CAN bus line. (checking the steering wheel sensor for internal short)

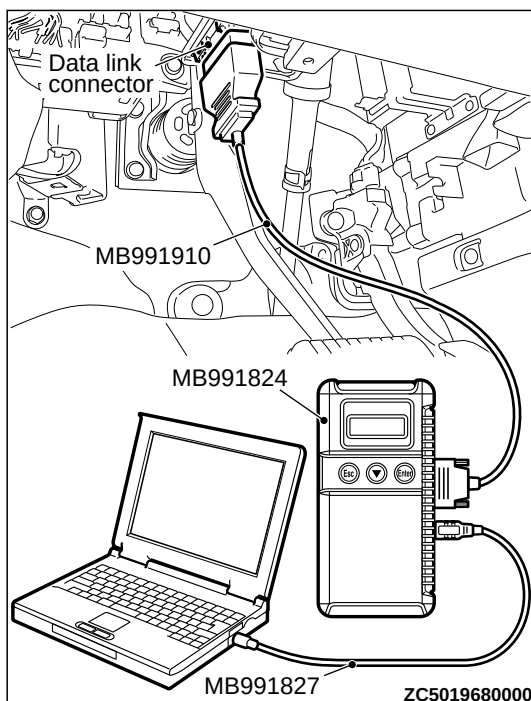
⚠ CAUTION

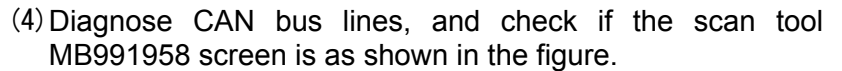
Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

⚠ 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) Disconnect steering wheel sensor connector C-209.
- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.





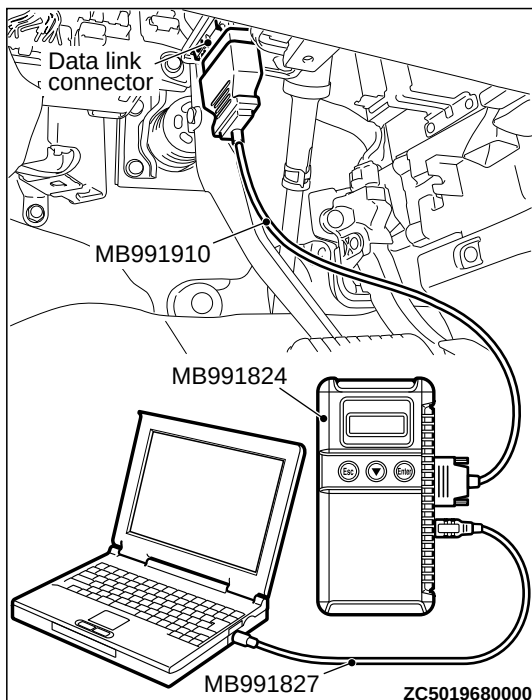
Q:Does scan tool MB991958 screen correspond to the illustration?

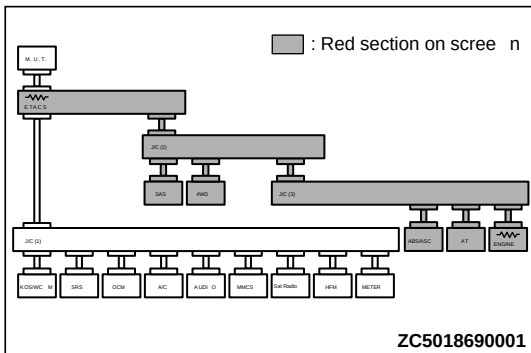
NO: Check steering wheel sensor connector C-209, and repair if necessary. If the steering wheel sensor connector is in good condition, replace the steering wheel sensor.

CAUTION

CAUTION

- (1) Disconnect AWD-ECU connector C-128.
- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.





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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Check intermediate connector C-31, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between AWD-ECU connector C-128 and joint connector (CAN2) C-04.

NO: Check AWD-ECU connector C-128, and repair if necessary. If the AWD-ECU connector is in good condition, replace the AWD-ECU.

STEP 10. Using scan tool MB991958, diagnose the CAN bus line. (checking the ECM for internal short)

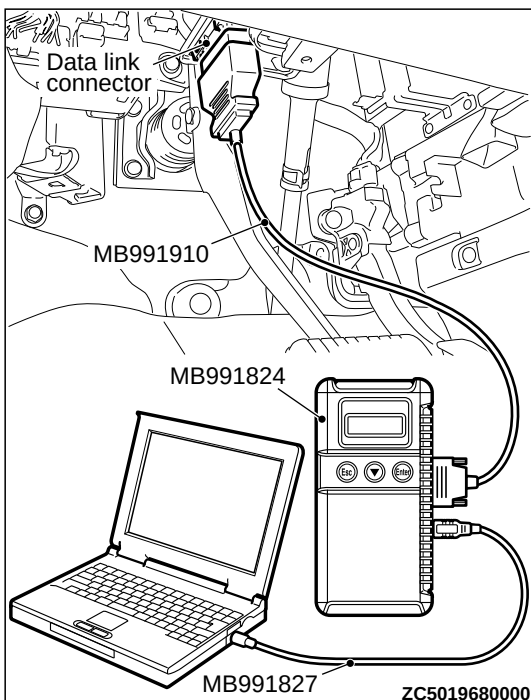
CAUTION

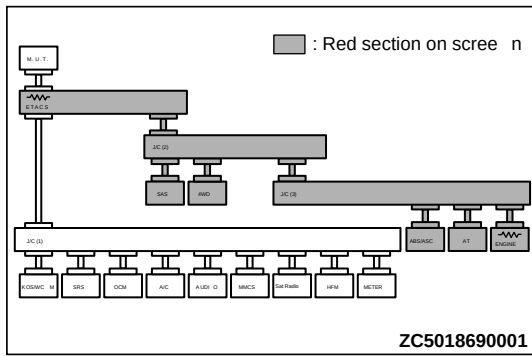
Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

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) Disconnect ECM connector B-11.
- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.





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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ECM connector B-11 and joint connector (CAN3) C-01.

NO: Check ECM connector B-11, and repair if necessary. If the ECM connector is in good condition, replace the ECM.

STEP 11. Using scan tool MB991958, diagnose the CAN bus line. (checking the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC> for internal short)

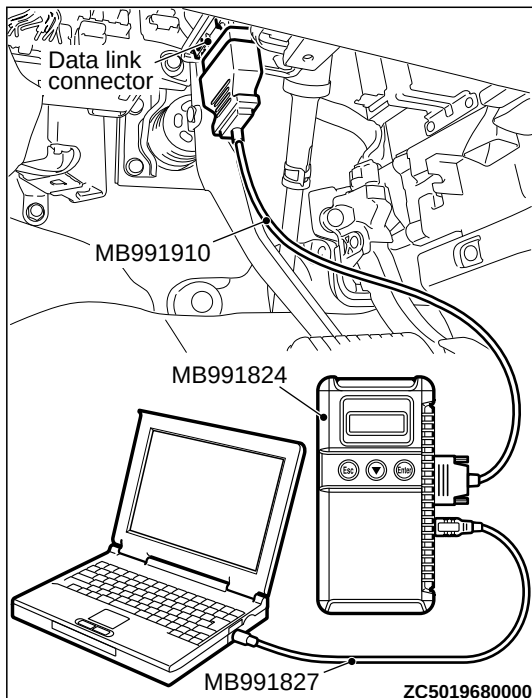
CAUTION

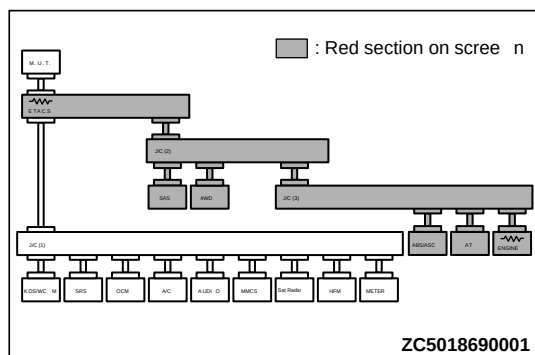
Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

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) Disconnect ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC>.
- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.





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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC> and joint connector (CAN3) C-01.

NO: Check ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC>, and repair if necessary. If the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC> connector is in good condition, replace the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC>.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line. (checking the TCM for internal short)

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

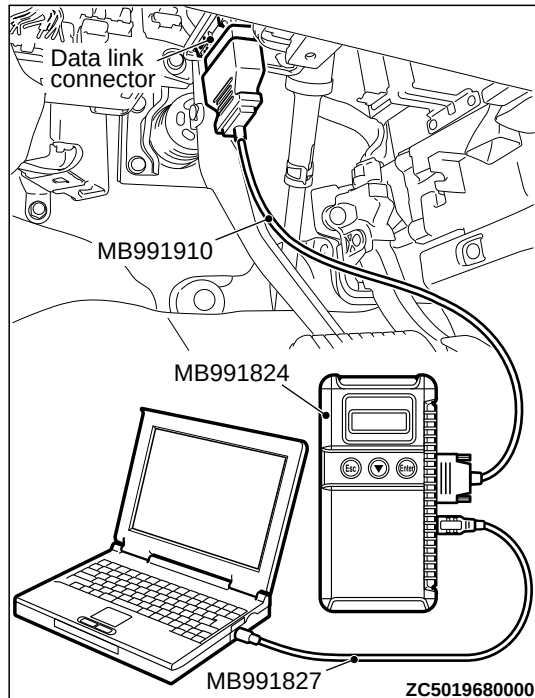
CAUTION

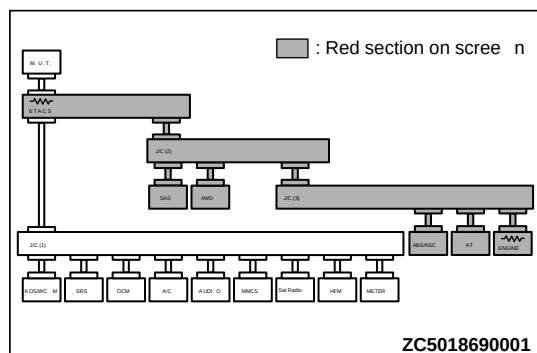
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Disconnect TCM connector C-38.

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

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





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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between TCM connector C-38 and joint connector (CAN3) C-01.

NO: Check TCM connector C-38, and repair if necessary. If the TCM connector is in good condition, replace the TCM.

STEP 13. Check the wiring harness between joint connector (CAN2) C-04 and ETACS-ECU connector C-301 for line-to-line short. Measure the resistance at joint connector (CAN2) C-04.

(1) Disconnect joint connector (CAN2) and ETACS-ECU connector, and check that there is continuity at the harness side of joint connector (CAN2).

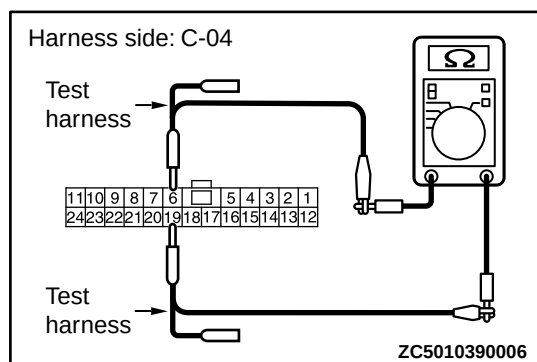
(2) Check that there is continuity between joint connector (CAN2) terminals 7 and 20.

OK: No continuity

Q: Is the check result normal?

YES: Go to Step 14.

NO: Repair the wiring harness between joint connector (CAN2) C-04 and ETACS-ECU connector C-301.



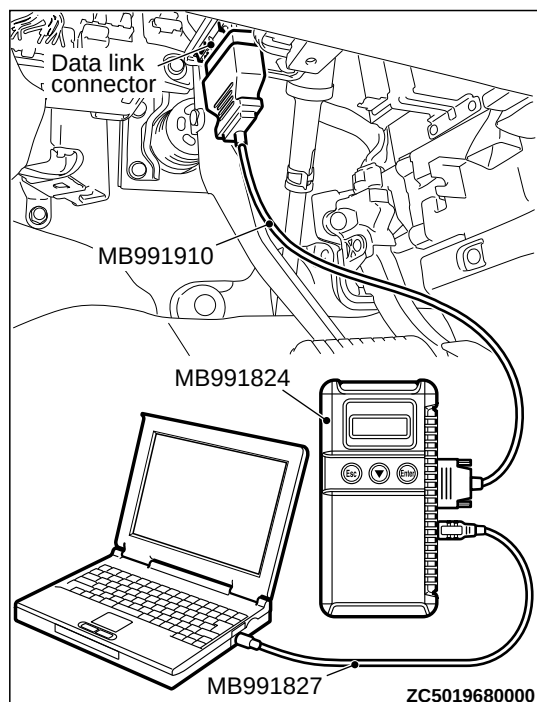
STEP 14. Using scan tool MB991958, diagnose the CAN bus line.

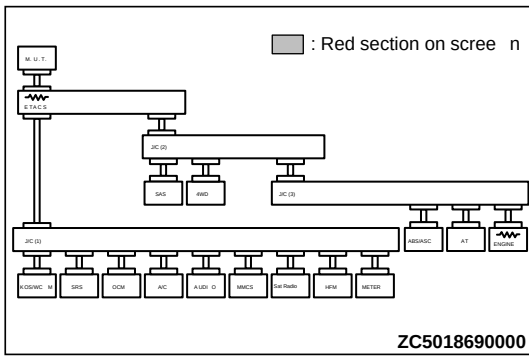
CAUTION

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

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

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

NO: Replace the ETACS-ECU.

DIAGNOSTIC ITEM 4: Diagnose shorts in the ground to CAN-C bus line.

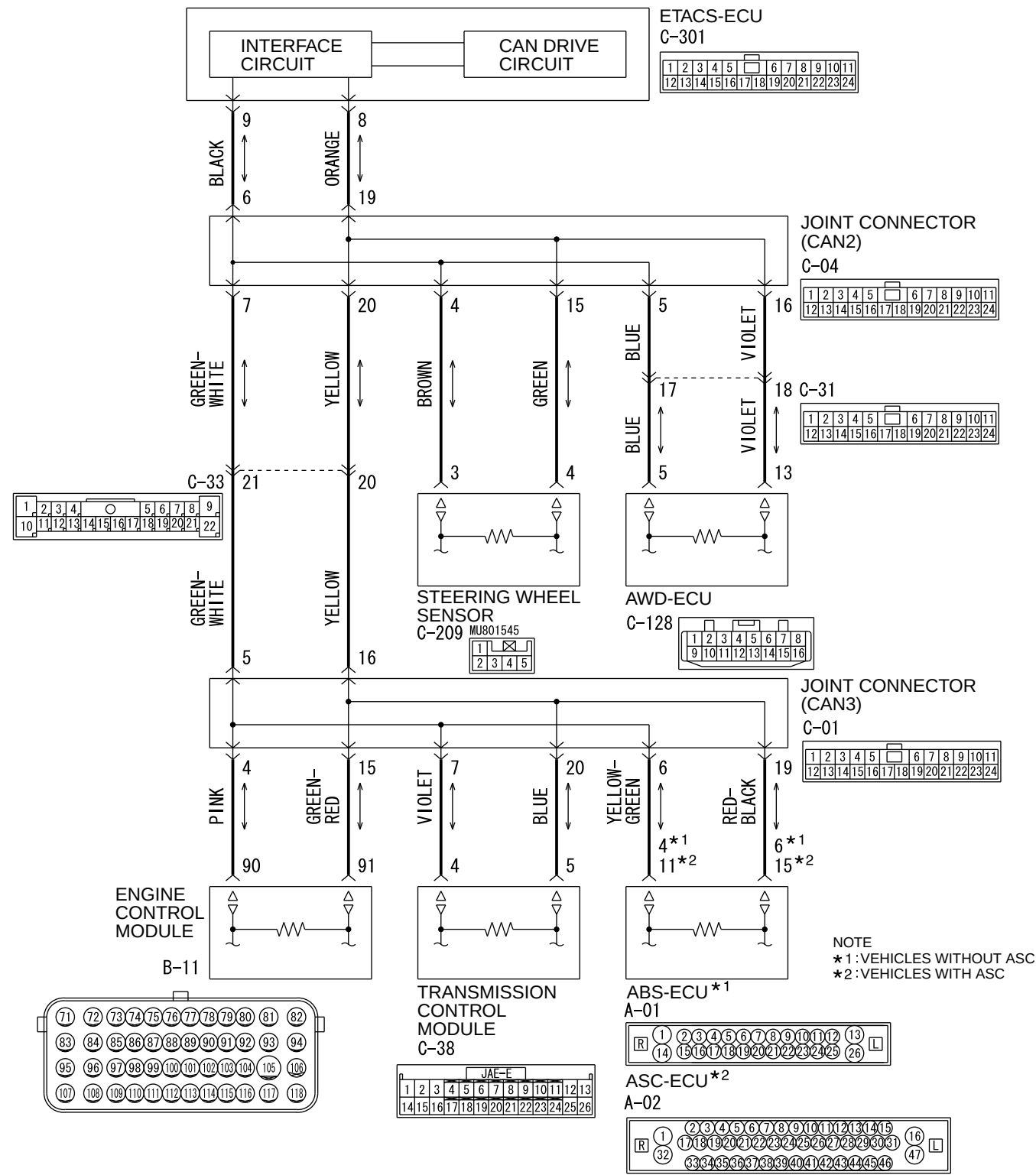
M15408300009USA0000010000



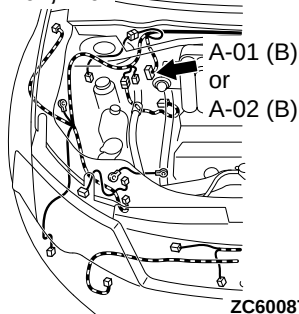
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

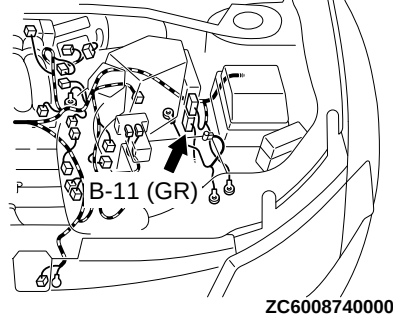
CAN Communication Circuit



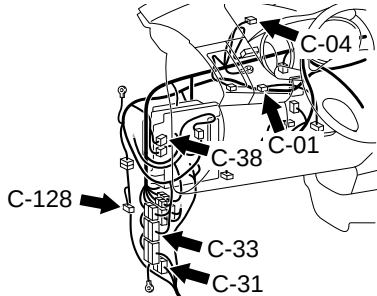
Connectors: A-01, A-02



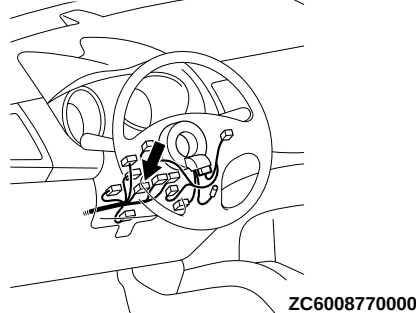
Connector: B-11



Connectors: C-01, C-04, C-31, C-33, C-38, C-128



Connector: C-209



FUNCTION

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

TROUBLE JUDGEMENT CONDITIONS

If DTC U1120 is set, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector (short to ground inside connector)
- Malfunction of the wiring harness (short to ground in the CAN-C main or sub bus lines)
- Malfunction of the ECU (ETACS-ECU, or ECUs on CAN-C lines failed)

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

STEP 1. Check the wiring harness between joint connector (CAN2) C-04 and steering wheel sensor connector C-209 for a short to ground. Measure the resistance at joint connector (CAN2) C-04.

CAUTION

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

⚠ CAUTION

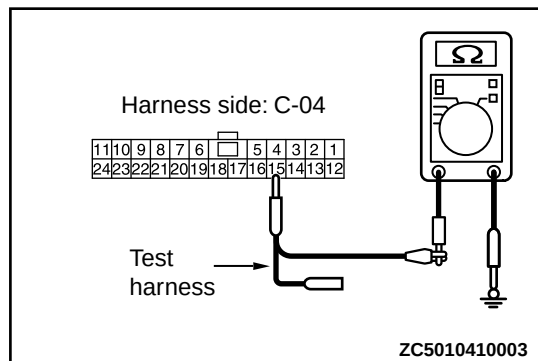
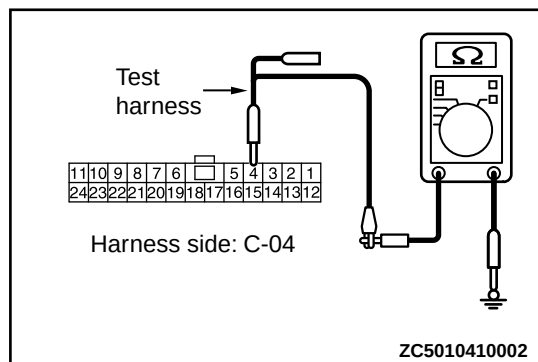
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN2), and measure the resistance at the wiring harness side of joint connector (CAN2).
- (2) Measure the resistance between joint connector (CAN2) terminal 4 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN2) terminal 15 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

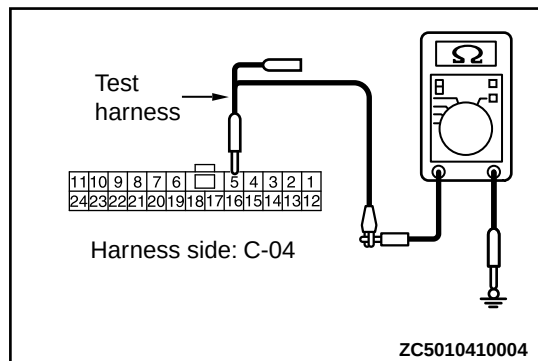
YES: Go to Step 2.

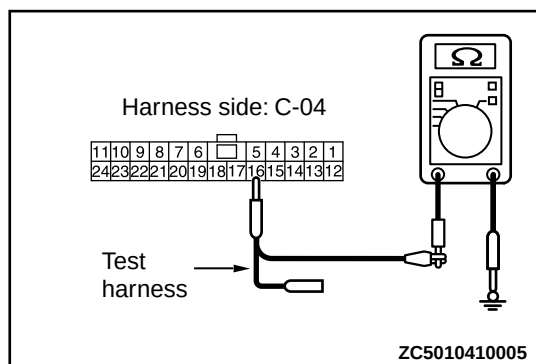
NO: Go to Step 7.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and AWD-ECU connector C-128 for a short to ground. Measure the resistance at joint connector (CAN2) C-04.

- (1) Disconnect joint connector (CAN2), and measure the resistance at the wiring harness side of joint connector (CAN2).
- (2) Measure the resistance between joint connector (CAN2) terminal 5 and body ground.

OK: 1 kilohm or more





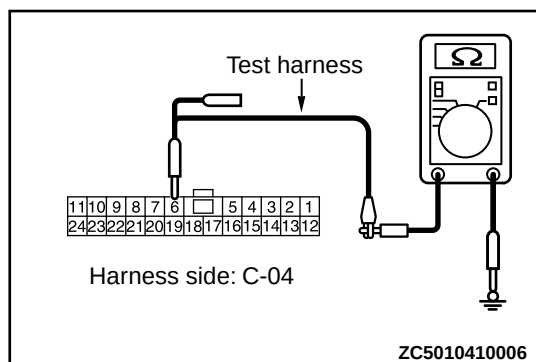
- (3) Measure the resistance between joint connector (CAN2) terminal 16 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 3.

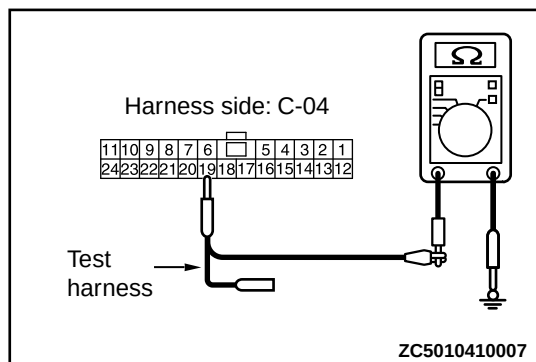
NO: Go to Step 8.



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

- (2) Measure the resistance between joint connector (CAN2) terminal 6 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN2) terminal 19 and body ground.

OK: 1 kilohm or more

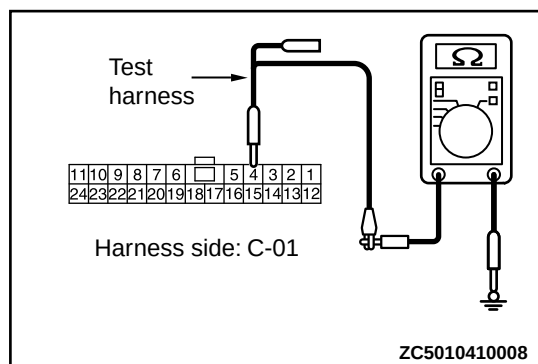
Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 4.

NO: Go to Step 9.

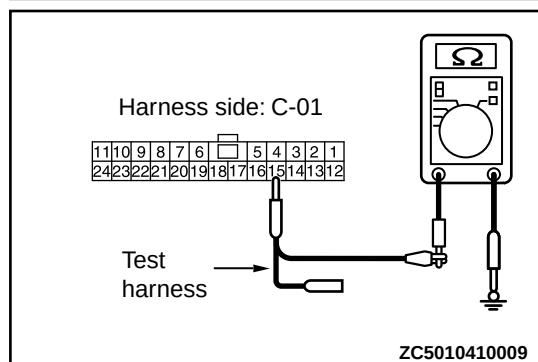
STEP 4. Check the wiring harness between joint connector (CAN3) C-01 and ECM connector B-11 for a short to ground. Measure the resistance at joint connector (CAN3) C-01.

- (1) Disconnect joint connector (CAN3), and measure the resistance at the wiring harness side of joint connector (CAN3).



- (2) Measure the resistance between joint connector (CAN3) terminal 4 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN3) terminal 15 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 5.

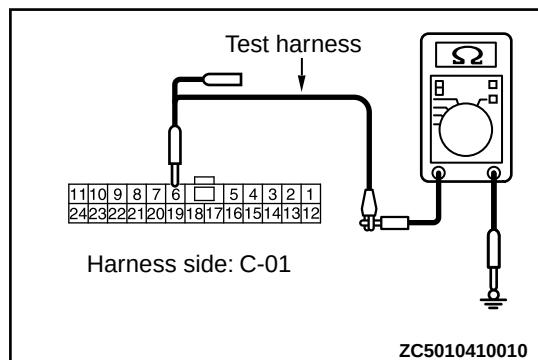
NO: Go to Step 10.

STEP 5. Check the wiring harness between joint connector (CAN3) C-01 and ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC> for a short to ground. Measure the resistance at joint connector (CAN3) C-01.

- (1) Disconnect joint connector (CAN3), and measure the resistance at the wiring harness side of joint connector (CAN3).

- (2) Measure the resistance between joint connector (CAN3) terminal 6 and body ground.

OK: 1 kilohm or more



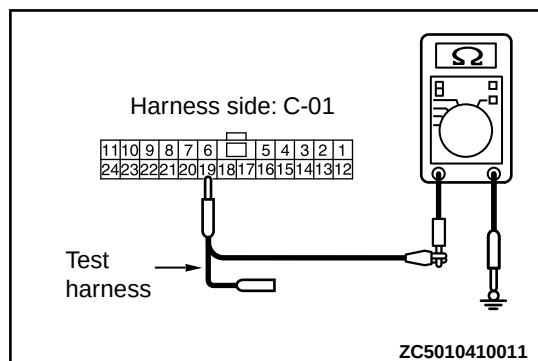
- (3) Measure the resistance between joint connector (CAN3) terminal 19 and body ground.

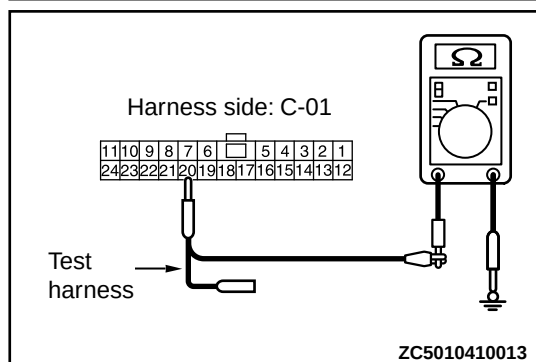
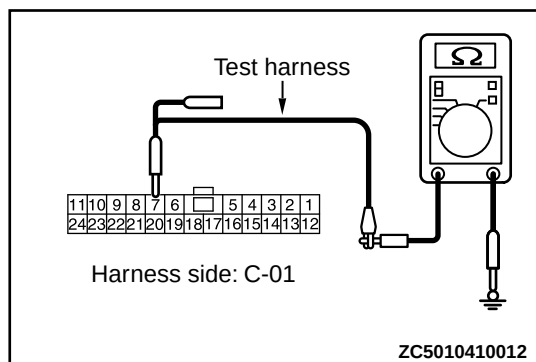
OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 6.

NO: Go to Step 11.





STEP 6. Check the wiring harness between joint connector (CAN3) C-01 and TCM connector C-38 for a short to ground. Measure the resistance at joint connector (CAN3) C-01.

- (1) Disconnect joint connector (CAN3), and measure the resistance at the wiring harness side of joint connector (CAN3).
- (2) Measure the resistance between joint connector (CAN3) terminal 7 and body ground.

OK: 1 kilohm or more

- (3) Measure the resistance between joint connector (CAN3) terminal 20 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Check intermediate connector C-27, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between joint connector (CAN2) C-04 and joint connector (CAN3) C-01.

NO: Go to Step 12.

STEP 7. Using scan tool MB991958, diagnose the CAN bus line. (checking the steering wheel sensor for internal short to ground)

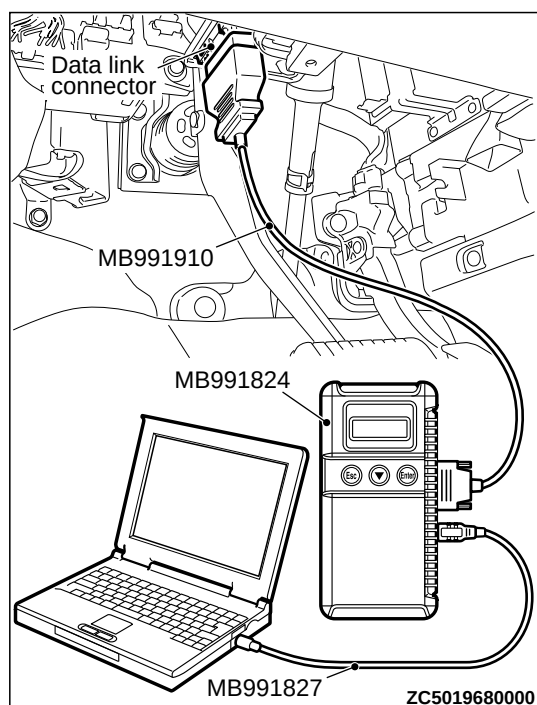
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

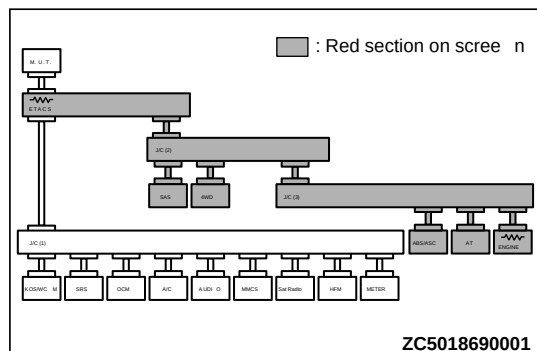
⚠ CAUTION

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) Disconnect steering wheel sensor connector C-209.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between steering wheel sensor connector C-209 and joint connector (CAN2) C-04.

NO: Check steering wheel sensor connector C-209, and repair if necessary. If the steering wheel sensor connector is in good condition, replace the steering wheel sensor.

STEP 8. Using scan tool MB991958, diagnose the CAN bus line. (checking the AWD-ECU for internal short to ground)

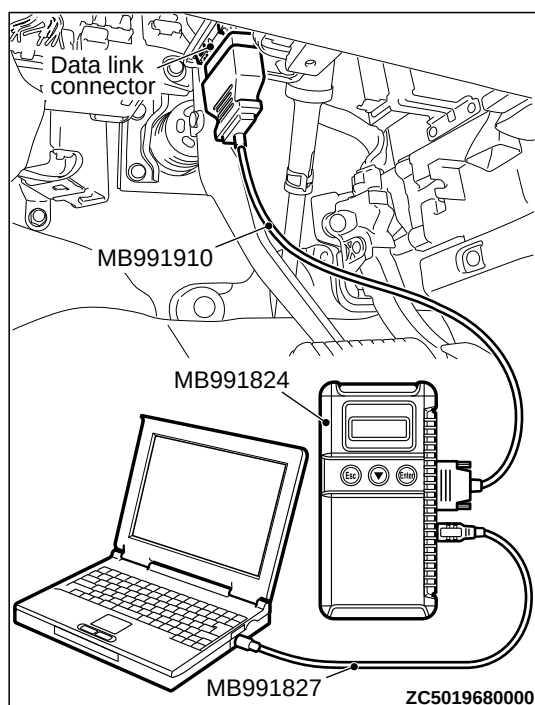
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

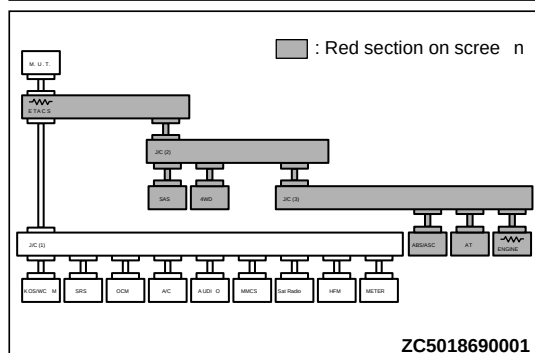
CAUTION

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) Disconnect AWD-ECU connector C-128.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Check intermediate connector C-31, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between AWD-ECU connector C-128 and joint connector (CAN2) C-04.

NO: Check AWD-ECU connector C-128, and repair if necessary. If the AWD-ECU connector is in good condition, replace the AWD-ECU.

STEP 9. Using scan tool MB991958, diagnose the CAN bus line. (checking the ETACS-ECU for internal short to ground)

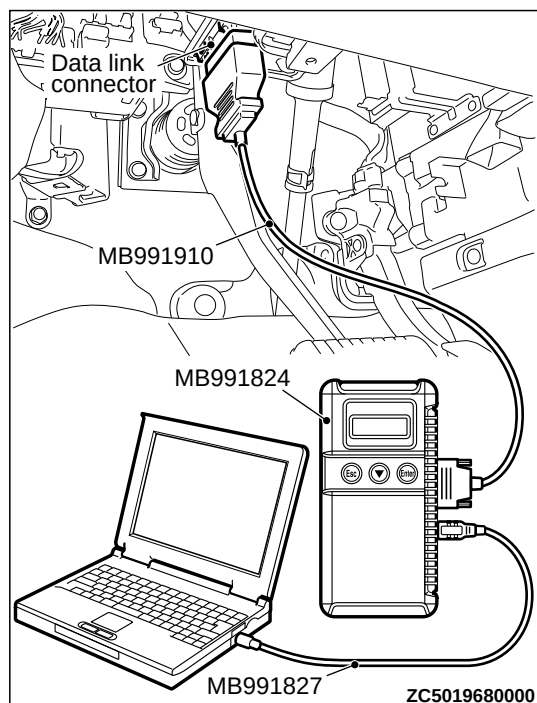
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

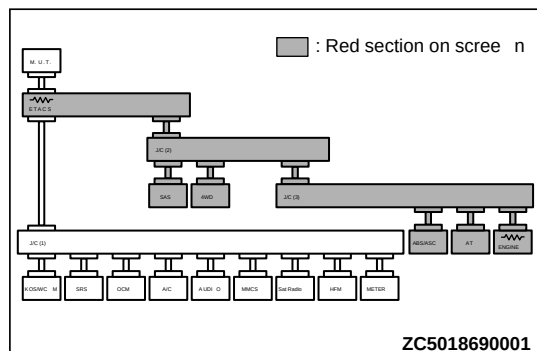
CAUTION

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) Disconnect ETACS-ECU connector C-301.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ETACS-ECU connector C-301 and joint connector (CAN2) C-04.

NO: Check ETACS-ECU connector C-128, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU.

STEP 10. Using scan tool MB991958, diagnose the CAN bus line. (checking the ECM for internal short to ground)

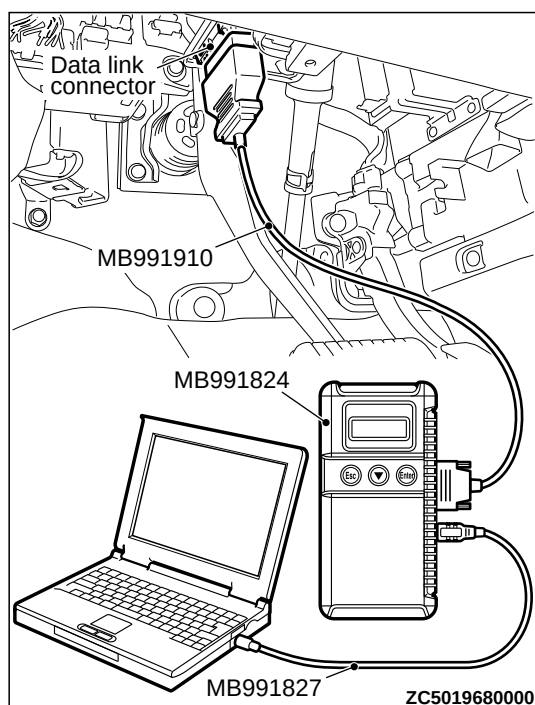
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

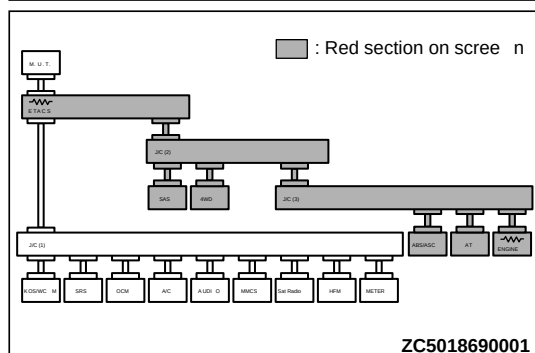
CAUTION

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) Disconnect ECM connector B-11.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ECM connector B-11 and joint connector (CAN3) C-01.

NO: Check ECM connector B-11, and repair if necessary. If the ECM connector is in good condition, replace the ECM.

STEP 11. Using scan tool MB991958, diagnose the CAN bus line. (checking the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC> for internal short to ground)

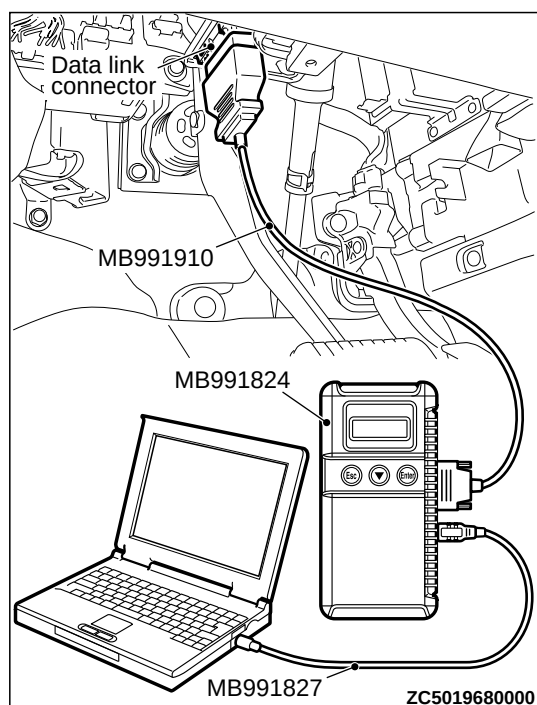
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

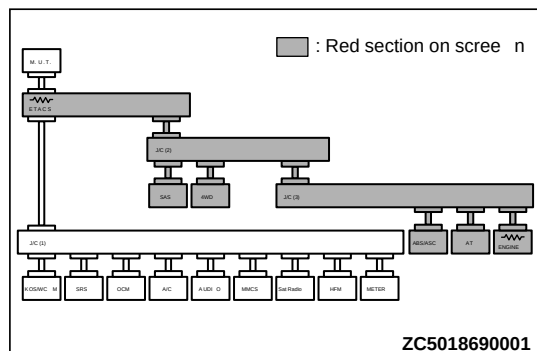
CAUTION

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) Disconnect ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC>.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC> and joint connector (CAN3) C-01.

NO: Check ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC>, and repair if necessary. If the ABS-ECU connector <vehicles without ASC> or ASC-ECU connector <vehicles with ASC> is in good condition, replace the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC>.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line. (checking the TCM for internal short to ground)

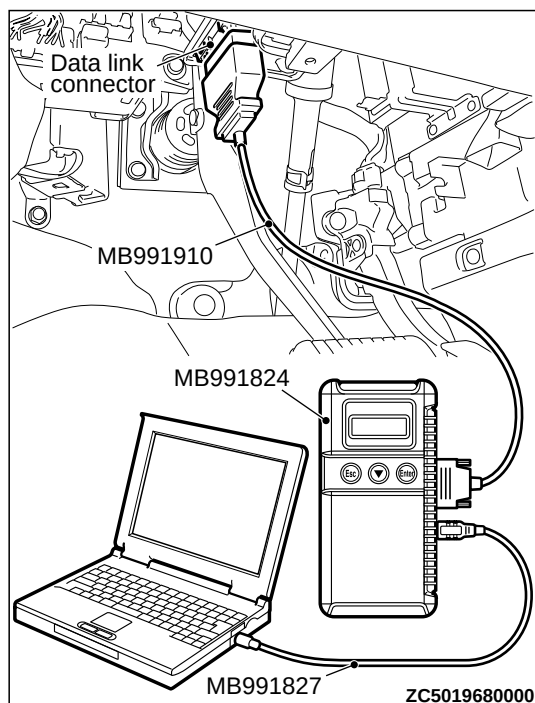
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

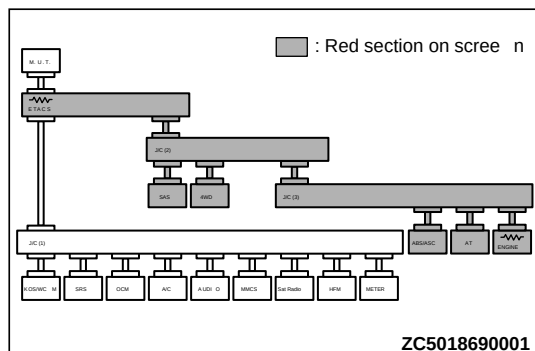
CAUTION

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) Disconnect TCM connector C-38.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between TCM connector C-38 and joint connector (CAN3) C-01.

