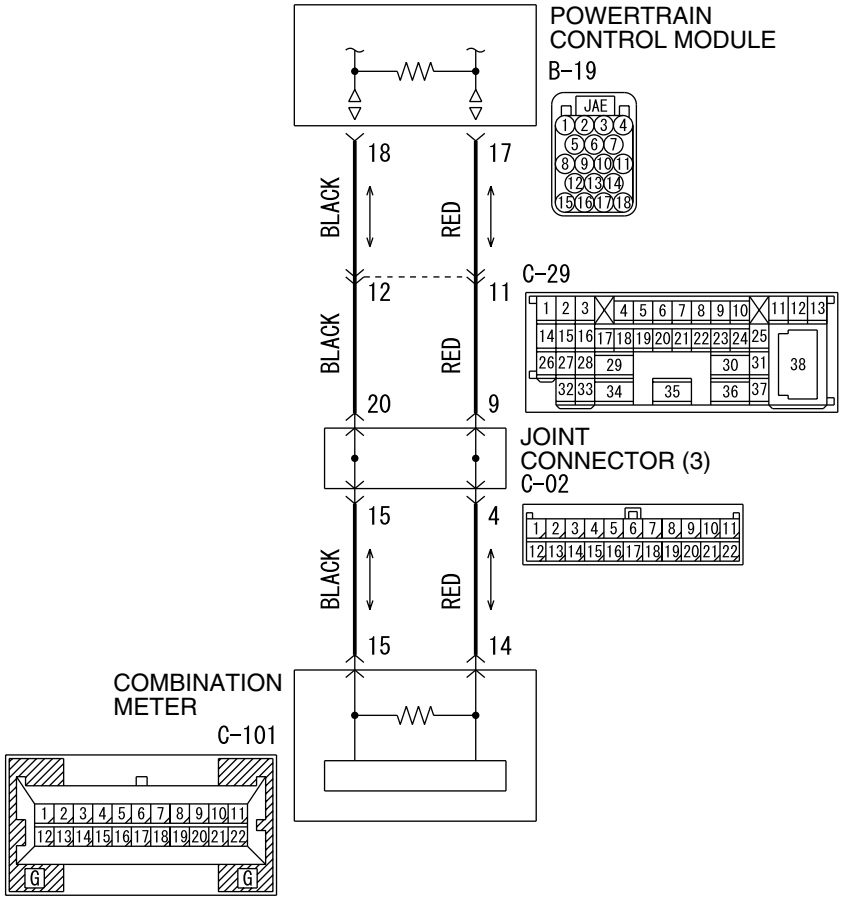
DIAGNOSTIC ITEM 10: Diagnose terminator resistors at both ends <Vehicles without ABS>

⚠ 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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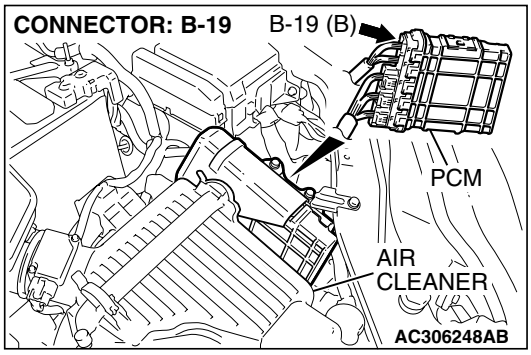
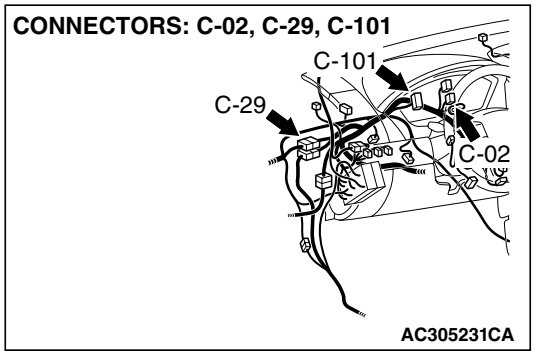




TROUBLE JUDGMENT

The terminator resistors at both ends of CAN bus lines may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is more than 2 ohms.

COMMENTS ON TROUBLE SYMPTOM

The CAN bus line harness wires or connectors may be damaged (open circuit may be present on CAN_L or CAN_H line between the data link connector and CAN main bus lines, or CAN main bus lines may be open at both sides), or the combination meter and the powertrain control module may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

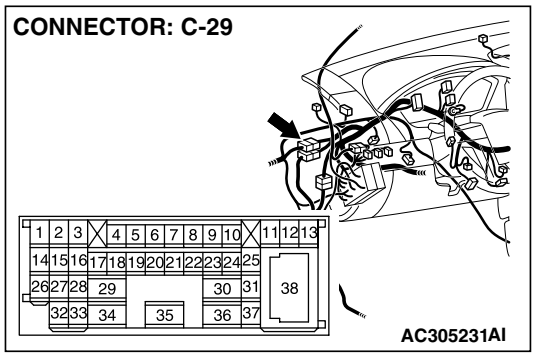
⚠ CAUTION

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

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

YES : Go to Step 2.

NO : Repair the damaged parts.



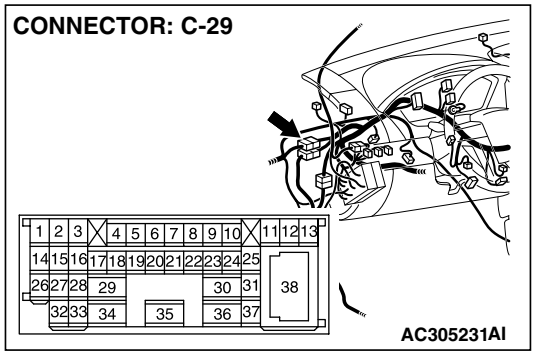
STEP 2. Check the instrument panel wiring harness side CAN bus lines (communication line including the combination meter). Measure the resistance at intermediate connector C-29.

⚠ CAUTION

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

⚠ CAUTION

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



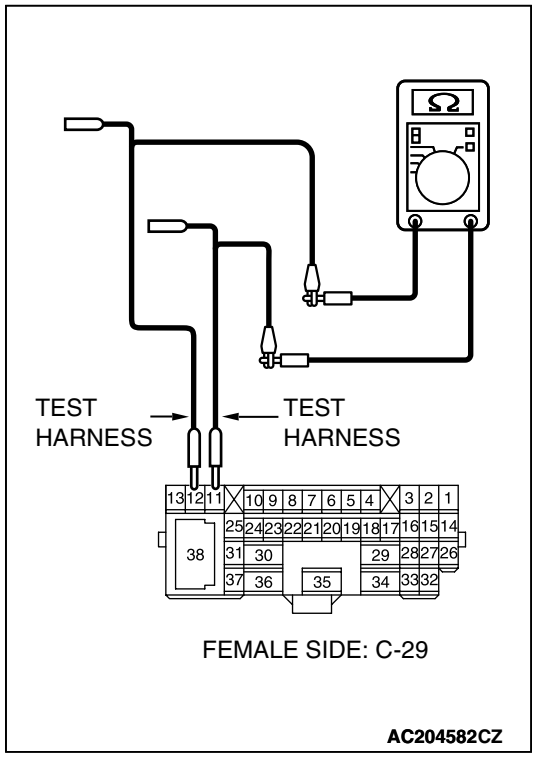
(1) Disconnect intermediate connector C-29, and measure the resistance at its female side connector (instrument panel wiring harness side).

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

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



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

OK: 120 ± 20 Ω

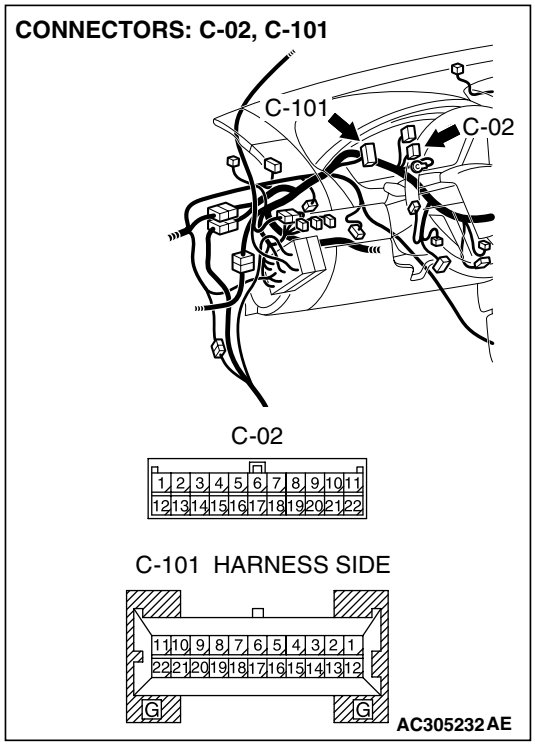
Q: Does the resistance measure 120 ± 20 Ω?

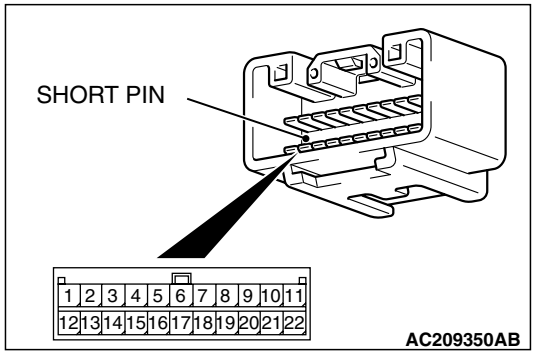
YES : If the resistance measures 120 ± 20 Ω, go to Step 8.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 3 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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





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

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts. Replace the joint connector as necessary. Then go to Step 2.

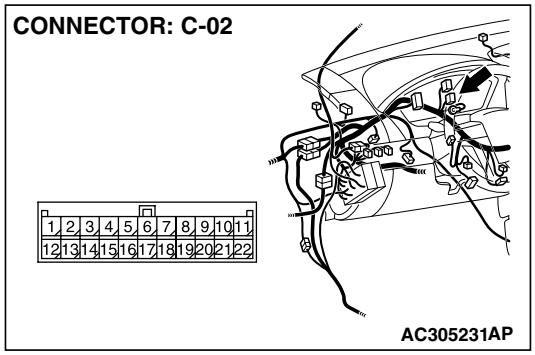
STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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



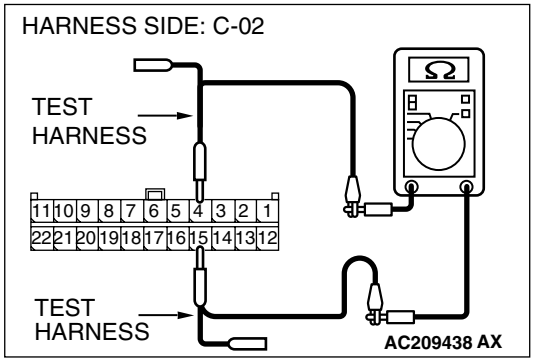
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

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

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



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

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 7.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

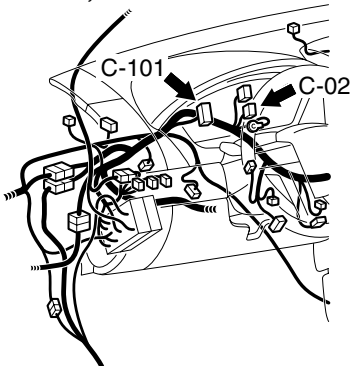
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

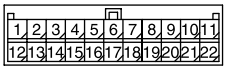
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