NO: Check TCM connector C-38, and repair if necessary. If the TCM connector is in good condition, replace the TCM.

DIAGNOSTIC ITEM 5: Diagnose shorts in the power supply to CAN-C bus line.

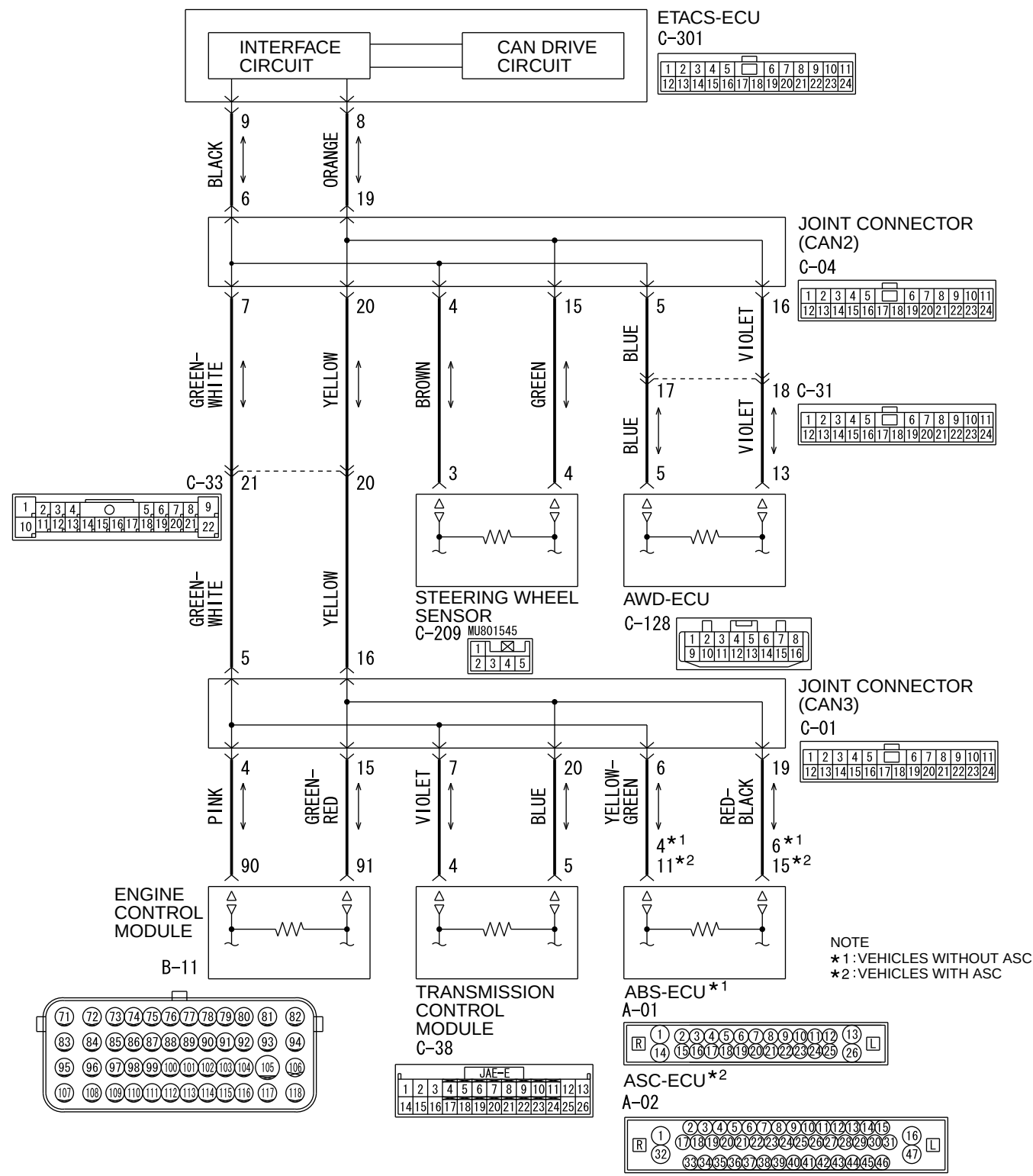
M15408300010USA0000010000

CAUTION

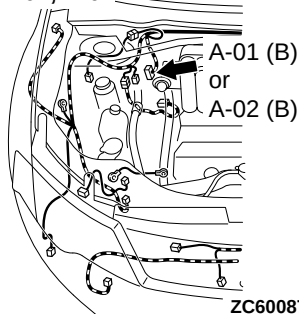
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

CAN Communication Circuit

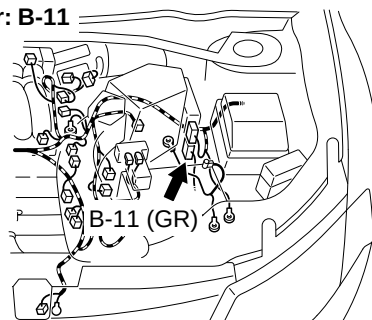


Connectors: A-01, A-02



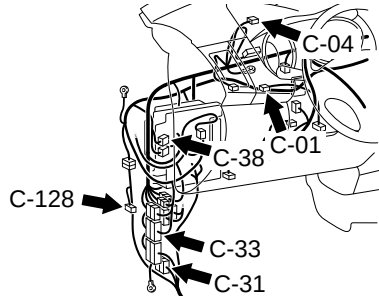
ZC6008710000

Connector: B-11



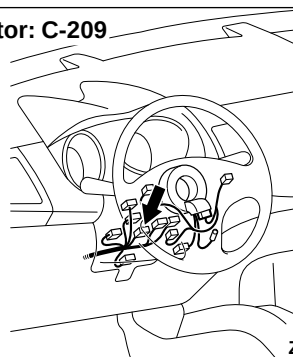
ZC6008740000

Connectors: C-01, C-04, C-31, C-33, C-38, C-128



ZC6008750001

Connector: C-209



ZC6008770000

FUNCTION

If a short to power supply is present in the CAN-C lines, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

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

TROUBLESHOOTING HINTS

- Malfunction of the connector (short to power supply in connector)
- Malfunction of the wiring harness (short to power supply in the CAN-C main or sub bus lines)
- Malfunction of the ECU (ETACS-ECU, or ECUs on CAN-C lines failed)

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

STEP 1. Check the wiring harness between joint connector (CAN2) C-04 and steering wheel sensor connector C-209 for

a short to power supply. Measure the voltage at joint connector (CAN2) C-04.

⚠ CAUTION

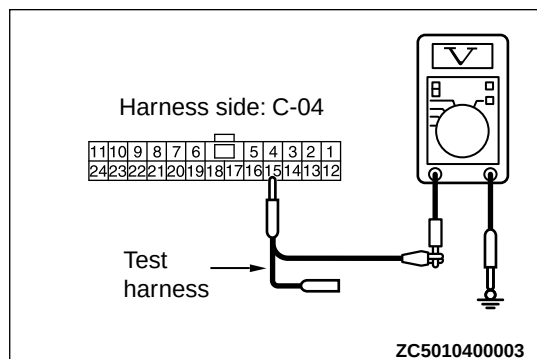
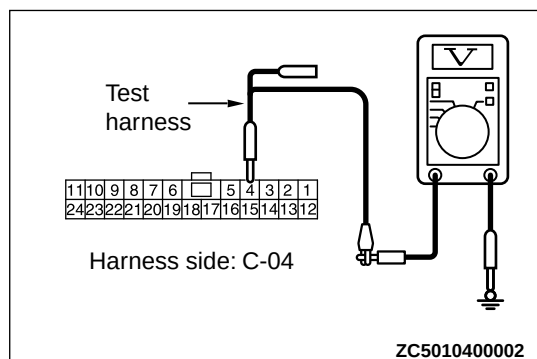
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN2), and measure the voltage at the wiring harness side of joint connector (CAN2).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN2) terminal 4 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN2) terminal 15 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

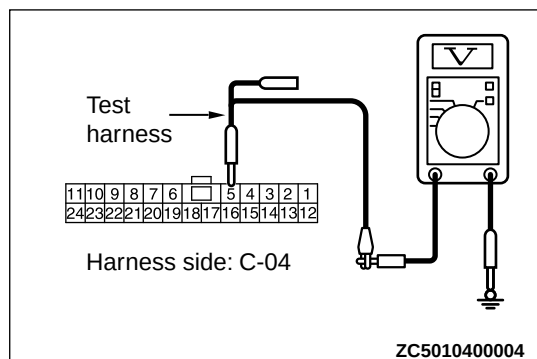
YES: Go to Step 2.

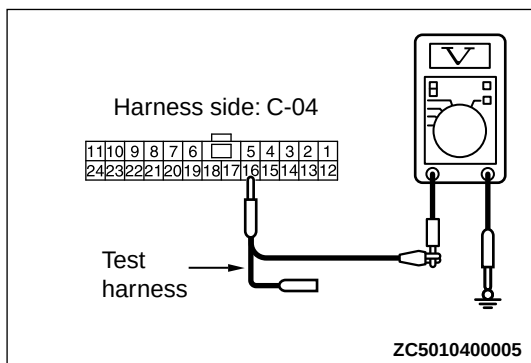
NO: Go to Step 7.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and AWD-ECU connector C-128 for a short to power supply. Measure the voltage at joint connector (CAN2) C-04.

- (1) Disconnect joint connector (CAN2), and measure the voltage at the wiring harness side of joint connector (CAN2).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN2) terminal 5 and body ground.

OK: 4.7 volts or less





- (4) Measure the voltage between joint connector (CAN2) terminal 16 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

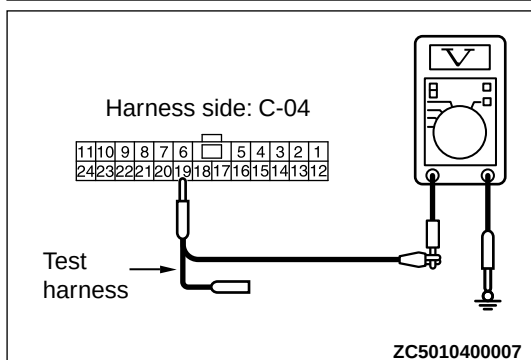
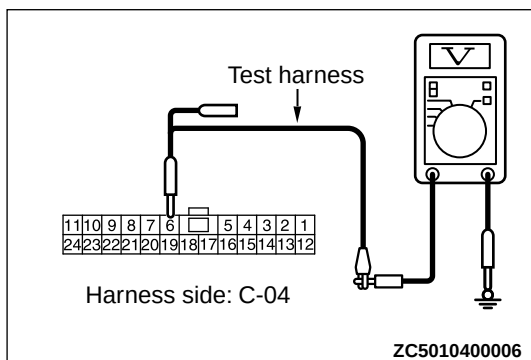
YES: Go to Step 3.

NO: Go to Step 8.

STEP 3. Check the wiring harness between joint connector (CAN2) C-04 and ETACS-ECU connector C-301 for a short to power supply. Measure the voltage at joint connector (CAN2) C-04.

- (1) Disconnect joint connector (CAN2), and measure the voltage at the wiring harness side of joint connector (CAN2).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN2) terminal 6 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN2) terminal 19 and body ground.

OK: 4.7 volts or less

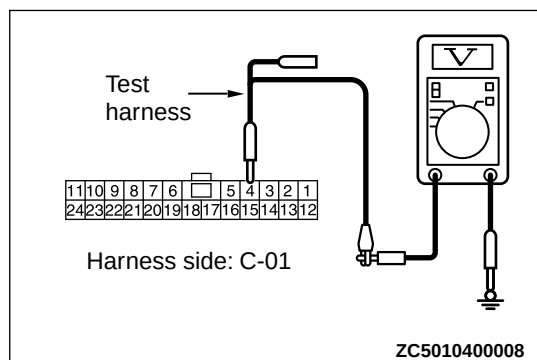
Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 4.

NO: Go to Step 9.

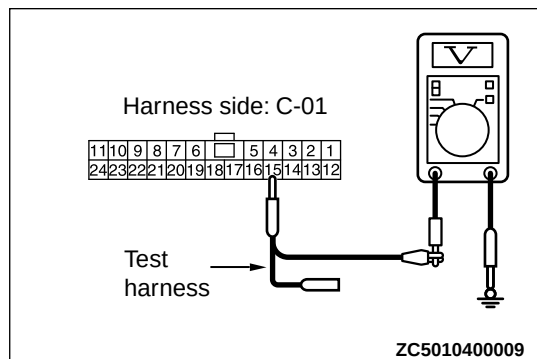
STEP 4. Check the wiring harness between joint connector (CAN3) C-01 and ECM connector B-11 for a short to power supply. Measure the voltage at joint connector (CAN3) C-01.

- (1) Disconnect joint connector (CAN3), and measure the voltage at the wiring harness side of joint connector (CAN3).
- (2) Turn the ignition switch to the ON position.



- (3) Measure the voltage between joint connector (CAN3) terminal 4 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN3) terminal 15 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 5.

NO: Go to Step 10.

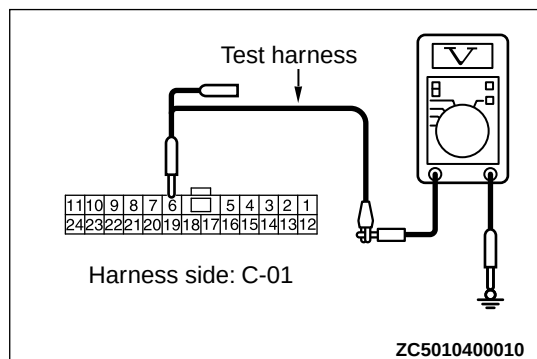
STEP 5. Check the wiring harness between joint connector (CAN3) C-01 and ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC> for a short to power supply. Measure the voltage at joint connector (CAN3) C-01.

- (1) Disconnect joint connector (CAN3), and measure the voltage at the wiring harness side of joint connector (CAN3).

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

- (3) Measure the voltage between joint connector (CAN3) terminal 6 and body ground.

OK: 4.7 volts or less



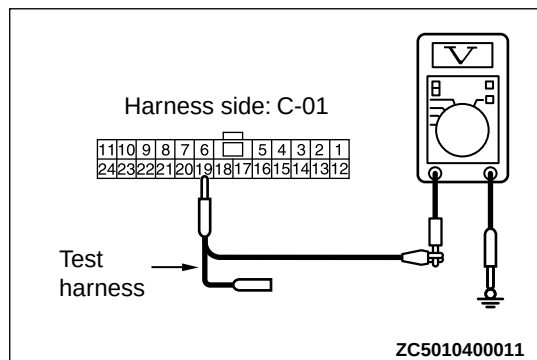
- (4) Measure the voltage between joint connector (CAN3) terminal 19 and body ground.

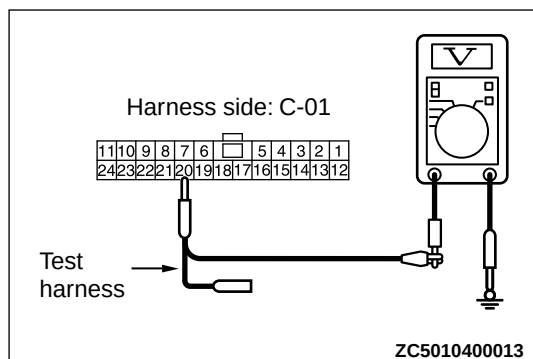
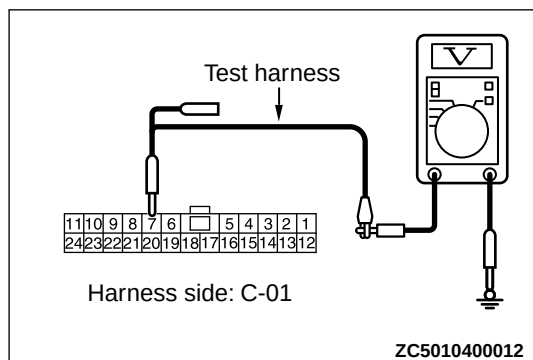
OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 6.

NO: Go to Step 11.





STEP 6. Check the wiring harness between joint connector (CAN3) C-01 and TCM connector C-38 for a short to power supply. Measure the voltage at joint connector (CAN3) C-01.

- (1) Disconnect joint connector (CAN3), and measure the voltage at the wiring harness side of joint connector (CAN3).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN3) terminal 7 and body ground.

OK: 4.7 volts or less

- (4) Measure the voltage between joint connector (CAN3) terminal 20 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Check intermediate connector C-27, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between joint connector (CAN2) C-04 and joint connector (CAN3) C-01.

NO: Go to Step 12.

STEP 7. Using scan tool MB991958, diagnose the CAN bus line. (checking the steering wheel sensor for internal short to ground)

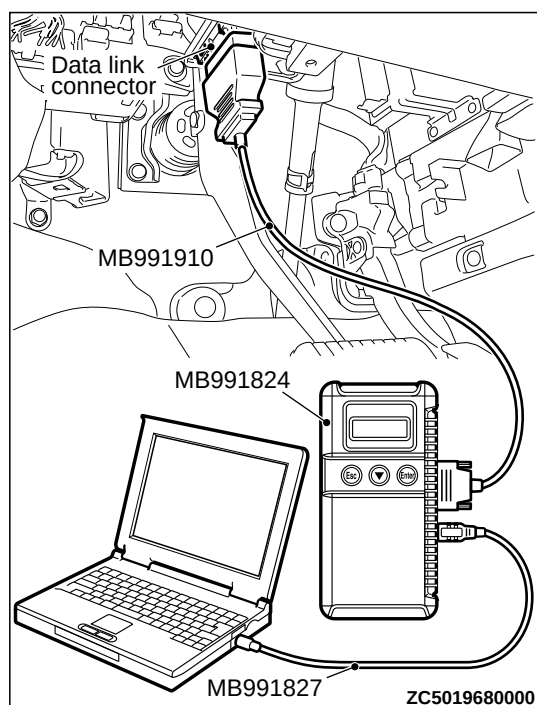
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

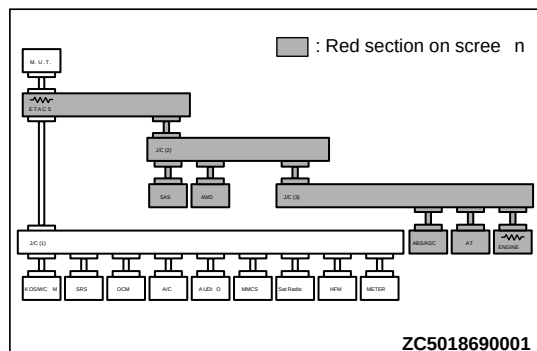
⚠ CAUTION

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) Disconnect steering wheel sensor connector C-209.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between steering wheel sensor connector C-209 and joint connector (CAN2) C-04.

NO: Check steering wheel sensor connector C-209, and repair if necessary. If the steering wheel sensor connector is in good condition, replace the steering wheel sensor.

STEP 8. Using scan tool MB991958, diagnose the CAN bus line. (checking the AWD-ECU for internal short to ground)

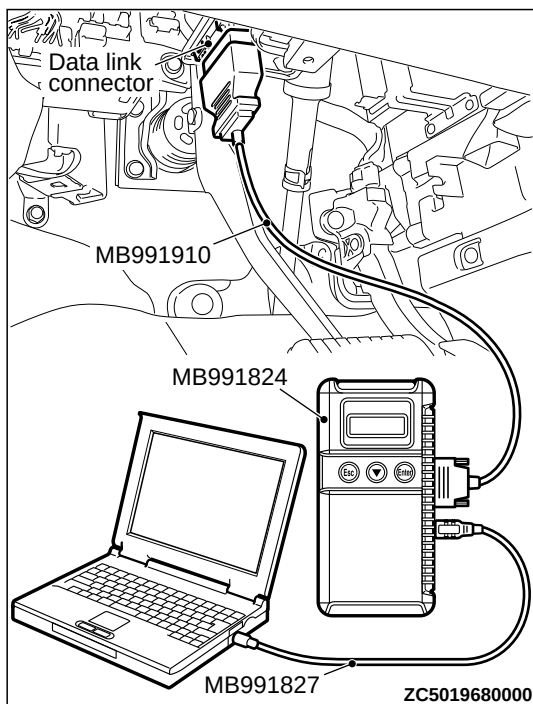
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

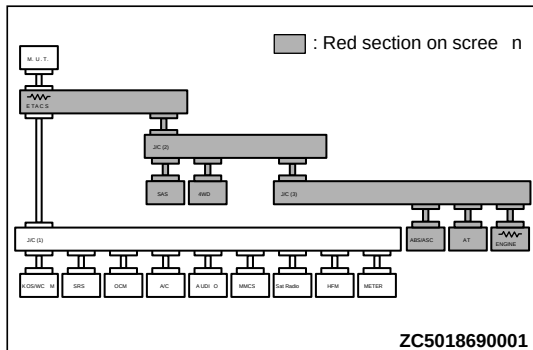
CAUTION

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) Disconnect AWD-ECU connector C-128.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Check intermediate connector C-31, and repair if necessary. If the intermediate connector is in good condition, repair the wiring harness between AWD-ECU connector C-128 and joint connector (CAN2) C-04.

NO: Check AWD-ECU connector C-128, and repair if necessary. If the AWD-ECU connector is in good condition, replace the AWD-ECU.

STEP 9. Using scan tool MB991958, diagnose the CAN bus line. (checking the ETACS-ECU for internal short to ground)

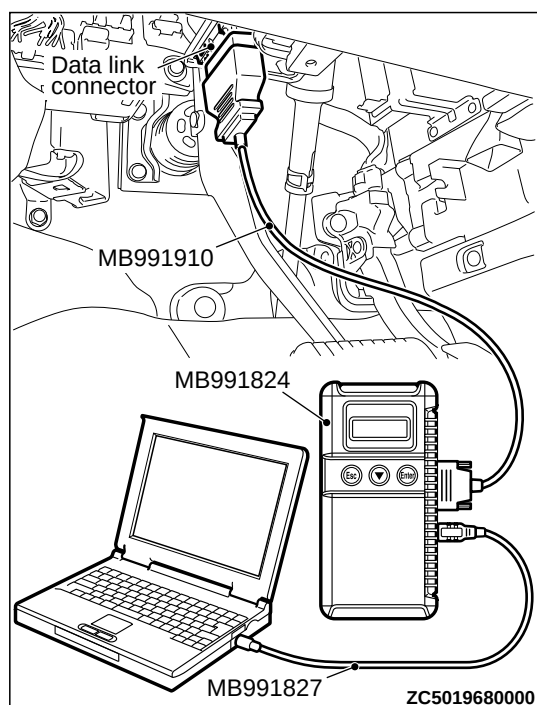
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

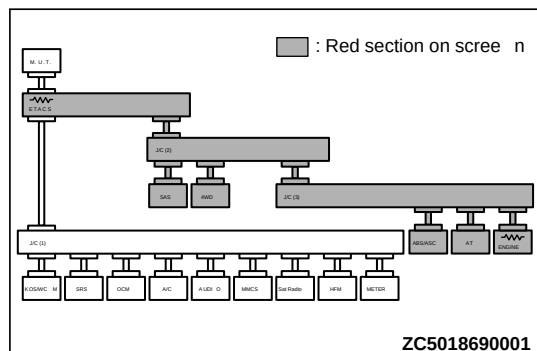
CAUTION

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) Disconnect ETACS-ECU connector C-301.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ETACS-ECU connector C-301 and joint connector (CAN2) C-04.

NO: Check ETACS-ECU connector C-128, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU.

STEP 10. Using scan tool MB991958, diagnose the CAN bus line. (checking the ECM for internal short to ground)

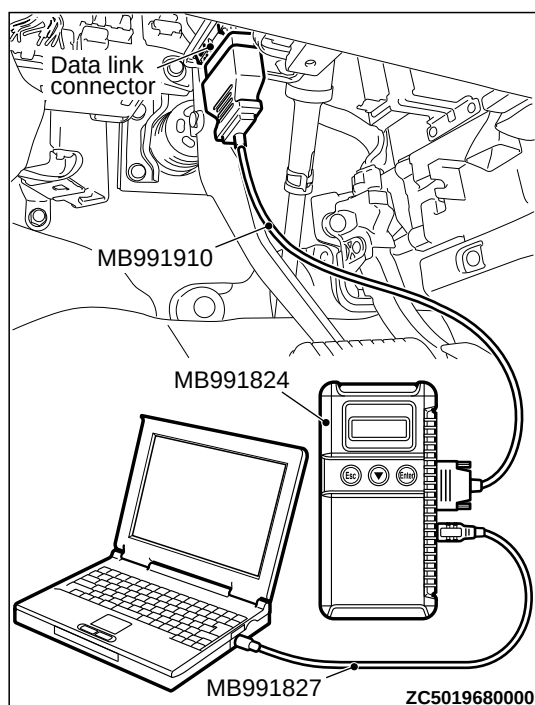
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

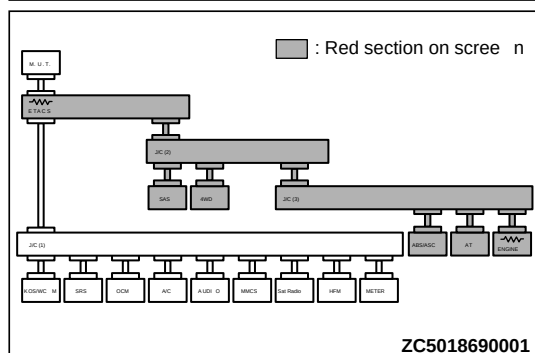
CAUTION

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) Disconnect ECM connector B-11.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ECM connector B-11 and joint connector (CAN3) C-01.

NO: Check ECM connector B-11, and repair if necessary. If the ECM connector is in good condition, replace the ECM.

STEP 11. Using scan tool MB991958, diagnose the CAN bus line. (checking the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC> for internal short to ground)

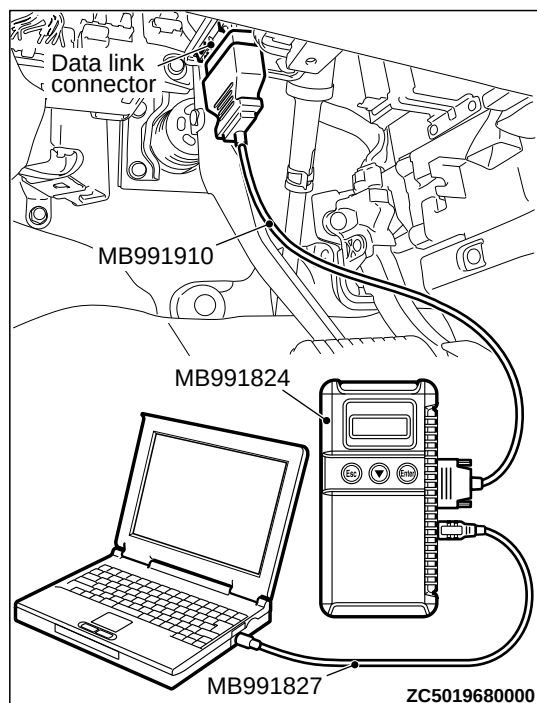
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

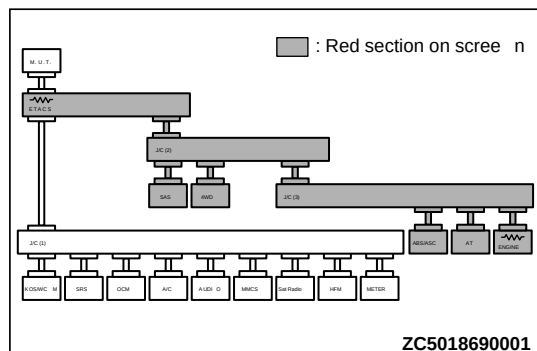
CAUTION

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) Disconnect ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC>.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC> and joint connector (CAN3) C-01.

NO: Check ABS-ECU connector A-01 <vehicles without ASC> or ASC-ECU connector A-02 <vehicles with ASC>, and repair if necessary. If the ABS-ECU connector <vehicles without ASC> or ASC-ECU connector <vehicles with ASC> is in good condition, replace the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC>.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line. (checking the TCM for internal short to ground)

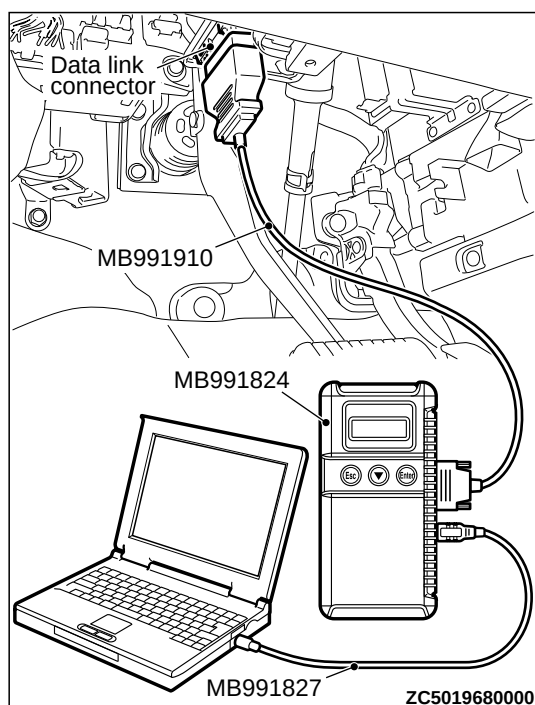
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

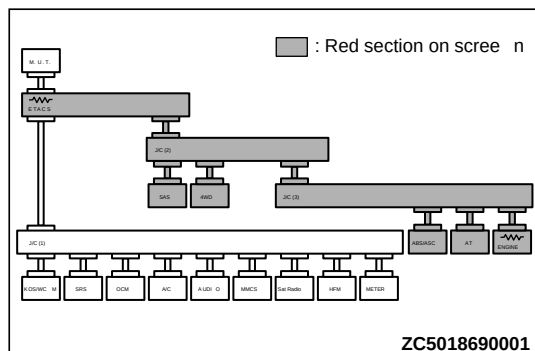
CAUTION

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) Disconnect TCM connector C-38.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between TCM connector C-38 and joint connector (CAN3) C-01.

NO: Check TCM connector C-38, and repair if necessary. If the TCM connector is in good condition, replace the TCM.

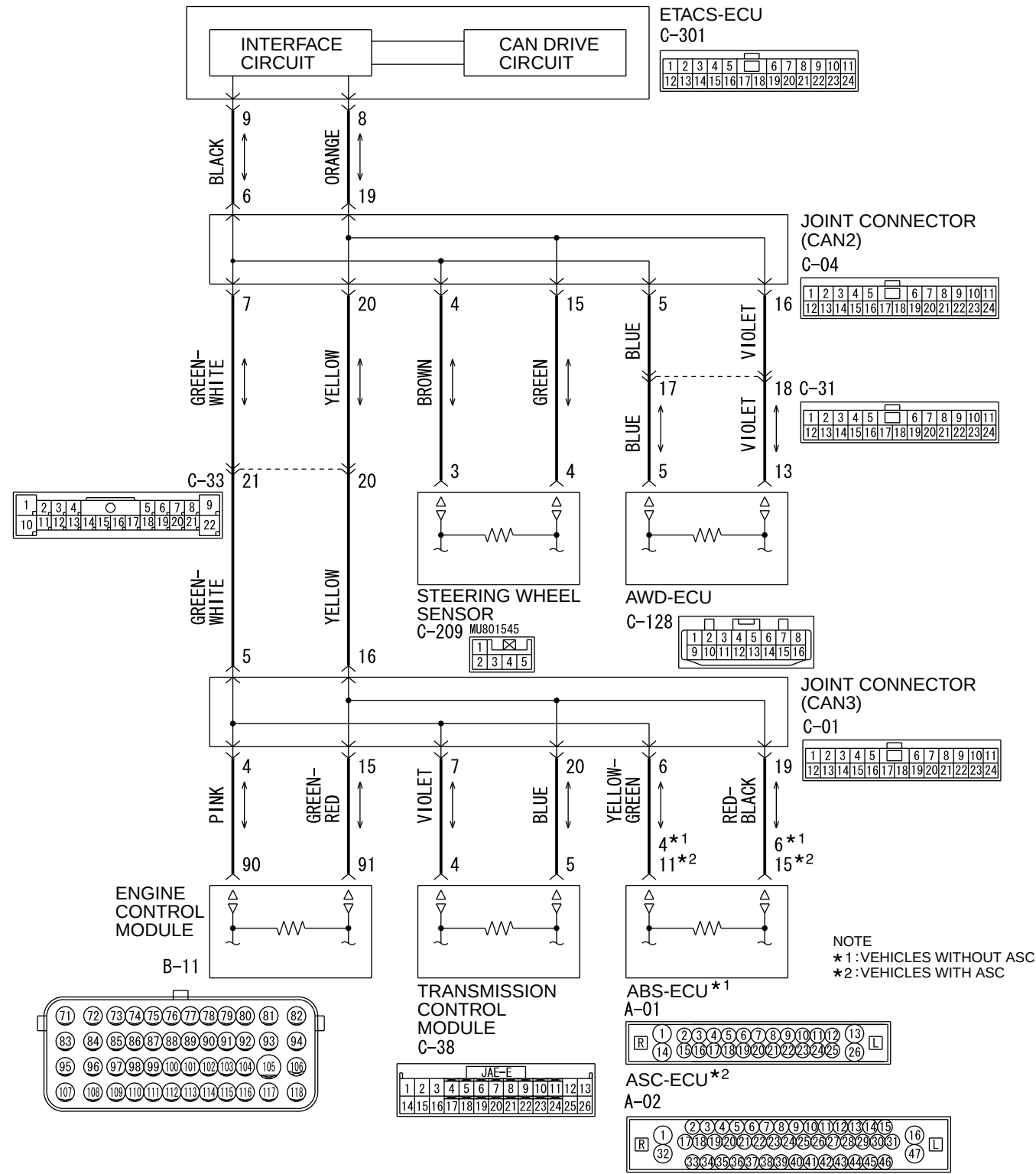
DIAGNOSTIC ITEM 6: Diagnose when the scan tool cannot receive the data sent by AWD-ECU.

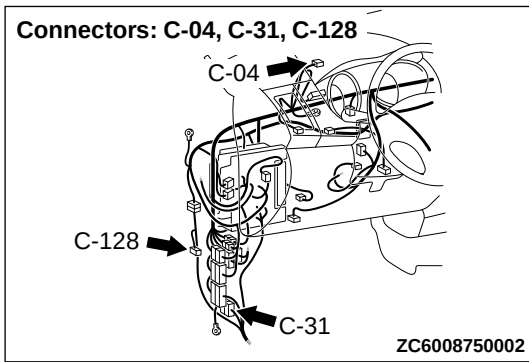
CAUTION

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.

CAN Communication Circuit





FUNCTION

If the scan tool MB991958 cannot communicate with the AWD-ECU, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the AWD-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN2) or AWD-ECU connector improperly connected]
- Malfunction of the wiring harness [open circuit between the AWD-ECU and the joint connector (CAN2), power supply circuit to the AWD-ECU]
- Malfunction of the AWD-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN2) C-04, AWD-ECU connector C-128 and intermediate connector C-31 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN2) C-04, AWD-ECU connector C-128 and intermediate connector C-31 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and AWD-ECU connector C-128.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN2) C-04 and AWD-ECU connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.5) and AWD-ECU connector C-128 (terminal No.5)

- (3) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.16) and AWD-ECU connector C-128 (terminal No.13)

Q: Is the wiring harness between joint connector (CAN2) C-04 and AWD-ECU connector C-128 in good condition?

YES: Check the power supply circuit of the AWD-ECU. Refer to Group 27C, Multiselect AWD Diagnosis P.27C-74.

NO: Repair the wiring harness between joint connector (CAN2) C-04 and AWD-ECU connector C-128.

DIAGNOSTIC ITEM 7: Diagnose when the scan tool cannot receive the data sent by steering wheel sensor.

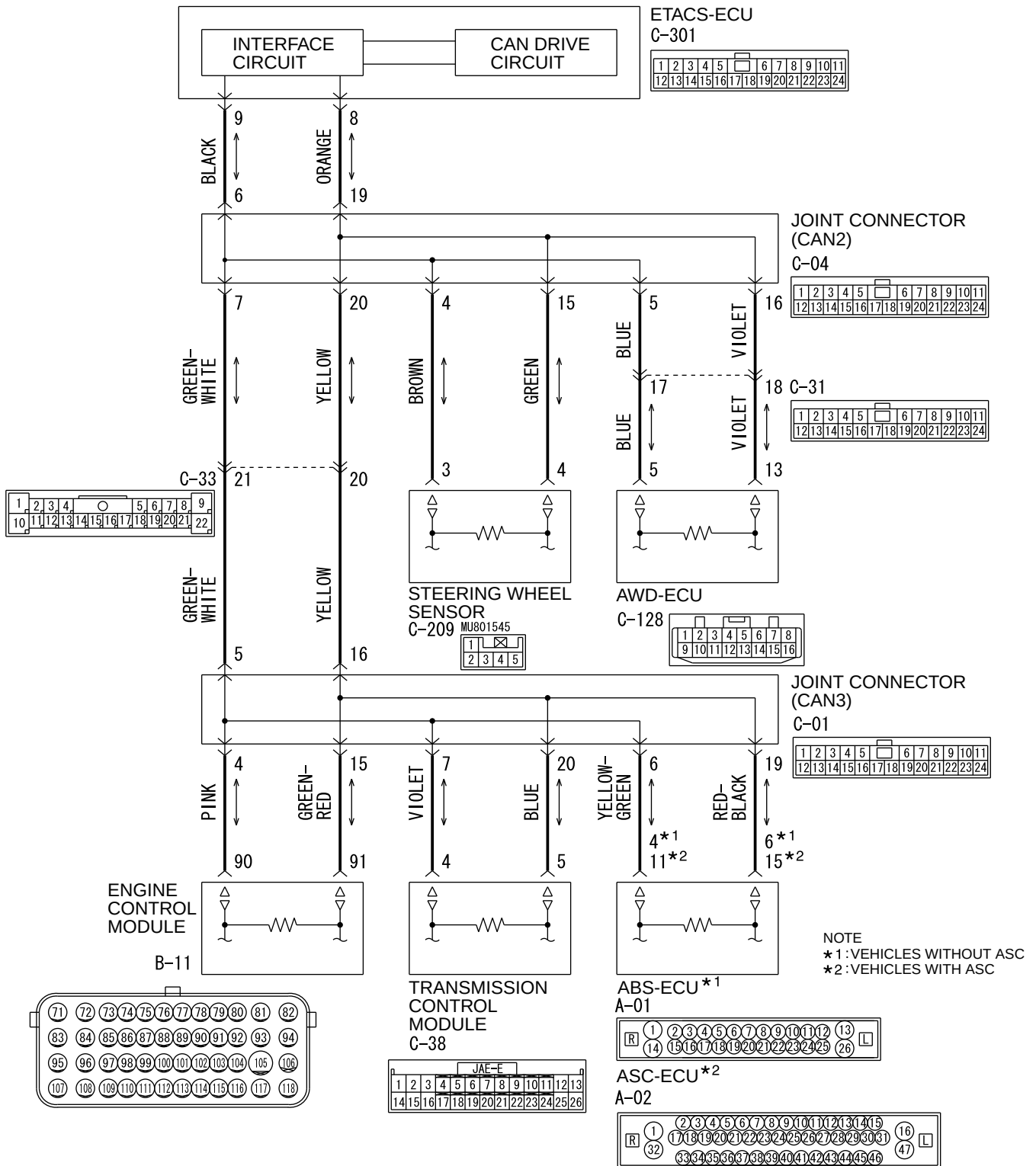
⚠ CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

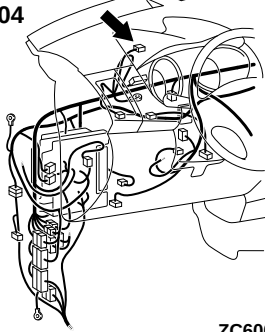
water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

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CAN Communication Circuit



Connector: C-04



ZC6008750003

Connector: C-209



ZC6008770000

FUNCTION

If the scan tool MB991958 cannot communicate with the steering wheel sensor, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the steering wheel sensor, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN2) or steering wheel sensor connector improperly connected]
- Malfunction of the wiring harness [open circuit between the steering wheel sensor and the joint connector (CAN2), power supply circuit to the steering wheel sensor]
- Malfunction of the steering wheel sensor

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN2) C-04 and steering wheel sensor connector C-209 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN2) C-04 and steering wheel sensor connector C-209 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and steering wheel sensor connector C-209.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN2) C-04 and steering wheel sensor connector C-209, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.4) and steering wheel sensor connector C-209 (terminal No.3)

DIAGNOSIS

-
- (3) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.15) and steering wheel sensor connector C-209 (terminal No.4)

Q: Is the wiring harness between joint connector (CAN2) C-04 and steering wheel sensor connector C-209 in good condition?

YES: Check the power supply circuit of the steering wheel sensor. Refer to Group 35C, Troubleshooting P.35C-11.

NO: Repair the wiring harness between joint connector (CAN2) C-04 and steering wheel sensor connector C-209.

DIAGNOSTIC ITEM 8: Diagnose when the scan tool cannot receive the data sent by TCM.