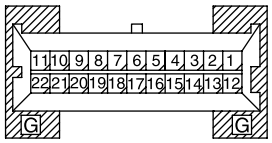
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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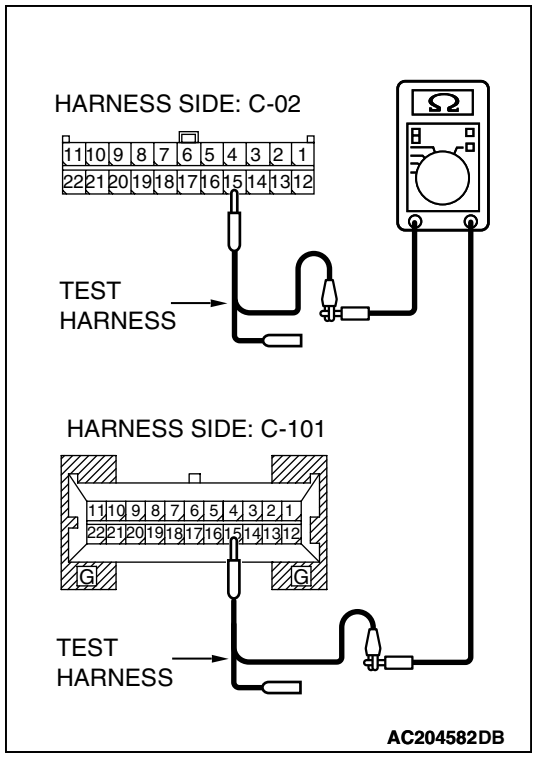
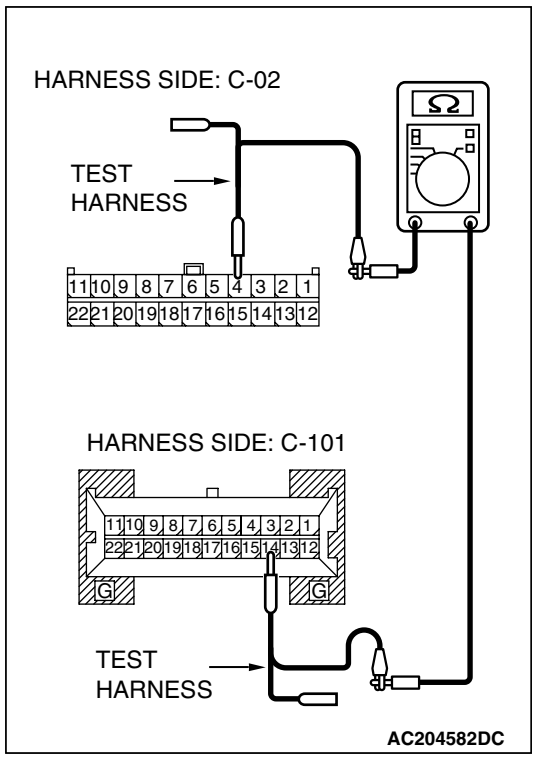


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

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

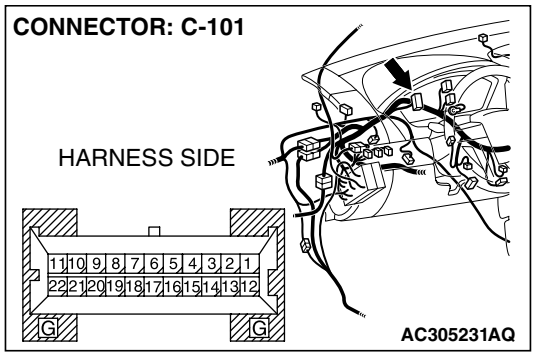
YES : If all the resistances measure 2 ohms or less, go to Step 6.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector, and then go to Step 2.

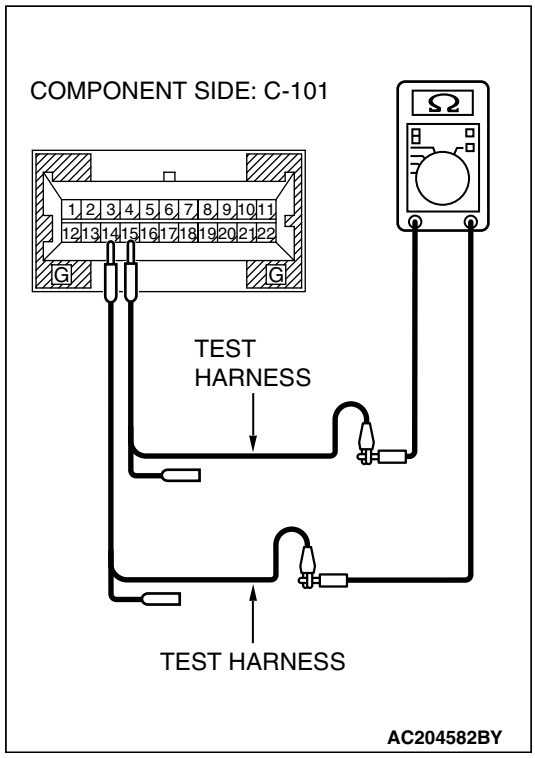
STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

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



(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 2.

NO : If the resistance does not measure 120 ± 20 Ω, replace the combination meter, and then go to Step 2.

STEP 7. Check the CAN bus lines (communication line only) between intermediate connector C-29 and joint connector (3). Measure the resistance at intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

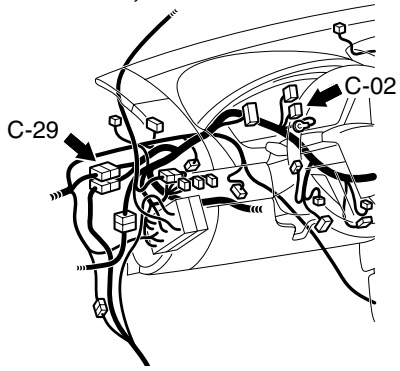
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

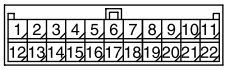
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

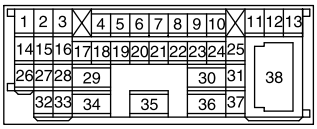
CONNECTORS: C-02, C-29



C-02



C-29



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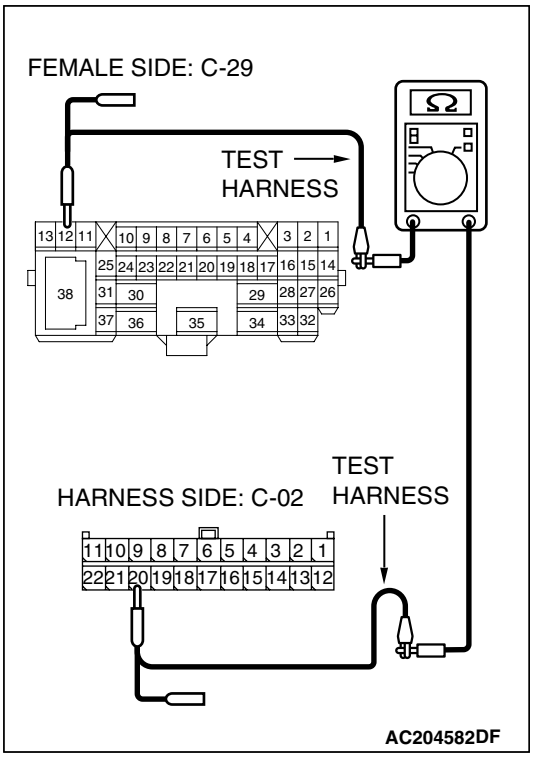
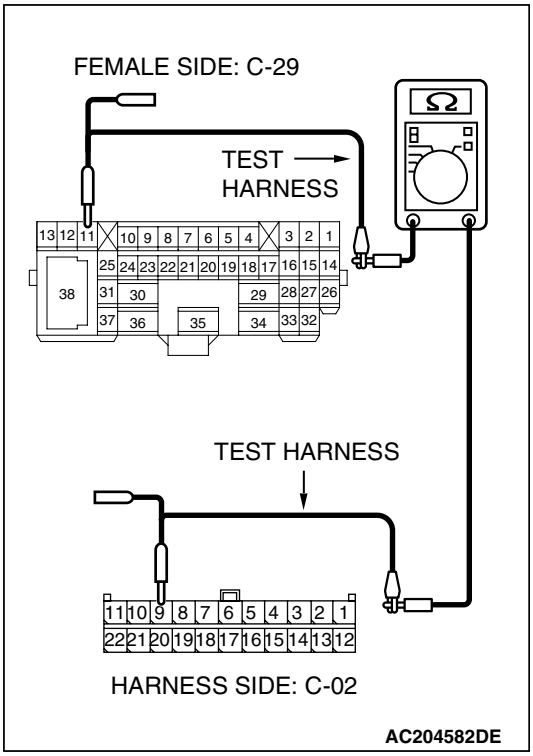


(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

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

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

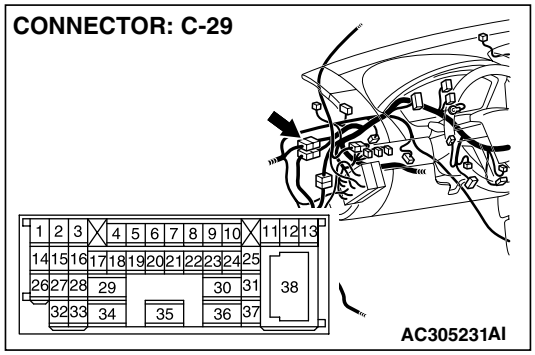
YES : If all the resistances measure 2 ohms or less, go to Step 2.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector, and then go to Step 2.

STEP 8. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module). Measure the resistance at intermediate connector C-29.

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

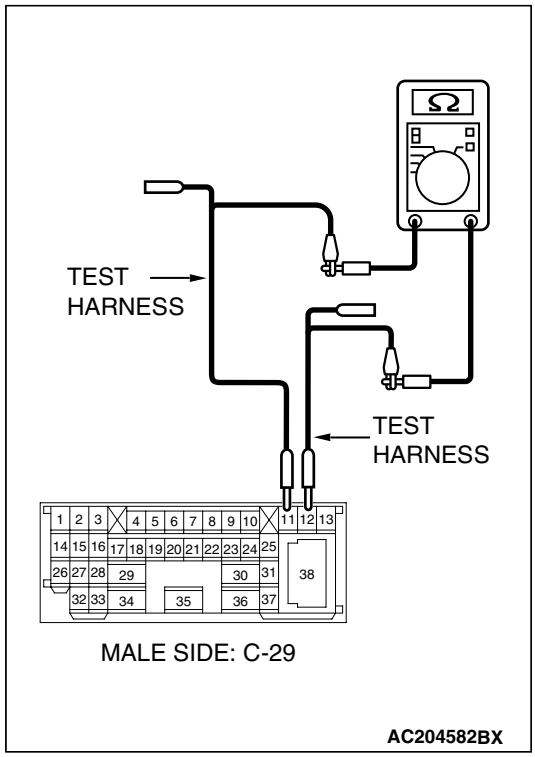
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



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

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

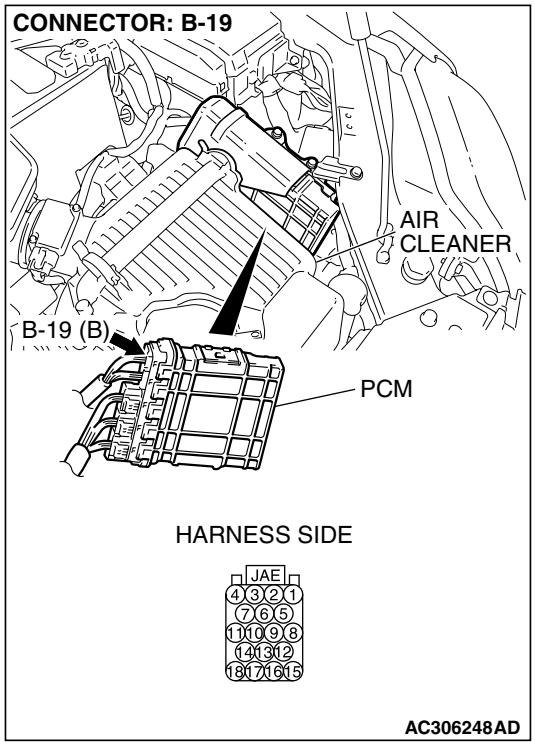


(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 12.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 9 .



STEP 9. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

Q: Is powertrain control module connector B-19 in good condition?

YES : Go to Step 10.
NO : Repair the damaged parts, and then go to Step 8.