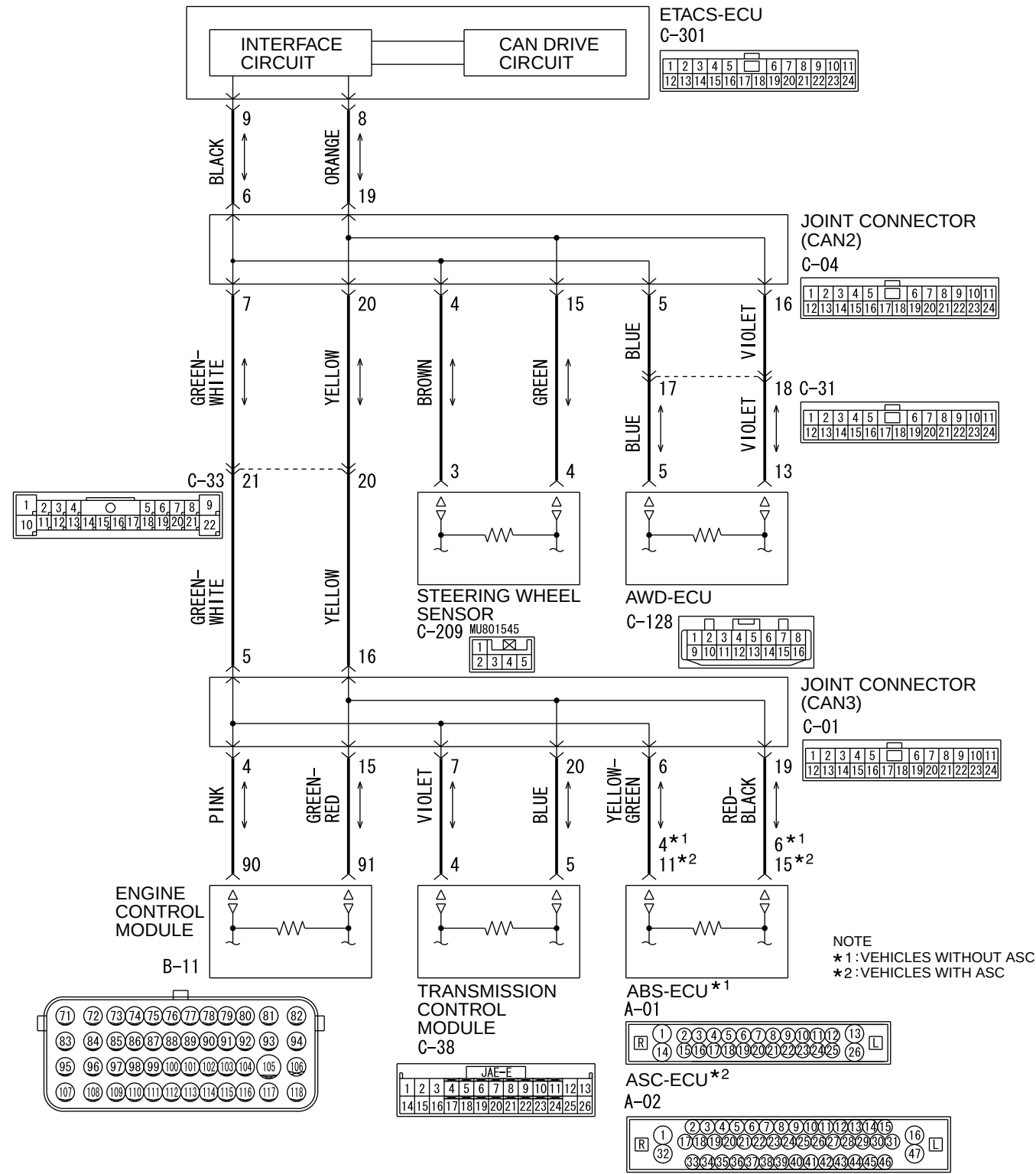
⚠ CAUTION

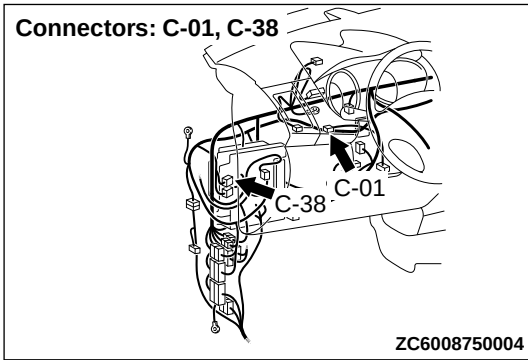
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

M15408300013USA0000010000

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

CAN Communication Circuit





FUNCTION

If the scan tool MB991958 cannot communicate with the TCM, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the TCM, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN3) or TCM connector improperly connected]
- Malfunction of the wiring harness [open circuit between the TCM and the joint connector (CAN3), power supply circuit to the TCM]
- Malfunction of the TCM

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN2) C-04 and TCM connector C-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 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN2) C-04 and TCM connector C-38 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and TCM connector C-38.

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN2) C-04 and TCM connector C-38, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.7) and TCM connector C-38 (terminal No. 4)
- (3) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.20) and TCM connector C-38 (terminal No. 5)

Q:Is the wiring harness between joint connector (CAN2) C-04 and TCM connector C-38 in good condition?

YES: Check the power supply circuit of the TCM. Refer to Group 23A, Troubleshooting P. 23A-129.

NO: Repair the wiring harness between joint connector (CAN2) C-04 and TCM connector C-38.

DIAGNOSTIC ITEM 9: Diagnose when the scan tool cannot receive the data sent by ABS-ECU.

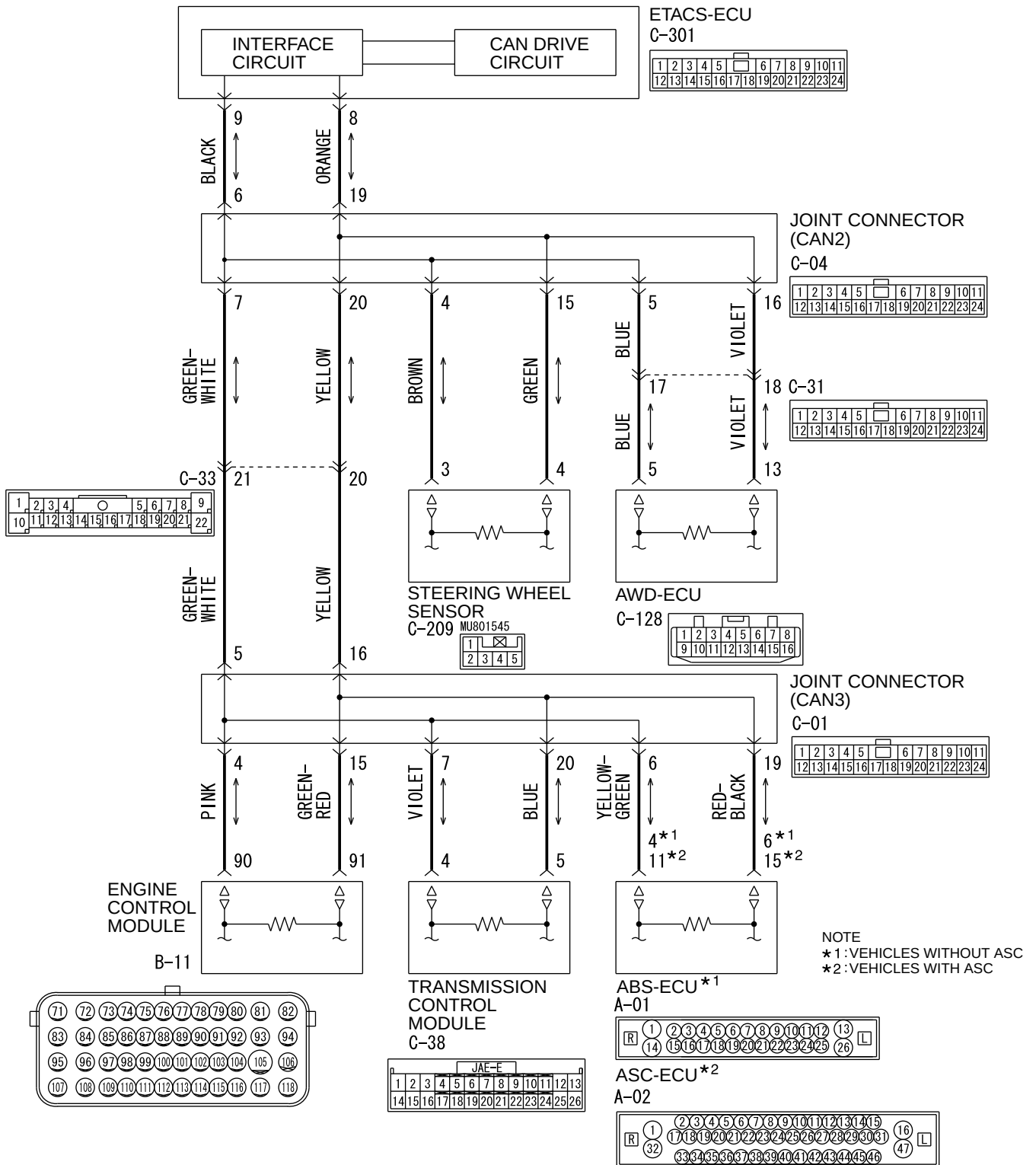
 CAUTION

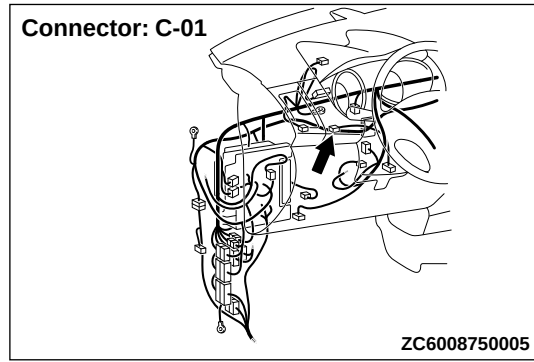
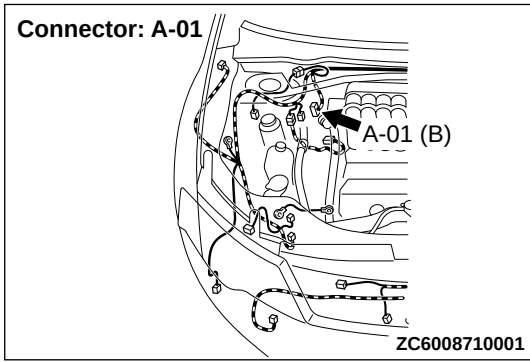
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

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CAN Communication Circuit





FUNCTION

If the scan tool MB991958 cannot communicate with the ABS-ECU, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the ABS-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN3) or ABS-ECU connector improperly connected]
- Malfunction of the wiring harness [open circuit between the ABS-ECU and the joint connector (CAN3), power supply circuit to the ABS-ECU]
- Malfunction of the ABS-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN3) C-01 and ABS-ECU connector A-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN3) C-01 and ABS-ECU connector A-01 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN3) C-01 and ABS-ECU connector A-01.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN3) C-01 and ABS-ECU connector A-01, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN3) C-01 (terminal No.6) and ABS-ECU connector A-01 (terminal No.4)
- (3) Check the wiring harness between joint connector (CAN3) C-01 (terminal No.19) and ABS-ECU connector A-01 (terminal No.6)

Q:Is the wiring harness between joint connector (CAN3) C-01 and ABS-ECU connector A-01 in good condition?

YES: Check the power supply circuit of the ABS-ECU. Refer to Group 35B, Troubleshooting P. 35B-139.

NO: Repair the wiring harness between joint connector (CAN3) C-01 and ABS-ECU connector A-01.

DIAGNOSTIC ITEM 10: Diagnose when the scan tool cannot receive the data sent by ASC-ECU.

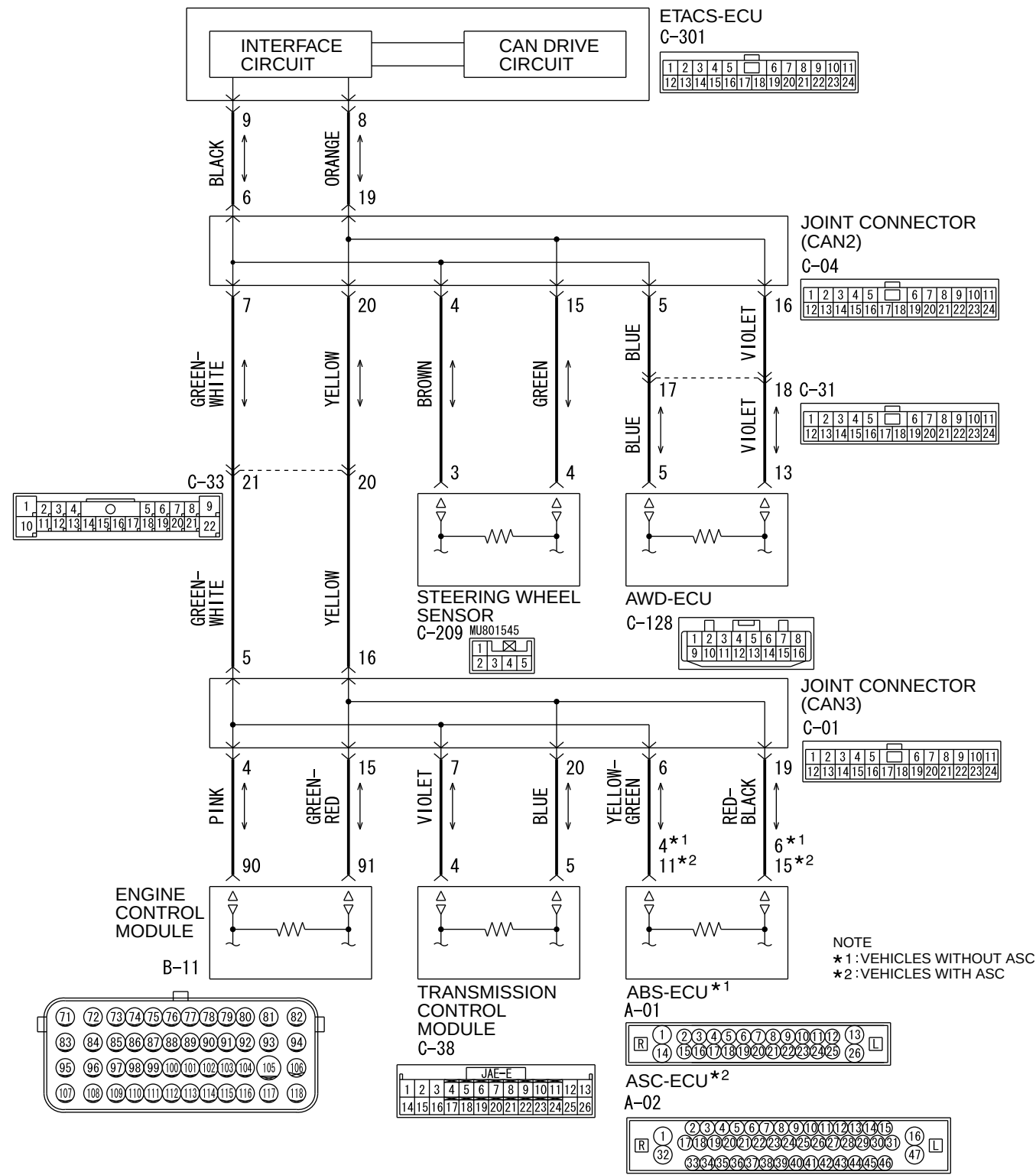
 CAUTION

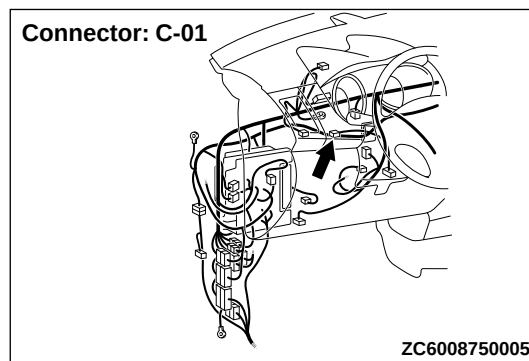
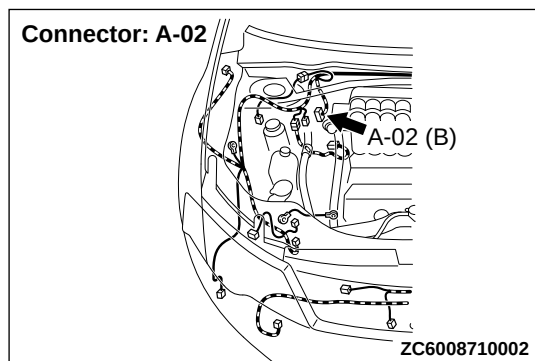
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

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CAN Communication Circuit





FUNCTION

If the scan tool MB991958 cannot communicate with the ASC-ECU, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the ASC-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN3) or ASC-ECU connector improperly connected]
- Malfunction of the wiring harness [open circuit between the ASC-ECU and the joint connector (CAN3), power supply circuit to the ASC-ECU]
- Malfunction of the ASC-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN3) C-01 and ASC-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN3) C-01 and ASC-ECU connector A-02 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN3) C-01 and ASC-ECU connector A-02.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN3) C-01 and ASC-ECU connector A-02, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN3) C-01 (terminal No.6) and ASC-ECU connector A-02 (terminal No.11)
- (3) Check the wiring harness between joint connector (CAN3) C-01 (terminal No.19) and ASC-ECU connector A-02 (terminal No.15)

Q:Is the wiring harness between joint connector (CAN3) C-01 and ASC-ECU connector A-02 in good condition?

YES: Check the power supply circuit of the ASC-ECU. Refer to Group 35C, Troubleshooting P. 35C-176.

NO: Repair the wiring harness between joint connector (CAN3) C-01 and ASC-ECU connector A-02.

DIAGNOSTIC ITEM 11: Diagnose when the scan tool cannot receive the data sent by ECM.

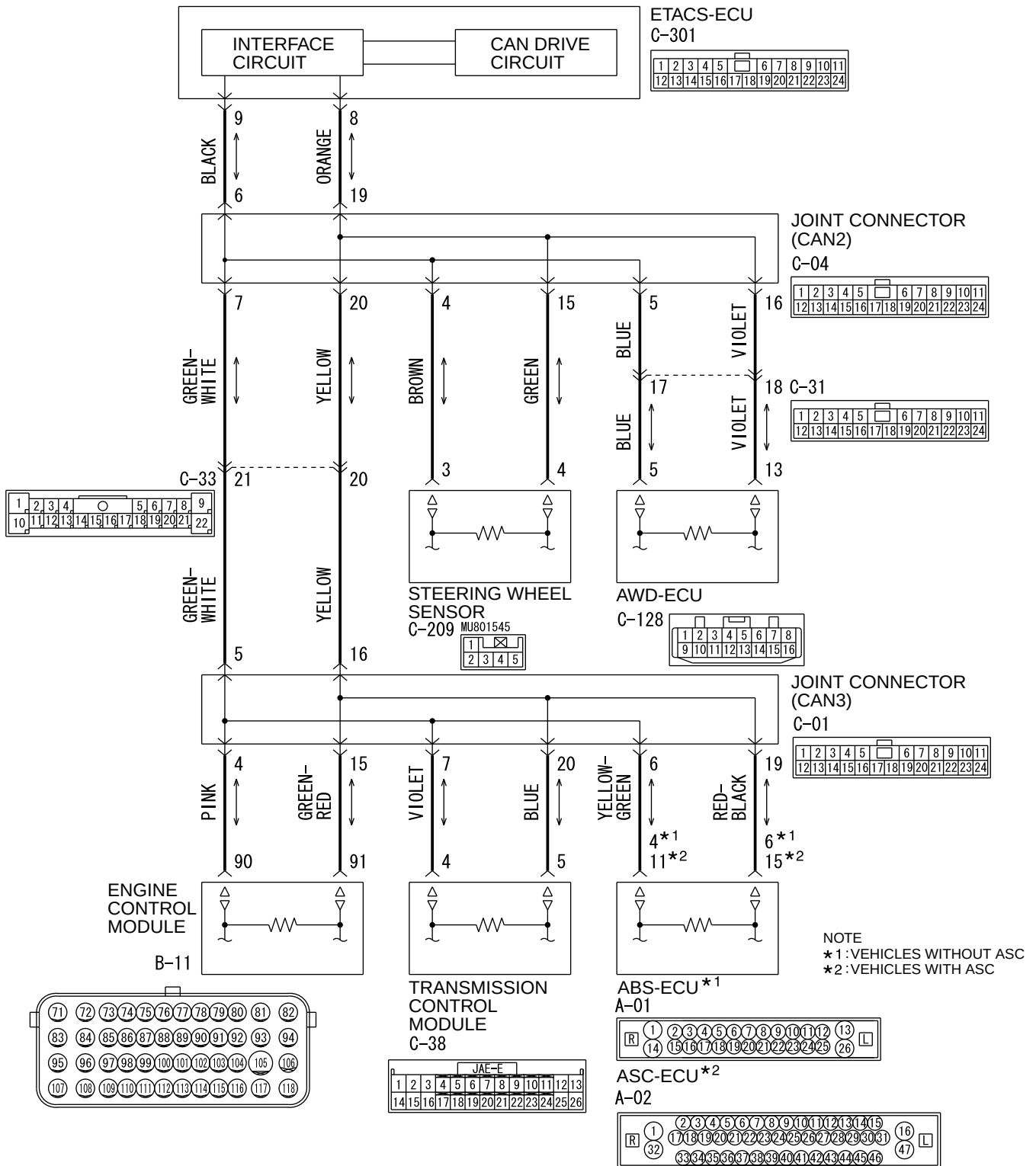
 CAUTION

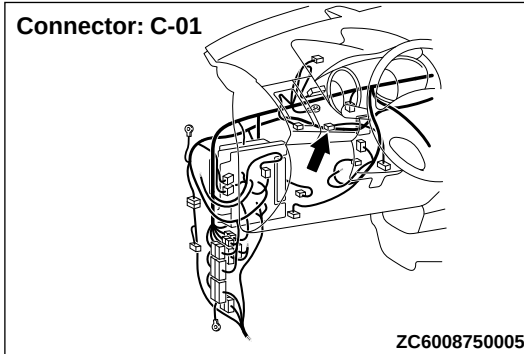
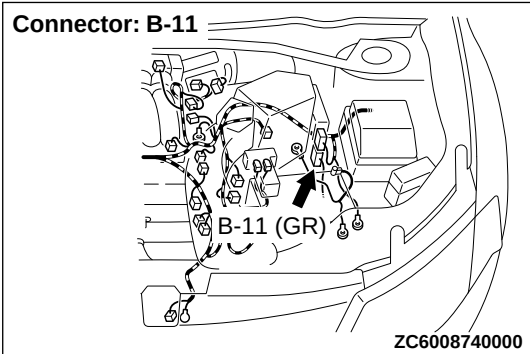
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300017USA0000010000

CAN Communication Circuit





FUNCTION

If the scan tool MB991958 cannot communicate with the ECM, this diagnosis result will be set.

TROUBLE JUDGMENT CONDITIONS

If a communication flag is not set for the ECM, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN3) or ECM connector improperly connected]
- Malfunction of the wiring harness [open circuit between the ECM and the joint connector (CAN3), power supply circuit to the ECM]
- Malfunction of the ECM

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN3) C-01 and ECM connector B-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN3) C-01 and ECM connector B-11 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN3) C-01 and ECM connector B-11.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN3) C-01 and ECM connector B-11, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN3) C-01 (terminal No.4) and ECM connector B-11 (terminal No. 90)
- (3) Check the wiring harness between joint connector (CAN3) C-01 (terminal No.15) and ECM connector B-11 (terminal No. 91)

Q:Is the wiring harness between joint connector (CAN3) C-01 and ECM connector B-11 in good condition?

YES: Check the power supply circuit of the ECM. Refer to Group 13Ab, Troubleshooting P.13Ab-807.

NO: Repair the wiring harness between joint connector (CAN3) C-01 and ECM connector B-11.

DIAGNOSTIC ITEM 12: Diagnose the lines between the ETACS-ECU and joint connector (CAN2).

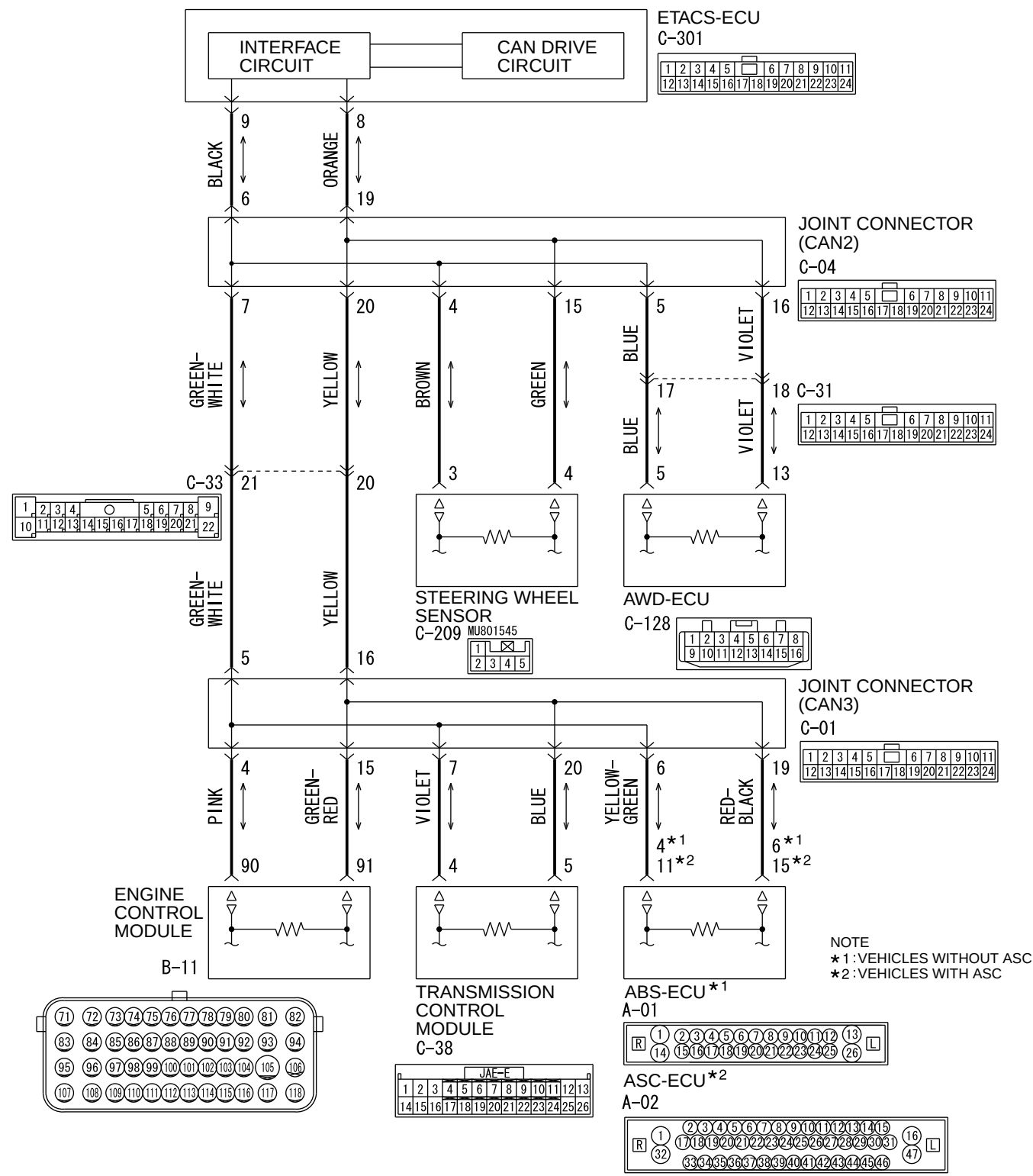
M15408300022USA0000010000

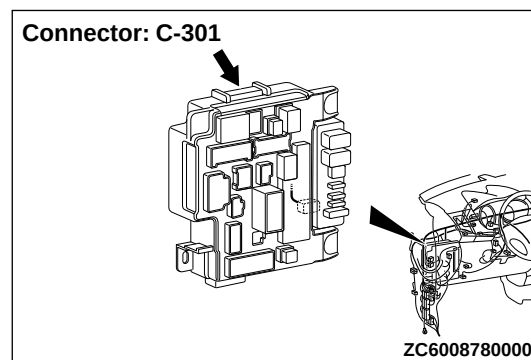
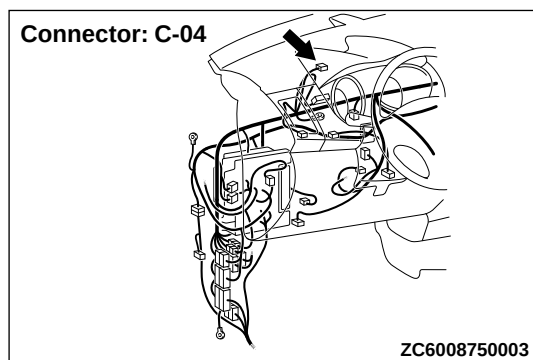
⚠ CAUTION

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.

CAN Communication Circuit





FUNCTION

If a failure is present in the wiring harness between the ETACS-ECU connector and the joint connector (CAN2), this diagnosis result will be set.

TROUBLE JUDGMENT CONDITIONS

If a communication flag is not set for some of the ECUs on the CAN-C line, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN2) or ETACS-ECU connector improperly connected]
- Malfunction of the wiring harness [open circuit between the ETACS-ECU connector and the joint connector (CAN2), power supply circuit to the engine control module]
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN2) C-04 and ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN2) C-04 and ETACS-ECU connector C-301 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and ETACS-ECU connector C-301.

CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN2) C-04 and ETACS-ECU connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.6) and ETACS-ECU connector C-301 (terminal No.9)

- (3) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.19) and ETACS-ECU connector C-301 (terminal No.8)

Q:Is the wiring harness between joint connector (CAN2) C-04 and ETACS-ECU connector C-301 in good condition?

YES: Go to Step 3.

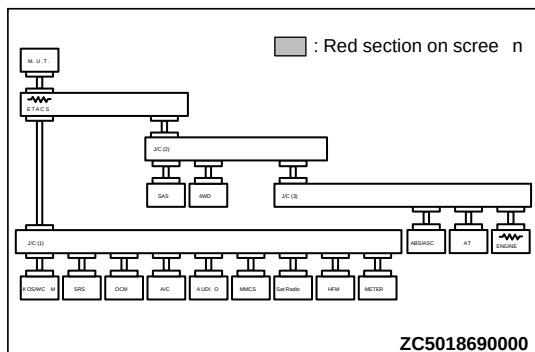
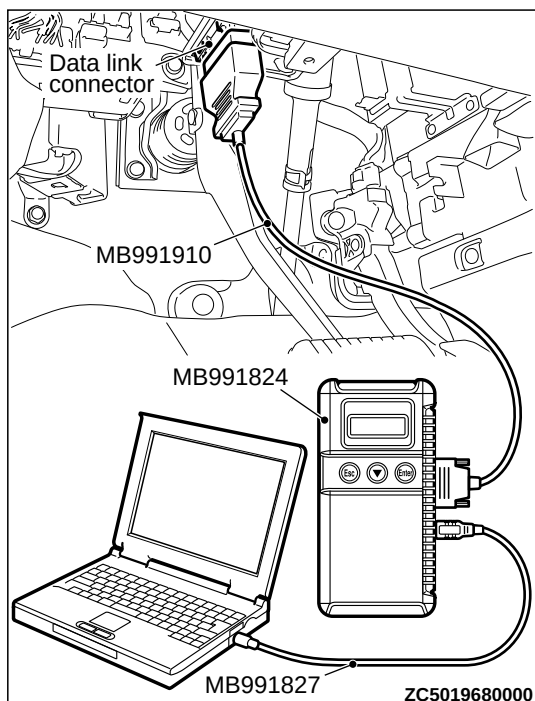
NO: Repair the wiring harness between joint connector (CAN2) C-04 and ETACS-ECU connector C-301.

STEP 3. Using scan tool MB991958, diagnose the CAN bus line.

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

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

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

NO: Replace the ETACS-ECU.

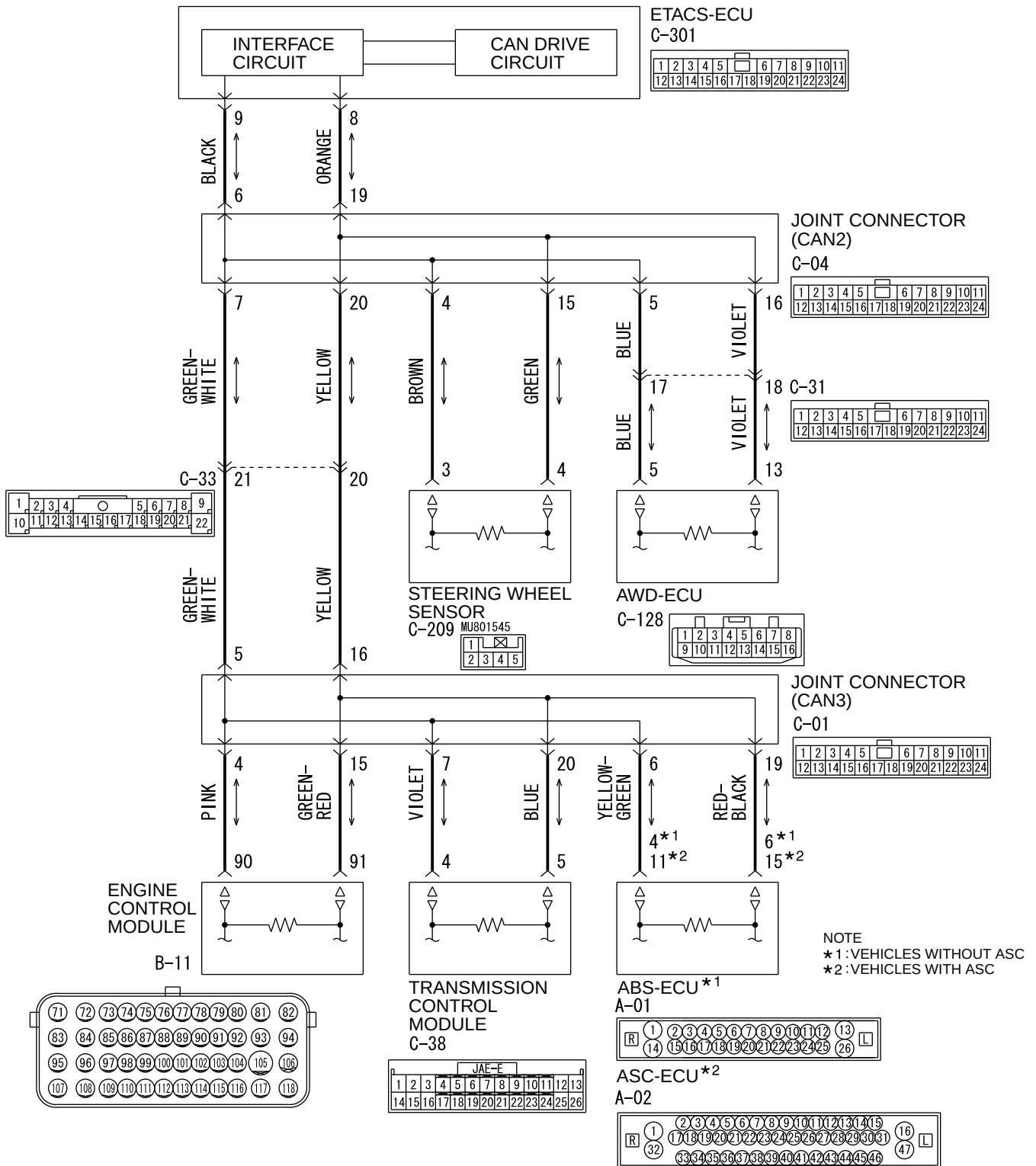
DIAGNOSTIC ITEM 13: Diagnose the lines between joint connector (CAN2) and joint connector (CAN3).

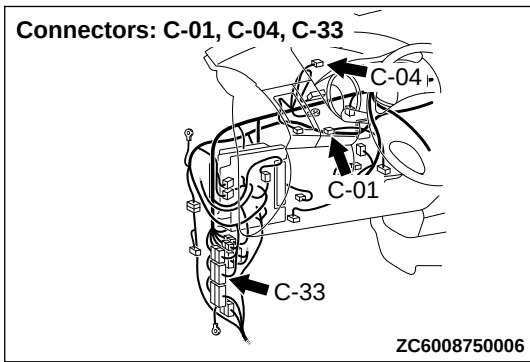
CAUTION

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.

CAN Communication Circuit



**FUNCTION**

If a failure is present in the wiring harness between the joint connector (CAN2) and the joint connector (CAN3), this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for some of the ECUs on the CAN-C line, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN2), joint connector (CAN3) or intermediate connector failed]
- Malfunction of the wiring harness [open circuit between joint connector (CAN2) and joint connector (CAN3)]

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN2) C-04, joint connector (CAN3) C-01 and intermediate connector C-33 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN2) C-04, joint connector (CAN3) C-01 and intermediate connector C-33 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN2) C-04 and joint connector (CAN3) C-01.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN2) C-04 and joint connector (CAN3) C-01, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.6) and joint connector (CAN3) C-01 (terminal No.5)

DIAGNOSIS

- (3) Check the wiring harness between joint connector (CAN2) C-04 (terminal No.19) and joint connector (CAN3) C-01 (terminal No.16)

Q: Is the wiring harness between joint connector (CAN2) C-04 and joint connector (CAN3) C-01 in good condition?

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

NO: Repair the wiring harness between joint connector (CAN2) C-04 and joint connector (CAN3) C-01.

DIAGNOSTIC ITEM 14: Diagnose when the scan tool cannot receive the data sent by combination meter.

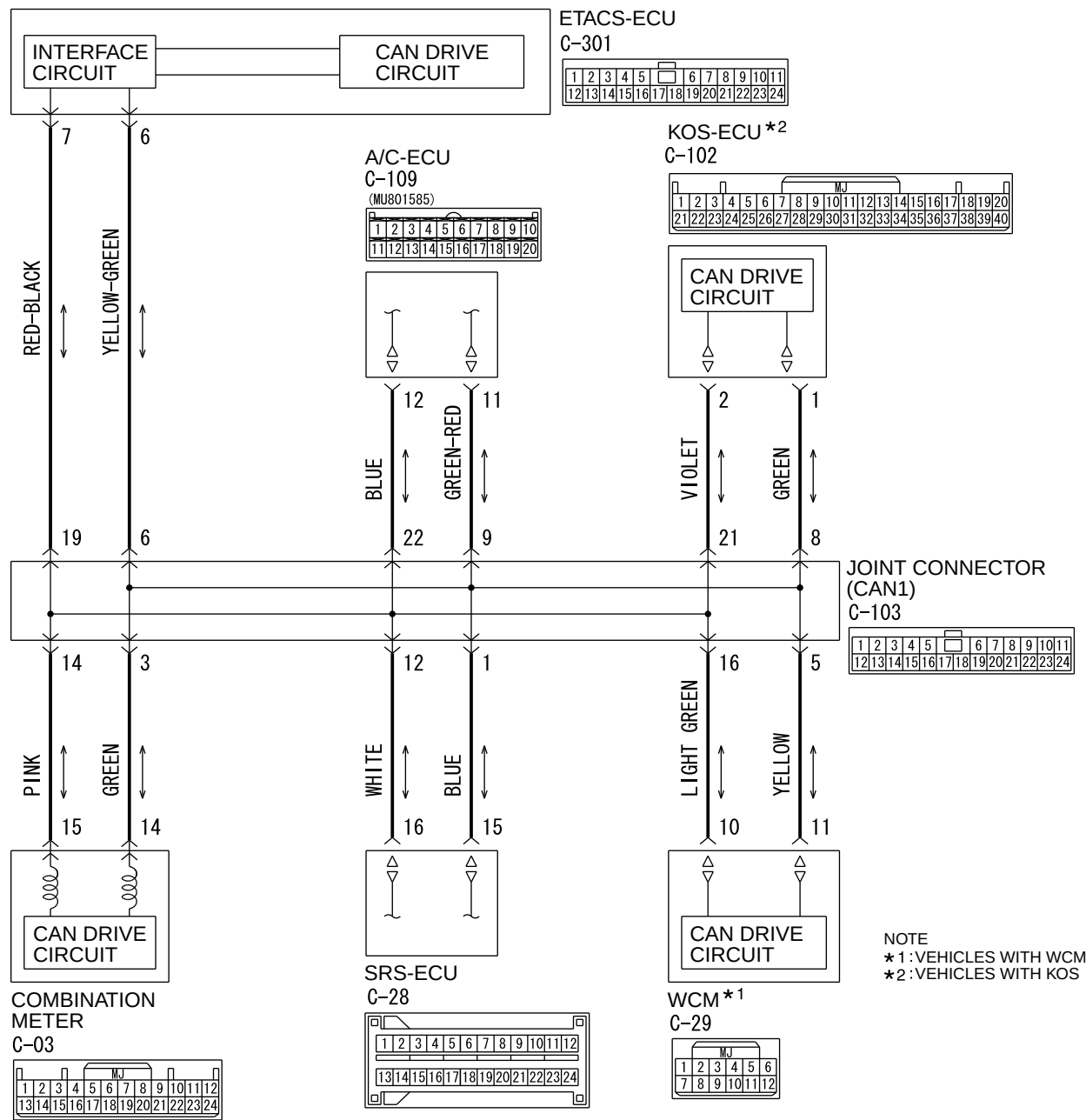
M15408300024USA0000010000

⚠ CAUTION

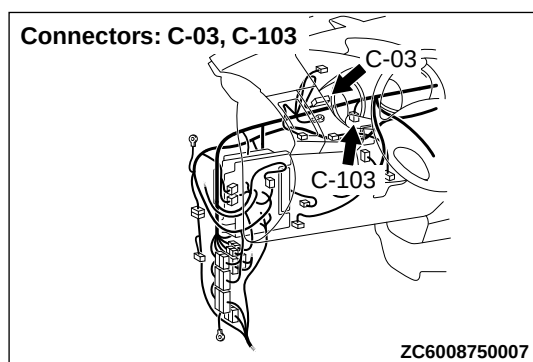
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

CAN Communication Circuit



NOTE
*1: VEHICLES WITH WCM
*2: VEHICLES WITH KOS



FUNCTION

If the scan tool MB991958 cannot communicate with the combination meter, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the combination meter, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), combination meter connector improperly connected]
- Malfunction of the wiring harness [open circuit between the combination meter connector and the joint connector (CAN1), power supply circuit to the combination meter]
- Malfunction of the combination meter

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103 and combination meter connector C-03 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and combination meter connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.3) and combination meter connector C-03 (terminal No.14)

- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.14) and combination meter connector C-03 (terminal No.15)

Q: Is the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03 in good condition?

YES: Check the power supply circuit of the combination meter. Refer to Group 54Ab, Combination meter – Diagnosis P.54Ab-41.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03.

DIAGNOSTIC ITEM 15: Diagnose when the scan tool cannot receive the data sent by KOS-ECU.

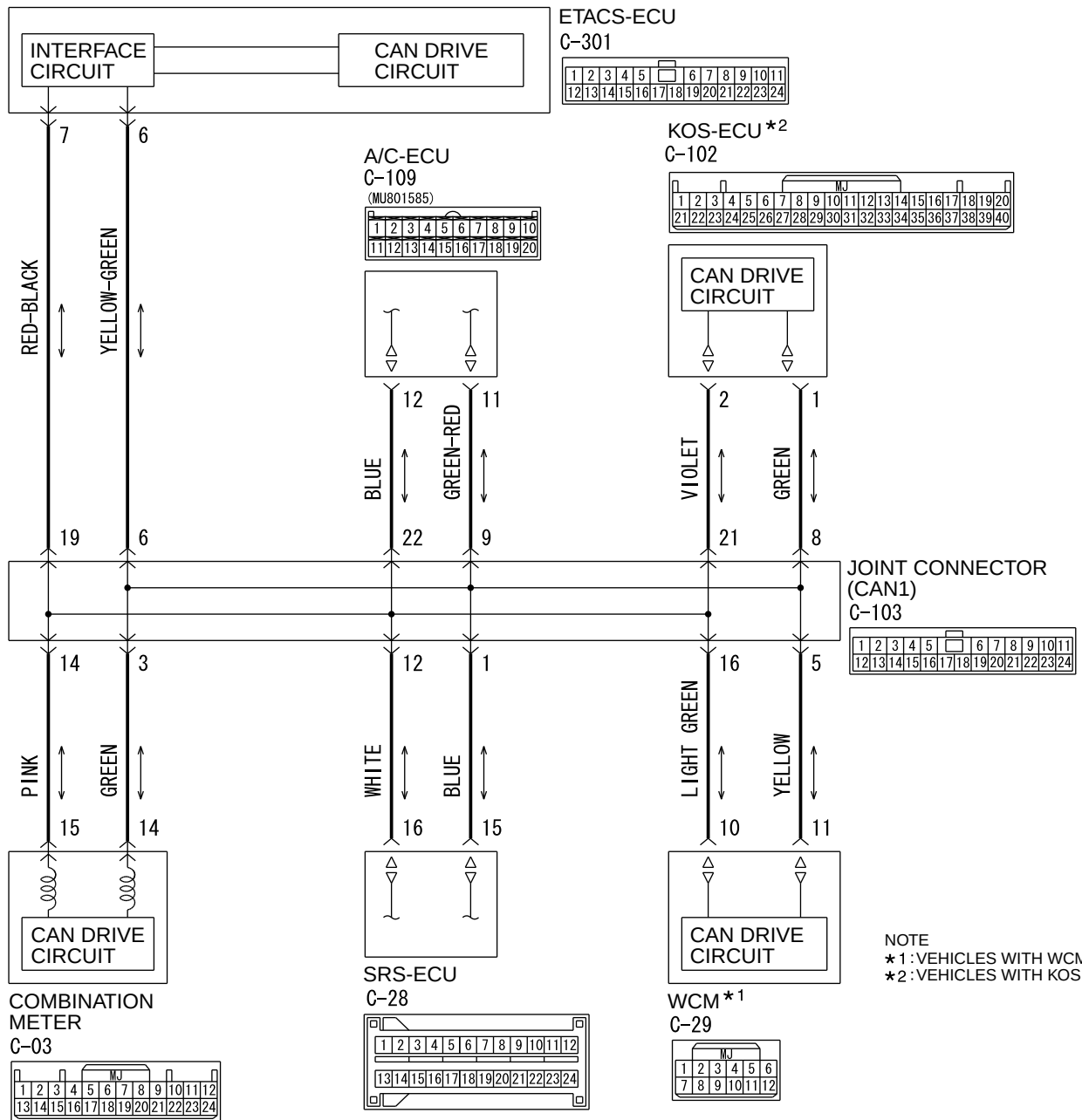
** CAUTION**

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

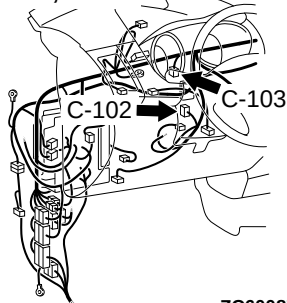
water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

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CAN Communication Circuit



Connectors: C-102, C-103

**FUNCTION**

If the scan tool MB991958 cannot communicate with the KOS-ECU, this diagnosis result will be set.

- Malfunction of the wiring harness [open circuit between the KOS-ECU connector and the joint connector (CAN1), power supply circuit to the KOS-ECU]
- Malfunction of the KOS-ECU

TROUBLE JUDGMENT CONDITIONS

If a communication flag is not set for the KOS-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), KOS-ECU connector improperly connected]

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and KOS-ECU connector C-102 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103 and KOS-ECU connector C-102 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and KOS-ECU connector C-301, and check the wiring harness.

DIAGNOSIS

-
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.8) and KOS-ECU connector C-102 (terminal No.1)
 - (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.21) and KOS-ECU connector C-102 (terminal No.2)

Q: Is the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102 in good condition?

YES: Check the power supply circuit of the KOS-ECU. Refer to Group 42B, KOS-ECU – Diagnosis P. 42B-110.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102.

DIAGNOSTIC ITEM 16: Diagnose when the scan tool cannot receive the data sent by WCM.

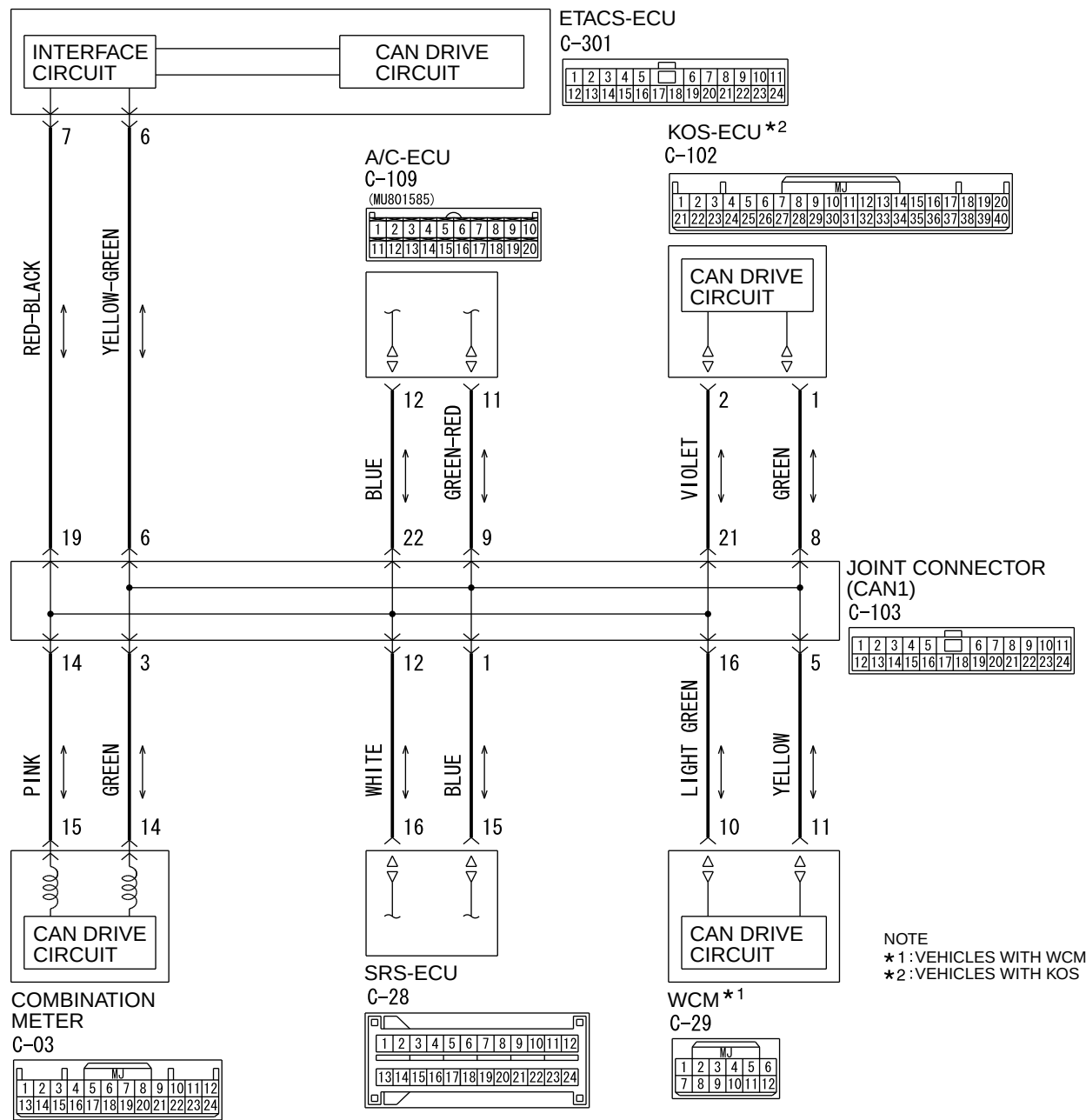
 CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

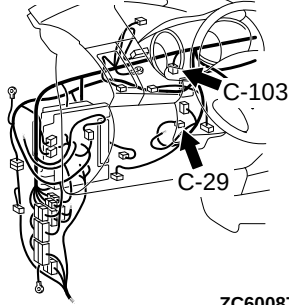
water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300026USA0000010000

CAN Communication Circuit



Connectors: C-29, C-103



ZC6008750009

FUNCTION

If the scan tool MB991958 cannot communicate with the WCM, this diagnosis result will be set.

TROUBLE JUDGMENT CONDITIONS

If a communication flag is not set for the WCM, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), WCM connector improperly connected]
- Malfunction of the wiring harness [open circuit between the WCM connector and the joint connector (CAN1), power supply circuit to the WCM]
- Malfunction of the WCM

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and WCM connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103 and WCM connector C-29 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and WCM connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.5) and WCM connector C-29 (terminal No.11)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.16) and WCM connector C-29 (terminal No.10)

Q:Is the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29 in good condition?

YES: Check the power supply circuit of the WCM. Refer to Group 42C, WCM – Diagnosis P. 42C-71.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29.

DIAGNOSTIC ITEM 17: Diagnose when the scan tool cannot receive the data sent by SRS-ECU.

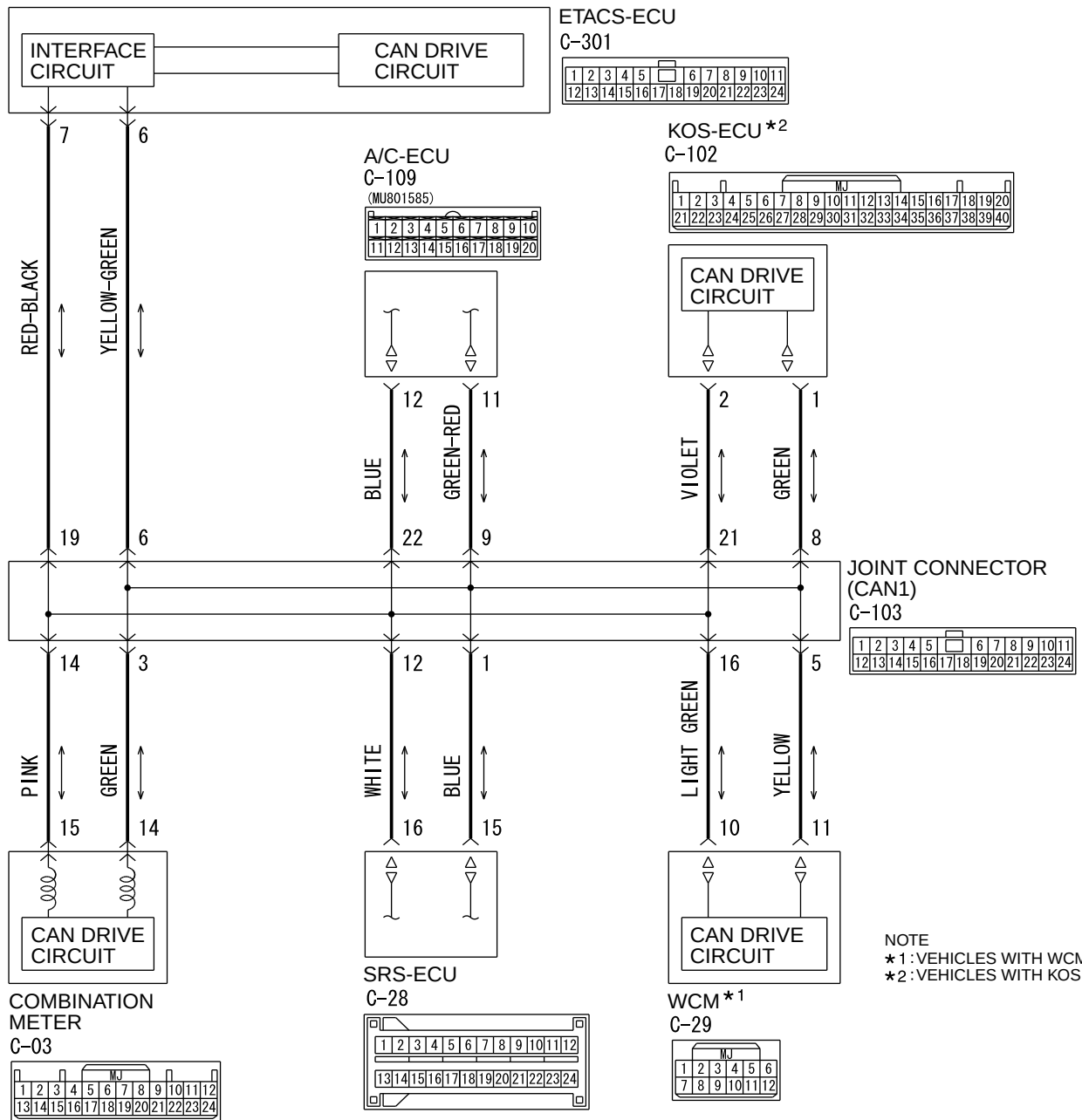
 CAUTION

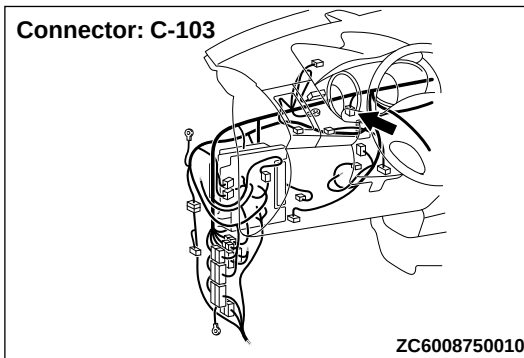
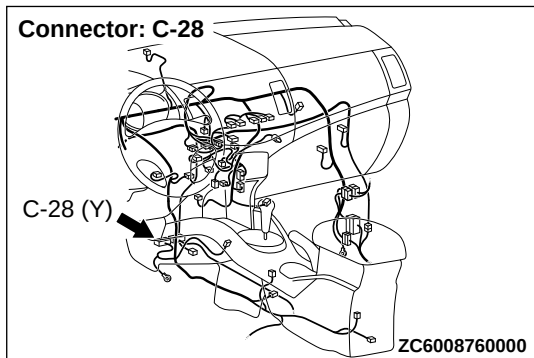
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300027USA0000010000

CAN Communication Circuit



**FUNCTION**

If the scan tool MB991958 cannot communicate with the SRS-ECU, this diagnosis result will be set.

TROUBLE JUDGMENT CONDITIONS

If a communication flag is not set for the SRS-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), SRS-ECU connector improperly connected]

- Malfunction of the wiring harness [open circuit between the SRS-ECU connector and the joint connector (CAN1), power supply circuit to the SRS-ECU]
- Malfunction of the SRS-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and SRS-ECU connector C-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103 and SRS-ECU connector C-28 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and SRS-ECU connector C-301, and check the wiring harness.

DIAGNOSIS

-
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.1) and SRS-ECU connector C-28 (terminal No.10)
 - (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.12) and SRS-ECU connector C-28 (terminal No.9)

Q: Is the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28 in good condition?

YES: Check the power supply circuit of the SRS-ECU. Refer to Group 52B, SRS - Troubleshooting P.52B-309.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28.

DIAGNOSTIC ITEM 18: Diagnose when the scan tool cannot receive the data sent by occupant classification-ECU.

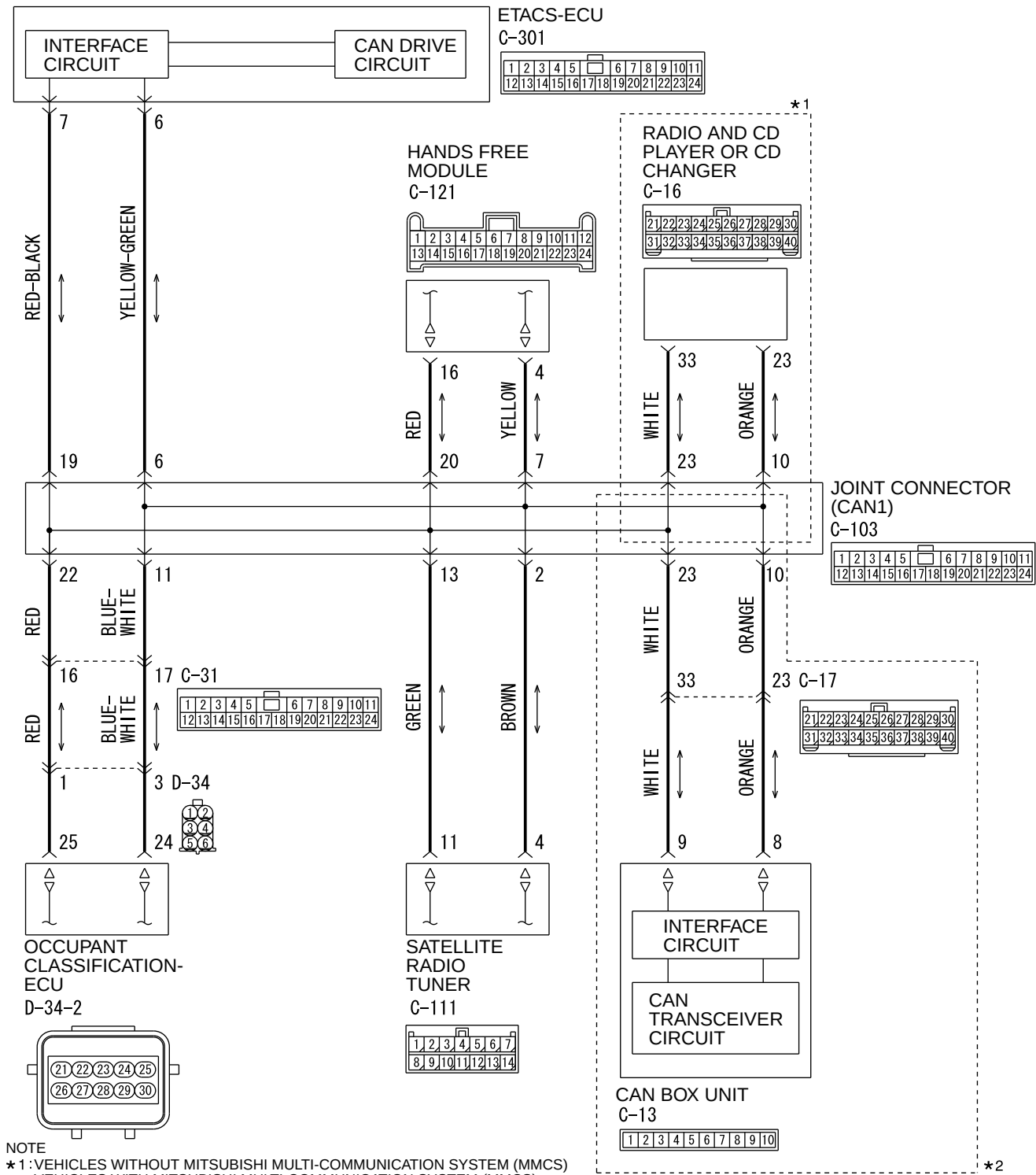
 CAUTION

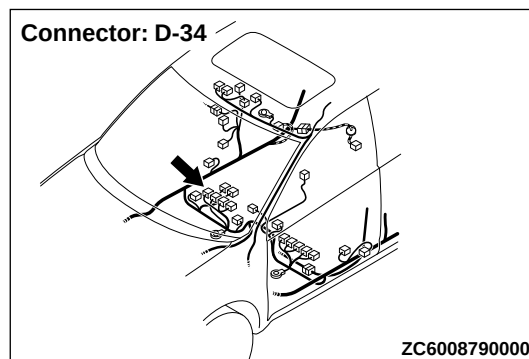
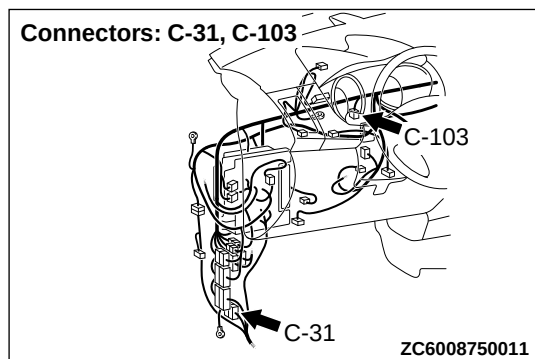
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300028USA0000010000

CAN Communication Circuit





FUNCTION

If the scan tool MB991958 cannot communicate with the occupant classification-ECU, this diagnosis result will be set.

TROUBLE JUDGMENT CONDITIONS

If a communication flag is not set for the occupant classification-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), occupant classification-ECU connector improperly connected]
- Malfunction of the wiring harness [open circuit between the occupant classification-ECU connector and the joint connector (CAN1), power supply circuit to the occupant classification-ECU]
- Malfunction of the occupant classification-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103, occupant classification-ECU connector D-34, D-34-2 and intermediate connector C-31 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103, occupant classification-ECU connector D-34, D-34-2 and intermediate connector C-31 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and occupant classification-ECU connector C-301, and check the wiring harness.

-
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.11) and occupant classification-ECU connector D-31-2 (terminal No.24)
 - (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.24) and occupant classification-ECU connector D-31-2 (terminal No.25)

Q: Is the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2 in good condition?

YES: Check the power supply circuit of the occupant classification-ECU. Refer to Group 52B, SRS air bag Diagnosis P. 52B-306.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2.

DIAGNOSTIC ITEM 19: Diagnose when the scan tool cannot receive the data sent by A/C-ECU.

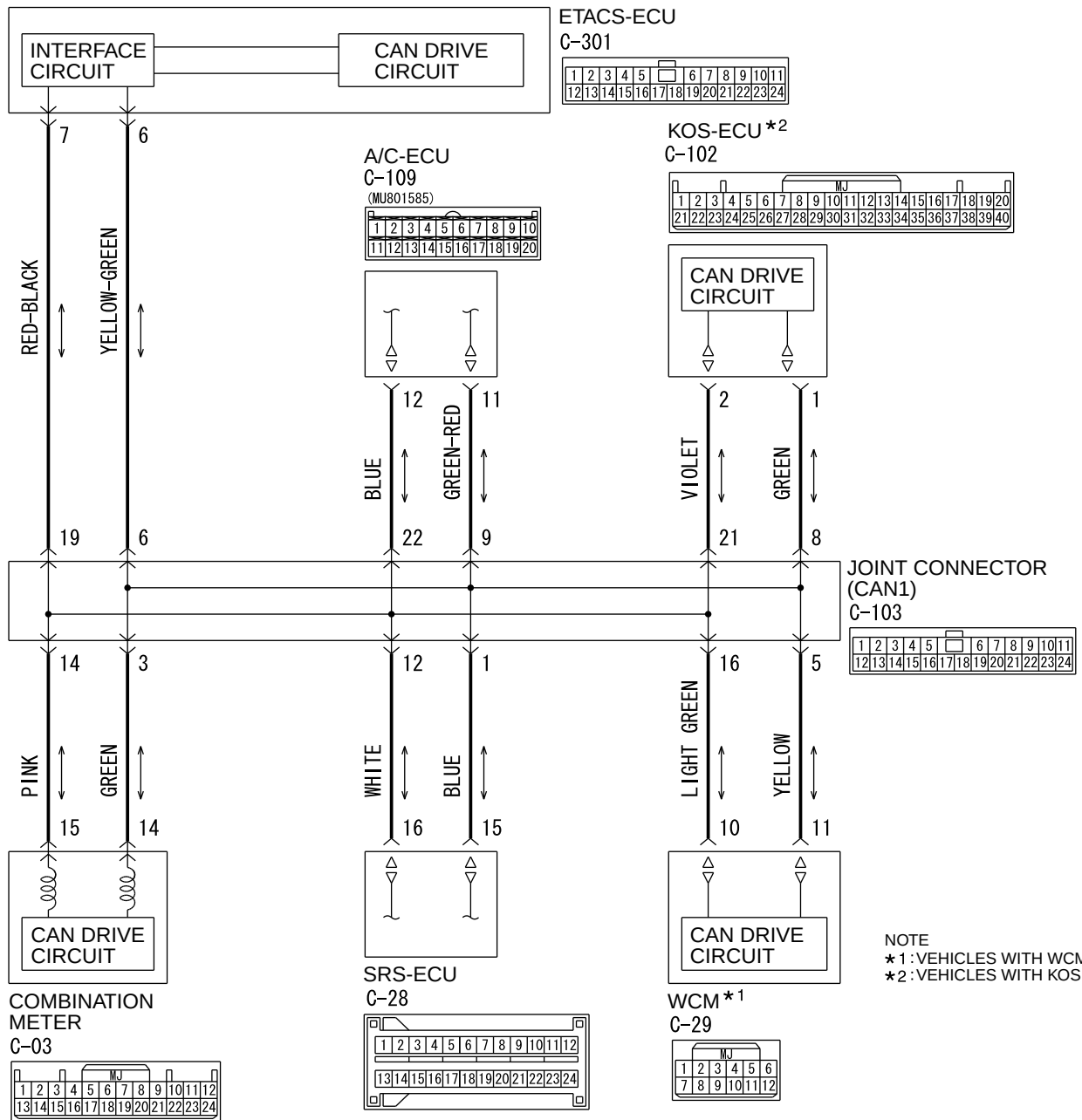
 CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

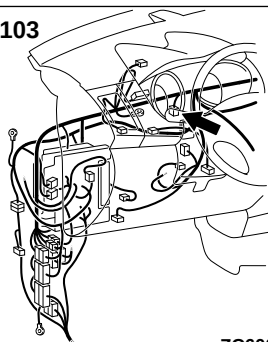
water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300029USA0000010000

CAN Communication Circuit

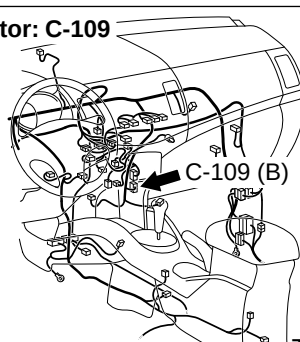


Connector: C-103



ZC6008750010

Connector: C-109



ZC6008760001

FUNCTION

If the scan tool MB991958 cannot communicate with the A/C-ECU, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the A/C-ECU, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), A/C-ECU connector improperly connected]

- Malfunction of the wiring harness [open circuit between the A/C-ECU connector and the joint connector (CAN1), power supply circuit to the A/C-ECU]
- Malfunction of the A/C-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q:Are joint connector (CAN1) C-103 and A/C-ECU connector C-109 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and A/C-ECU connector C-301, and check the wiring harness.

DIAGNOSIS

- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.9) and A/C-ECU connector C-109 (terminal No.11)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.22) and A/C-ECU connector C-109 (terminal No.12)

Q: Is the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109 in good condition?

YES: Check the power supply circuit of the A/C-ECU. Refer to Group 55A, Diagnosis P. 55A-63.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109.

DIAGNOSTIC ITEM 20: Diagnose when the scan tool cannot receive the data sent by radio and CD player or CD changer.

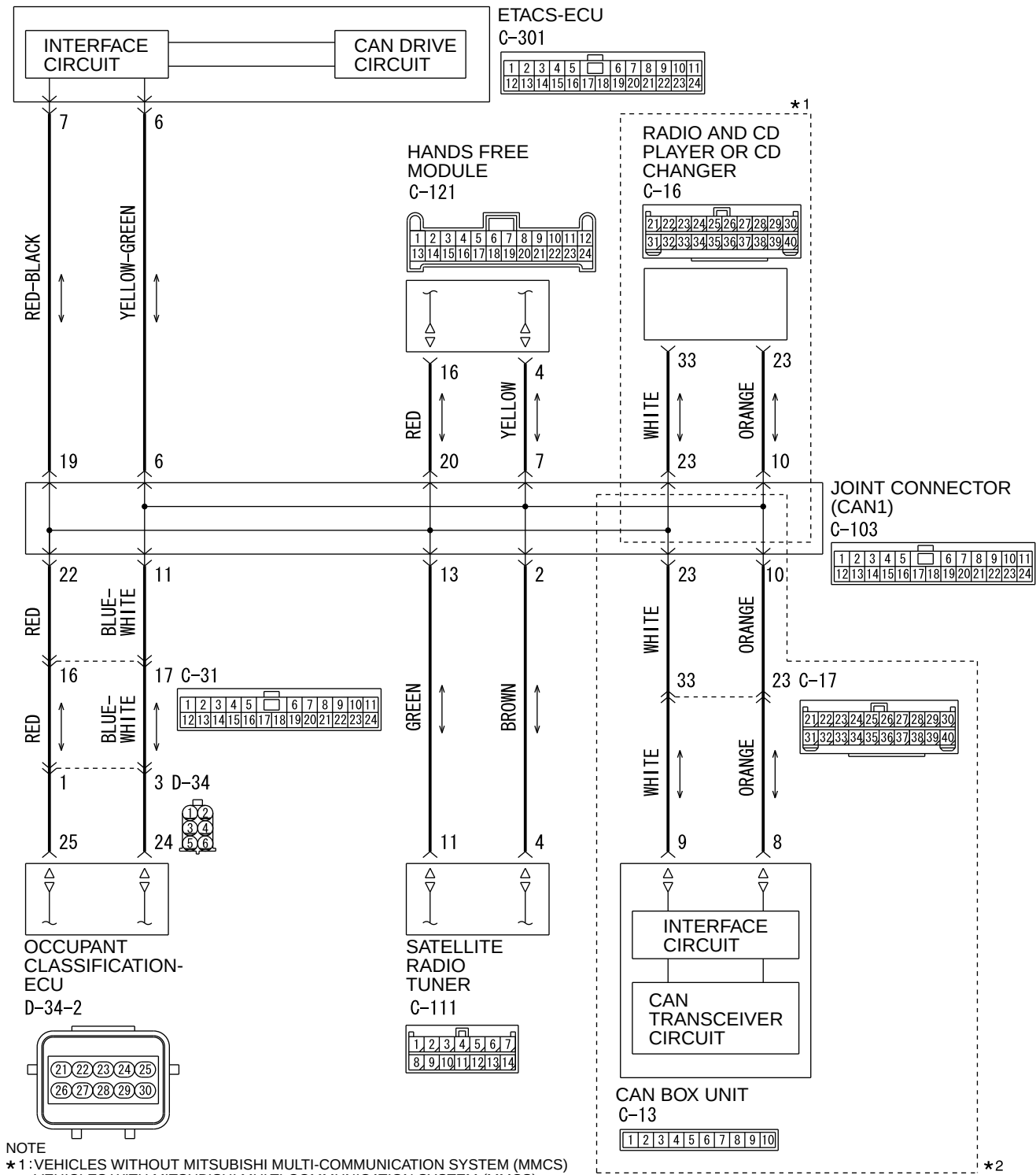
 CAUTION

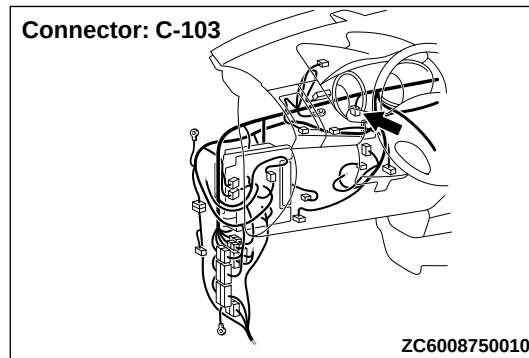
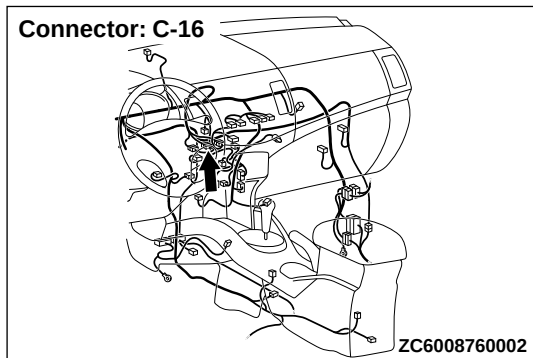
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300030USA0000010000

CAN Communication Circuit





FUNCTION

If the scan tool MB991958 cannot communicate with the radio and CD player or CD changer, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the radio and CD player or CD changer, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), radio and CD player or CD changer connector improperly connected]

- Malfunction of the wiring harness [open circuit between the radio and CD player or CD changer connector and the joint connector (CAN1), power supply circuit to the radio and CD player or CD changer]
- Malfunction of the radio and CD player or CD changer

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q:Are joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.10) and radio and CD player or CD changer connector C-16 (terminal No.23)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.23) and radio and CD player or CD changer connector C-16 (terminal No.33)

Q: Is the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16 in good condition?

YES: Check the power supply circuit of the radio and CD player or CD changer. Refer to Group 54B, Audio and Navigation System – Troubleshooting P.54B-18.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16.

DIAGNOSTIC ITEM 21: Diagnose when the scan tool cannot receive the data sent by CAN box unit.

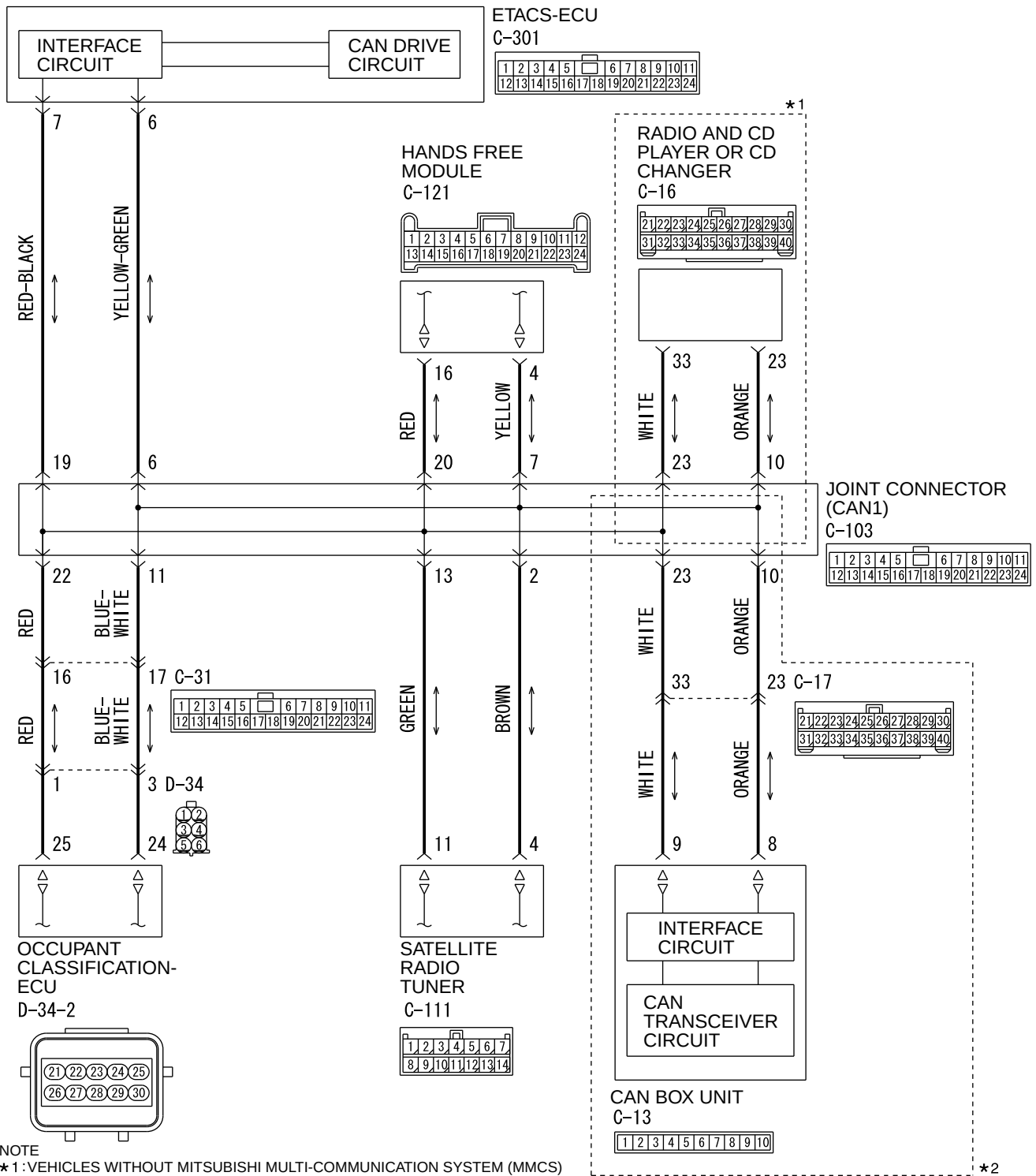
⚠ CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

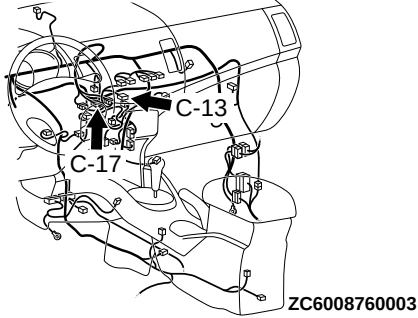
water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300031USA0000010000

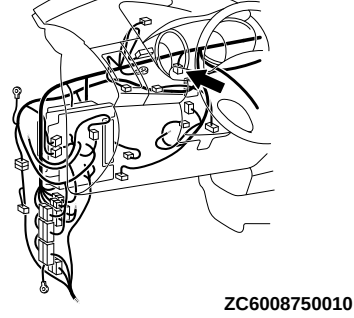
CAN Communication Circuit



Connectors: C-13, C-17



Connector: C-103



FUNCTION

If the scan tool MB991958 cannot communicate with the CAN box unit, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the CAN box unit, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), CAN box unit connector improperly connected]

- Malfunction of the wiring harness [open circuit between the CAN box unit connector and the joint connector (CAN1), power supply circuit to the CAN box unit]
- Malfunction of the CAN box unit

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103, CAN box unit connector C-13 and intermediate connector C-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q:Are joint connector (CAN1) C-103, CAN box unit connector C-13 and intermediate connector C-17 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

-
- (1) Disconnect joint connector (CAN1) C-103 and CAN box unit connector C-301, and check the wiring harness.
 - (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.10) and CAN box unit connector C-13 (terminal No.8)
 - (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.23) and CAN box unit connector C-13 (terminal No.9)

Q: Is the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13 in good condition?

YES: Check the power supply circuit of the CAN box unit. Refer to Group 54B, Diagnosis <MMCS> P. 54B-119.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13.

DIAGNOSTIC ITEM 22: Diagnose when the scan tool cannot receive the data sent by satellite radio tuner.