STEP 10. Check the CAN bus lines (communication line only) between intermediate connector C-29 and the powertrain control module. Measure the resistance at intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

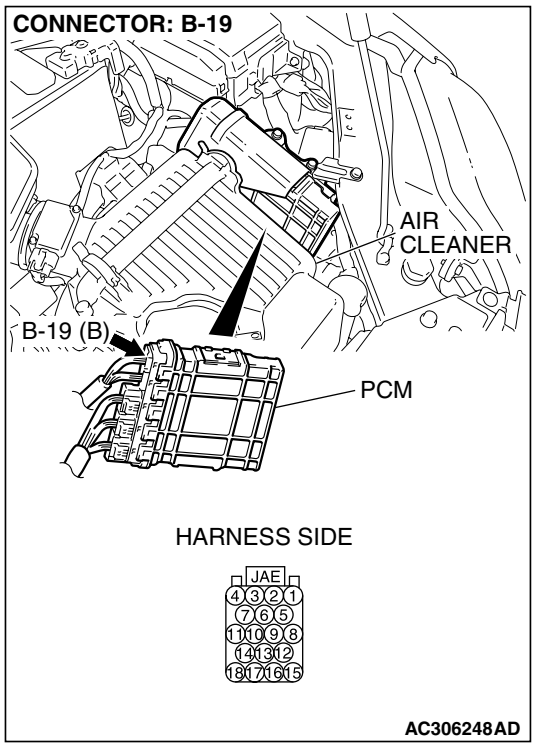
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

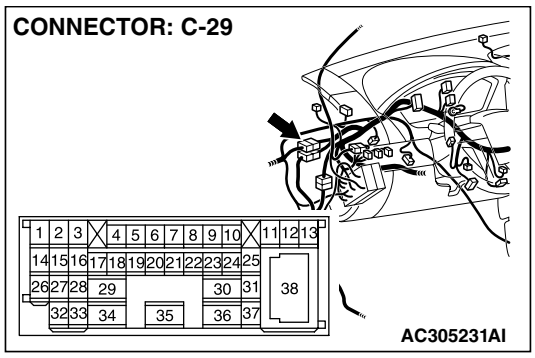
(2) Turn the ignition switch to the "LOCK" (OFF) position.

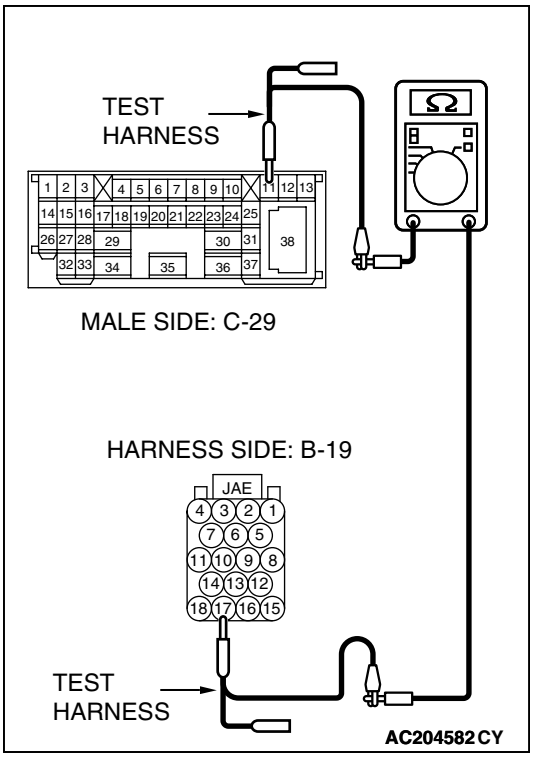
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

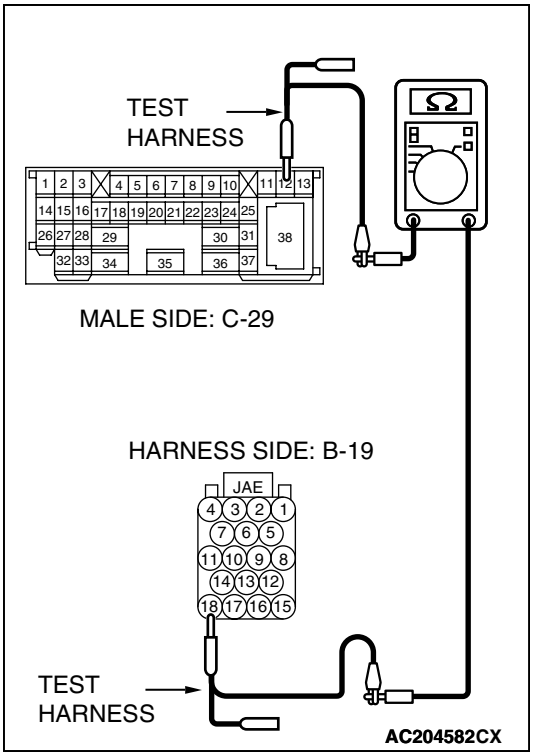






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 11.

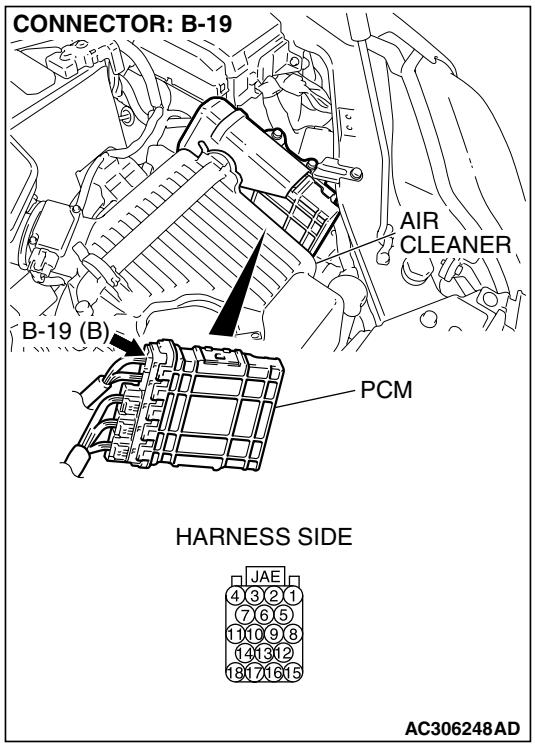
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector, and then go to Step 8.

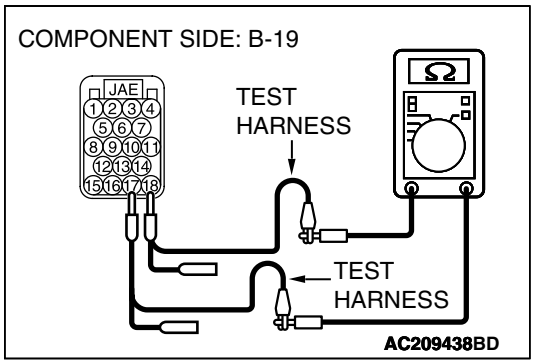
STEP 11. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

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

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 8.

NO : If the resistance does not measure 120 ± 20 Ω, replace the powertrain control module, and then go to Step 8.

STEP 12. Check the CAN bus lines (communication line only) between joint connector (3) and the data link connector. Measure the resistance at joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

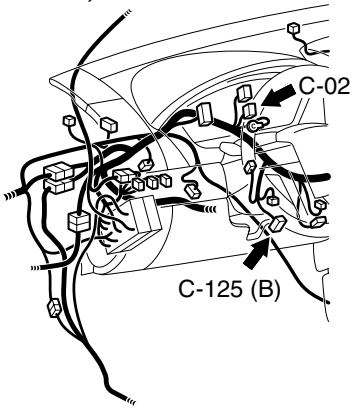
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

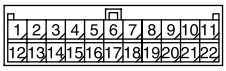
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

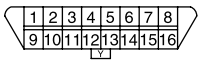
CONNECTORS: C-02, C-125



C-02



C-125



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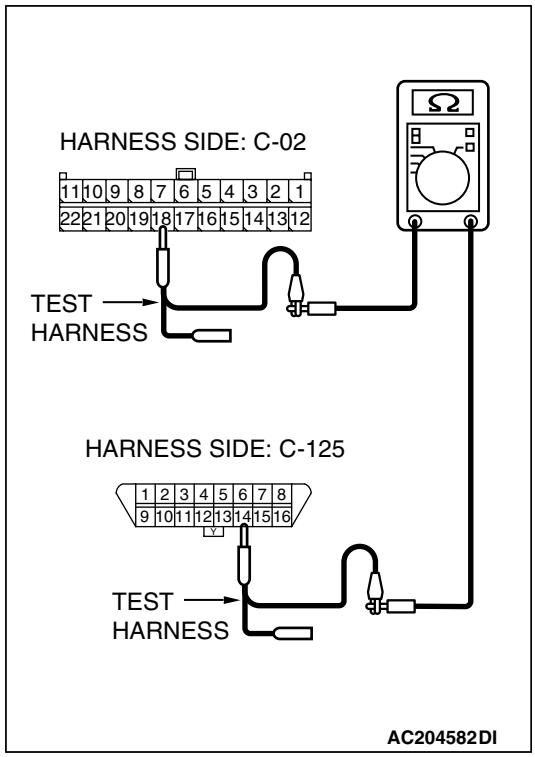
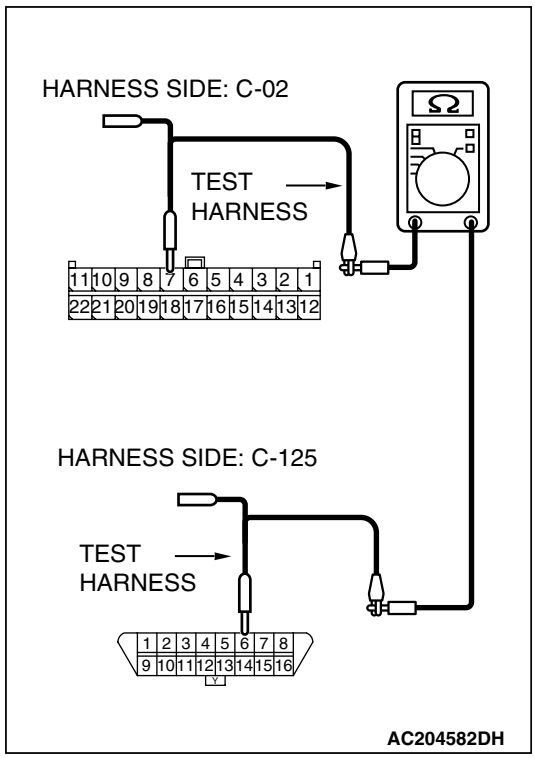


(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

⚠ CAUTION

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

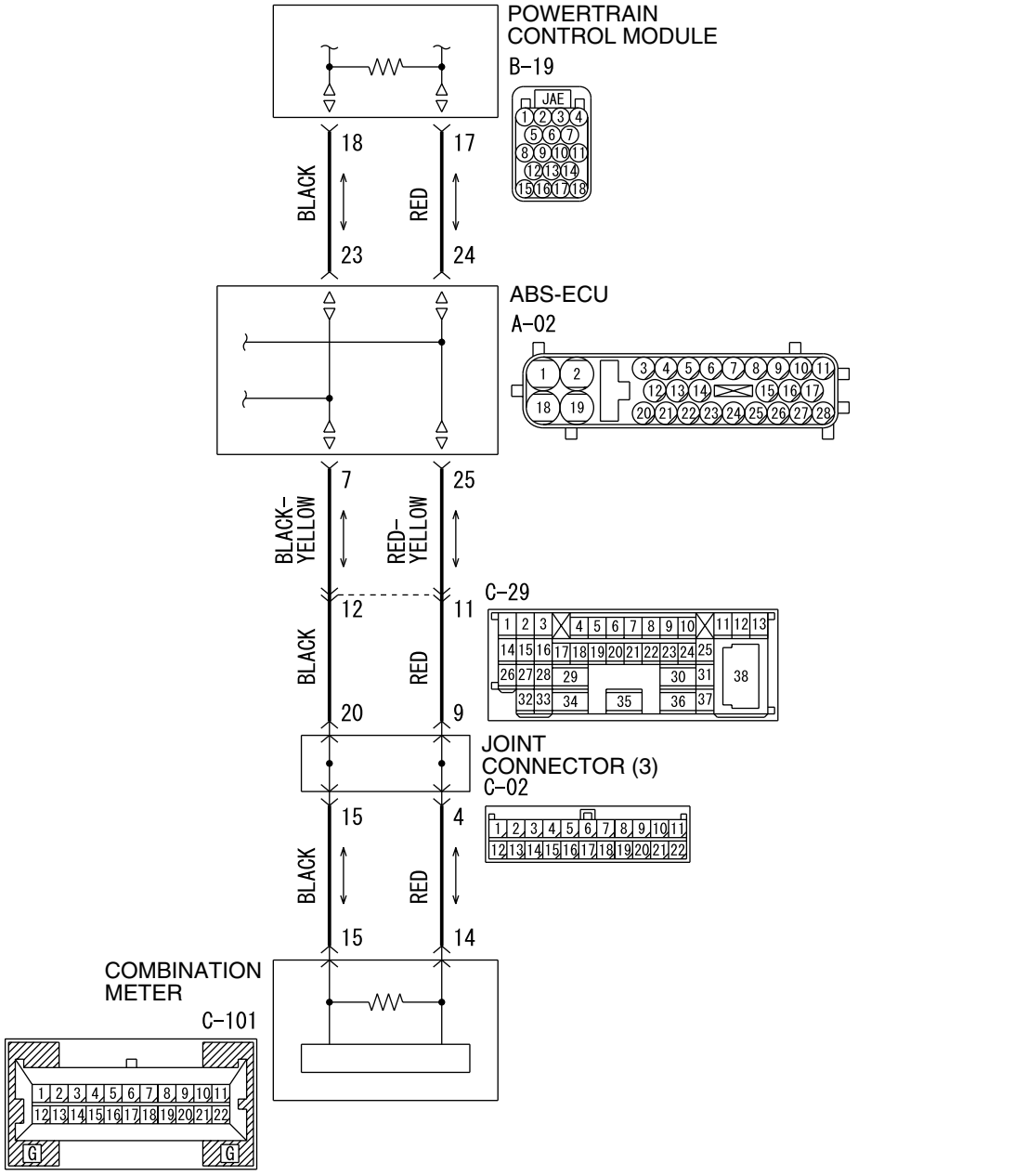
Q: Do all the resistances measure 2 ohms or less?

YES <all the resistances measure 2 ohms or less: When any repair done> : Retest the system.

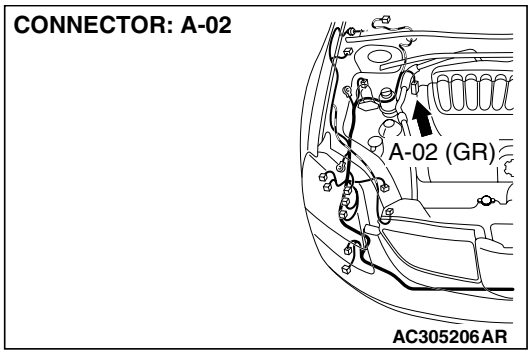
YES <all the resistances measure 2 ohms or less: When no repair done> : Diagnose CAN bus lines thoroughly by referring to P.54C-456.

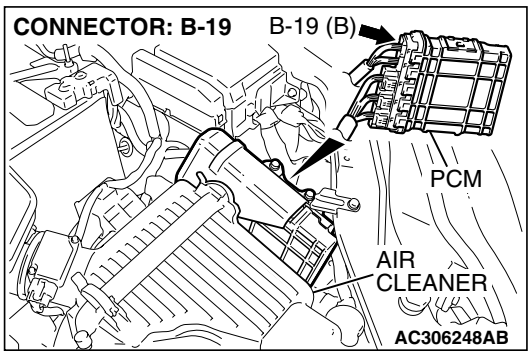
DIAGNOSTIC ITEM 11: Diagnose terminator resistors at both ends <Vehicles with ABS>

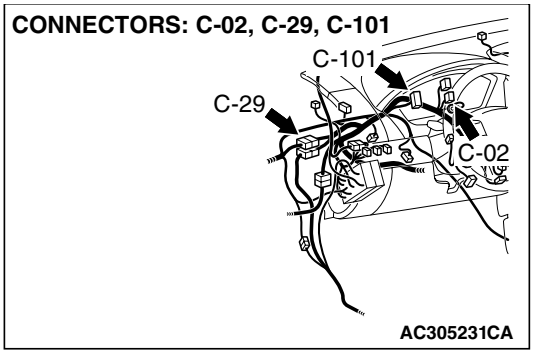
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



W4P54M100A







TROUBLE JUDGMENT

The terminator resistors at both ends of CAN bus lines may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is more than 2 ohms.

COMMENTS ON TROUBLE SYMPTOM

The CAN bus line harness wires or connectors may be damaged (open circuit may be present on CAN_L or CAN_H line between the data link connector and CAN main bus lines, or CAN main bus lines may be open at both sides), or the combination meter and the powertrain control module may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

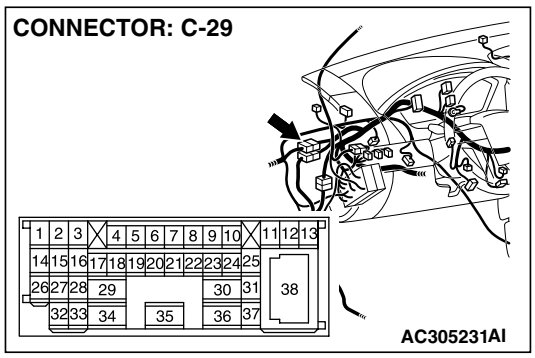
⚠ CAUTION

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

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

YES : Go to Step 2.

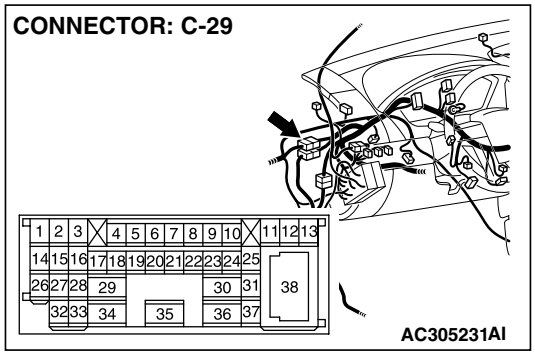
NO : Repair the damaged parts.



STEP 2. Check the instrument panel wiring harness side CAN bus lines (communication line including the combination meter). Measure the resistance at intermediate connector C-29.

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

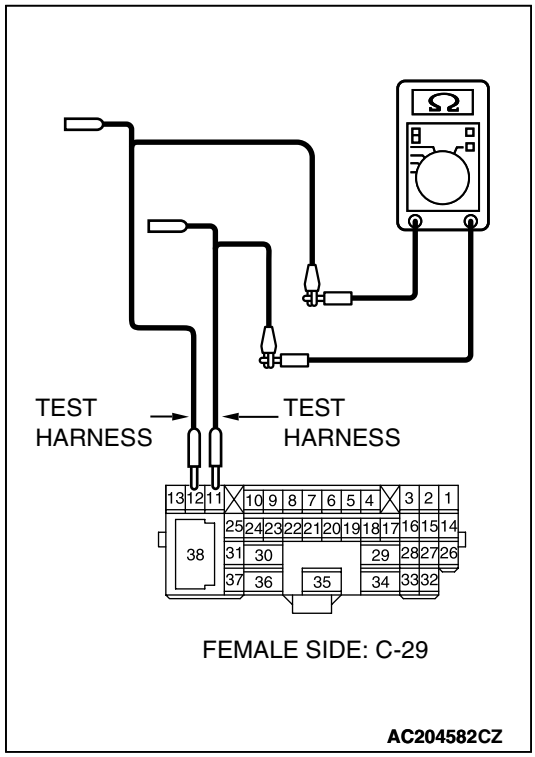
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



(1) Disconnect intermediate connector C-29, and measure the resistance at its female side connector (instrument panel wiring harness side).
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

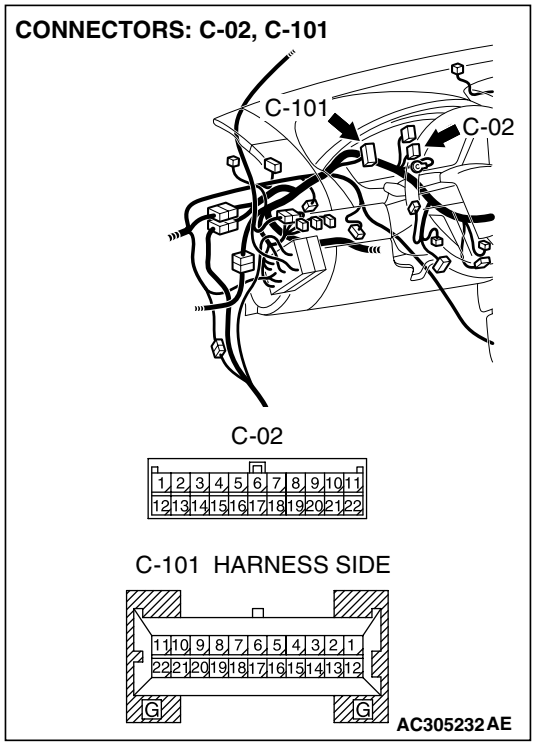


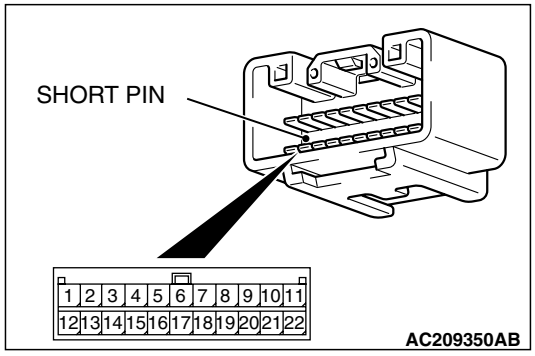
(4) Measure the resistance between intermediate connector terminals 11 and 12.
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?
YES : If the resistance measures 120 ± 20 Ω, go to Step 8.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 3 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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





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

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts. Replace the joint connector as necessary. Then go to Step 2.

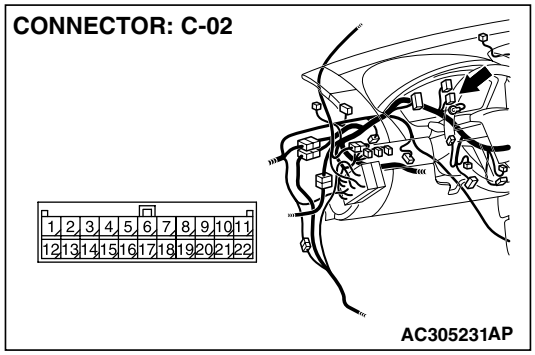
STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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



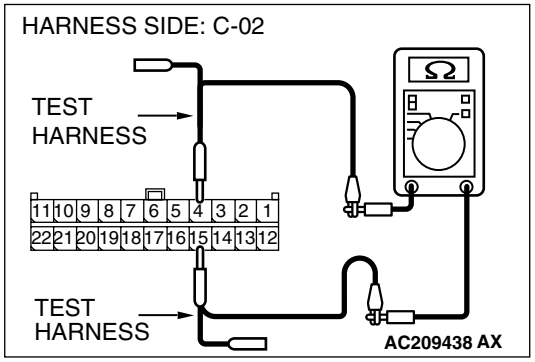
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

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

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



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

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 7.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

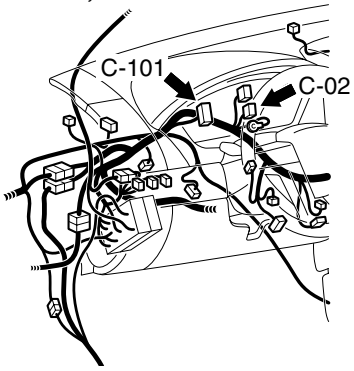
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

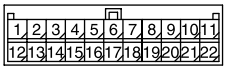
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