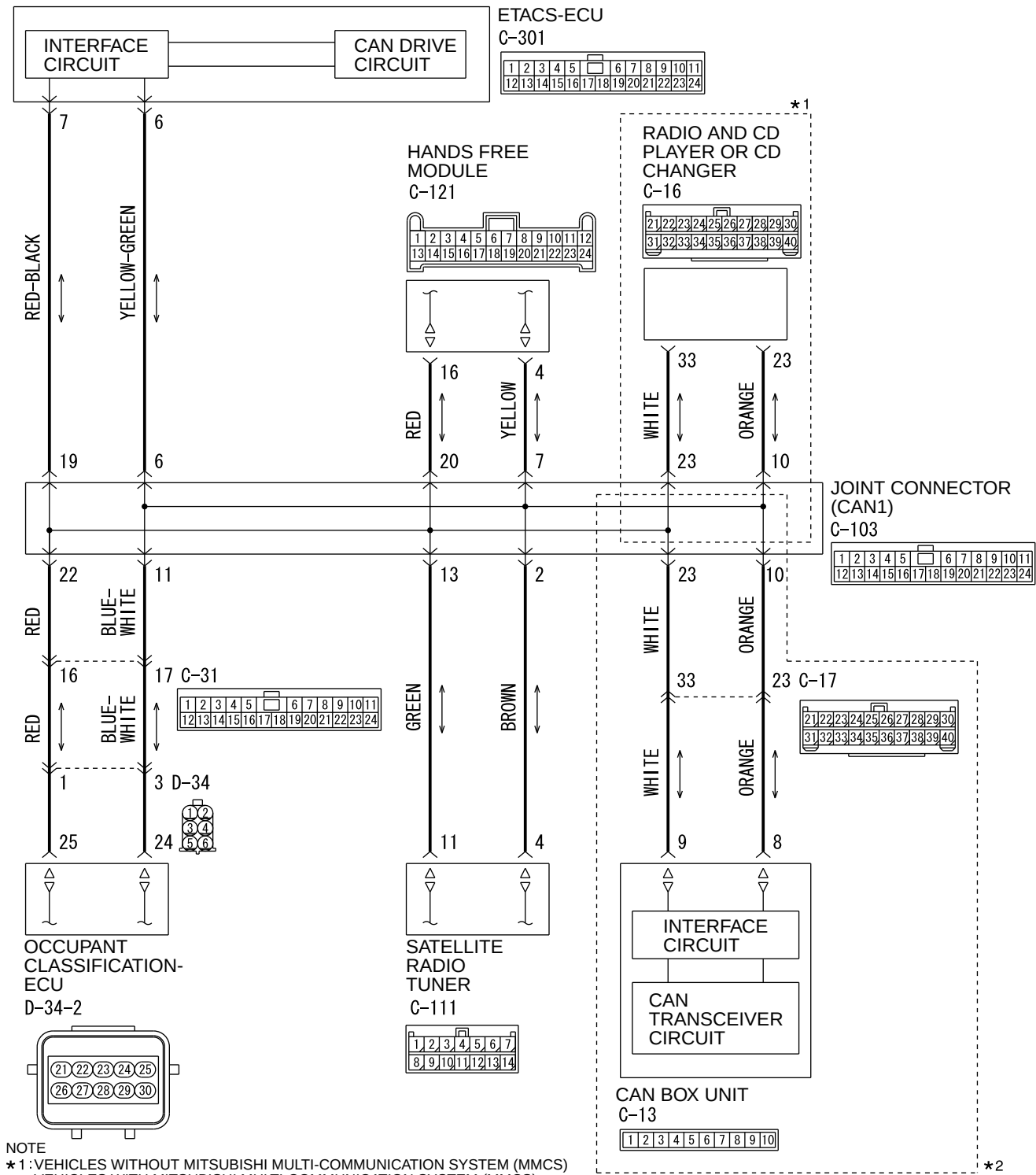
CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

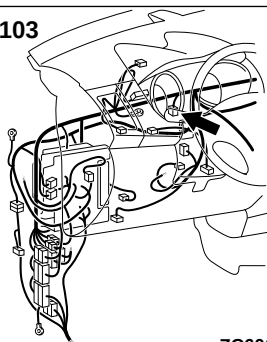
water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300032USA0000010000

CAN Communication Circuit

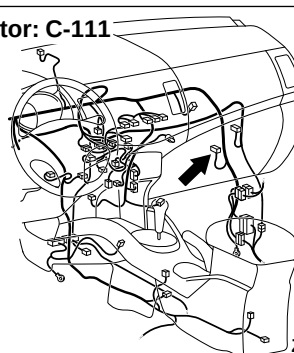


Connector: C-103



ZC6008750010

Connector: C-111



ZC6008760004

FUNCTION

If the scan tool MB991958 cannot communicate with the satellite radio tuner, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the satellite radio tuner, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), satellite radio tuner connector improperly connected]
- Malfunction of the wiring harness [open circuit between the satellite radio tuner connector and the joint connector (CAN1), power supply circuit to the satellite radio tuner]
- Malfunction of the satellite radio tuner

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and satellite radio tuner connector C-111 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103 and satellite radio tuner connector C-111 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and satellite radio tuner connector C-111, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.2) and satellite radio tuner connector C-111 (terminal No.4)

- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.13) and satellite radio tuner connector C-111 (terminal No.11)

Q: Is the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111 in good condition?

YES: Check the power supply circuit of the satellite radio tuner. Refer to Group 54B, Diagnosis <Satellite radio tuner> P. 54B-139.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111.

DIAGNOSTIC ITEM 23: Diagnose when the scan tool cannot receive the data sent by hands free module.

⚠ CAUTION

When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

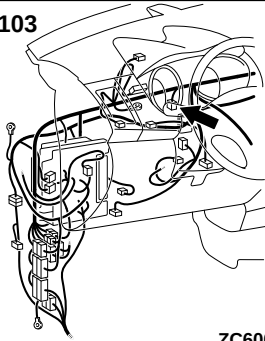
water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

M15408300033USA0000010000

ETACS-ECU
C-301

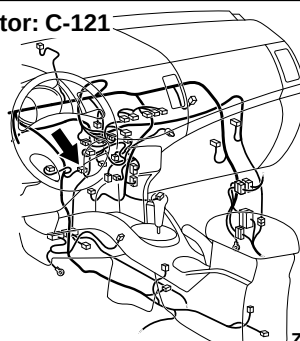


Connector: C-103



ZC6008750010

Connector: C-121



ZC6008760005

FUNCTION

If the scan tool MB991958 cannot communicate with the hands free module, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is not set for the hands free module, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1), hands free module connector improperly connected]
- Malfunction of the wiring harness [open circuit between the hands free module connector and the joint connector (CAN1), power supply circuit to the hands free module]
- Malfunction of the hands free module

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and hands free module connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103 and hands free module connector C-121 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and hands free module connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.7) and hands free module connector C-121 (terminal No.4)

-
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.20) and hands free module connector C-121 (terminal No.16)

Q: Is the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121 in good condition?

YES: Check the power supply circuit of the hands free module. Refer to Group 54Ae, Hands-free cellular phone system - Diagnosis P.54Ae-33.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121.

DIAGNOSTIC ITEM 24: Short to power supply or ground in both CAN_H and CAN_L lines.

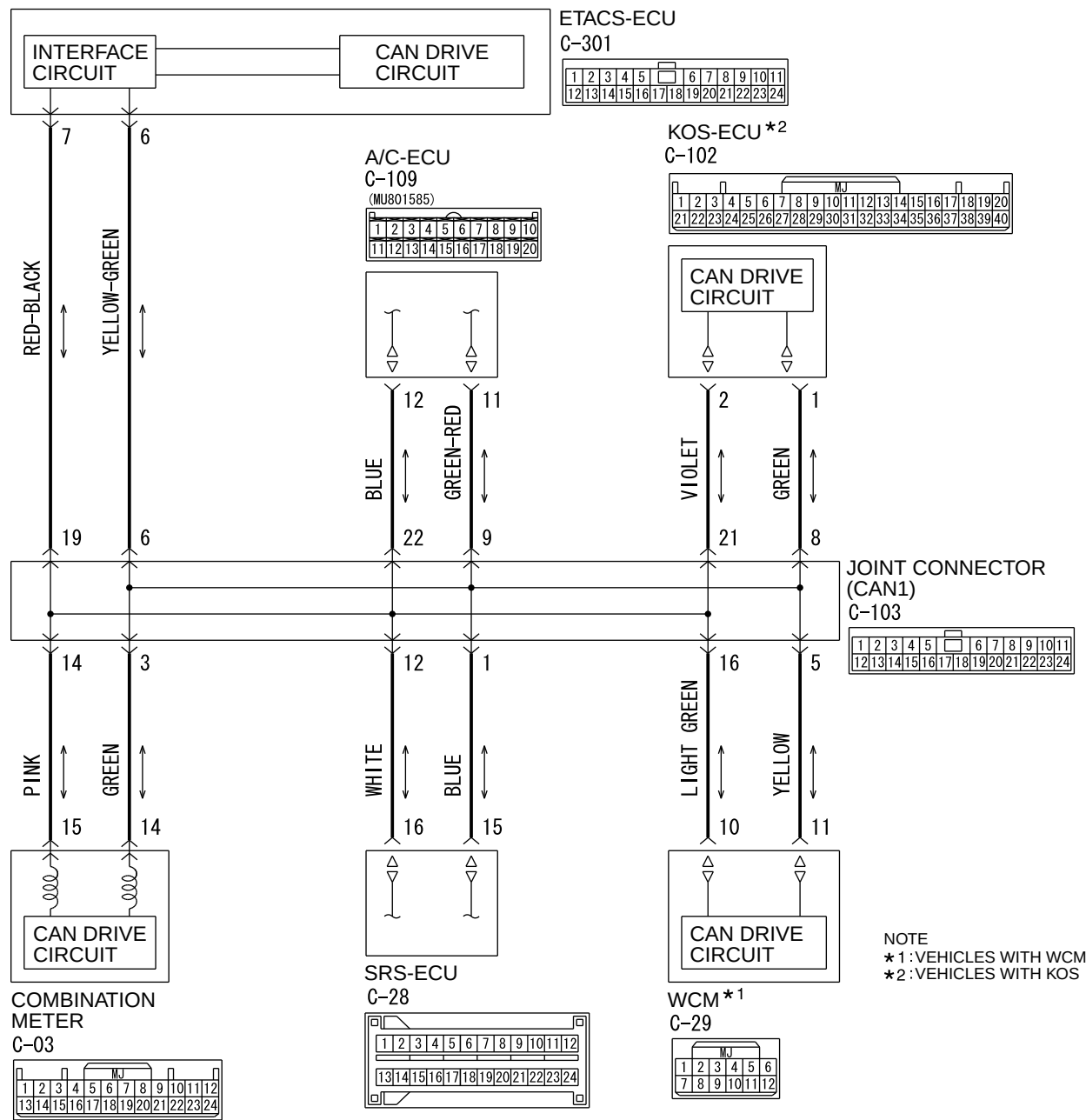
M15408300034USA0000010000

⚠ CAUTION

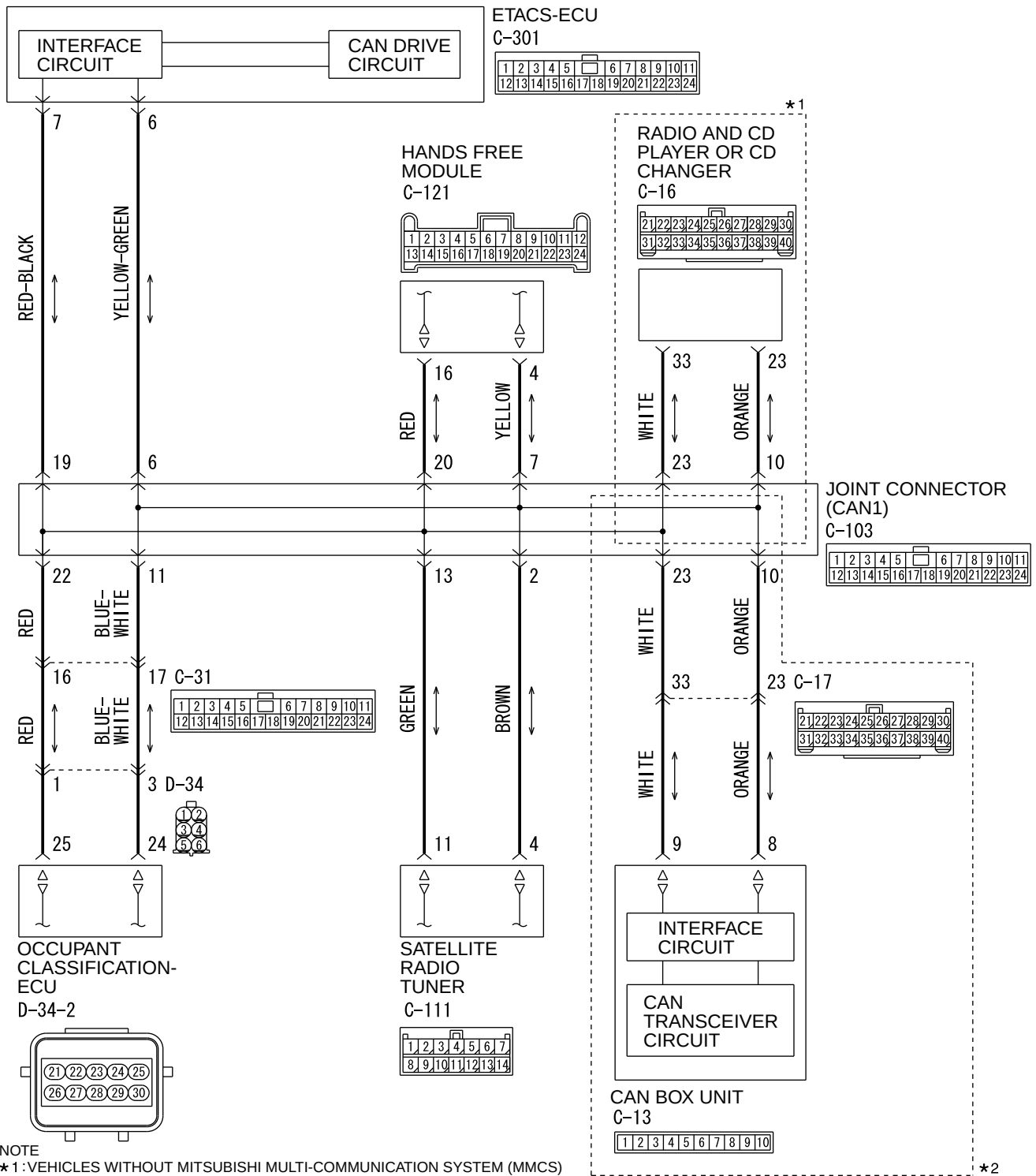
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

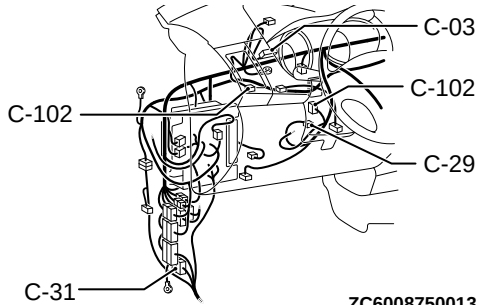
CAN Communication Circuit



CAN Communication Circuit

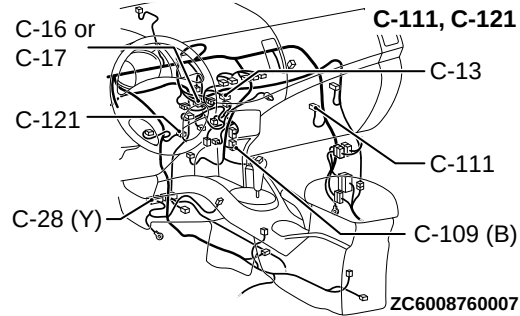


Connectors: C-03, C-29, C-31, C-102, C-103



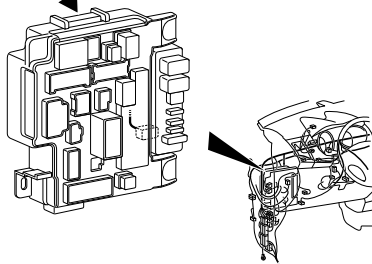
ZC6008750013

Connectors: C-13, C-16, C-17, C-28, C-109, C-111, C-121



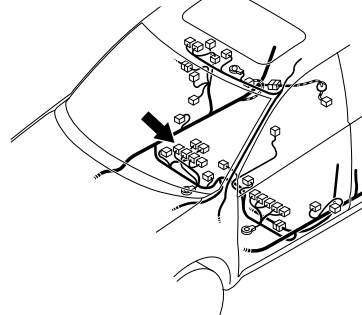
ZC6008760007

Connector: C-301



ZC6008780000

Connector: D-34



ZC6008790000

FUNCTION

If a short to power supply or ground is present in both CAN_H and CAN_L lines, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is set for the ETACS-ECU, no communication is present through the CAN-B line, and diagnostic trouble code U0019 is set, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector (ETACS-ECU connector improperly connected)
- Malfunction of the wiring harness (CAN_H and CAN_L lines are short to power supply or ground on the CAN-B line.)
- Malfunction of ECUs

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the wiring harness between ETACS-ECU connector C-301 and body ground for a short to power supply. Measure the voltage at ETACS-ECU connector C-301.

⚠ CAUTION

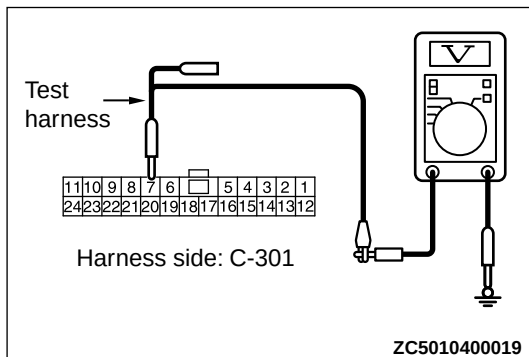
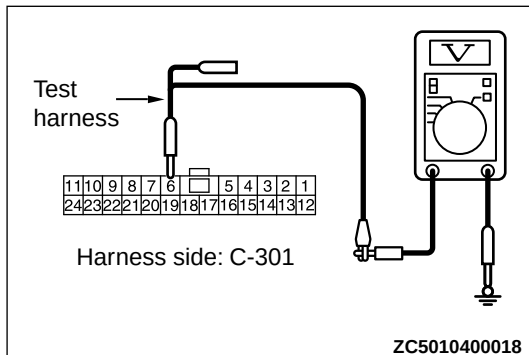
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect ETACS-ECU connector C-301, and measure the voltage at the wiring harness side of ETACS-ECU connector.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between ETACS-ECU connector terminal 6 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between ETACS-ECU connector terminal 7 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

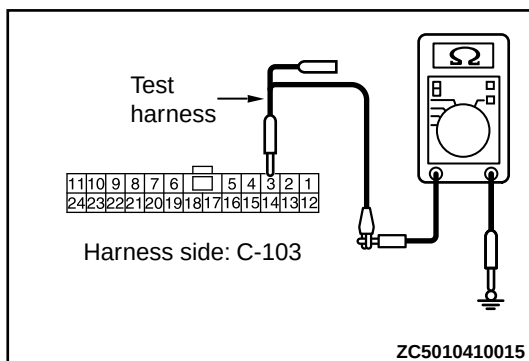
YES: Go to Step 2.

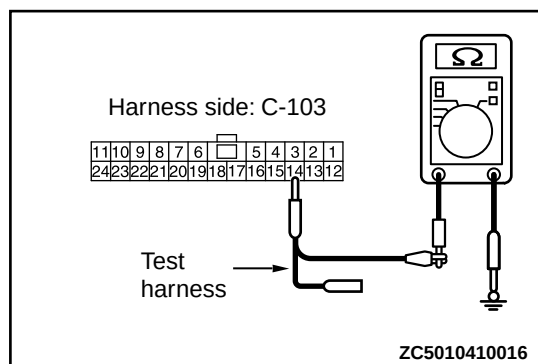
NO: Go to Step 13.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and measure the resistance at the wiring harness side of joint connector (CAN1).
- (2) Measure the resistance between joint connector (CAN1) terminal 3 and body ground.

OK: 1 kilohm or more





- (3) Measure the resistance between joint connector (CAN1) terminal 14 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles with KOS): Go to Step 3.

YES (vehicles with WCM): Go to Step 4.

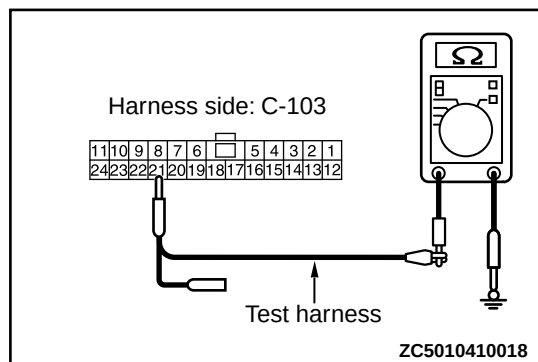
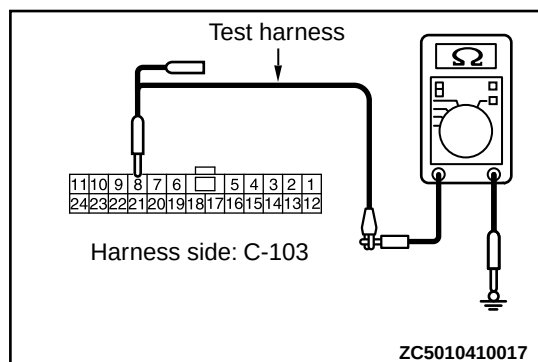
NO (vehicles with KOS or WCM): Go to Step 24.

STEP 3. Check the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 8 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 21 and body ground.

OK: 1 kilohm or more

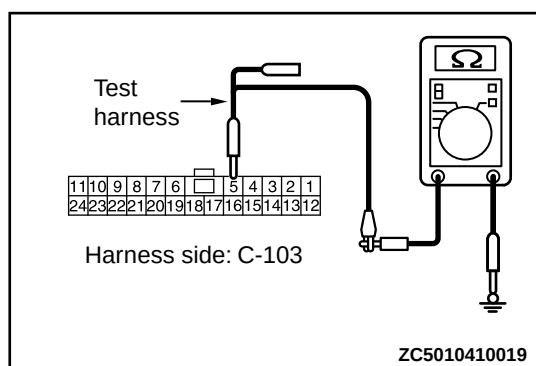
Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 5.

NO: Go to Step 25.

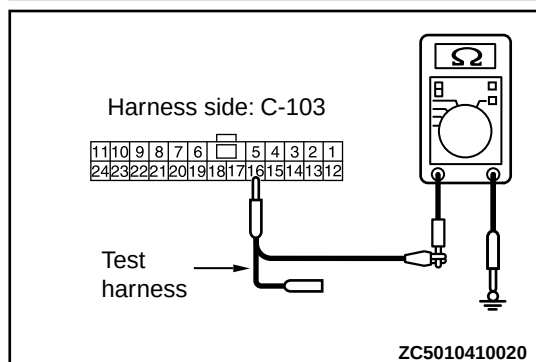
STEP 4. Check the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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



- (2) Measure the resistance between joint connector (CAN1) terminal 5 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 16 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 5.

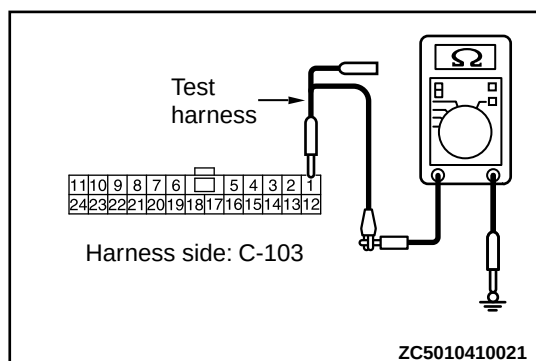
NO: Go to Step 26.

STEP 5. Check the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 1 and body ground.

OK: 1 kilohm or more



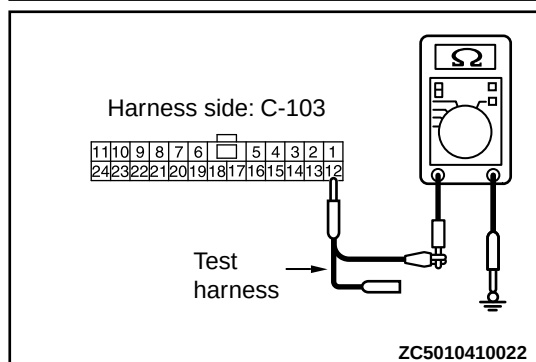
- (3) Measure the resistance between joint connector (CAN1) terminal 12 and body ground.

OK: 1 kilohm or more

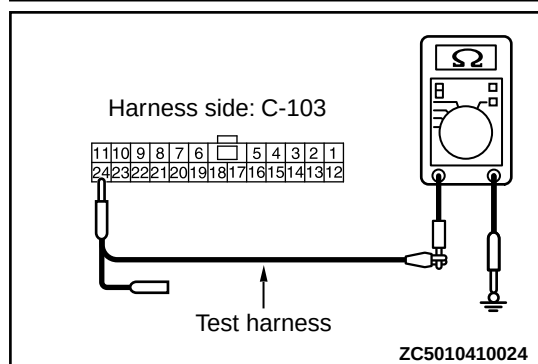
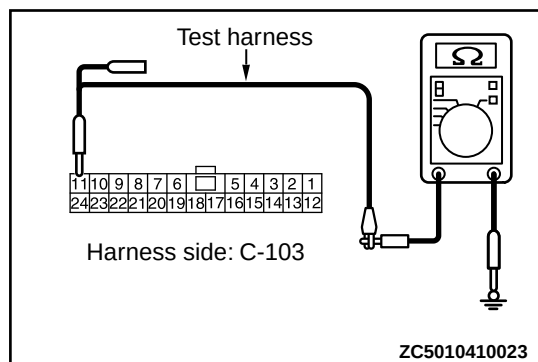
Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 6.

NO: Go to Step 27.



STEP 6. Check the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector



D-31-2 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

(2) Measure the resistance between joint connector (CAN1) terminal 11 and body ground.

OK: 1 kilohm or more

(3) Measure the resistance between joint connector (CAN1) terminal 24 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles without hands free system): Go to Step 8.

YES (vehicles with hands free system): Go to Step 7.

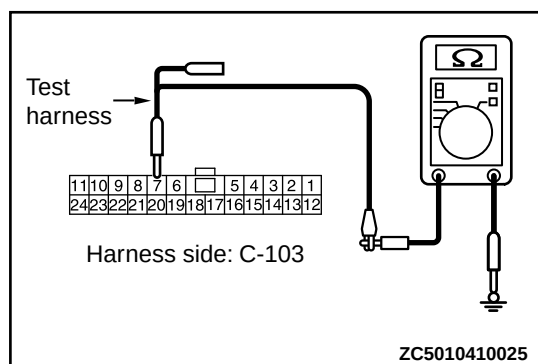
NO: Go to Step 28.

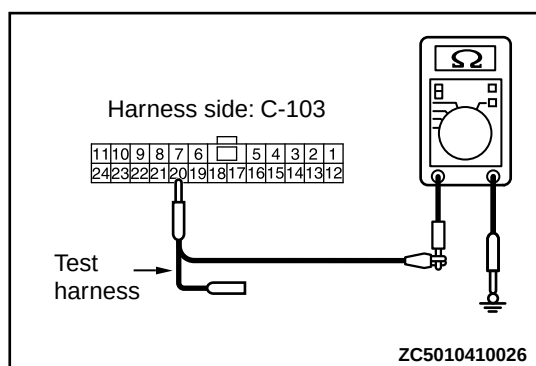
STEP 7. Check the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

(2) Measure the resistance between joint connector (CAN1) terminal 7 and body ground.

OK: 1 kilohm or more





- (3) Measure the resistance between joint connector (CAN1) terminal 20 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 8.

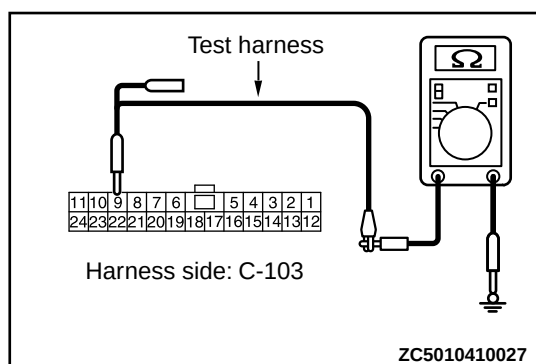
NO: Go to Step 29.

STEP 8. Check the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 9 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 22 and body ground.

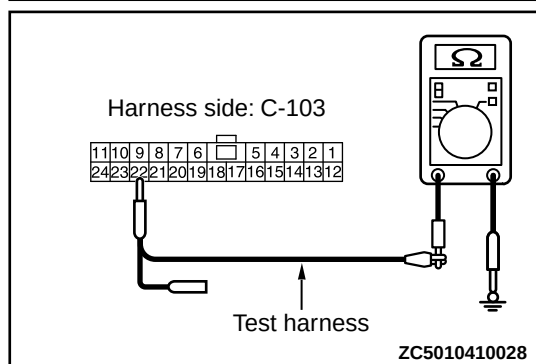
OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES(vehicles without MMCS): Go to Step 9.

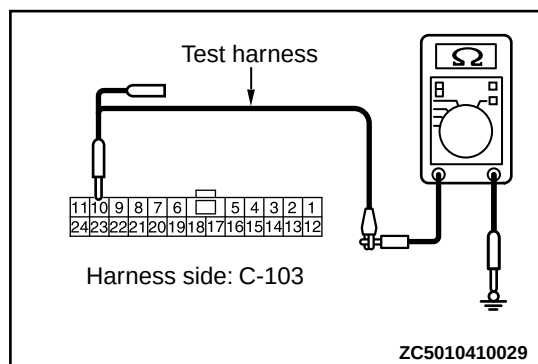
YES(vehicles with MMCS): Go to Step 10.

NO: Go to Step 30.



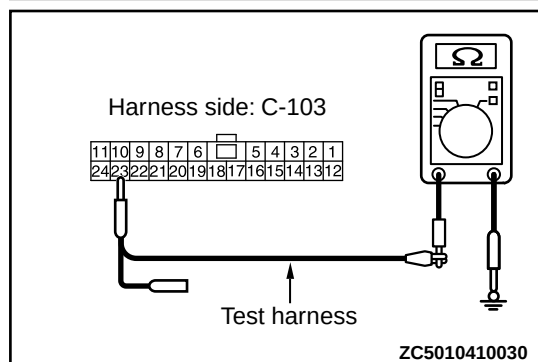
STEP 9. Check the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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



- (2) Measure the resistance between joint connector (CAN1) terminal 10 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 23 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles without satellite radio): Go to Step 12.

YES (vehicles with satellite radio): Go to Step 11.

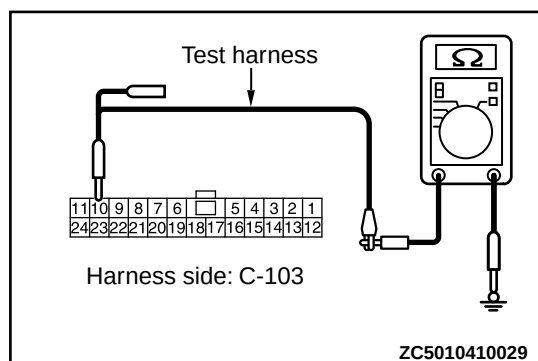
NO: Go to Step 31.

STEP 10. Check the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 10 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 23 and body ground.

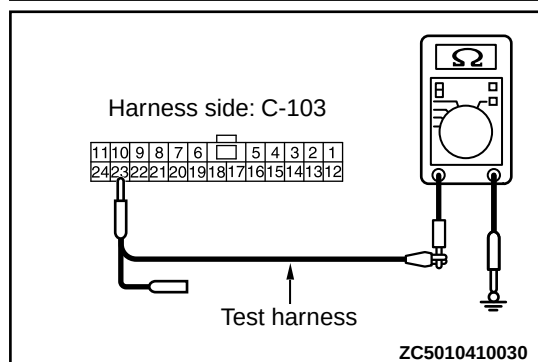
OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles without satellite radio): Go to Step 12.

YES (vehicles with satellite radio): Go to Step 11.

NO: Go to Step 32.



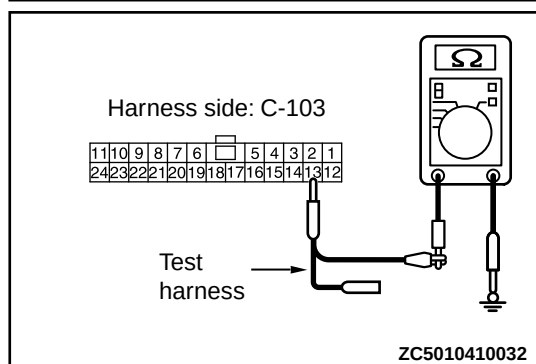
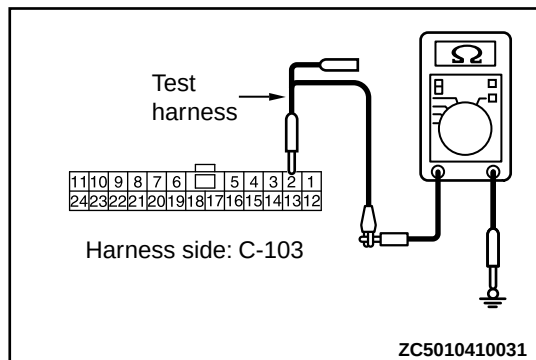
STEP 11. Check the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111 for

a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 2 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 13 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 12.

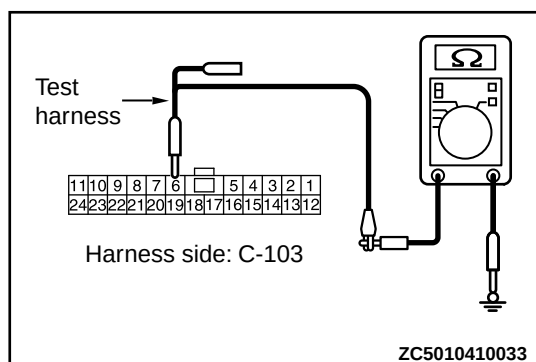
NO: Go to Step 33.

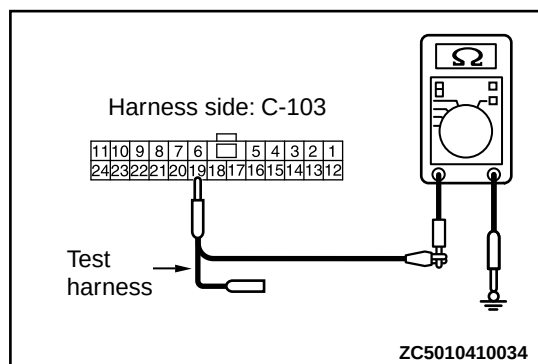
STEP 12. Check the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1) and ETACS-ECU connector C-301, and measure the resistance at the wiring harness side of joint connector (CAN1).

- (2) Measure the resistance between joint connector (CAN1) terminal 6 and body ground.

OK: 1 kilohm or more





- (3) Measure the resistance between joint connector (CAN1) terminal 19 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 34.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

STEP 13. Check the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

⚠ CAUTION

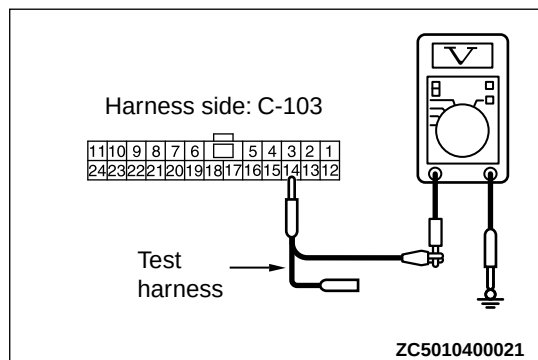
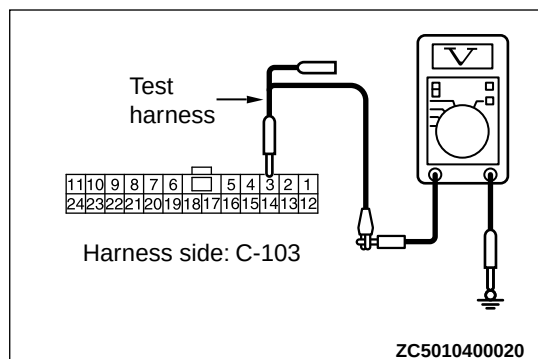
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 3 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 14 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES(vehicles with KOS): Go to Step 14.

YES(vehicles with WCM): Go to Step 15.

NO(vehicles with KOS and WCM): Go to Step 24.

STEP 14. Check the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102 for a short to

power supply. Measure the voltage at joint connector (CAN1) C-103.

⚠ CAUTION

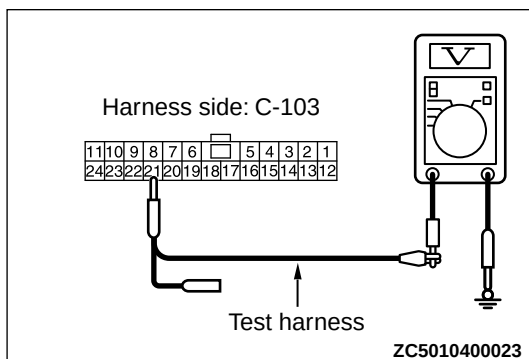
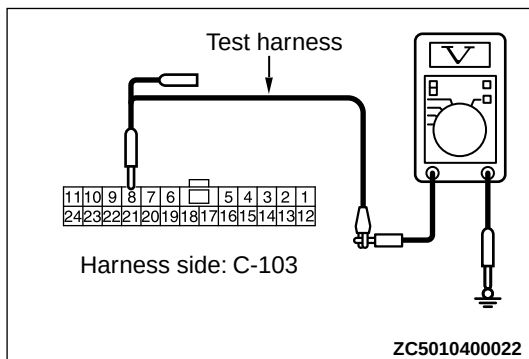
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 8 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 21 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 16.

NO: Go to Step 25.

STEP 15. Check the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

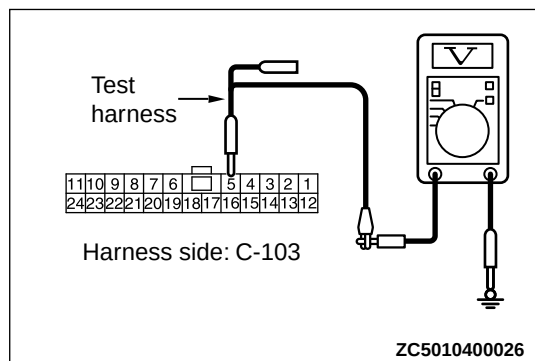
⚠ CAUTION

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

⚠ CAUTION

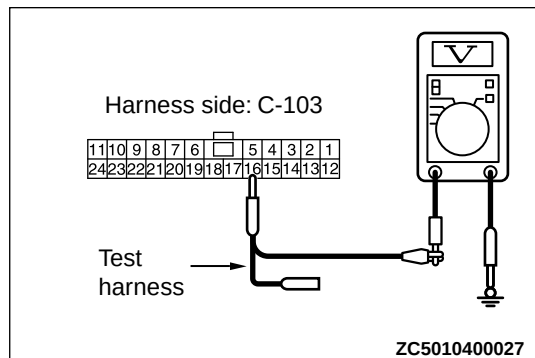
The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.



- (3) Measure the voltage between joint connector (CAN1) terminal 5 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 16 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 16.

NO: Go to Step 26.

STEP 16. Check the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

⚠ CAUTION

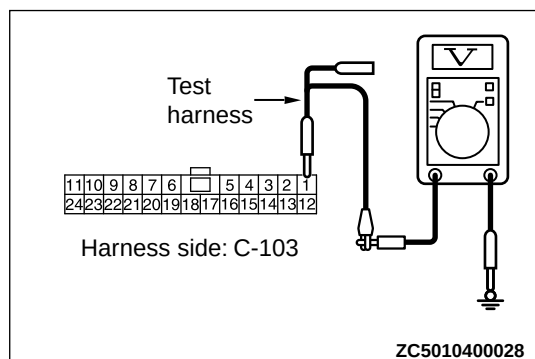
A digital multimeter should be used. For details refer to P. 54D-8.

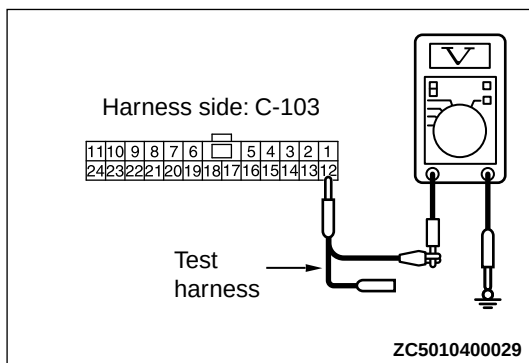
⚠ CAUTION

The test wiring harness should be used. For details refer to P. 54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 1 and body ground.

OK: 4.7 volts or less





- (4) Measure the voltage between joint connector (CAN1) terminal 12 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 17.

NO: Go to Step 27.

STEP 17. Check the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

⚠ CAUTION

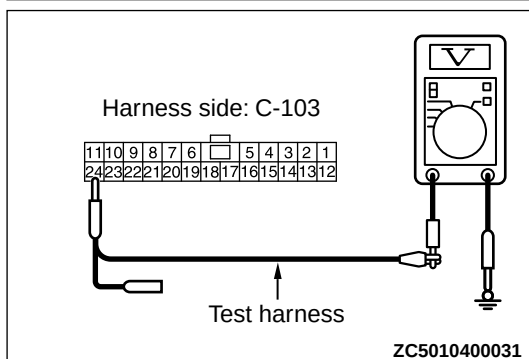
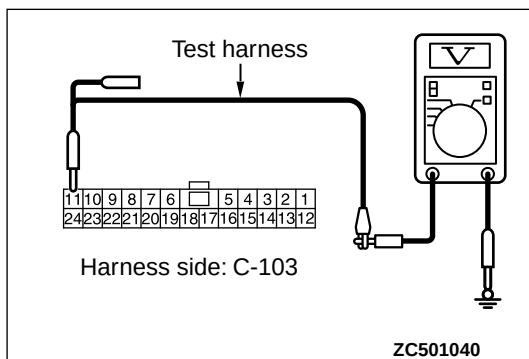
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P. 54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 11 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 24 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES(vehicles without hands free system): Go to Step 19.

YES(vehicles with hands free system): Go to Step 18.

NO: Go to Step 28.

STEP 18. Check the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121 for a

short to power supply. Measure the voltage at joint connector (CAN1) C-103.

⚠ CAUTION

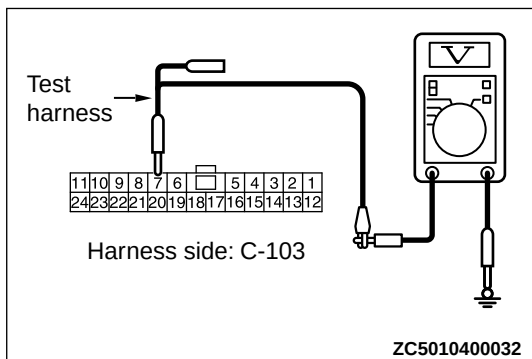
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

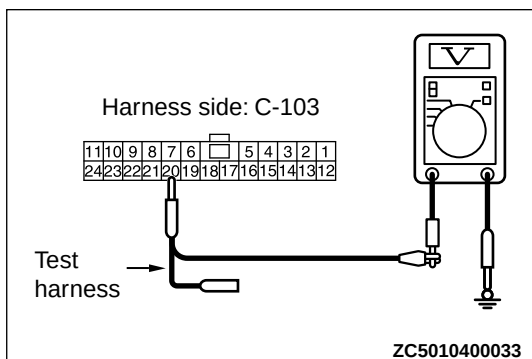
- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 7 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 20 and body ground.