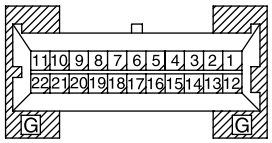
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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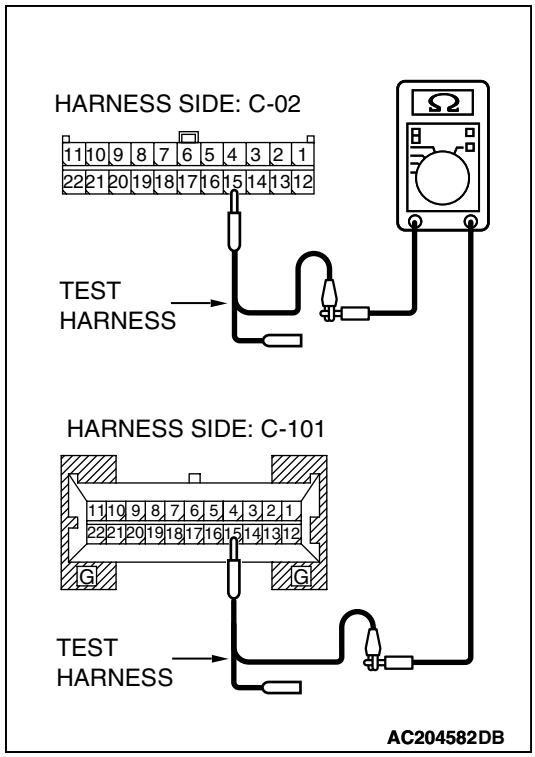
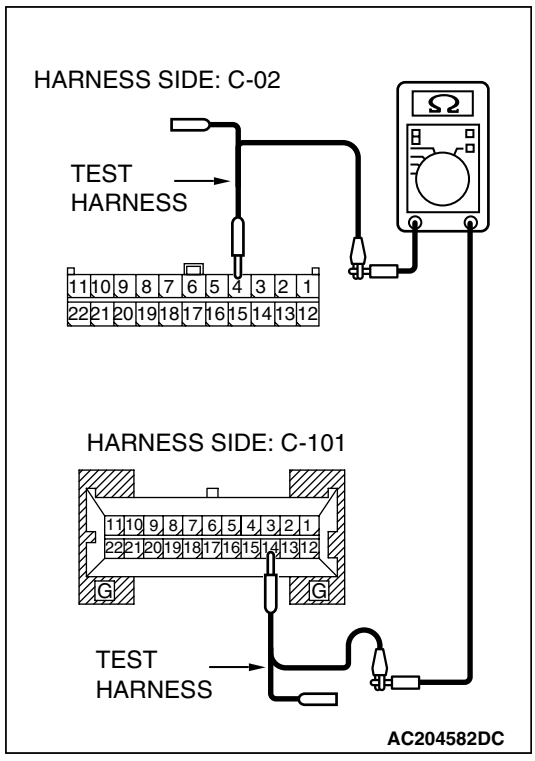


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

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

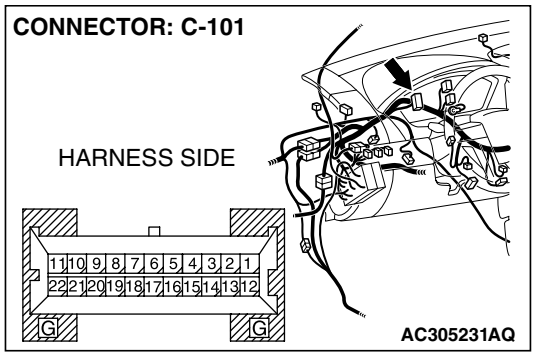
YES : If all the resistances measure 2 ohms or less, go to Step 6.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector, and then go to Step 2.

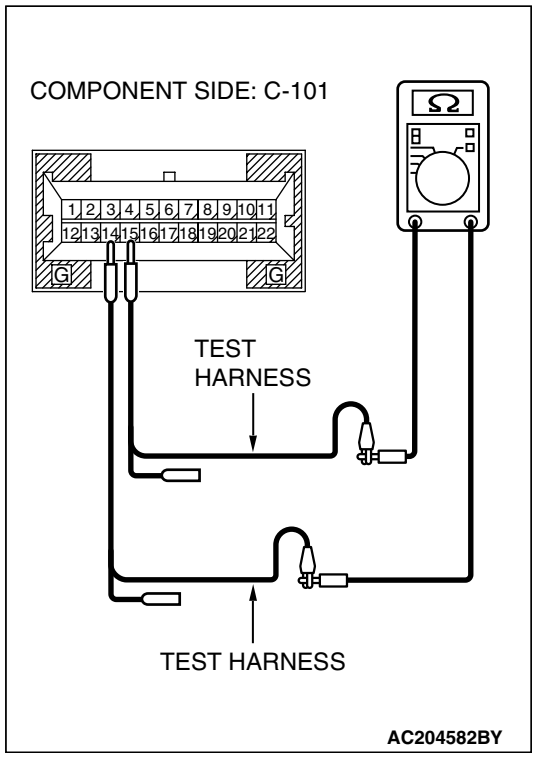
STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

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



(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



(2) Measure the resistance between combination meter connector terminals 14 and 15.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 2.

NO : If the resistance does not measure 120 ± 20 Ω, replace the combination meter, and then go to Step 2.

STEP 7. Check the CAN bus lines (communication line only) between intermediate connector C-29 and joint connector (3). Measure the resistance at intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

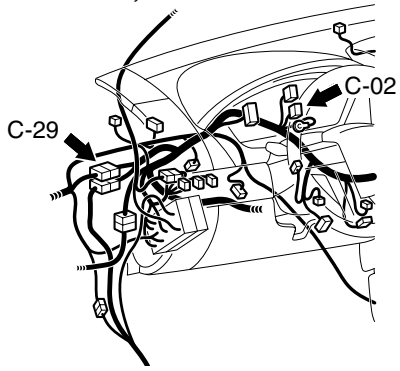
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

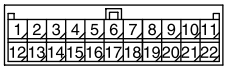
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

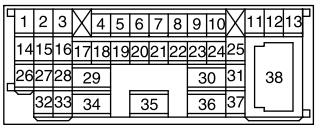
CONNECTORS: C-02, C-29



C-02



C-29



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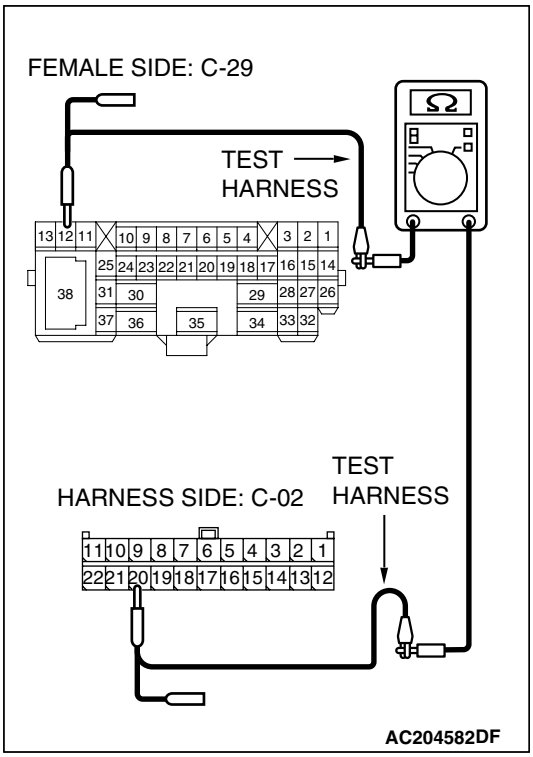
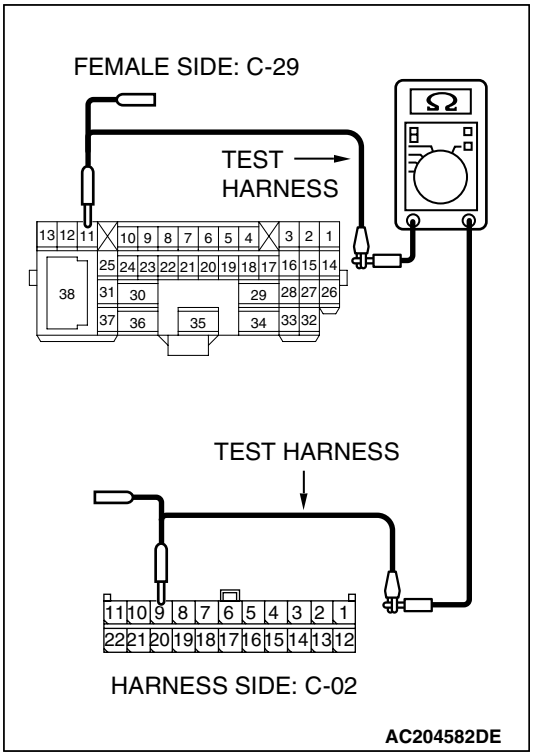


(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

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

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

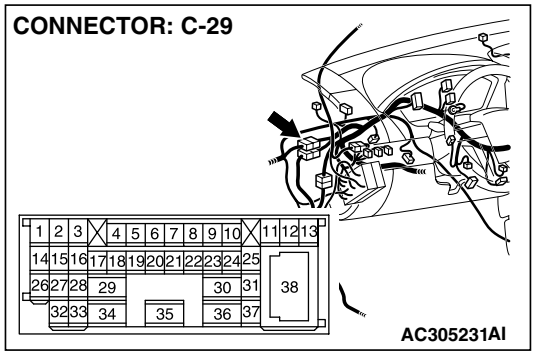
YES : If all the resistances measure 2 ohms or less, go to Step 2.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector, and then go to Step 2.

STEP 8. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module and the ABS-ECU). Measure the resistance at intermediate connector C-29.

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

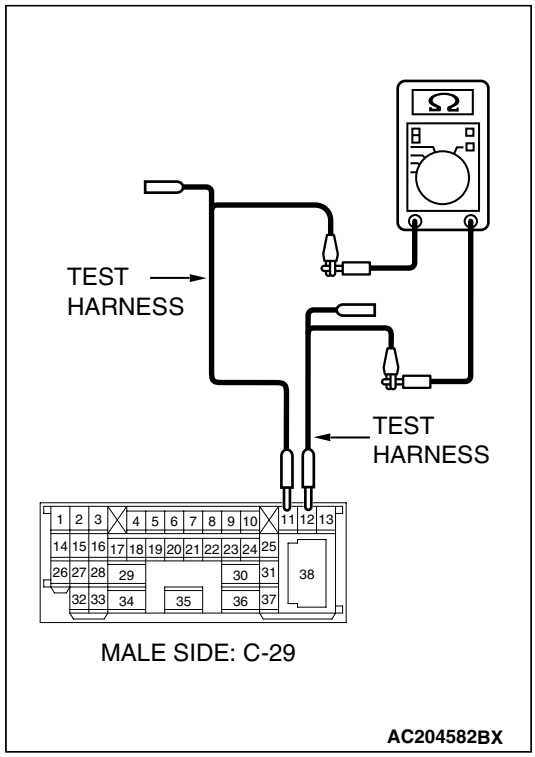
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



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

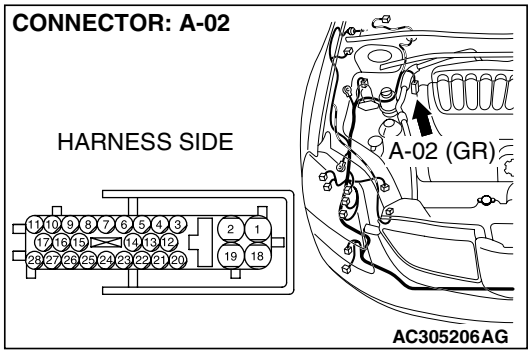
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

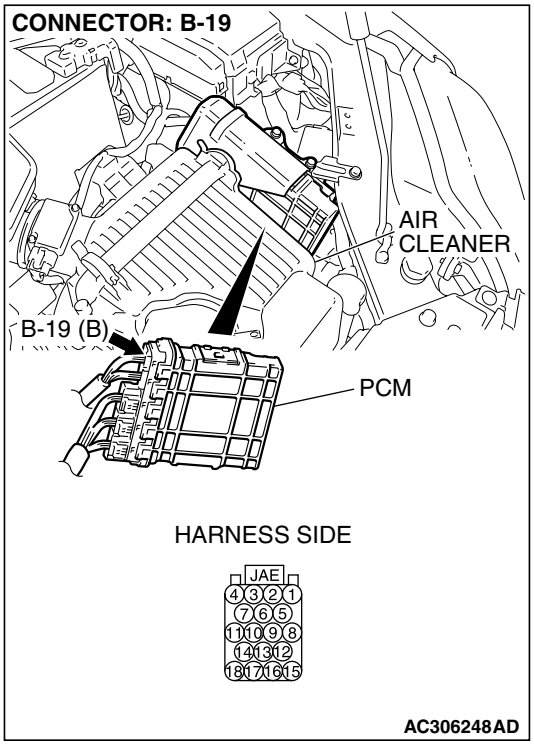
(3) Disconnect the negative battery terminal.



(4) Measure the resistance between intermediate connector terminals 11 and 12.
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?
YES : If the resistance measures 120 ± 20 Ω, go to Step 15.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 9 .





STEP 9. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

YES : Go to Step 10.

NO : Repair the damaged parts. Then go to Step 8.

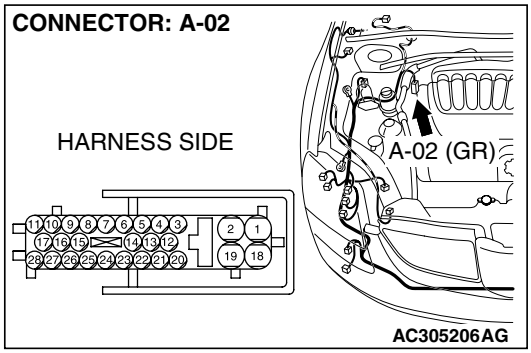
STEP 10. Check the CAN bus lines between the ABS-ECU and the powertrain control module (communication line including the powertrain control module). Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

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

⚠ CAUTION

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

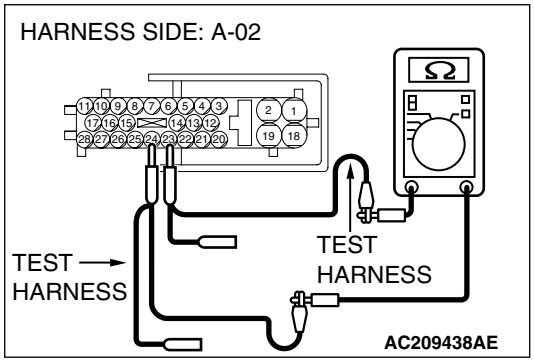


(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the wiring harness side of ABS-ECU connector A-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 23 and 24.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 13.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 11 .

STEP 11. Check the CAN bus lines (communication line only) between ABS-ECU and the powertrain control module. Measure the resistance at ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

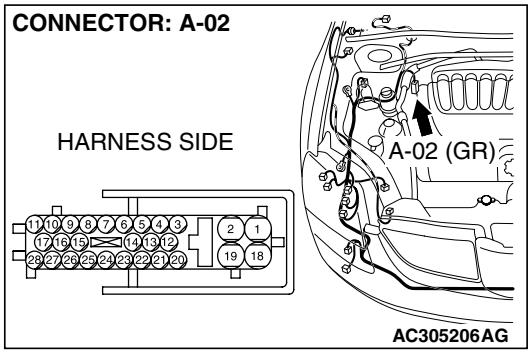
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

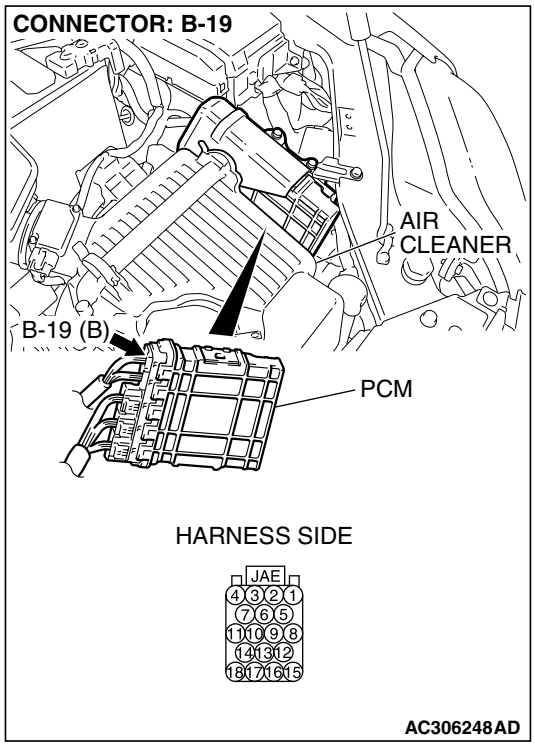
(2) Turn the ignition switch to the "LOCK" (OFF) position.

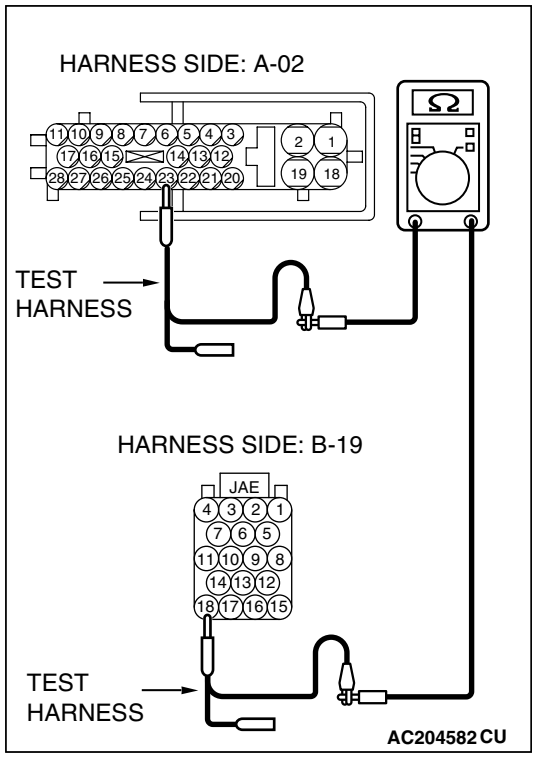
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

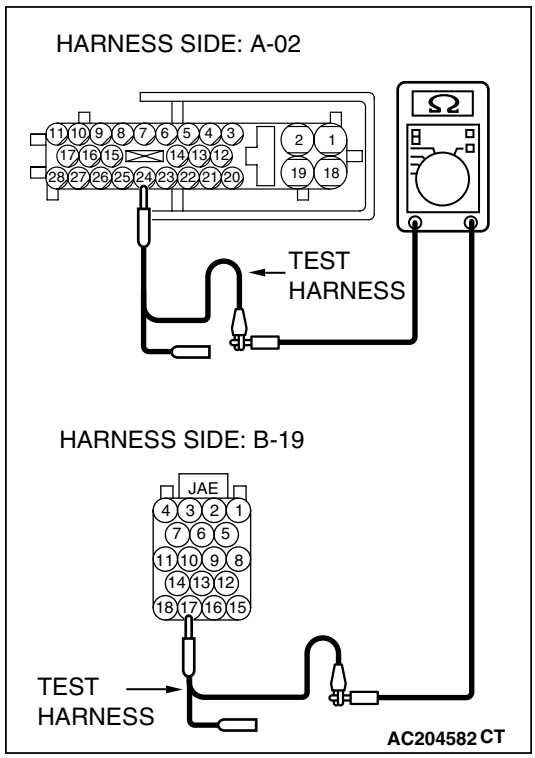






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 12.

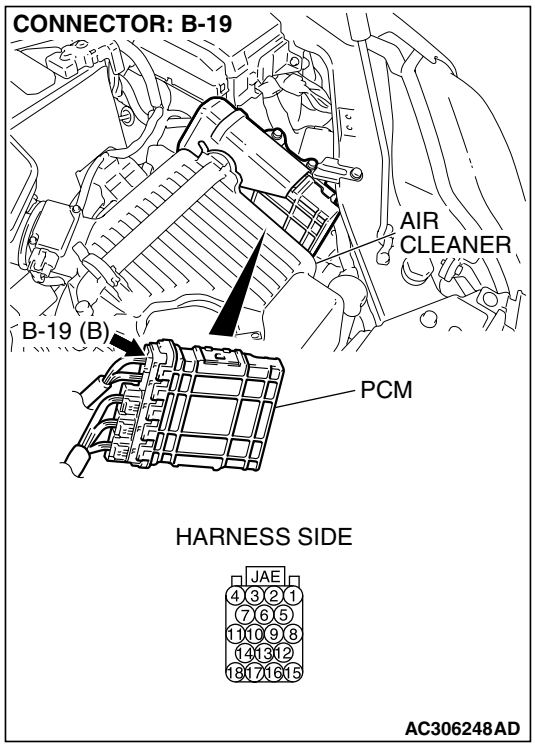
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between the ABS-ECU connector and the powertrain control module connector, and then go to Step 8.

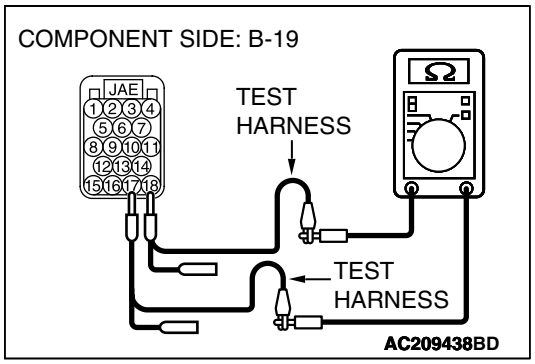
STEP 12. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

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

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, go to Step 8.

NO : If the resistance does not measure 120 ± 20 Ω, replace the powertrain control module, and then go to Step 8.

STEP 13. Check the CAN bus lines (communication line only) between intermediate connector C-29 and the ABS-ECU. Measure the resistance at intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

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

⚠ CAUTION

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

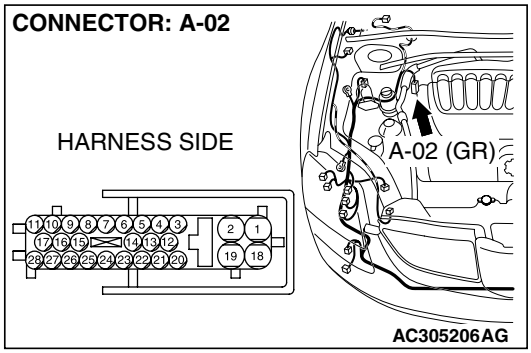
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

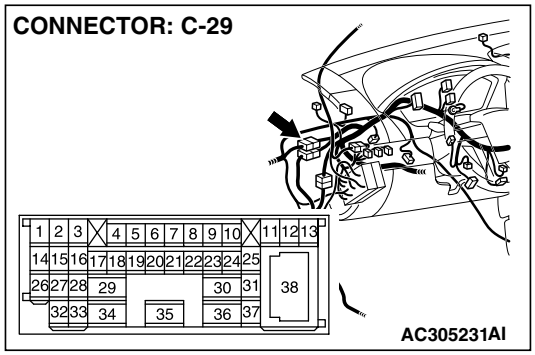
(2) Turn the ignition switch to the "LOCK" (OFF) position.

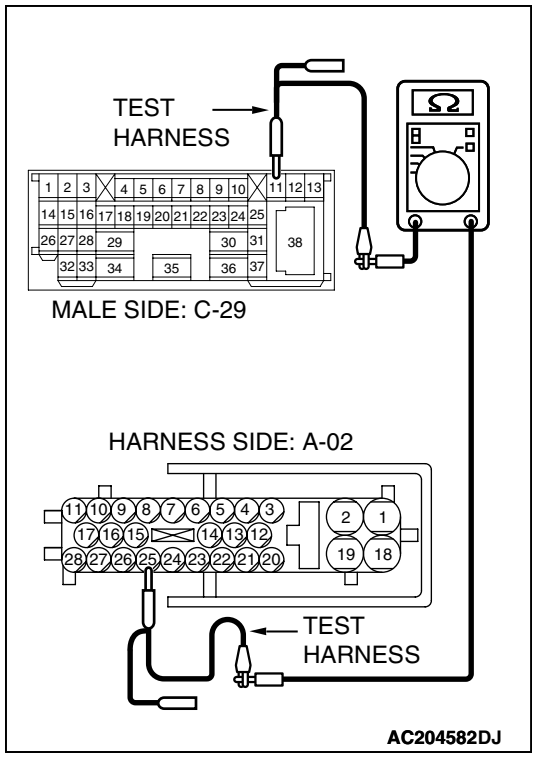
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

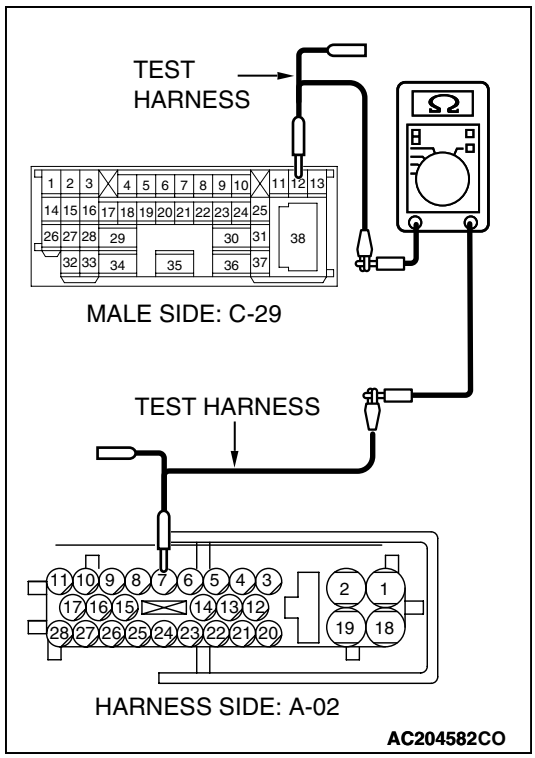






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

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

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

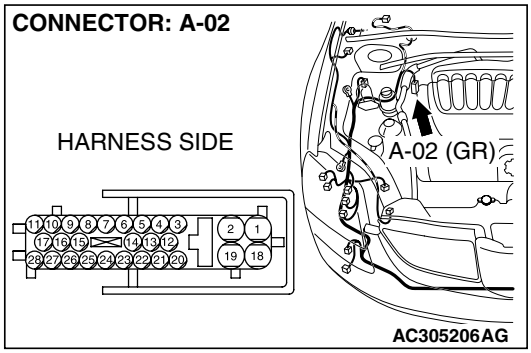
YES : If all the resistances measure 2 ohms or less, go to Step 14.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector, and then go to Step 8.