OK: 4.7 volts or less



Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 19.

NO: Go to Step 29.

STEP 19. Check the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

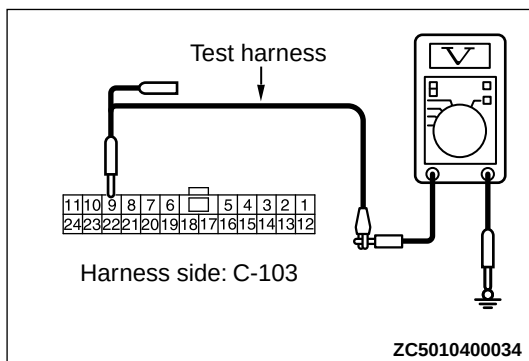
⚠ CAUTION

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

⚠ CAUTION

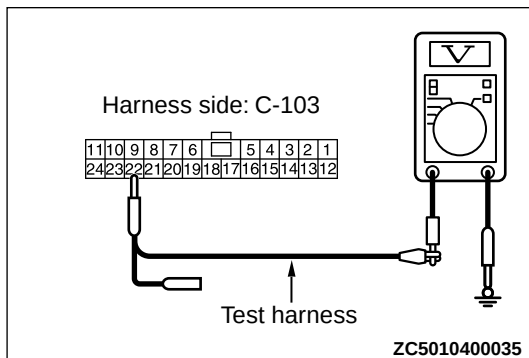
The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.



- (3) Measure the voltage between joint connector (CAN1) terminal 9 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 22 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES (vehicles without MMCS): Go to Step 20.

YES (vehicles with MMCS): Go to Step 21.

NO: Go to Step 30.

STEP 20. Check the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

CAUTION

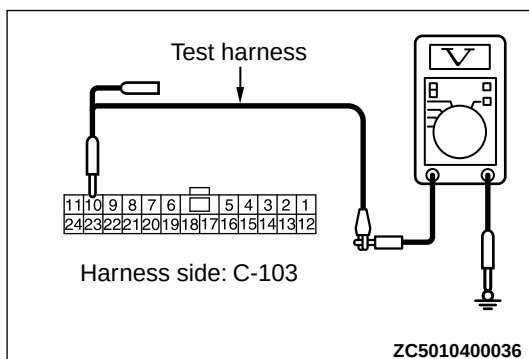
A digital multimeter should be used. For details refer to P. 54D-8.

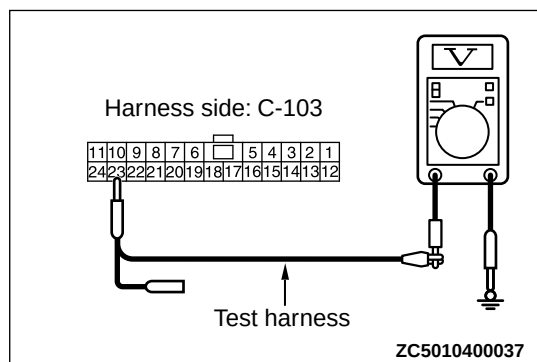
CAUTION

The test wiring harness should be used. For details refer to P. 54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 10 and body ground.

OK: 4.7 volts or less





- (4) Measure the voltage between joint connector (CAN1) terminal 23 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES (vehicles without satellite radio): Go to Step 23.

YES (vehicles with satellite radio): Go to Step 22.

NO: Go to Step 31.

STEP 21. Check the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

⚠ CAUTION

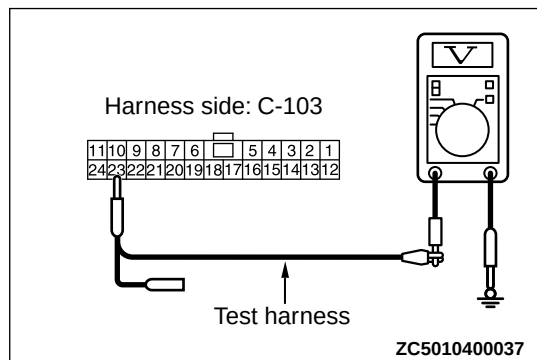
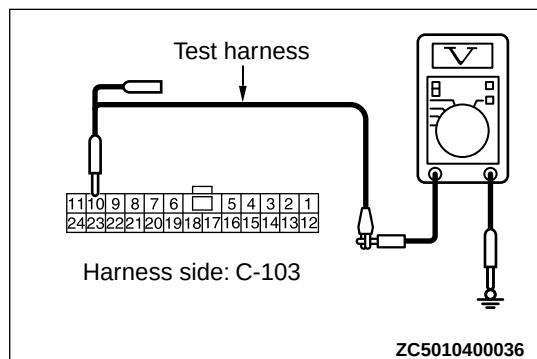
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P. 54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 10 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 23 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES (vehicles without satellite radio): Go to Step 23.

YES (vehicles with satellite radio): Go to Step 22.

NO: Go to Step 32.

STEP 22. Check the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111 for

a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

⚠ CAUTION

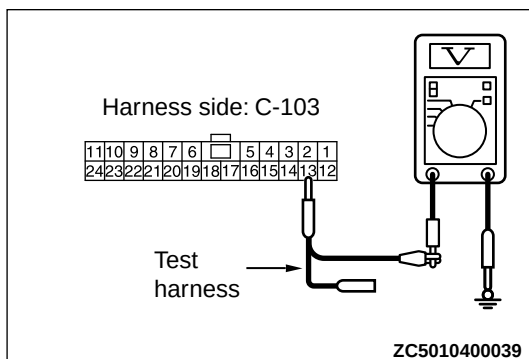
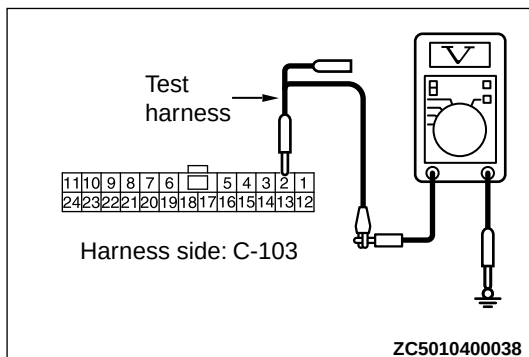
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 2 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 13 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 23.

NO: Go to Step 33.

STEP 23. Check the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

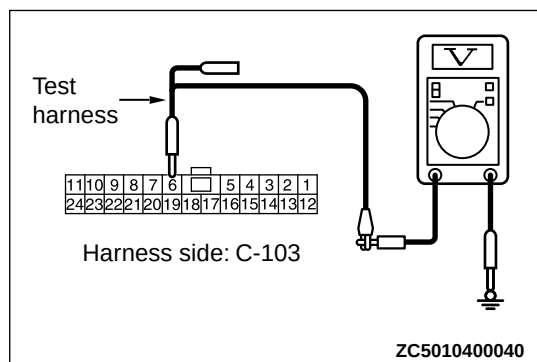
⚠ CAUTION

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

⚠ CAUTION

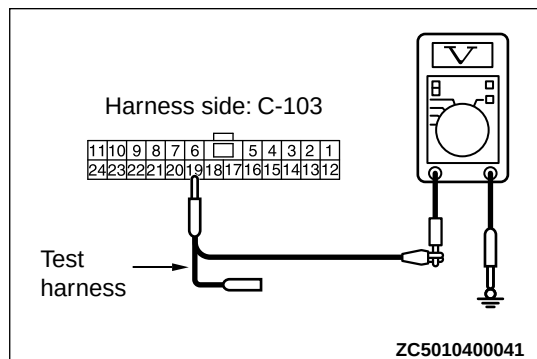
The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) and ETACS-ECU connector C-301, and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.



- (3) Measure the voltage between joint connector (CAN1) terminal 6 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 19 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 34.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

STEP 24. Using scan tool MB991958, diagnose the CAN bus line. (checking the combination meter for internal failure)

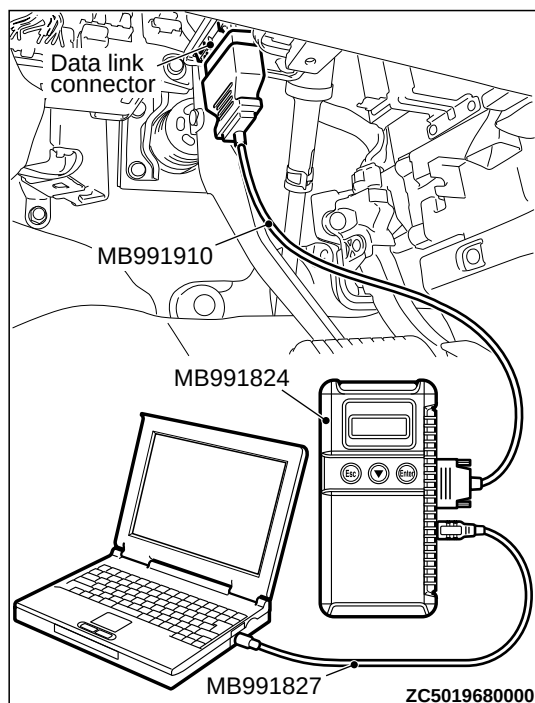
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

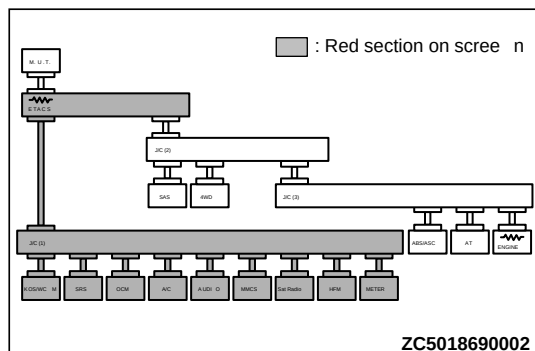
⚠ CAUTION

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) Disconnect combination meter connector C-03.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03.

NO: Check combination meter connector C-03, and repair if necessary. If the combination meter connector is in good condition, replace the combination meter.

STEP 25. Using scan tool MB991958, diagnose the CAN bus line. (checking the KOS-ECU for internal failure)

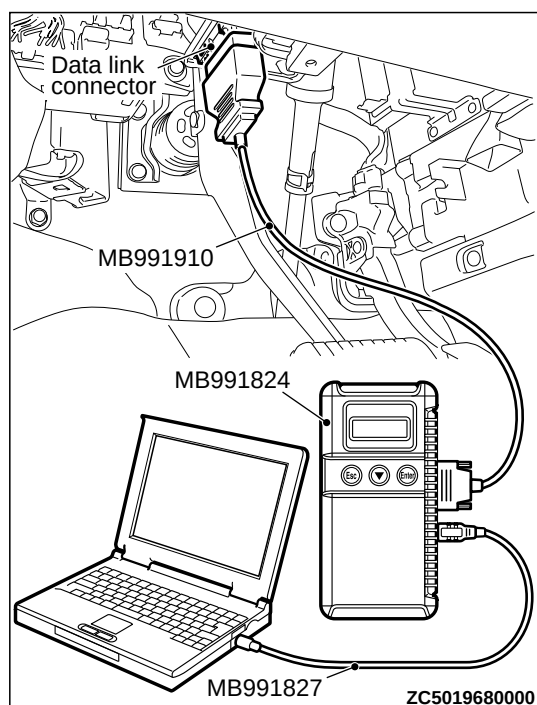
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

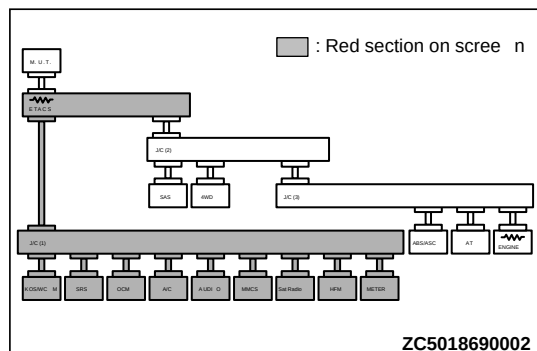
CAUTION

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) Disconnect KOS-ECU connector C-102.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102.

NO: Check KOS-ECU connector C-102, and repair if necessary. If the KOS-ECU connector is in good condition, replace the KOS-ECU.

STEP 26. Using scan tool MB991958, diagnose the CAN bus line. (checking the WCM for internal failure)

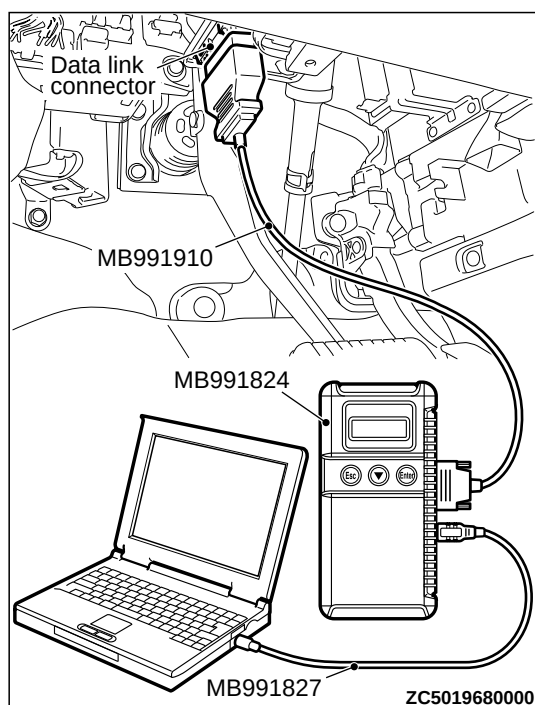
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

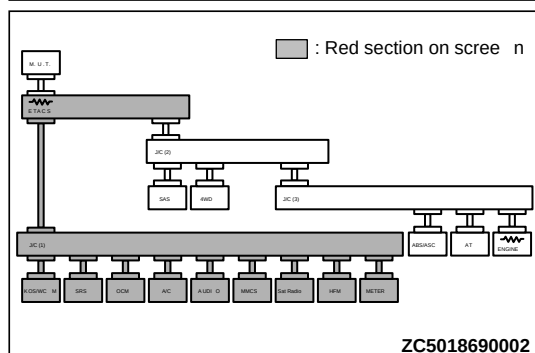
CAUTION

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) Disconnect WCM connector C-29.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29.

NO: Check WCM connector C-29, and repair if necessary. If the WCM connector is in good condition, replace the WCM.

STEP 27. Using scan tool MB991958, diagnose the CAN bus line. (checking the SRS-ECU for internal failure)

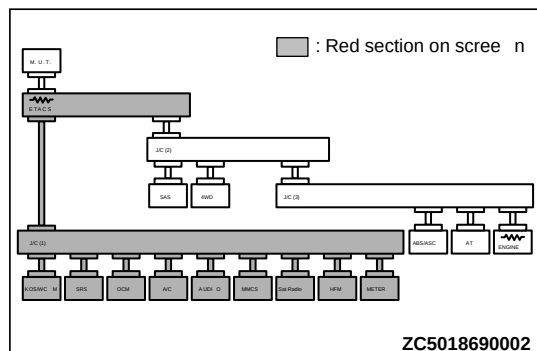
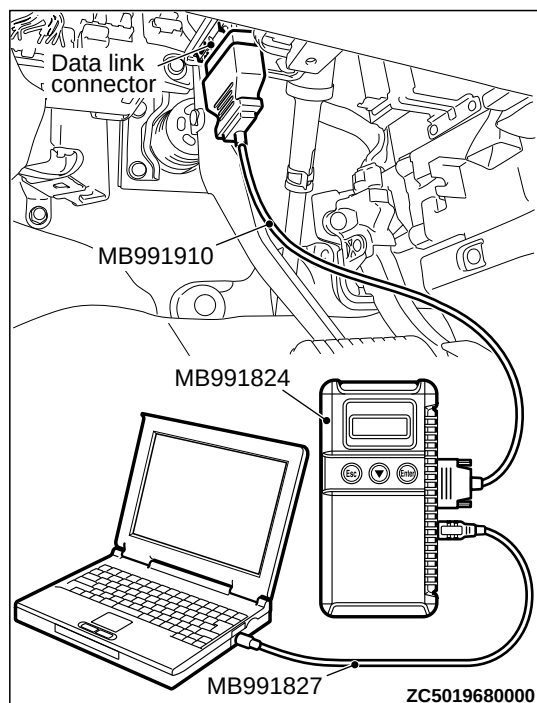
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

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) Disconnect SRS-ECU connector C-28.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.

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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28.

NO: Check SRS-ECU connector C-28, and repair if necessary. If the SRS-ECU connector is in good condition, replace the SRS-ECU.

STEP 28. Using scan tool MB991958, diagnose the CAN bus line. (checking the occupant classification-ECU for internal failure)

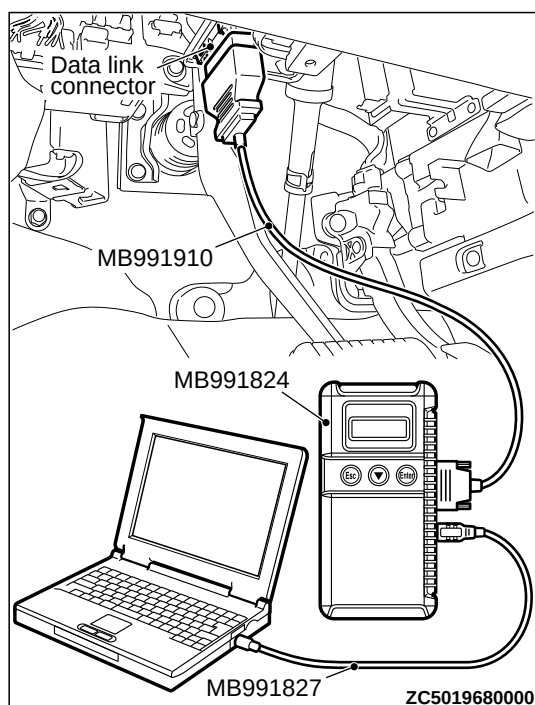
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

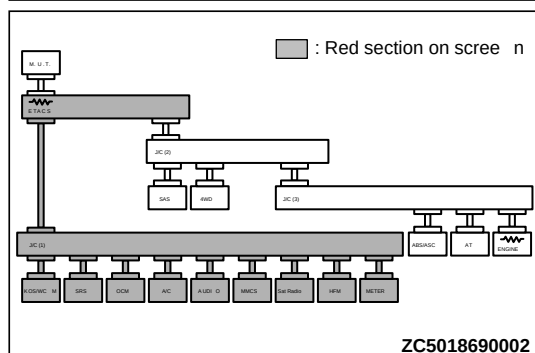
CAUTION

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) Disconnect occupant classification-ECU connector D-31-2.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2.

NO: Check occupant classification-ECU connector D-31-2, and repair if necessary. If the occupant classification-ECU connector is in good condition, replace the occupant classification-ECU.

STEP 29. Using scan tool MB991958, diagnose the CAN bus line. (checking the hands free module for internal failure)

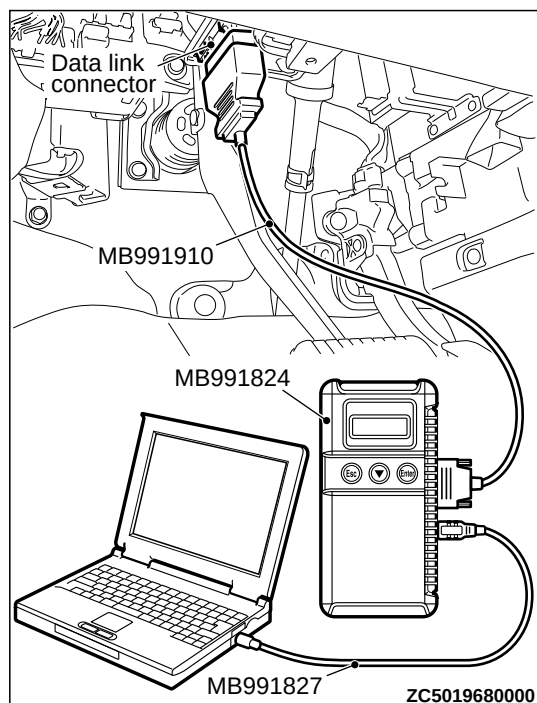
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

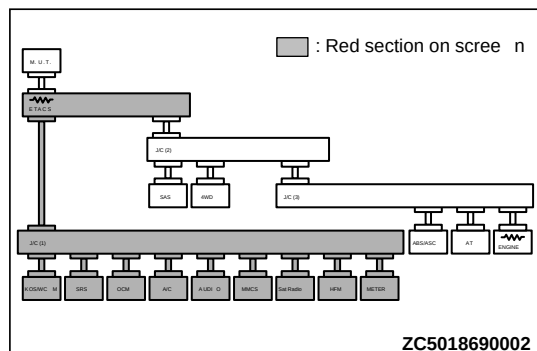
CAUTION

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) Disconnect hands free module connector C-121.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121.

NO: Check hands free module connector C-121, and repair if necessary. If the hands free module connector is in good condition, replace the hands free module.

STEP 30. Using scan tool MB991958, diagnose the CAN bus line. (checking the A/C-ECU for internal failure)

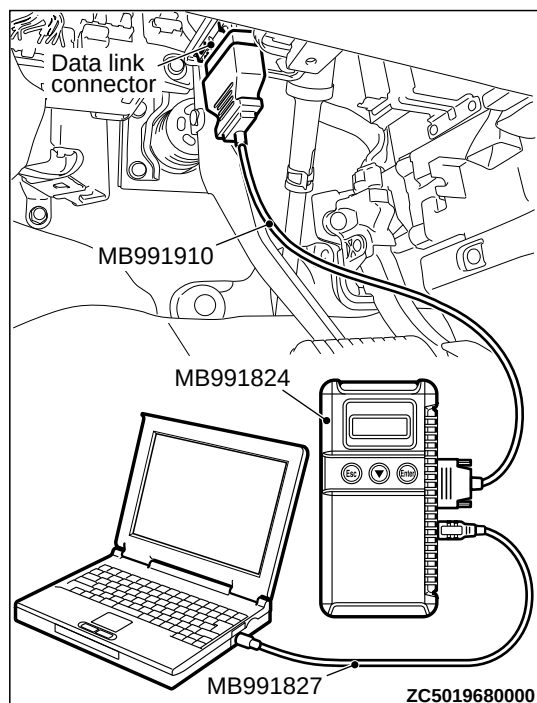
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

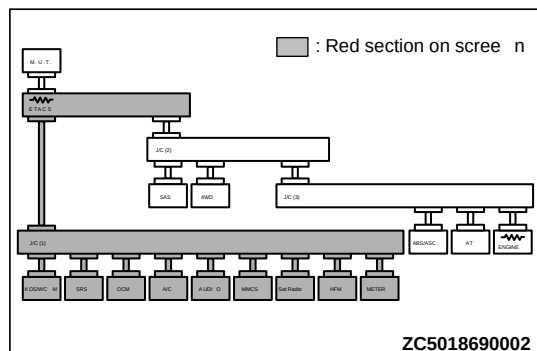
CAUTION

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) Disconnect A/C-ECU connector C-109.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16.

NO: Check radio and CD player or CD changer connector C-16, and repair if necessary. If the radio and CD player or CD changer connector is in good condition, replace the radio and CD player or CD changer.

STEP 32. Using scan tool MB991958, diagnose the CAN bus line. (checking the CAN box unit for internal failure)

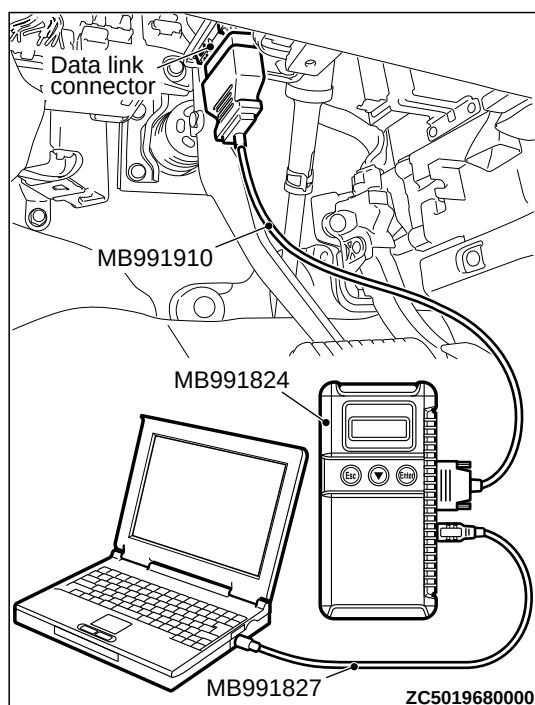
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

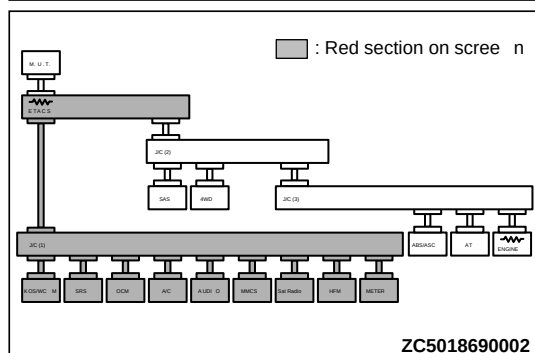
CAUTION

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) Disconnect CAN box unit connector C-13.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13.

NO: Check CAN box unit connector C-13, and repair if necessary. If the CAN box unit connector is in good condition, replace the CAN box unit.

STEP 33. Using scan tool MB991958, diagnose the CAN bus line. (checking the satellite radio tuner for internal failure)

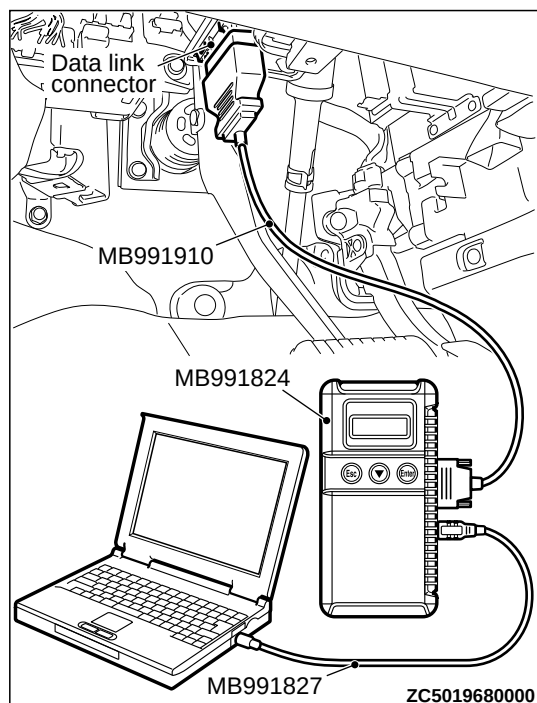
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

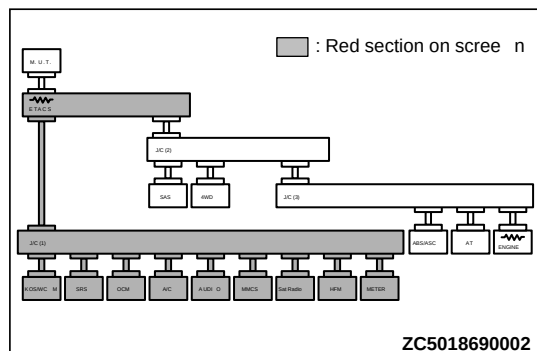
CAUTION

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) Disconnect satellite radio tuner connector C-111.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111.

NO: Check satellite radio tuner connector C-111, and repair if necessary. If the satellite radio tuner connector is in good condition, replace the satellite radio tuner.

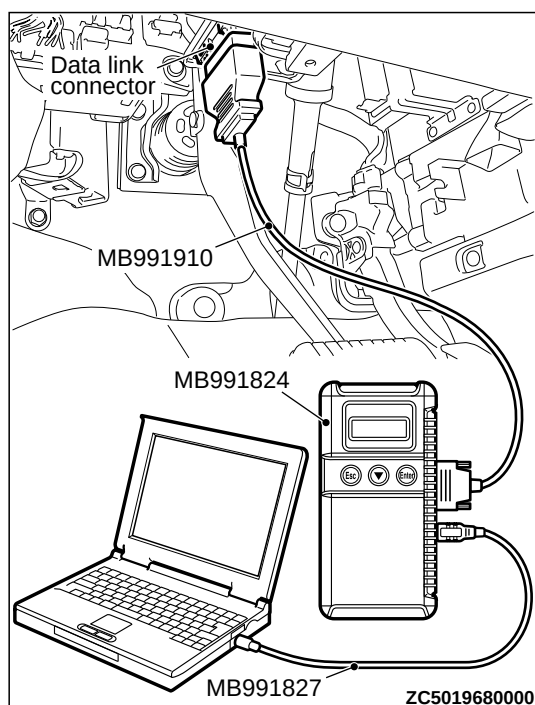
STEP 34. Using scan tool MB991958, diagnose the CAN bus line. (trouble symptom check)

CAUTION

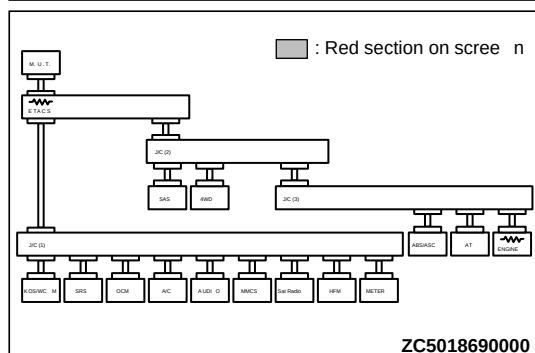
Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

NO: Check the ETACS-ECU connector C-301, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU.

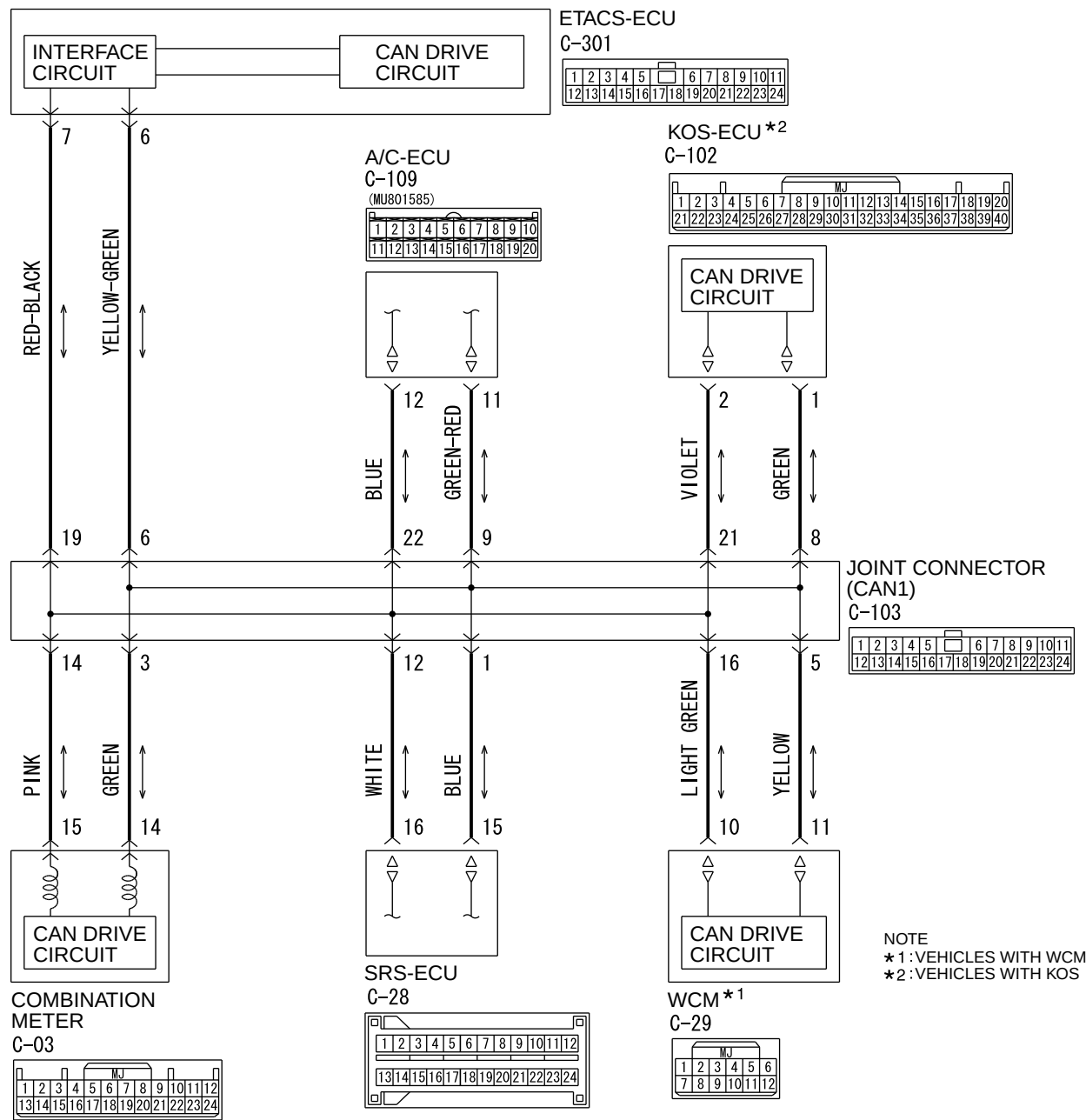
DIAGNOSTIC ITEM 25: Diagnose the ETACS-ECU, joint connector (CAN1) or lines between ETACS-ECU and joint connector (CAN1).

CAUTION

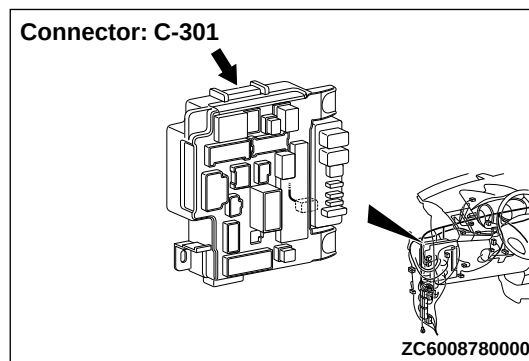
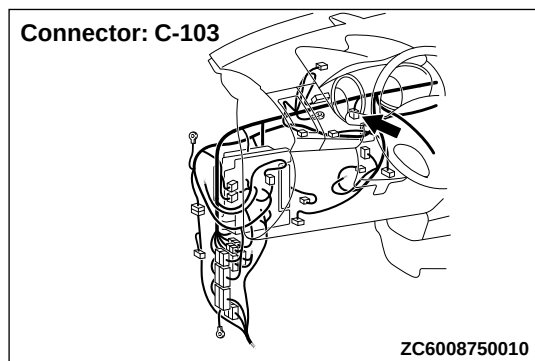
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

CAN Communication Circuit



NOTE
*1: VEHICLES WITH WCM
*2: VEHICLES WITH KOS



FUNCTION

If a failure is present in the wiring harness wires between the ETACS-ECU connector, the joint connector (CAN1), the ETACS-ECU connector and the joint connector (CAN1), this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

If a communication flag is set for none of the ECUs on the CAN-B line, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector [joint connector (CAN1) or ETACS-ECU connector improperly connected]
- Malfunction of the wiring harness [open circuit between the ETACS-ECU connector and the joint connector (CAN1)]
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check joint connector (CAN1) C-103 and ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54D-8.

Q: Are joint connector (CAN1) C-103 and ETACS-ECU connector C-301 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and ETACS-ECU connector C-301, and check the wiring harness.

- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.6) and ETACS-ECU connector C-301 (terminal No.6)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.17) and ETACS-ECU connector C-301 (terminal No.7)

Q: Is the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301 in good condition?

YES: Go to Step 3.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

STEP 3. Using scan tool MB991958, diagnose the CAN bus line. (trouble symptom check)

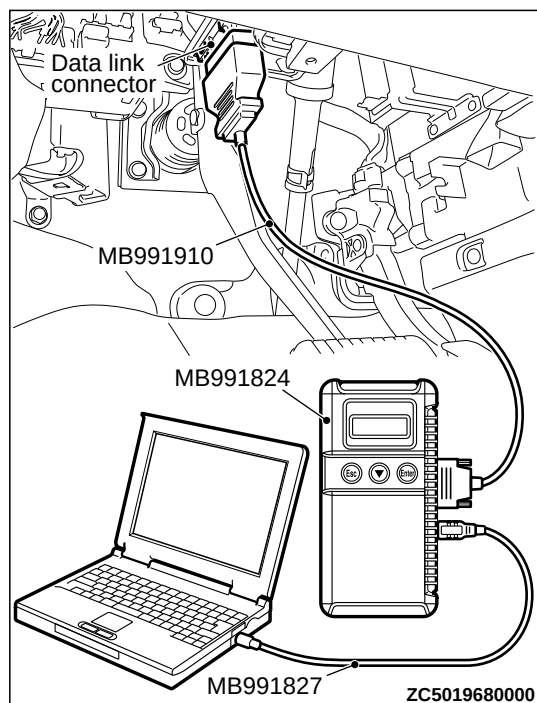
⚠ CAUTION

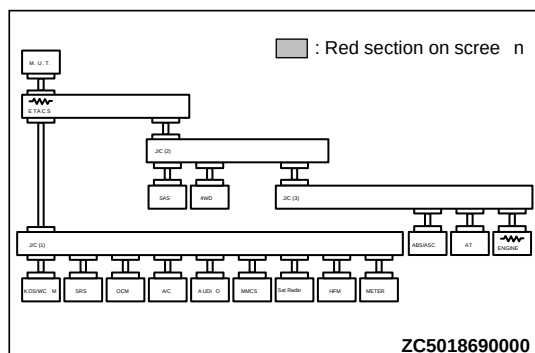
Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

⚠ 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) Diagnose CAN bus lines, and check if the scan tool MB991958 screen is as shown in the figure.

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

NO: Replace the ETACS-ECU.

DIAGNOSTIC ITEM 26: Short to power supply or ground, open circuit or line-to-line short in the CAN-B bus lines.

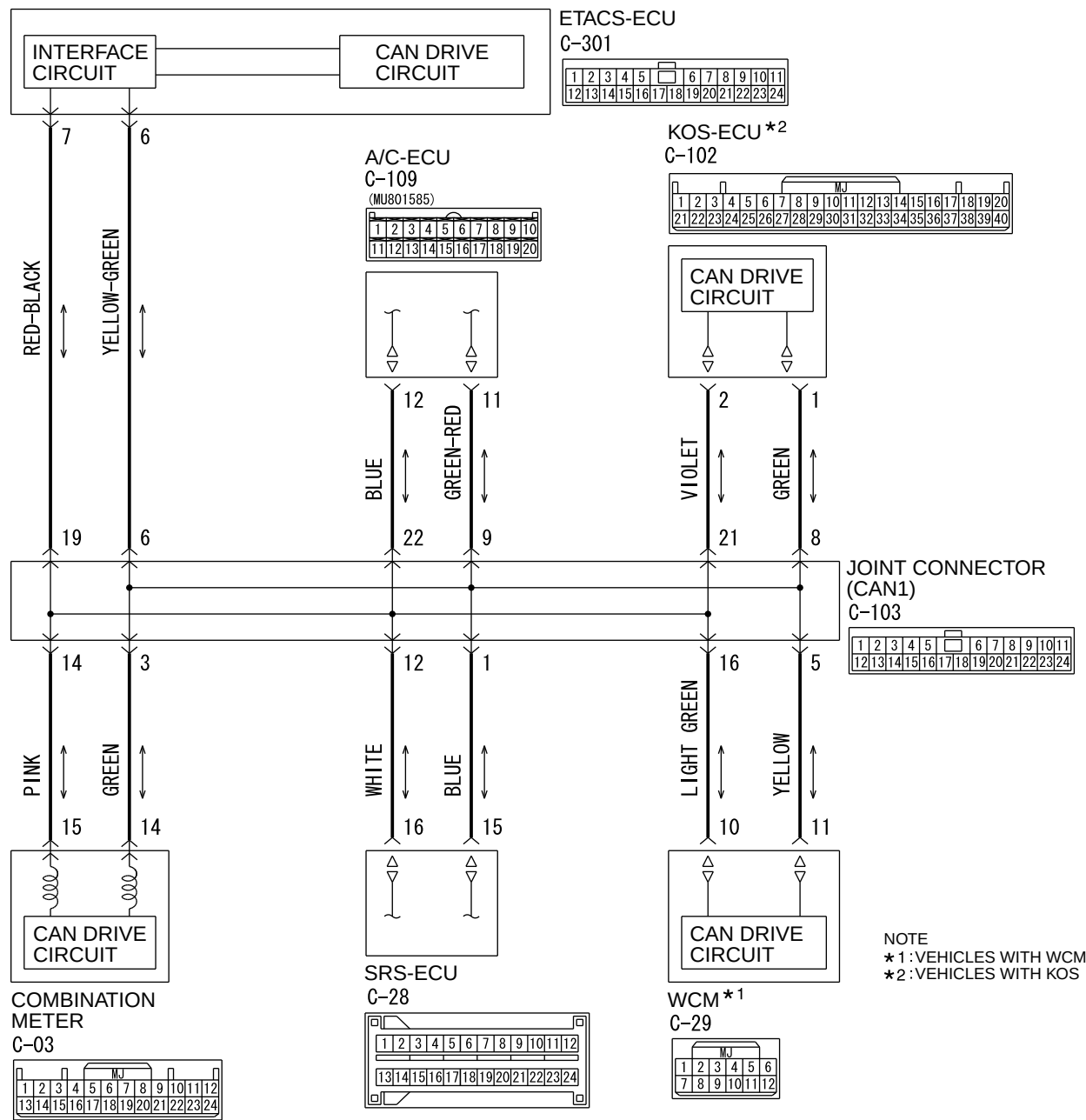
M15408300036USA0000010000

CAUTION

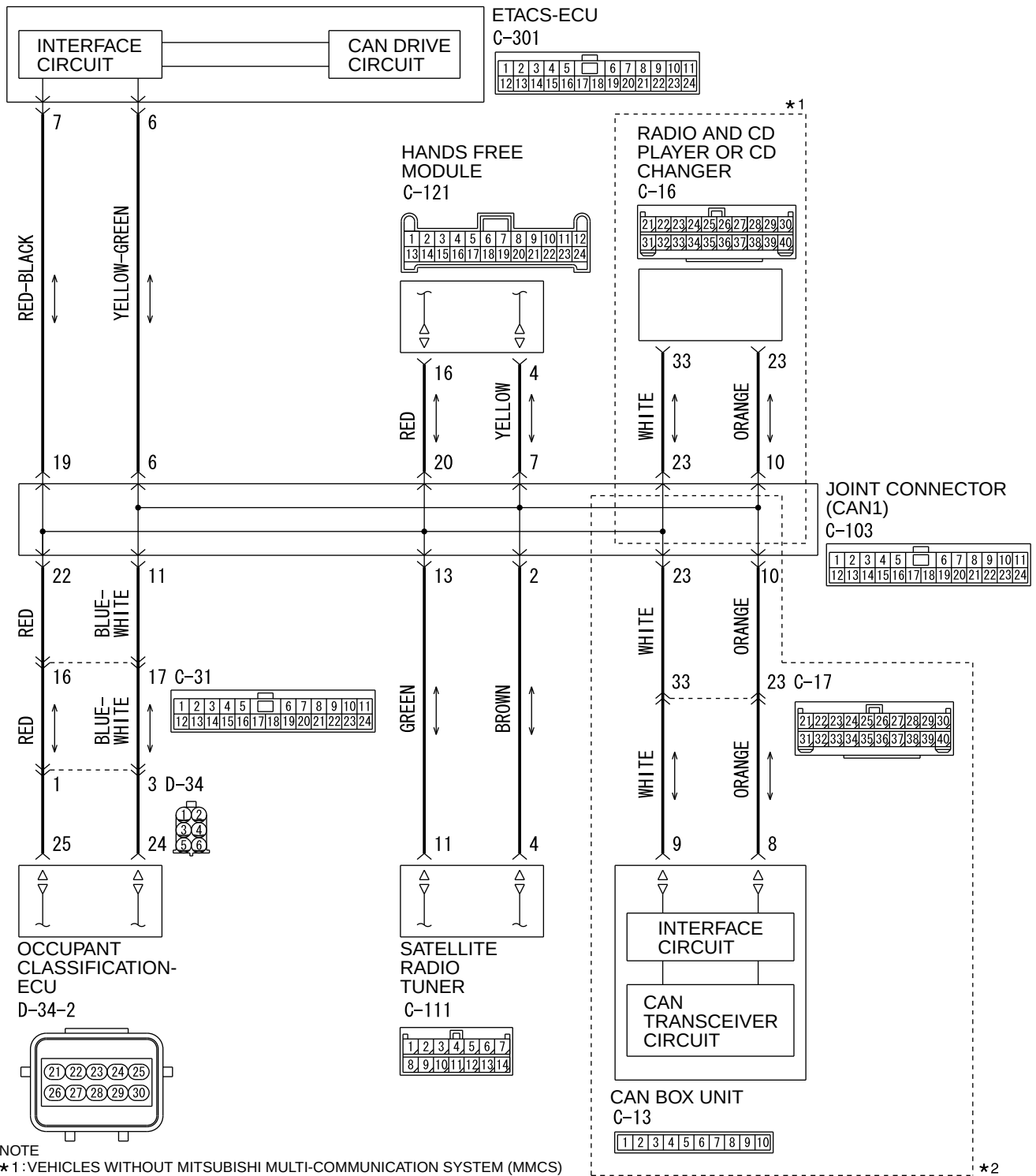
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted

water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

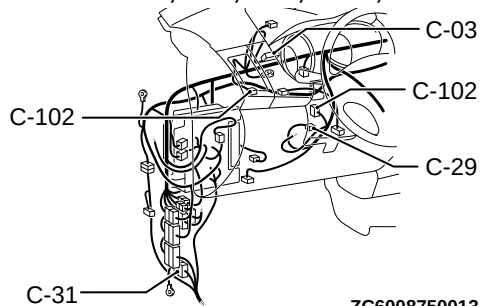
CAN Communication Circuit



CAN Communication Circuit

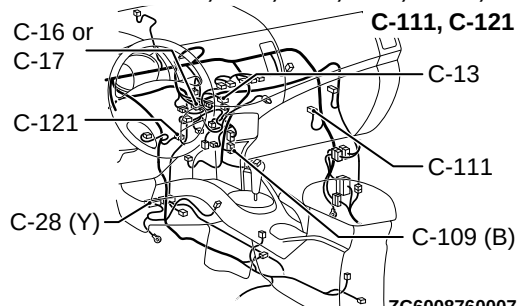


Connectors: C-03, C-29, C-31, C-102, C-103



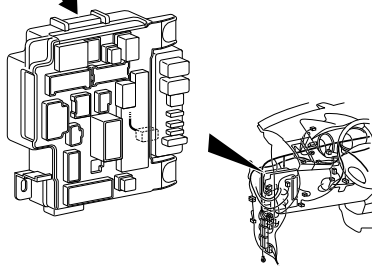
ZC6008750013

Connectors: C-13, C-16, C-17, C-28, C-109, C-111, C-121



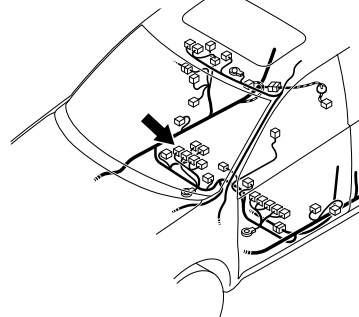
ZC6008760007

Connector: C-301



ZC6008780000

Connector: D-34



ZC6008790000

FUNCTION

If a short to power supply or ground, open circuit or line-to-line short is present at either CAN_H or CAN_L side on the CAN-B lines, this diagnosis result will be set.

TROUBLE JUDGEMENT CONDITIONS

When CAN-B lines communication is normal, and diagnostic trouble code U0019 is set, the ETACS-ECU determines that there is a failure.

TROUBLESHOOTING HINTS

- Malfunction of the connector (short to power supply or ground in connector or improperly connected)
- Malfunction of the wiring harness (short to power supply or ground, open circuit or line-to-line short in CAN bus lines)
- Faulty ECU(s) (internal short to power supply or ground)

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the wiring harness between ETACS-ECU connector C-301 and body ground for a short to ground. Measure the resistance at ETACS-ECU connector C-301.

⚠ CAUTION

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

⚠ CAUTION

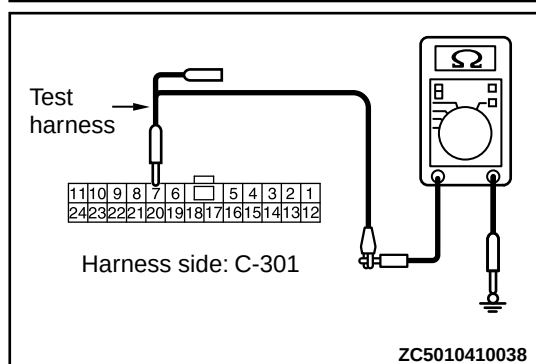
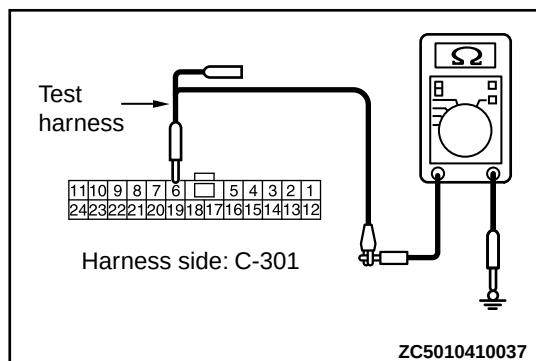
A digital multimeter should be used. For details refer to P. 54D-8.

⚠ CAUTION

The test wiring harness should be used. For details refer to P.54D-8.

- (1) Disconnect ETACS-ECU connector C-301, and measure the voltage at the wiring harness side of ETACS-ECU connector.
- (2) Measure the resistance between ETACS-ECU connector terminal 6 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between ETACS-ECU connector terminal 7 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

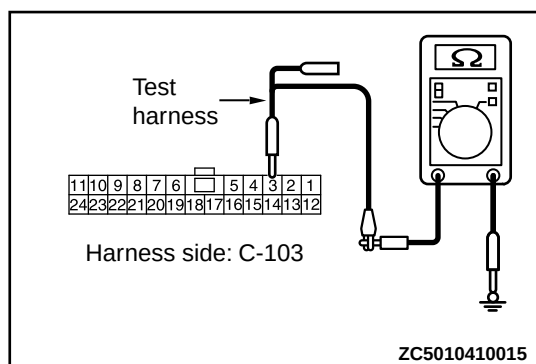
YES: Go to Step 2.

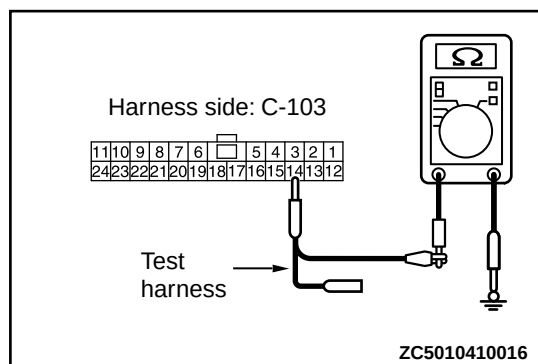
NO: Go to Step 13.

STEP 2. Check the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and measure the resistance at the wiring harness side of joint connector (CAN1).
- (2) Measure the resistance between joint connector (CAN1) terminal 3 and body ground.

OK: 1 kilohm or more





- (3) Measure the resistance between joint connector (CAN1) terminal 14 and body ground.

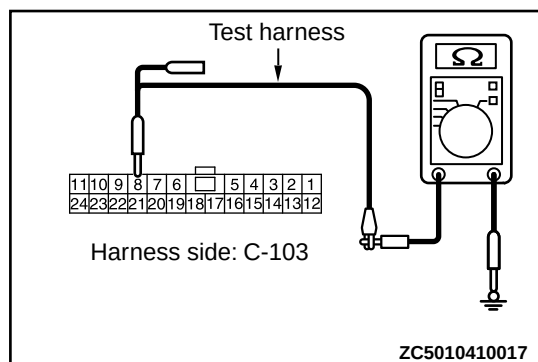
OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles with KOS): Go to Step 3.

YES (vehicles with WCM): Go to Step 4.

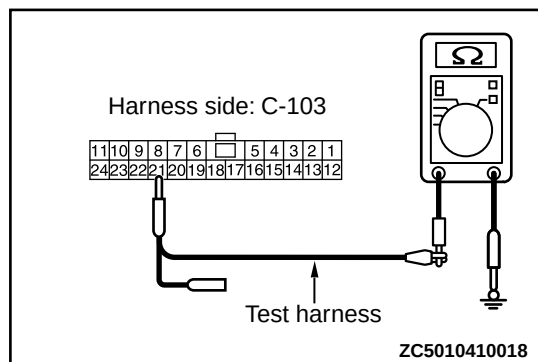
NO (vehicles with KOS or WCM): Go to Step 48.



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

- (2) Measure the resistance between joint connector (CAN1) terminal 8 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 21 and body ground.

OK: 1 kilohm or more

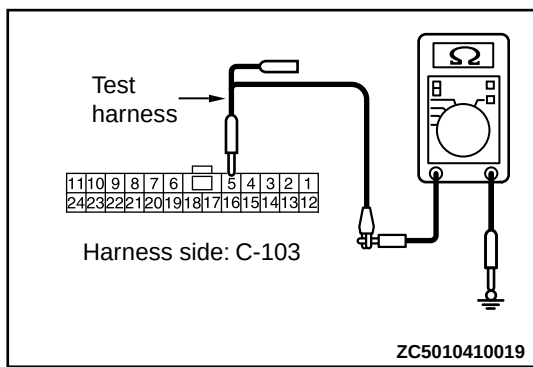
Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 5.

NO: Go to Step 49.

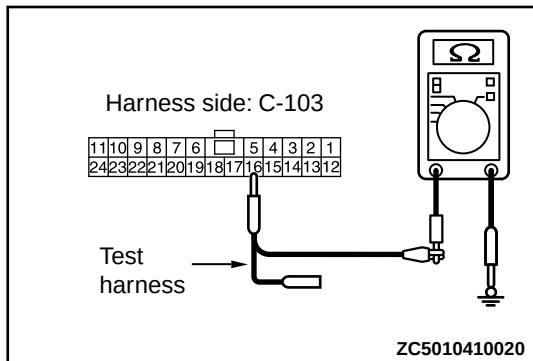
STEP 4. Check the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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



- (2) Measure the resistance between joint connector (CAN1) terminal 5 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 16 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 5.

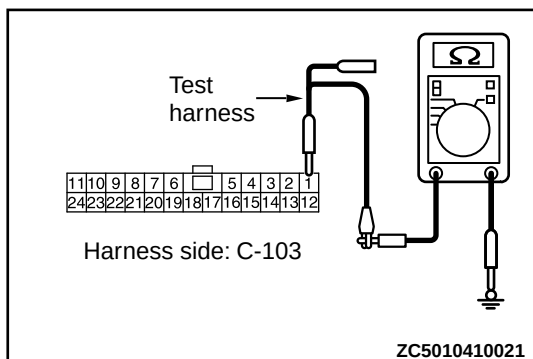
NO: Go to Step 50.

STEP 5. Check the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 1 and body ground.

OK: 1 kilohm or more



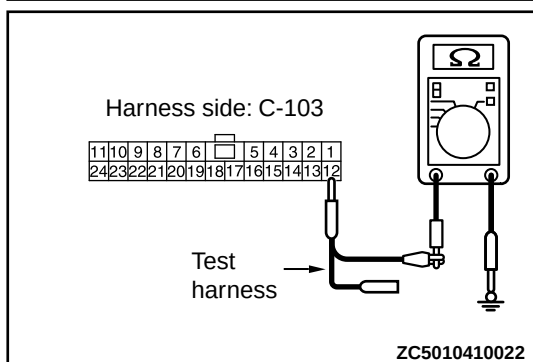
- (3) Measure the resistance between joint connector (CAN1) terminal 12 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 6.

NO: Go to Step 51.



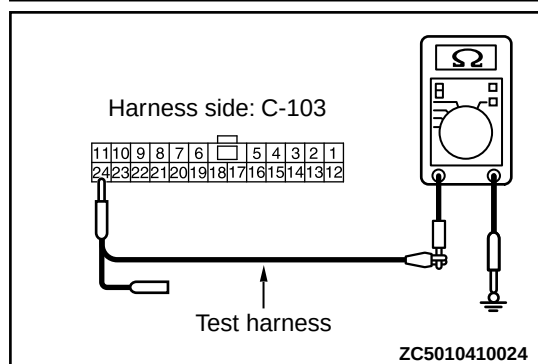
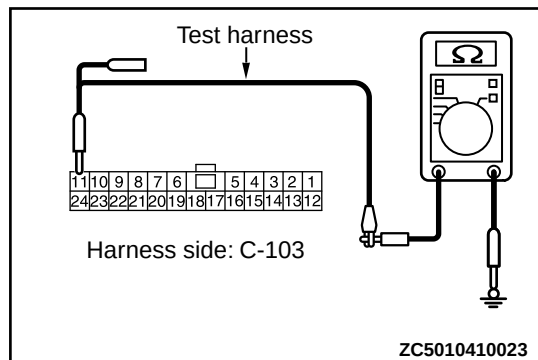
STEP 6. Check the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector

D-31-2 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 11 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 24 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles without hands free system): Go to Step 8.

YES (vehicles with hands free system): Go to Step 7.

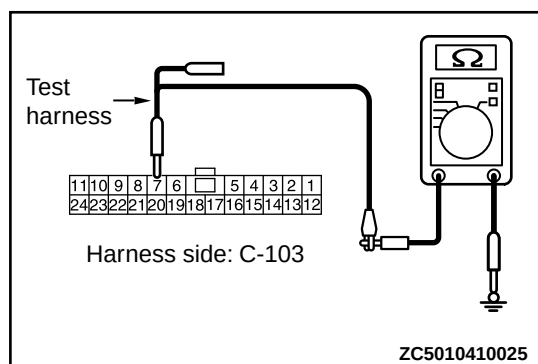
NO: Go to Step 52.

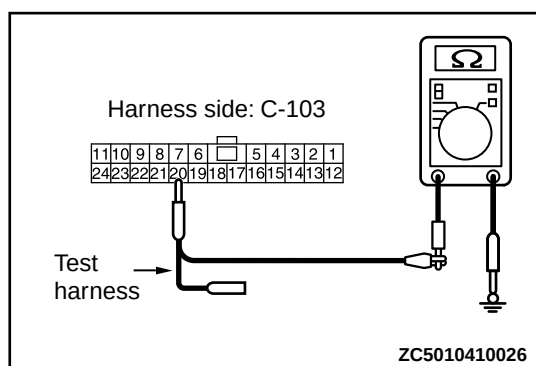
STEP 7. Check the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 7 and body ground.

OK: 1 kilohm or more





- (3) Measure the resistance between joint connector (CAN1) terminal 20 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 8.

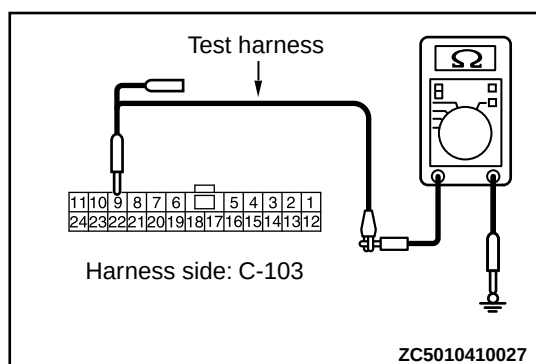
NO: Go to Step 53.

STEP 8. Check the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 9 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 22 and body ground.

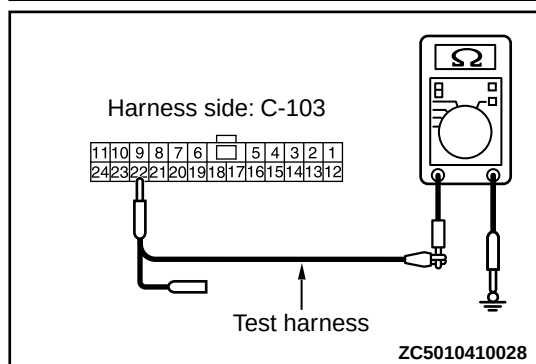
OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES(vehicles without MMCS): Go to Step 9.

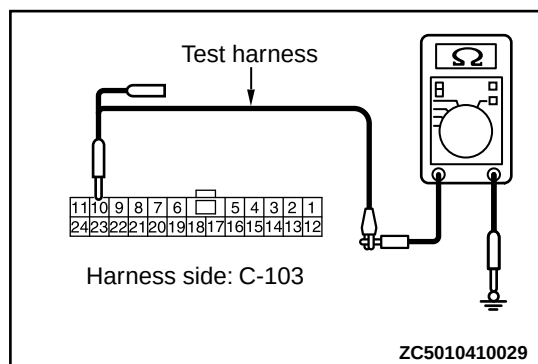
YES(vehicles with MMCS): Go to Step 10.

NO: Go to Step 54.



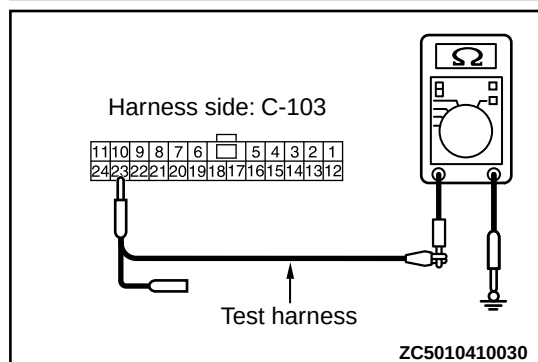
STEP 9. Check the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector AUIO-01 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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



- (2) Measure the resistance between joint connector (CAN1) terminal 10 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 23 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles without satellite radio): Go to Step 12.

YES (vehicles with satellite radio): Go to Step 11.

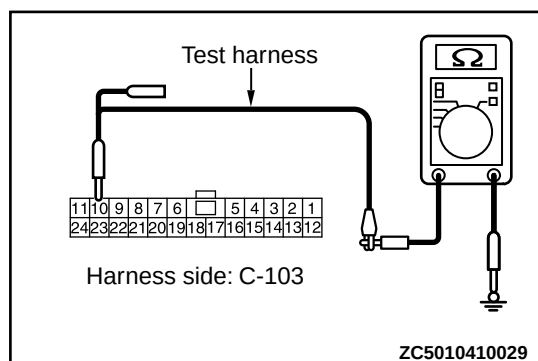
NO: Go to Step 55.

STEP 10. Check the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 10 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 23 and body ground.

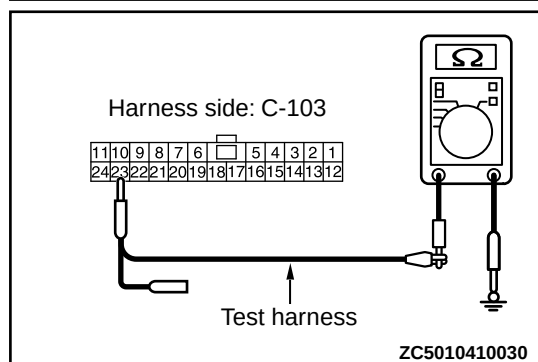
OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES (vehicles without satellite radio): Go to Step 12.

YES (vehicles with satellite radio): Go to Step 11.

NO: Go to Step 56.



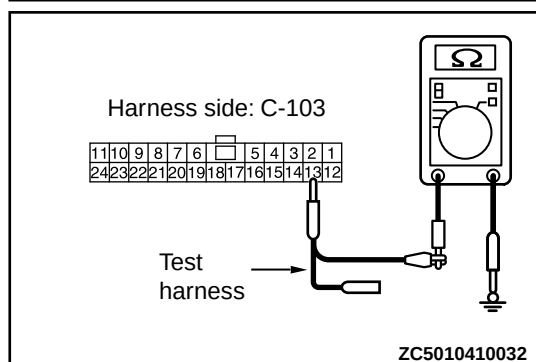
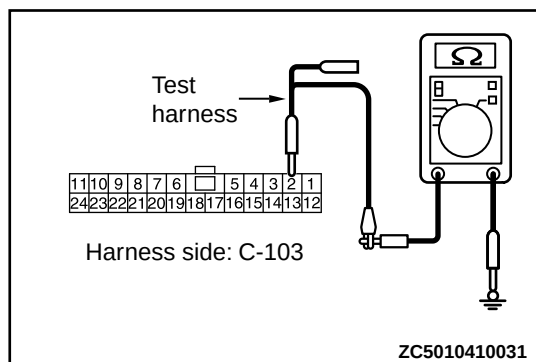
STEP 11. Check the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111 for

a short to ground. Measure the resistance at joint connector (CAN1) C-103.

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

- (2) Measure the resistance between joint connector (CAN1) terminal 2 and body ground.

OK: 1 kilohm or more



- (3) Measure the resistance between joint connector (CAN1) terminal 13 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

YES: Go to Step 12.

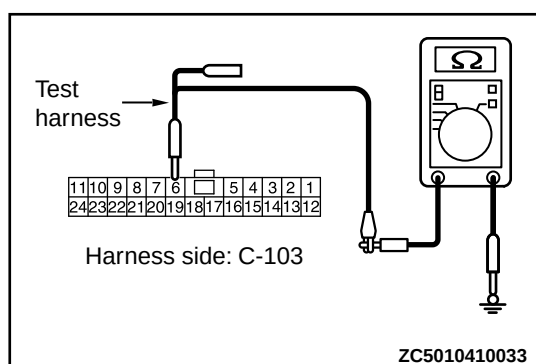
NO: Go to Step 57.

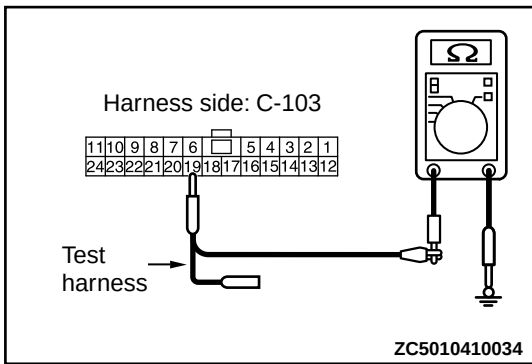
STEP 12. Check the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301 for a short to ground. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1) and ETACS-ECU connector C-301, and measure the resistance at the wiring harness side of joint connector (CAN1).

- (2) Measure the resistance between joint connector (CAN1) terminal 6 and body ground.

OK: 1 kilohm or more





- (3) Measure the resistance between joint connector (CAN1) terminal 19 and body ground.

OK: 1 kilohm or more

Q: Do all the resistances measure 1 kilohm or more?

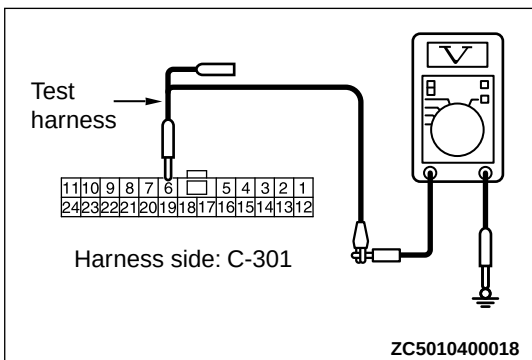
YES: Go to Step 58.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

STEP 13. Check the wiring harness between ETACS-ECU connector C-301 and body ground for a short to power supply. Measure the voltage at ETACS-ECU connector C-301.

- (1) Disconnect ETACS-ECU connector C-301, and measure the voltage at the wiring harness side of ETACS-ECU connector.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between ETACS-ECU connector terminal 6 and body ground.

OK: 4.7 volts or less



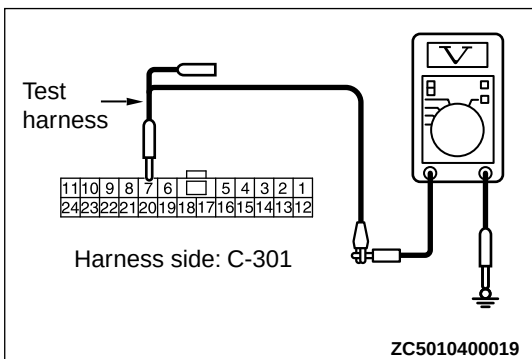
- (4) Measure the voltage between ETACS-ECU connector terminal 7 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

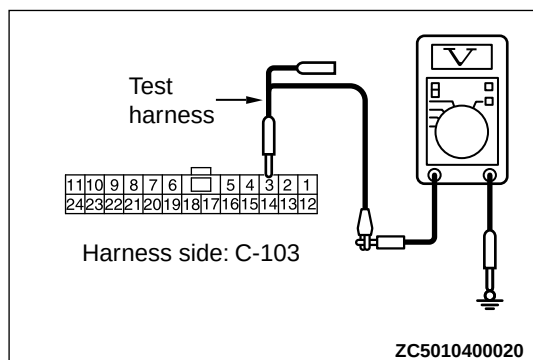
YES: Go to Step 25.

NO: Go to Step 14.



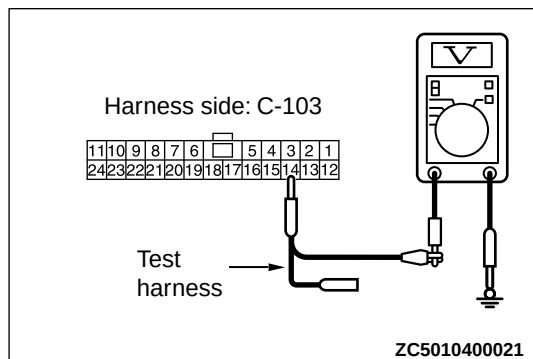
STEP 14. Check the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Connect the negative battery terminal.
- (3) Turn the ignition switch to the ON position.



- (4) Measure the voltage between joint connector (CAN1) terminal 3 and body ground.

OK: 4.7 volts or less



- (5) Measure the voltage between joint connector (CAN1) terminal 14 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES(vehicles with KOS): Go to Step 15.

YES(vehicles with WCM): Go to Step 16.

NO(vehicles with KOS and WCM): Go to Step 48.

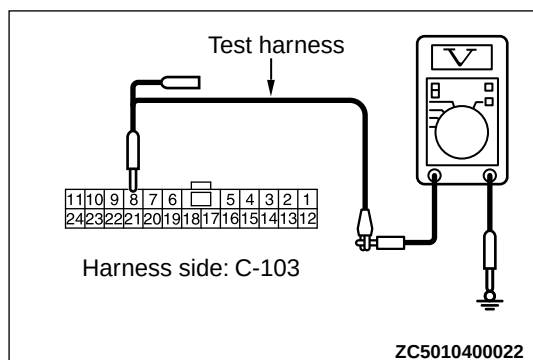
STEP 15. Check the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

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

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

- (3) Measure the voltage between joint connector (CAN1) terminal 8 and body ground.

OK: 4.7 volts or less



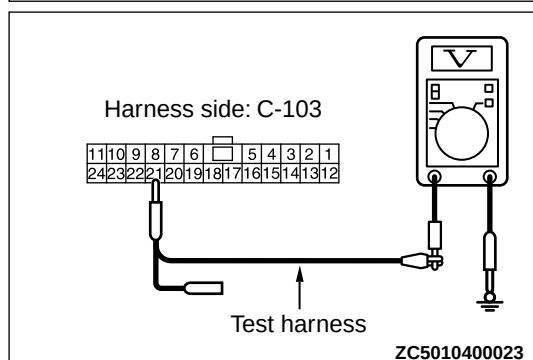
- (4) Measure the voltage between joint connector (CAN1) terminal 21 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 17.

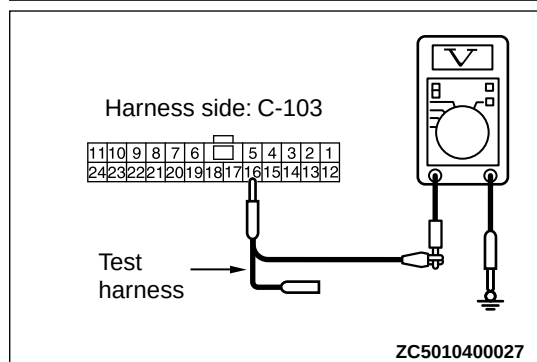
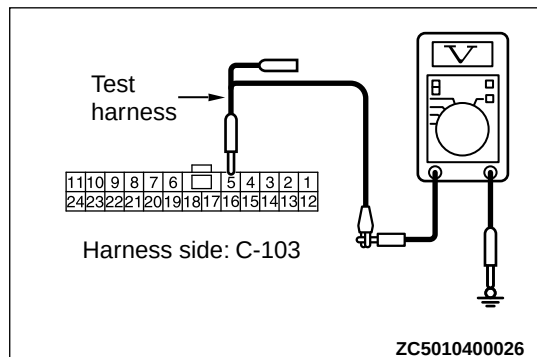
NO: Go to Step 49.



STEP 16. Check the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29 for a short to power

supply. Measure the voltage at joint connector (CAN1) C-103.

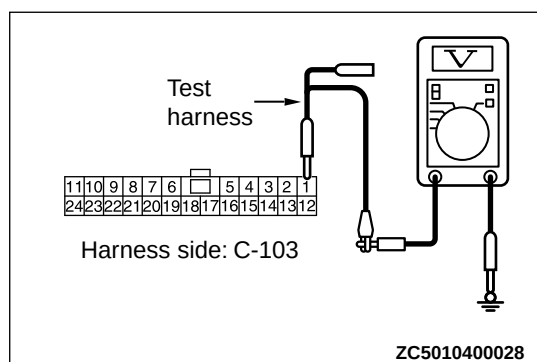
- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 5 and body ground.

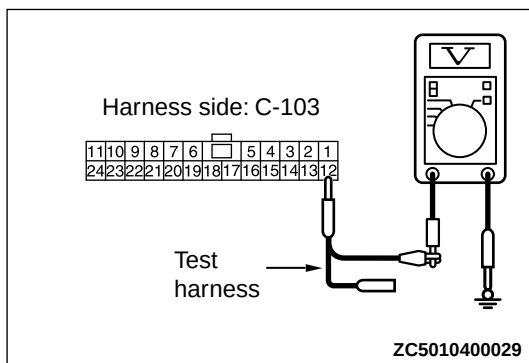
OK: 4.7 volts or less

- (4) Measure the voltage between joint connector (CAN1) terminal 16 and body ground.

OK: 4.7 volts or less**Q: Do all the voltages measure 4.7 volts or less?****YES:** Go to Step 17.**NO:** Go to Step 50.**STEP 17. Check the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.**

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 1 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 12 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

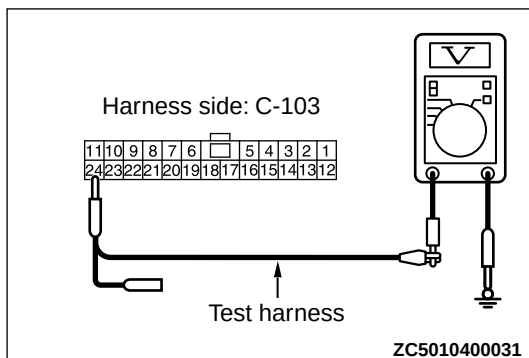
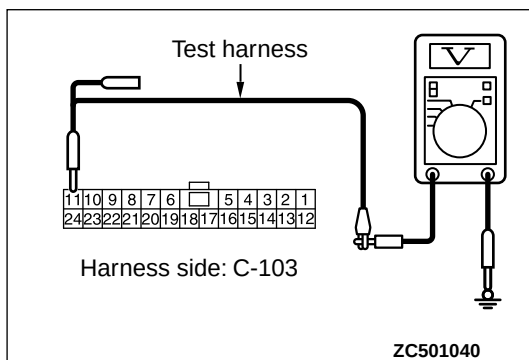
YES: Go to Step 18.

NO: Go to Step 51.

STEP 18. Check the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 11 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 24 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

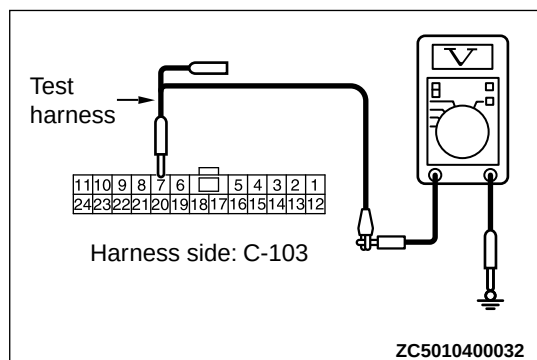
YES(vehicles without hands free system): Go to Step 20.

YES(vehicles with hands free system): Go to Step 19.

NO: Go to Step 52.

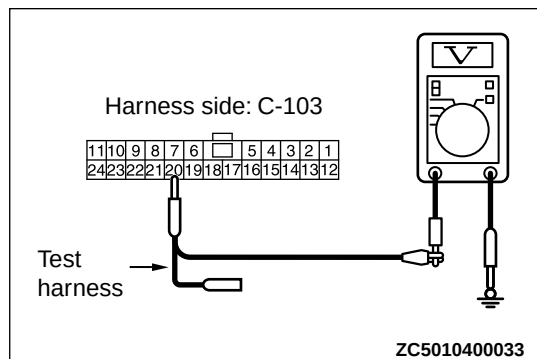
STEP 19. Check the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.



- (3) Measure the voltage between joint connector (CAN1) terminal 7 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 20 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 20.

NO: Go to Step 53.

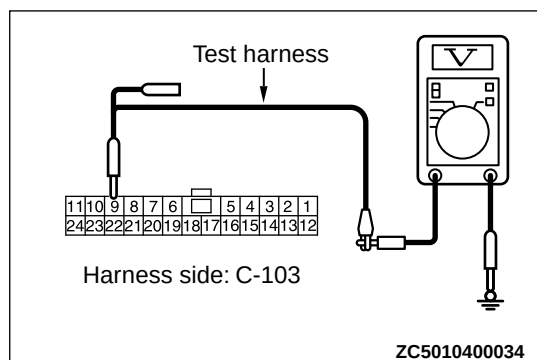
STEP 20. Check the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

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

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

- (3) Measure the voltage between joint connector (CAN1) terminal 9 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 22 and body ground.

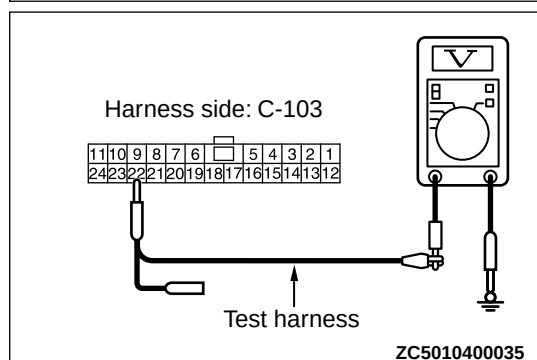
OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES(vehicles without MMCS): Go to Step 21.

YES(vehicles with MMCS): Go to Step 22.

NO: Go to Step 54.

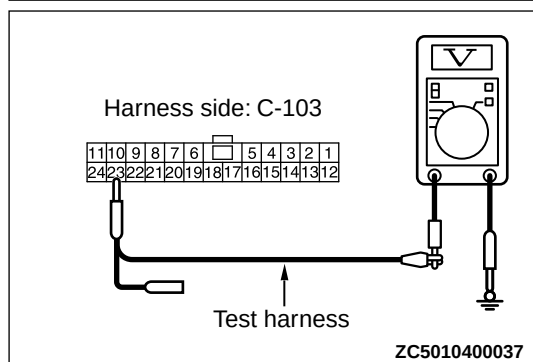
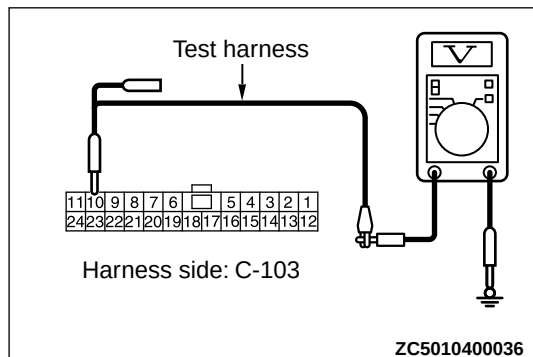


STEP 21. Check the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer

connector C-16 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 10 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 23 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES (vehicles without satellite radio): Go to Step 24.

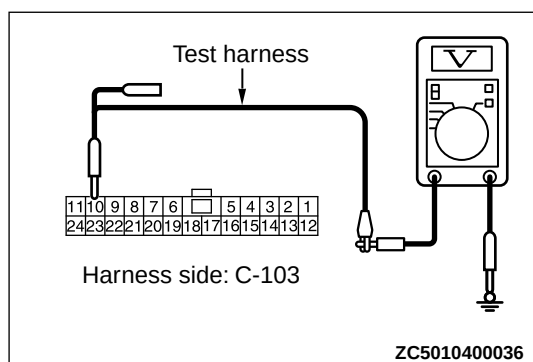
YES (vehicles with satellite radio): Go to Step 23.

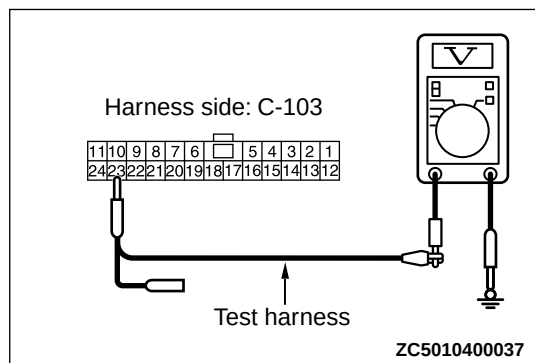
NO: Go to Step 55.

STEP 22. Check the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and measure the voltage at the wiring harness side of joint connector (CAN1).
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between joint connector (CAN1) terminal 10 and body ground.

OK: 4.7 volts or less





- (4) Measure the voltage between joint connector (CAN1) terminal 23 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES (vehicles without satellite radio): Go to Step 24.

YES (vehicles with satellite radio): Go to Step 23.

NO: Go to Step 56.

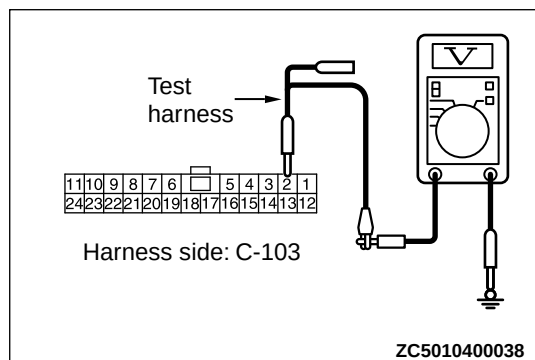
STEP 23. Check the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

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

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

- (3) Measure the voltage between joint connector (CAN1) terminal 2 and body ground.

OK: 4.7 volts or less



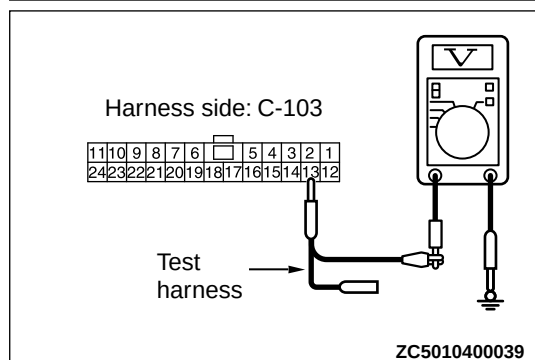
- (4) Measure the voltage between joint connector (CAN1) terminal 13 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 24.