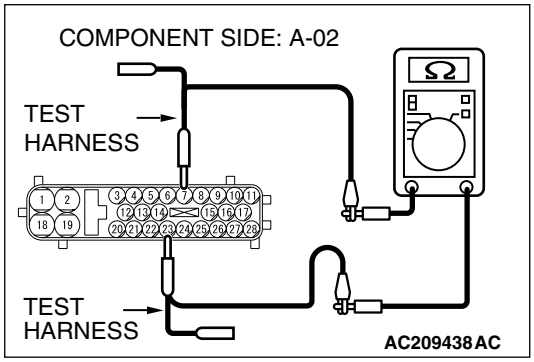
STEP 14. Check the ABS-ECU for open circuit. Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

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

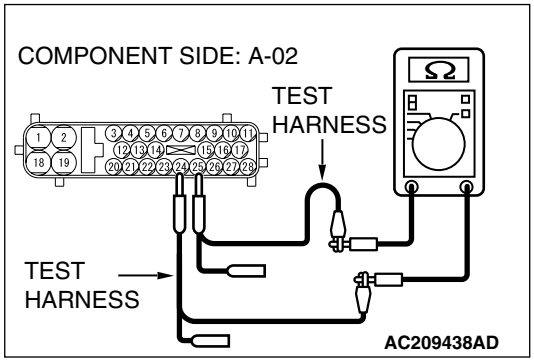


(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.



(2) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(3) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less

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

YES : If all the resistances measure 2 ohms or less, go to Step 8.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

Step 15. Check the CAN bus lines (communication line only) between joint connector (3) and the data link connector. Measure the resistance at joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

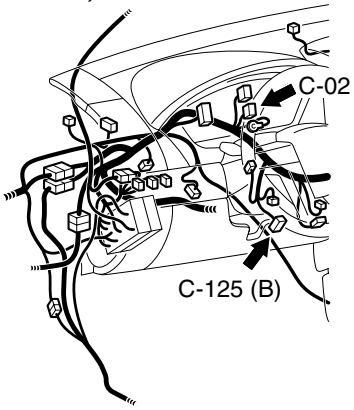
(2) Turn the ignition switch to the "LOCK" (OFF) position.

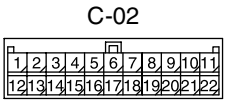
⚠ CAUTION

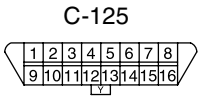
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

CONNECTORS: C-02, C-125







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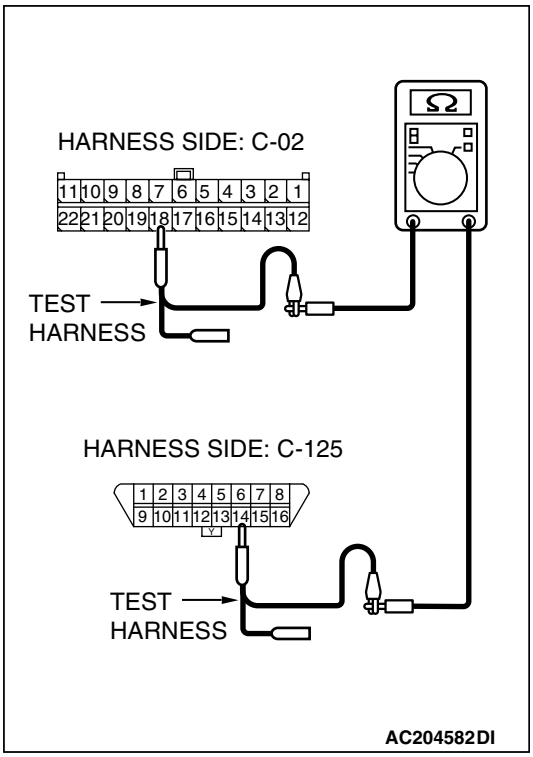
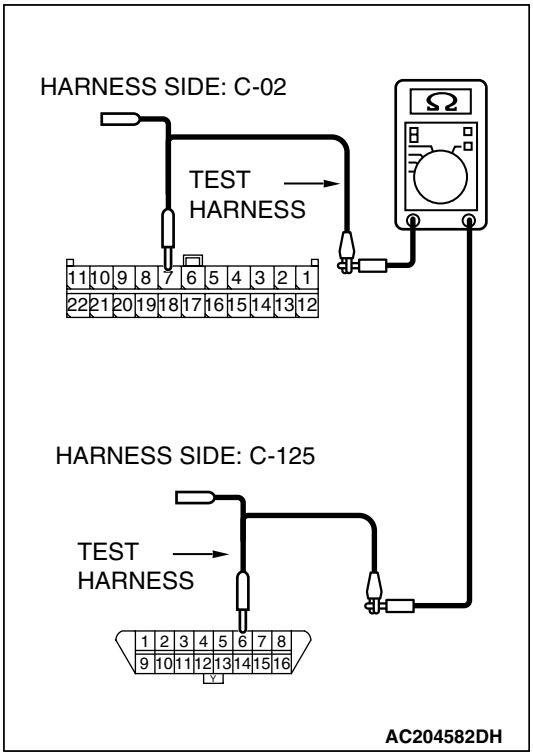


(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

⚠ CAUTION

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

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

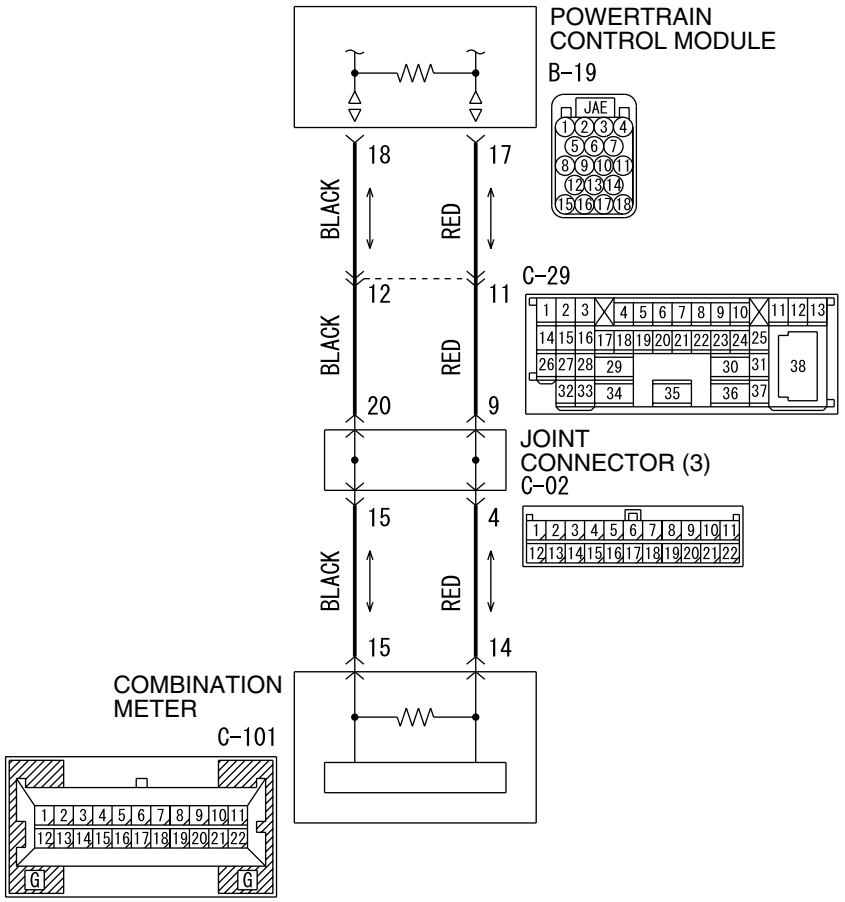
YES <all the resistances measure 2 ohms or less: When any repair done> : Retest the system.

YES <all the resistances measure 2 ohms or less: When no repair done> : Diagnose CAN bus lines thoroughly by referring to P.54C-486 <Vehicles without multi-center display (middle-grade type)> or P.54C-520 <Vehicles with multi-center display (middle-grade type)>.

NO <If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms> : Repair the wiring harness wires between joint connector (3) and the data link connector.

DIAGNOSTIC ITEM 12: Diagnose a terminator resistor at either end <Vehicles without ABS>

⚠ 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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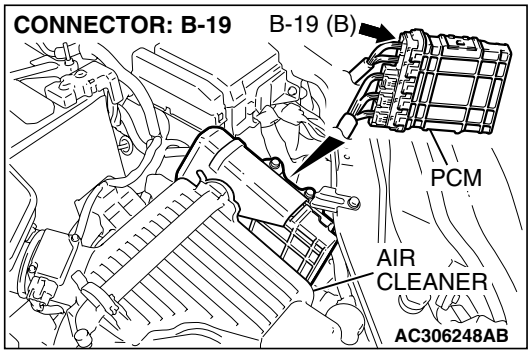
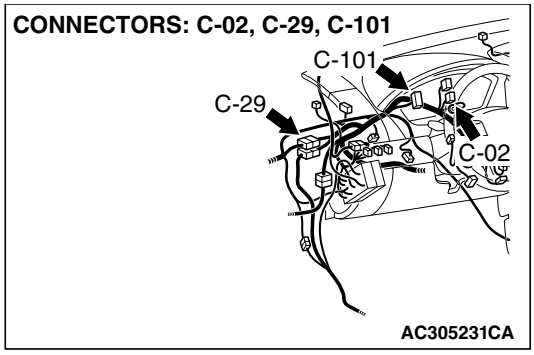




TROUBLE JUDGMENT

A terminator resistor at either end (including the CAN bus lines) may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is 120 ± 20 Ω.

COMMENTS ON TROUBLE SYMPTOM

The CAN bus line harness wires or connectors may be damaged or the combination meter or the powertrain control module may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

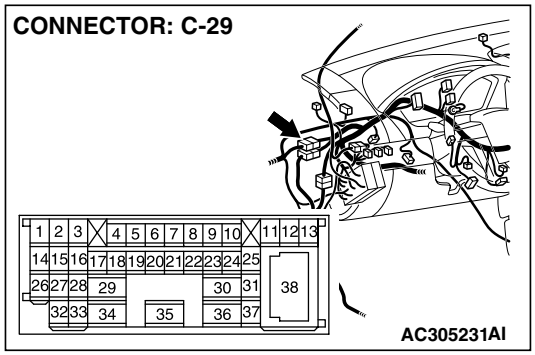
⚠ CAUTION

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

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

YES : Go to Step 2.

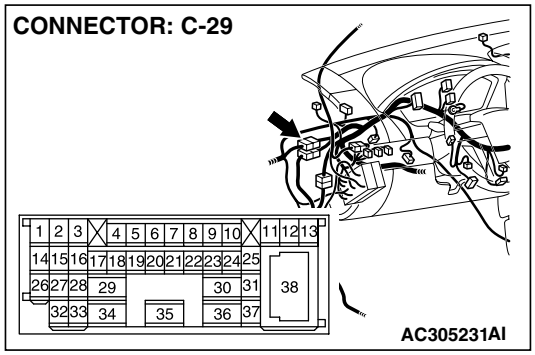
NO : Repair the damaged parts.