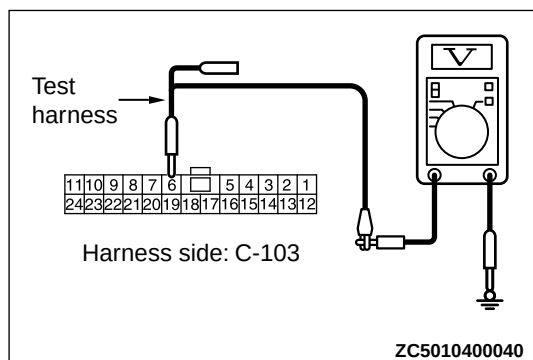
NO: Go to Step 57.



STEP 24. Check the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301 for a short to power supply. Measure the voltage at joint connector (CAN1) C-103.

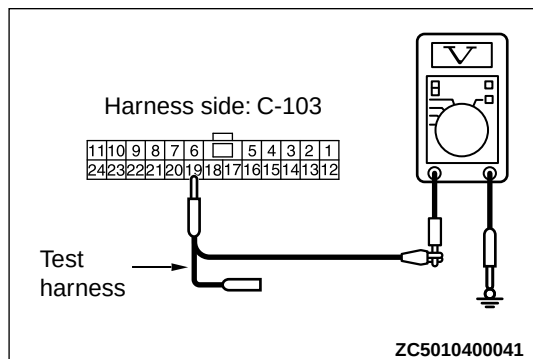
- (1) Disconnect joint connector (CAN1) and ETACS-ECU connector C-301, and measure the voltage at the wiring harness side of joint connector (CAN1).

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



- (3) Measure the voltage between joint connector (CAN1) terminal 6 and body ground.

OK: 4.7 volts or less



- (4) Measure the voltage between joint connector (CAN1) terminal 19 and body ground.

OK: 4.7 volts or less

Q: Do all the voltages measure 4.7 volts or less?

YES: Go to Step 58.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

STEP 25. Check the wiring harness for line-to-line short. Measure the resistance at ETACS-ECU connector C-301

⚠ CAUTION

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

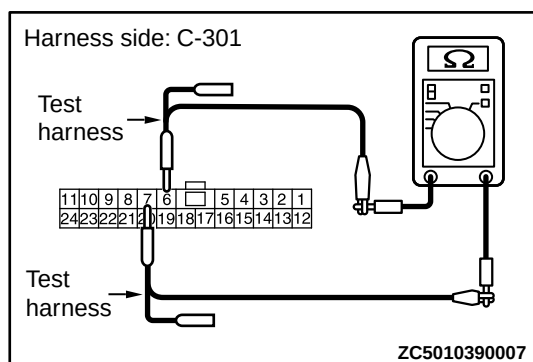
- (1) Disconnect ETACS-ECU connector C-301, and check that there is continuity at the harness side of ETACS-ECU.
- (2) Check that there is continuity between ETACS-ECU connector terminals 6 and 7.

OK: No continuity

Q: Is the check result normal?

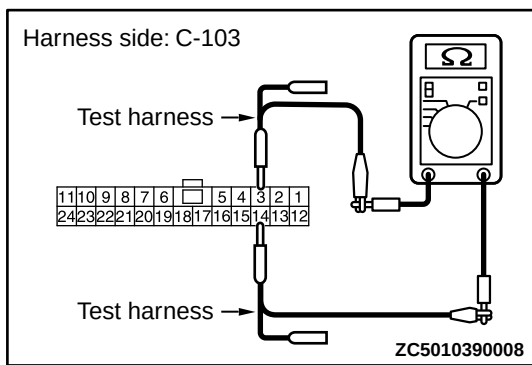
YES: Go to Step 37.

NO: Go to Step 26.



STEP 26. Check the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).



- (2) Check that there is continuity between joint connector (CAN1) terminals 3 and 14.

OK: No continuity

Q: Is the check result normal?

YES (vehicles with KOS): Go to Step 27.

YES (vehicles with WCM): Go to Step 28.

NO (vehicles with KOS or WCM): Go to Step 48.

STEP 27. Check the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).

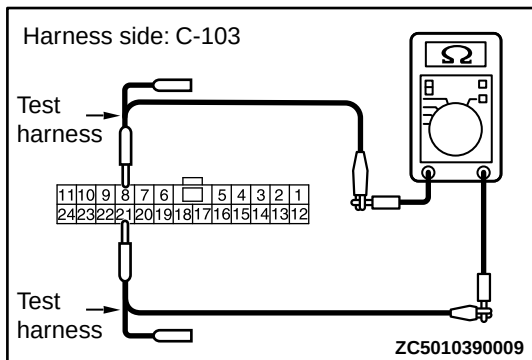
- (2) Check that there is continuity between joint connector (CAN1) terminals 8 and 21.

OK: No continuity

Q: Is the check result normal?

YES: Go to Step 29.

NO: Go to Step 49.



STEP 28. Check the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).

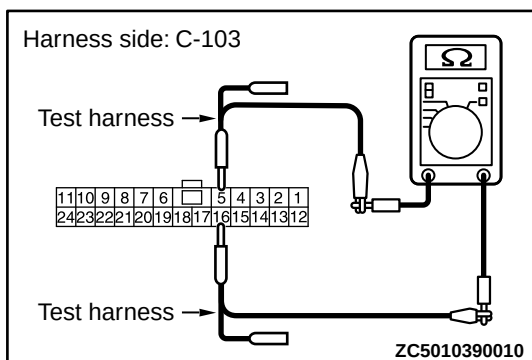
- (2) Check that there is continuity between joint connector (CAN1) terminals 5 and 16.

OK: No continuity

Q: Is the check result normal?

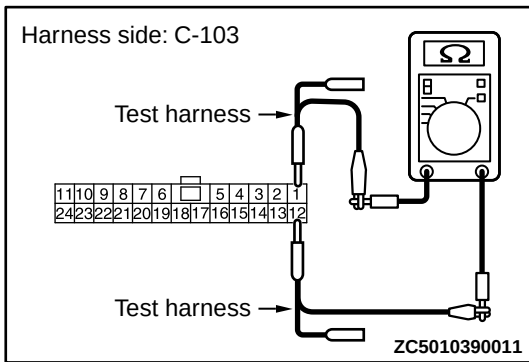
YES: Go to Step 29.

NO: Go to Step 50.



STEP 29. Check the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).



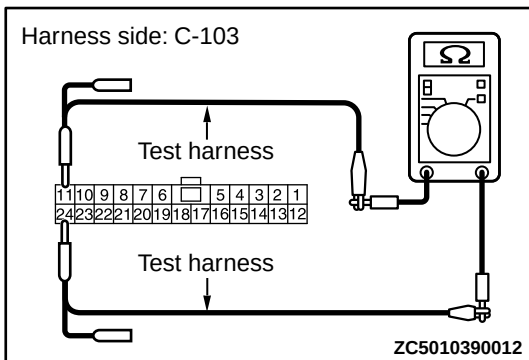
- (2) Check that there is continuity between joint connector (CAN1) terminals 1 and 12.

OK: No continuity

Q: Is the check result normal?

YES: Go to Step 30.

NO: Go to Step 51.



STEP 30. Check the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).

- (2) Check that there is continuity between joint connector (CAN1) terminals 11 and 24.

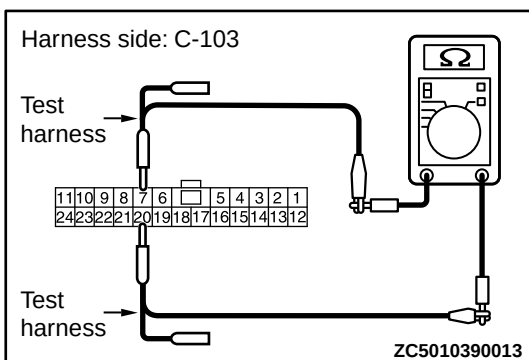
OK: No continuity

Q: Is the check result normal?

YES(vehicles without hands free system): Go to Step 32.

YES(vehicles with hands free system): Go to Step 31.

NO: Go to Step 52.



STEP 31. Check the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).

- (2) Check that there is continuity between joint connector (CAN1) terminals 7 and 20.

OK: No continuity

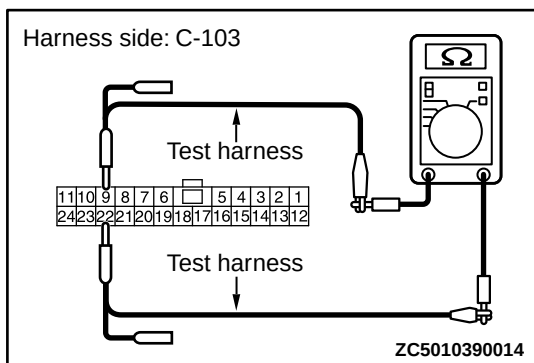
Q: Is the check result normal?

YES: Go to Step 32.

NO: Go to Step 53.

STEP 32. Check the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).



- (2) Check that there is continuity between joint connector (CAN1) terminals 9 and 22.

OK: No continuity

Q: Is the check result normal?

YES (vehicles without MMCS): Go to Step 33.

YES (vehicles with MMCS): Go to Step 34.

NO: Go to Step 54.

STEP 33. Check the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).

- (2) Check that there is continuity between joint connector (CAN1) terminals 10 and 23.

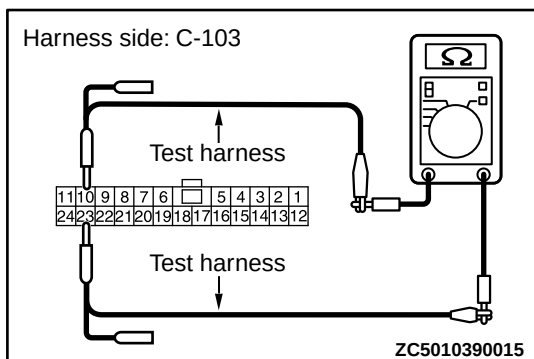
OK: No continuity

Q: Is the check result normal?

YES (vehicles without satellite radio): Go to Step 36.

YES (vehicles with satellite radio): Go to Step 35.

NO: Go to Step 55.



STEP 34. Check the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).

- (2) Check that there is continuity between joint connector (CAN1) terminals 10 and 23.

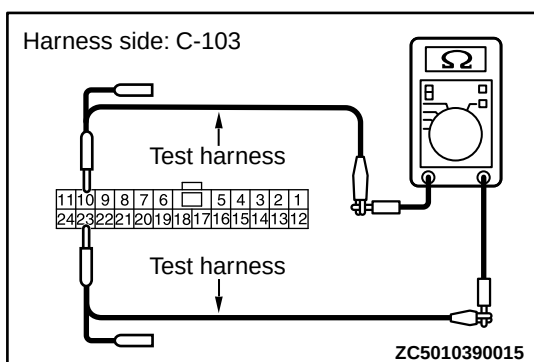
OK: No continuity

Q: Is the check result normal?

YES (vehicles without satellite radio): Go to Step 36.

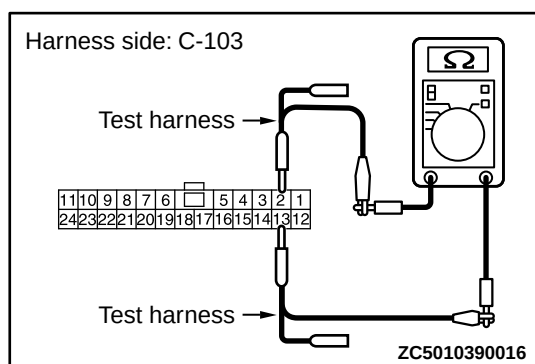
YES (vehicles with satellite radio): Go to Step 35.

NO: Go to Step 56.



STEP 35. Check the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1), and check that there is continuity at the harness side of joint connector (CAN1).



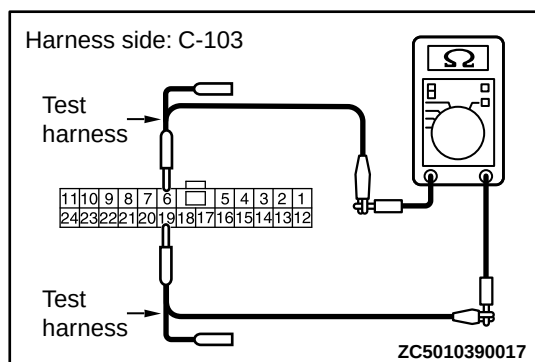
- (2) Check that there is continuity between joint connector (CAN1) terminals 2 and 13.

OK: No continuity

Q: Is the check result normal?

YES: Go to Step 36.

NO: Go to Step 57.



STEP 36. Check the wiring harness between joint connector (CAN1) C-103 and EATCS-ECU connector C-301 for line-to-line short. Measure the resistance at joint connector (CAN1) C-103.

- (1) Disconnect joint connector (CAN1) and ETACS-ECU connector C-301, and check that there is continuity at the harness side of joint connector (CAN1).

- (2) Check that there is continuity between joint connector (CAN1) terminals 6 and 19.

OK: No continuity

Q: Is the check result normal?

YES: Go to Step 58.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

STEP 37. Check the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03.

⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

- (1) Disconnect joint connector (CAN1) C-103 and combination meter connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.6) and combination meter connector C-03 (terminal No.6)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.14) and combination meter connector C-03 (terminal No.7)

Q: Is the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03 in good condition?

YES(vehicles with KOS): Go to Step 38.

YES(vehicles with WCM): Go to Step 39.

NO((vehicles with KOS or WCM): Go to Step 48.

STEP 38. Check the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102.

- (1) Disconnect joint connector (CAN1) C-103 and KOS-ECU connector C-102, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.8) and KOS-ECU connector C-102 (terminal No.1)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.19) and KOS-ECU connector C-102 (terminal No.2)

Q: Is the wiring harness between joint connector (CAN1) C-103 and KOS-ECU connector C-102 in good condition?

YES: Go to Step 40.

NO: Go to Step 49.

STEP 39. Check the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29.

- (1) Disconnect joint connector (CAN1) C-103 and WCM connector C-29, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.5) and WCM connector C-29 (terminal No.11)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.6) and WCM connector C-29 (terminal No.10)

Q: Is the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29 in good condition?

YES: Go to Step 40.

NO: Go to Step 50.

STEP 40. Check the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28.

- (1) Disconnect joint connector (CAN1) C-103 and SRS-ECU connector C-28, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.1) and SRS-ECU connector C-28 (terminal No.15)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.12) and SRS-ECU connector C-28 (terminal No.16)

Q: Is the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28 in good condition?

YES: Go to Step 41.

NO: Go to Step 51.

STEP 41. Check the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2.

- (1) Disconnect joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2, and check the wiring harness.

-
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.11) and occupant classification-ECU connector D-31-2 (terminal No.3)
 - (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.22) and occupant classification-ECU connector D-31-2 (terminal No.1)

Q: Is the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2 in good condition?

YES(vehicles without hands free system): Go to Step 43.

YES(vehicles with hands free system): Go to Step 42.

NO: Go to Step 52.

STEP 42. Check the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121.

- (1) Disconnect joint connector (CAN1) C-103 and occupant hands free module connector C-121, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.7) and hands free module connector C-121 (terminal No.4)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.18) and hands free module connector C-121 (terminal No.26)

Q: Is the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121 in good condition?

YES: Go to Step 43.

NO: Go to Step 53.

STEP 43. Check the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109.

- (1) Disconnect joint connector (CAN1) C-103 and A/C-ECU connector C-109, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.9) and A/C-ECU connector C-109 (terminal No.11)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.20) and A/C-ECU connector C-109 (terminal No.12)

Q: Is the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109 in good condition?

YES(vehicles without MMCS): Go to Step 44.

YES(vehicles with MMCS): Go to Step 45.

NO: Go to Step 54.

STEP 44. Check the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16.

- (1) Disconnect joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16, and check the wiring harness.

-
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.10) and radio and CD player or CD changer connector C-16 (terminal No.3)
 - (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.21) and radio and CD player or CD changer connector C-16 (terminal No.13)

Q: Is the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16 in good condition?

YES (vehicles without satellite radio): Go to Step 47.

YES (vehicles with satellite radio): Go to Step 46.

NO: Go to Step 55.

STEP 45. Check the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13.

- (1) Disconnect joint connector (CAN1) C-103 and CAN box unit connector C-13, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.10) and CAN box unit connector C-13 (terminal No.3)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.21) and CAN box unit connector C-13 (terminal No.13)

Q: Is the wiring harness between joint connector (CAN1) C-103 and CAN box unit connector C-13 in good condition?

YES (vehicles without satellite radio): Go to Step 47.

YES (vehicles with satellite radio): Go to Step 46.

NO: Go to Step 56.

STEP 46. Check the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111.

- (1) Disconnect joint connector (CAN1) C-103 and satellite radio tuner connector C-111, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.10) and satellite radio tuner connector C-111 (terminal No.3)
- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.21) and satellite radio tuner connector C-111 (terminal No.13)

Q: Is the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111 in good condition?

YES: Go to Step 47.

NO: Go to Step 57.

STEP 47. Check the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

- (1) Disconnect joint connector (CAN1) C-103 and ETACS-ECU connector C-301, and check the wiring harness.
- (2) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.6) and ETACS-ECU connector C-301 (terminal No.6)

- (3) Check the wiring harness between joint connector (CAN1) C-103 (terminal No.17) and ETACS-ECU connector C-301 (terminal No.7)

Q: Is the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301 in good condition?

YES: Go to Step 58.

NO: Repair the wiring harness between joint connector (CAN1) C-103 and ETACS-ECU connector C-301.

STEP 48. Using scan tool MB991958, diagnose the CAN bus line. (checking the combination meter for internal failure)

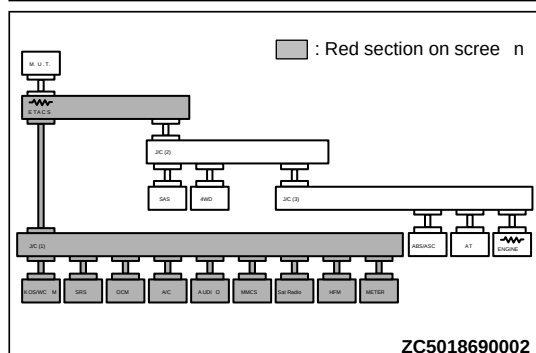
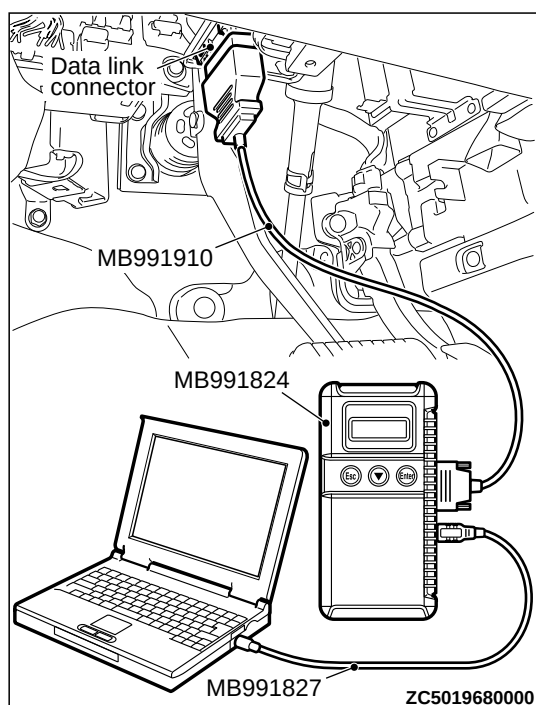
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

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) Disconnect combination meter connector C-03.
- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

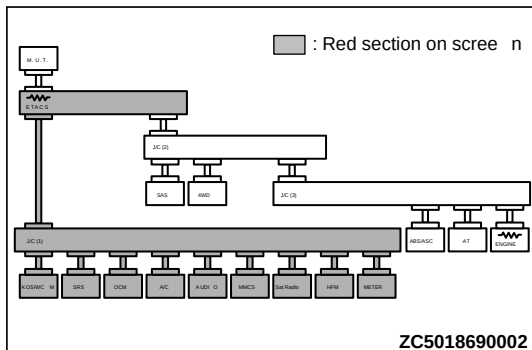
Q:Does scan tool MB991958 screen correspond to the illustration?

YES: Repair the wiring harness between joint connector (CAN1) C-103 and combination meter connector C-03.

NO: Check combination meter connector C-03, and repair if necessary. If the combination meter connector is in good condition, replace the combination meter.

CAUTION

CAUTION



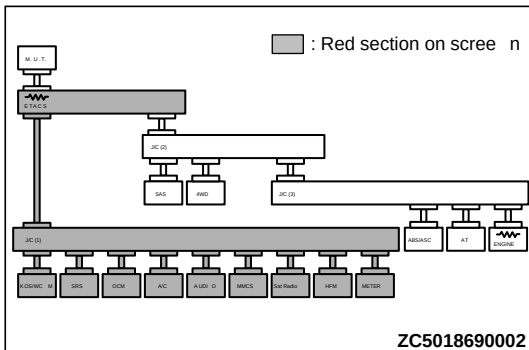
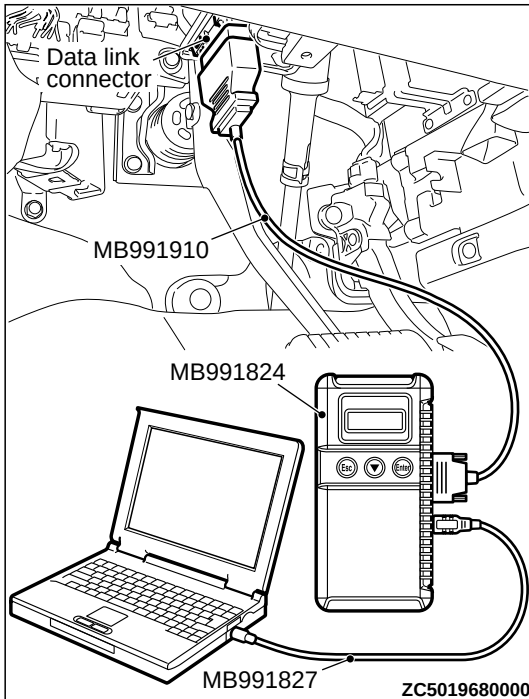
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

⚠ 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) Disconnect WCM connector C-29.
- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and WCM connector C-29.

NO: Check WCM connector C-29, and repair if necessary. If the WCM connector is in good condition, replace the WCM.

STEP 51. Using scan tool MB991958, diagnose the CAN bus line. (checking the SRS-ECU for internal failure)

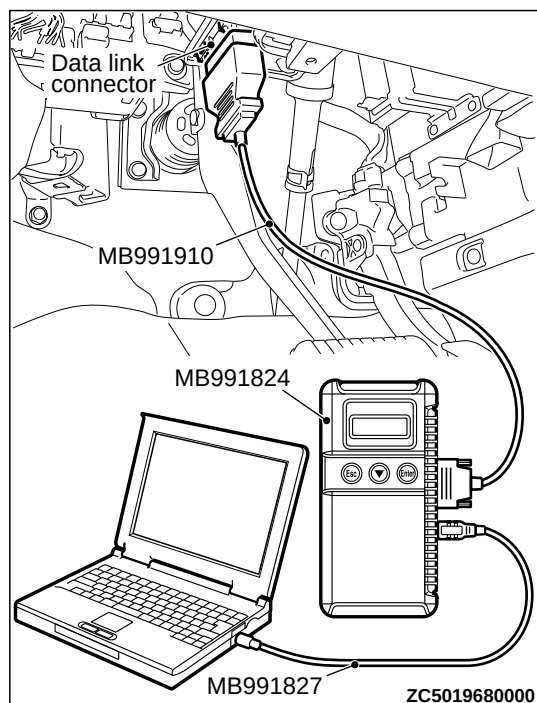
⚠ CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

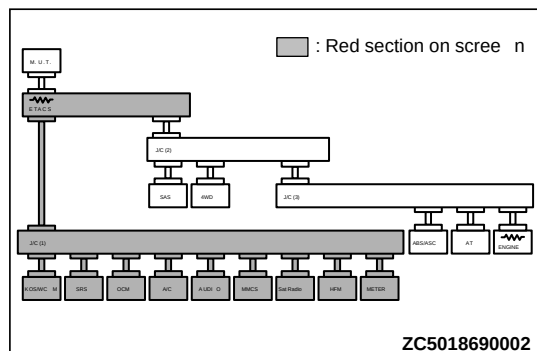
⚠ CAUTION

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) Disconnect SRS-ECU connector C-28.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and SRS-ECU connector C-28.

NO: Check SRS-ECU connector C-28, and repair if necessary. If the SRS-ECU connector is in good condition, replace the SRS-ECU.

STEP 52. Using scan tool MB991958, diagnose the CAN bus line. (checking the occupant classification-ECU for internal failure)

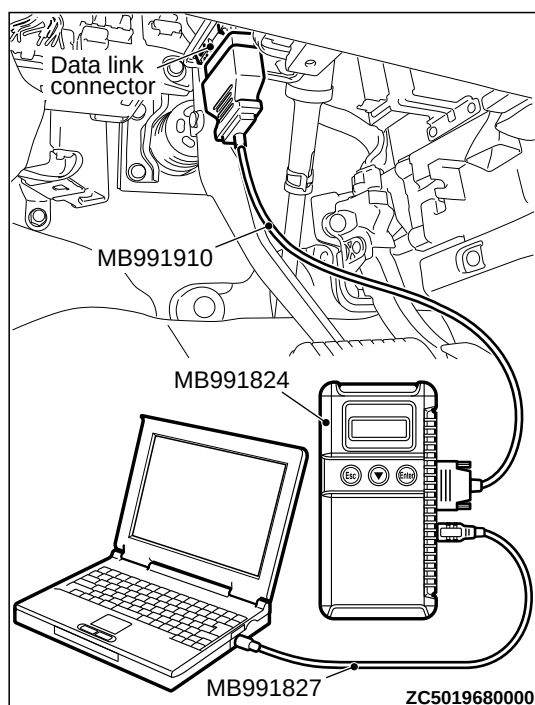
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

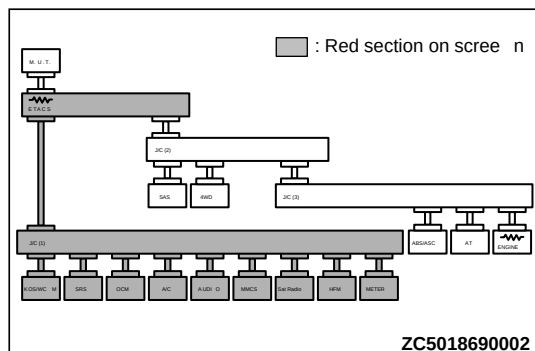
CAUTION

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) Disconnect occupant classification-ECU connector D-31-2.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and occupant classification-ECU connector D-31-2.

NO: Check occupant classification-ECU connector D-31-2, and repair if necessary. If the occupant classification-ECU connector is in good condition, replace the occupant classification-ECU.

STEP 53. Using scan tool MB991958, diagnose the CAN bus line. (checking the hands free module for internal failure)

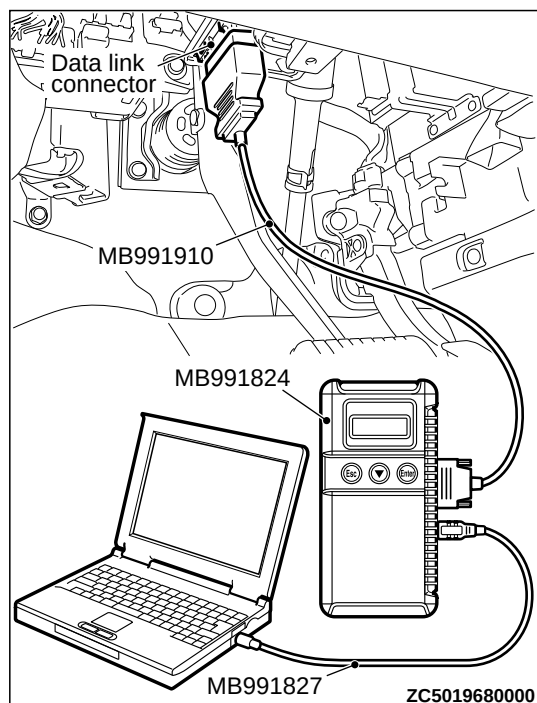
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

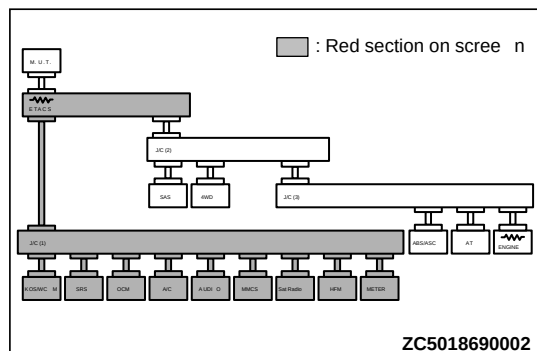
CAUTION

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) Disconnect hands free module connector C-121.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and hands free module connector C-121.

NO: Check hands free module connector C-121, and repair if necessary. If the hands free module connector is in good condition, replace the hands free module.

STEP 54. Using scan tool MB991958, diagnose the CAN bus line. (checking the A/C-ECU for internal failure)

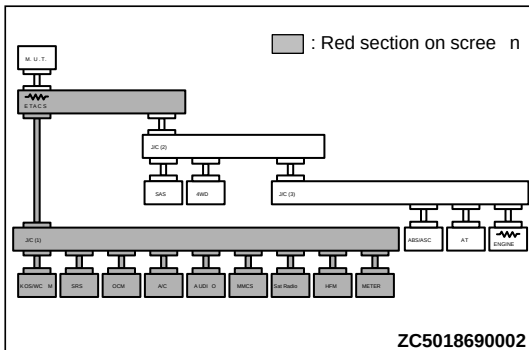
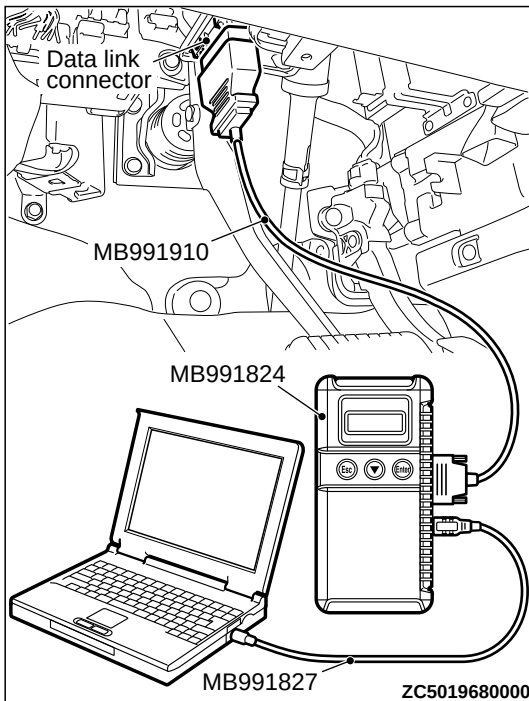
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

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) Disconnect A/C-ECU connector C-109.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.

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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and A/C-ECU connector C-109.

NO: Check A/C-ECU connector C-109, and repair if necessary. If the A/C-ECU connector is in good condition, replace the A/C-ECU.

STEP 55. Using scan tool MB991958, diagnose the CAN bus line. (checking the radio and CD player or CD changer for internal failure)

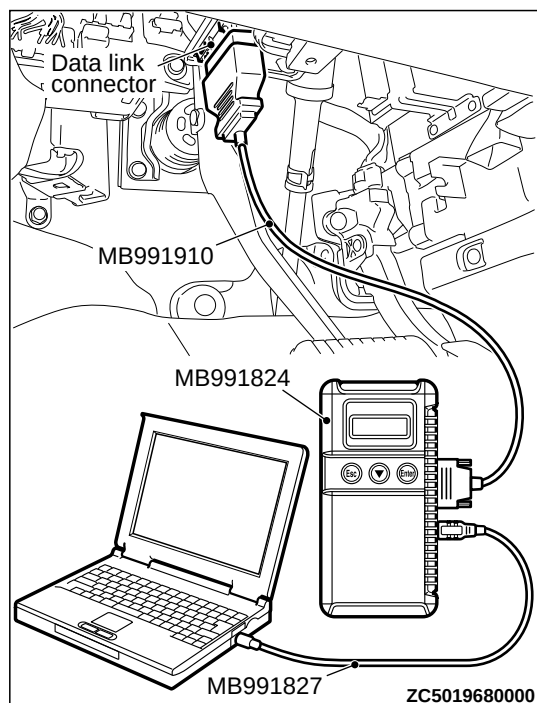
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

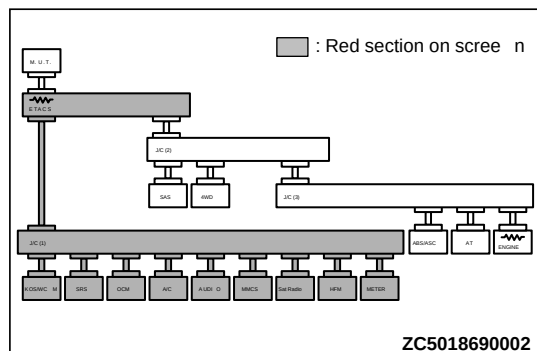
CAUTION

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) Disconnect radio and CD player or CD changer connector C-16.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and radio and CD player or CD changer connector C-16.

NO: Check radio and CD player or CD changer connector C-16, and repair if necessary. If the radio and CD player or CD changer connector is in good condition, replace the radio and CD player or CD changer.

STEP 56. Using scan tool MB991958, diagnose the CAN bus line. (checking the CAN box unit for internal failure)

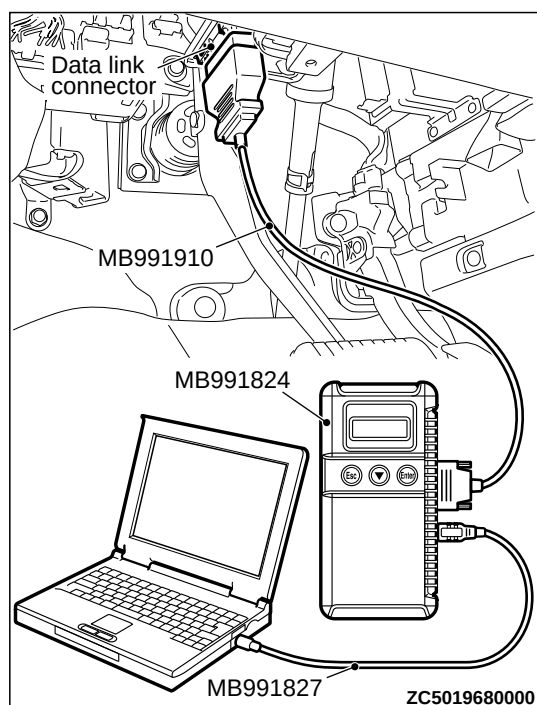
CAUTION

Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

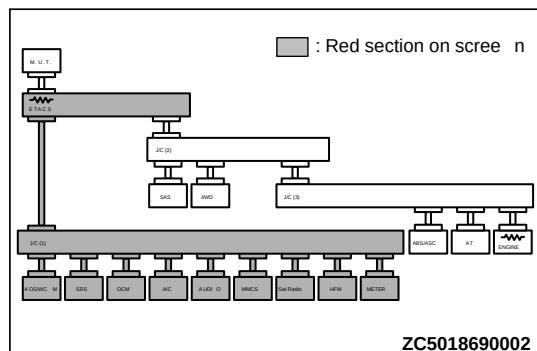
CAUTION

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) Disconnect CAN box unit connector C-13.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.



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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: Repair the wiring harness between joint connector (CAN1) C-103 and satellite radio tuner connector C-111.

NO: Check satellite radio tuner connector C-111, and repair if necessary. If the satellite radio tuner connector is in good condition, replace the satellite radio tuner.

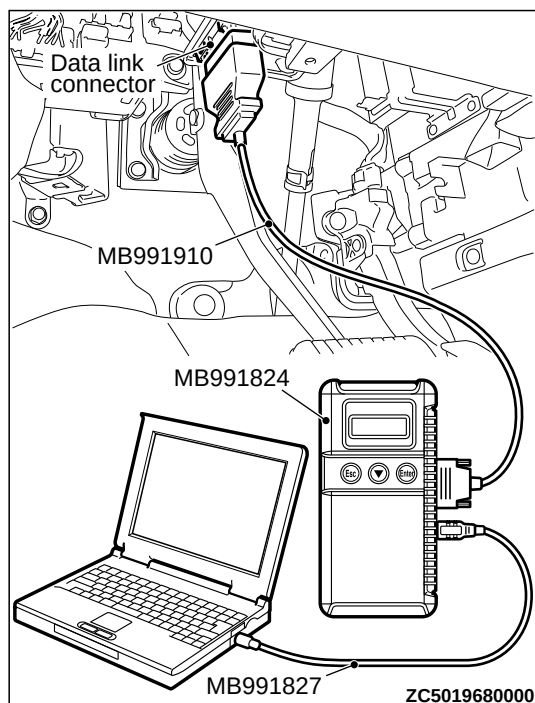
STEP 58. Using scan tool MB991958, diagnose the CAN bus line. (trouble symptom check)

CAUTION

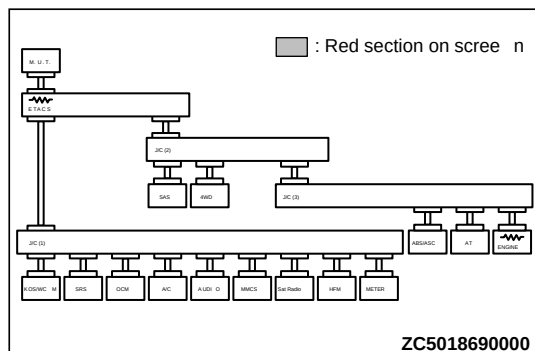
Strictly observe the specified wiring harness repair procedure. For details refer to P.54D-8.

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

OK: The display of the scan tool MB991958 is as shown in the figure.

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

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

NO: Check the ETACS-ECU connector C-301, and repair if necessary. If the ETACS-ECU connector is in good condition, replace the ETACS-ECU.

CAN COMMUNICATION-RELATED DTC (U-CODE) TABLE

M15408300003USA0000010000

Code No.	Diagnostic item	Output ECU	Action
U0001	Bus Off (CAN-C)	ECM, PCM, AWD-ECU, ABS-ECU or ASC-ECU, ETACS-ECU	CAN main bus line diagnostics
U0019	Bus Off (CAN-B)	KOS-ECU or WCM, SRS-ECU, Combination meter, 6-disc CD changer and AM/FM radio, A/C-ECU, ETACS-ECU	
U0100	Engine time-out	PCM, AWD-ECU, ABS-ECU or ASC-ECU, Combination meter, ETACS-ECU	
U0101	A/T time-out	ECM, ASC-ECU, ETACS-ECU	
U0114	AWD-ECU time-out	ECM, ABS-ECU or ASC-ECU, ETACS-ECU	

CONTROLLER AREA NETWORK (CAN)
CAN COMMUNICATION-RELATED DTC (U-CODE) TABLE

Code No.	Diagnostic item	Output ECU	Action
U0121	ASC-ECU time-out	ECM, PCM, AWD-ECU, ETACS-ECU	Diagnose CAN main bus lines and confirm input signals.
U0125	G and yaw rate sensor message time-out/ message abnormality	ASC-ECU	
U0126	Steering wheel sensor time-out	ETACS-ECU	
U0141	ETACS-ECU time-out	ECM, PCM, AWD-ECU, ABS-ECU or ASC-ECU, SRS-ECU, KOS-ECU or WCM, Combination meter, A/C-ECU	
U0151	SRS time-out	KOS-ECU or WCM, Combination meter, ETACS-ECU, A/C-ECU	
U0154	Occupant Classification-ECU time-out	SRS-ECU, KOS-ECU or WCM, Combination meter, ETACS-ECU, A/C-ECU	
U0155	Meter time-out	KOS-ECU or WCM, SRS-ECU, ETACS-ECU, A/C-ECU	
U0164	A/C time-out	KOS-ECU or WCM, SRS-ECU, Combination meter, ETACS-ECU	
U0167	CAN immobilizer (communication)	ECM	
U0168	WCM/KOS time-out	SRS-ECU, Combination meter, ETACS-ECU, A/C-ECU	
U0180	Combination meter time-out	ECM	
U0184	Audio unit time-out	SRS-ECU, KOS-ECU or WCM, Combination meter, ETACS-ECU, A/C-ECU	
U0195	Satellite radio tuner time-out	SRS-ECU, WCM, ETACS-ECU, A/C-ECU	
U0197	Hands free module time-out	SRS-ECU, KOS-ECU or WCM, Combination meter, ETACS-ECU, A/C-ECU	
U0212	Steering wheel sensor time-out	SRS-ECU	
U0245	Audio visual navigation unit time-out	KOS-ECU or WCM, Combination meter, ETACS-ECU	
U0401	Engine CAN data abnormality	AWD-ECU, ASC-ECU	
U0415	ASC CAN data abnormality	AWD-ECU	
U0428	Steering wheel sensor communication abnormality	ASC-ECU	
U1003	G and yaw rate sensor bus off		
U1108	Excess CAN-B ECU detection	ETACS-ECU	
U1120	Bus line (CAN-C) low input		
U1121	Bus line (CAN-C) high input		
U113C	Lost wheel sensor message	AWD-ECU	

CONTROLLER AREA NETWORK (CAN)
CAN COMMUNICATION-RELATED DTC (U-CODE) TABLE

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Code No.	Diagnostic item	Output ECU	Action
U1412	Implausible vehicle speed signal received	KOS-ECU or WCM	
U1414	Defective coding data	SRS-ECU	
U1415	Coding not completed/Data fail	ABS-ECU or ASC-ECU, SRS-ECU, KOS-ECU or WCM, Combination meter, 6-disc CD changer and AM/FM radio, A/C-ECU	
U1417	Implausible coding data	ABS-ECU or ASC-ECU, KOS-ECU or WCM	

MEMO