STEP 2. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module). Measure the resistance at intermediate connector C-29.

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

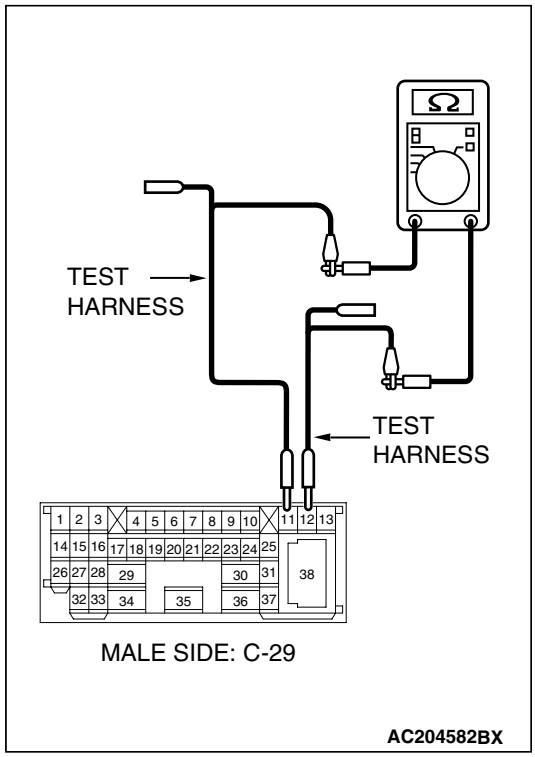
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



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

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

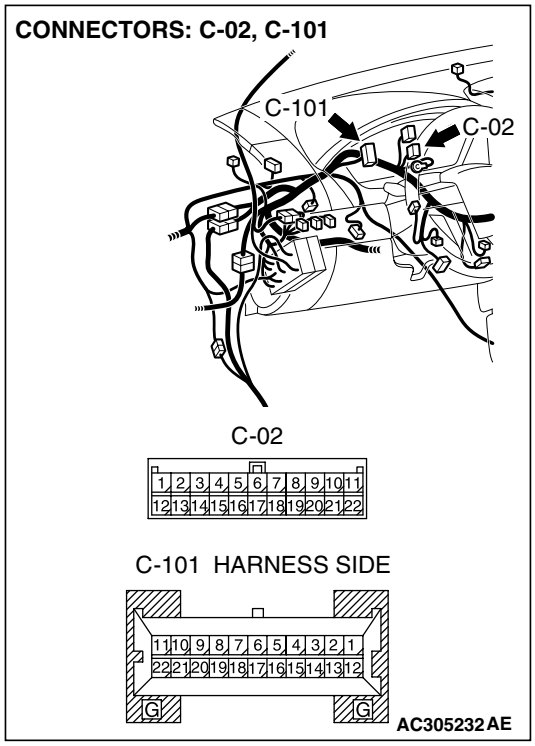


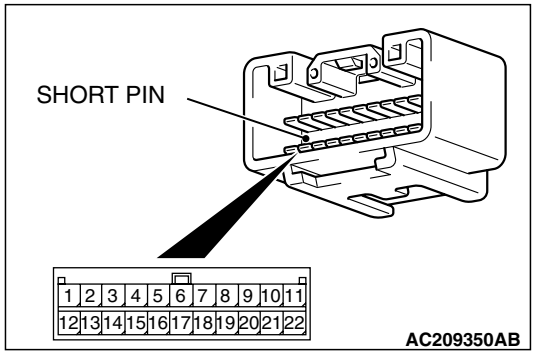
(4) Measure the resistance between intermediate connector terminals 11 and 12.
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?
YES : If the resistance measures 120 ± 20 Ω, go to Step 3.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 7 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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





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

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

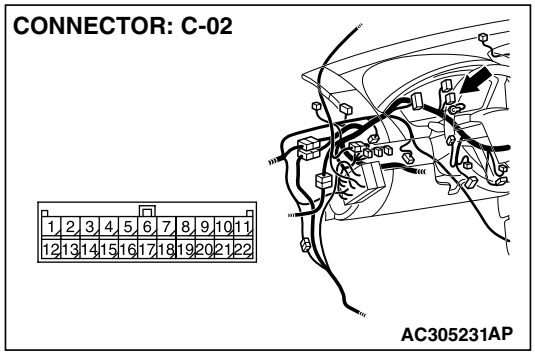
YES : Go to Step 4.

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

STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

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

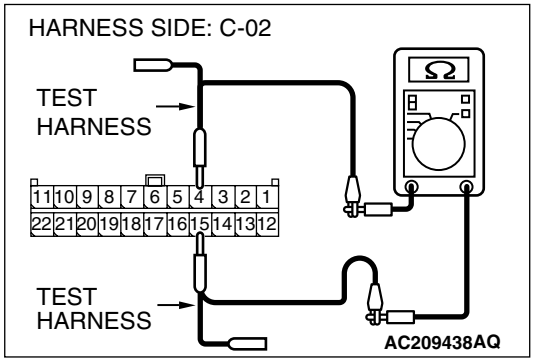
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



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

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between joint connector (3) terminals 4 and 15.
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?
YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-456.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

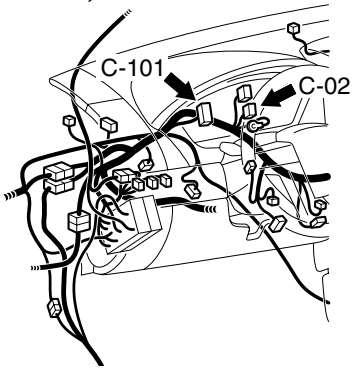
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

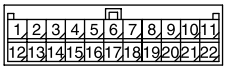
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

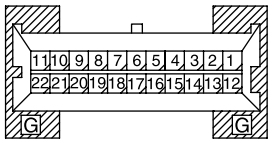
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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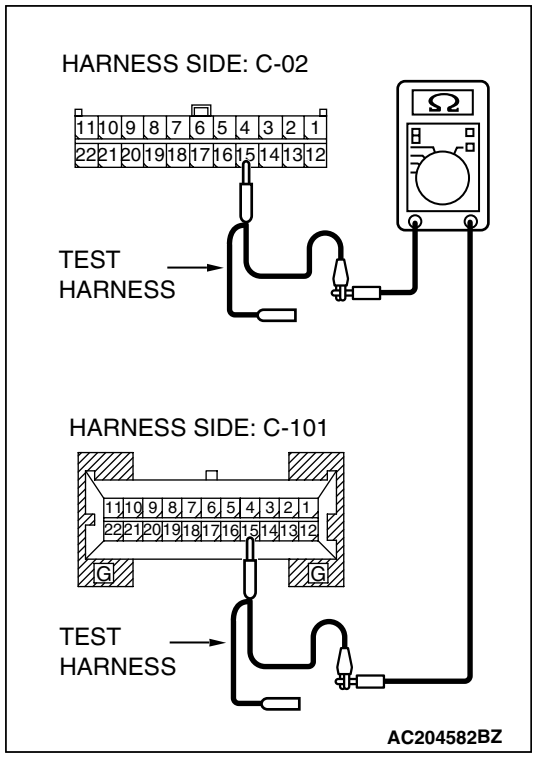
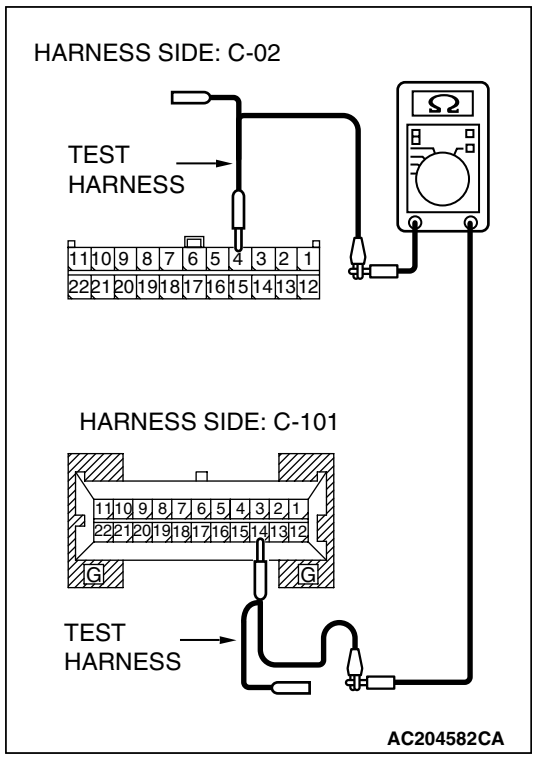


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If the resistance measures 2 ohms or less, go to Step 6.

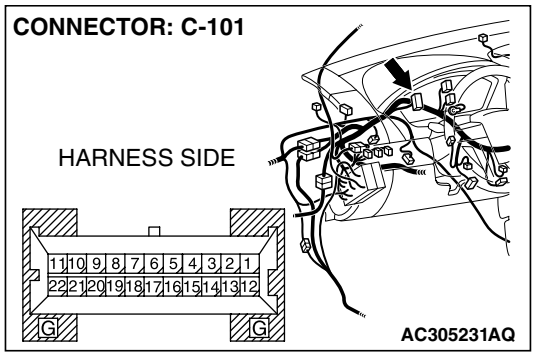
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

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

(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



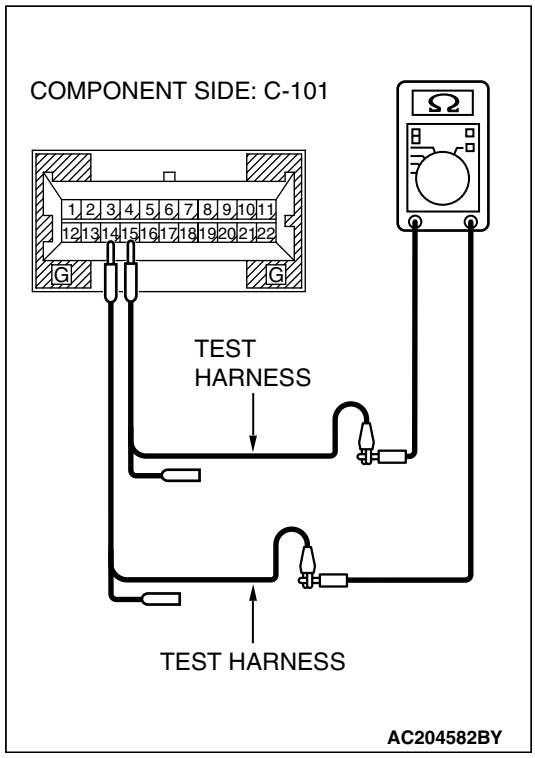
(2) Measure the resistance between combination meter connector terminals 14 and 15.

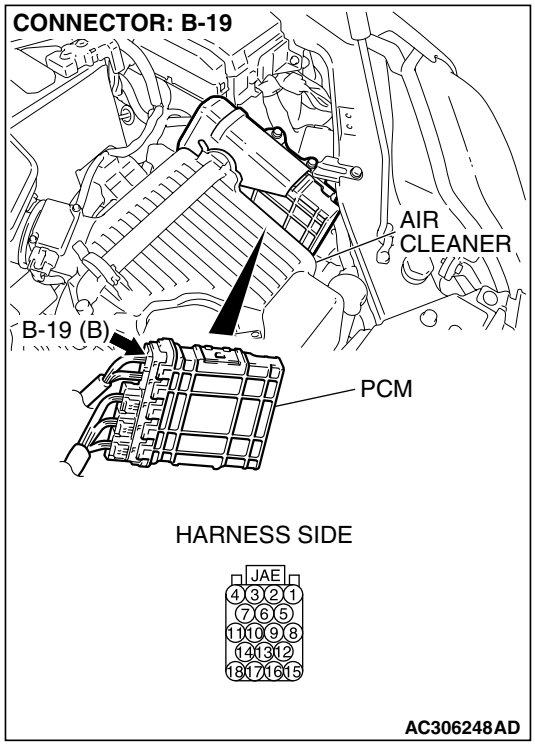
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-456.

NO : If the resistance does not measure 120 ± 20 , replace the combination meter.





STEP 7. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

Q: Is powertrain control module connector B-19 in good condition?

YES : Go to Step 8.
NO : Repair the damaged parts.

STEP 8. Check the CAN bus lines (communication line only) between intermediate connector C-29 and the powertrain control module. Measure the resistance between intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

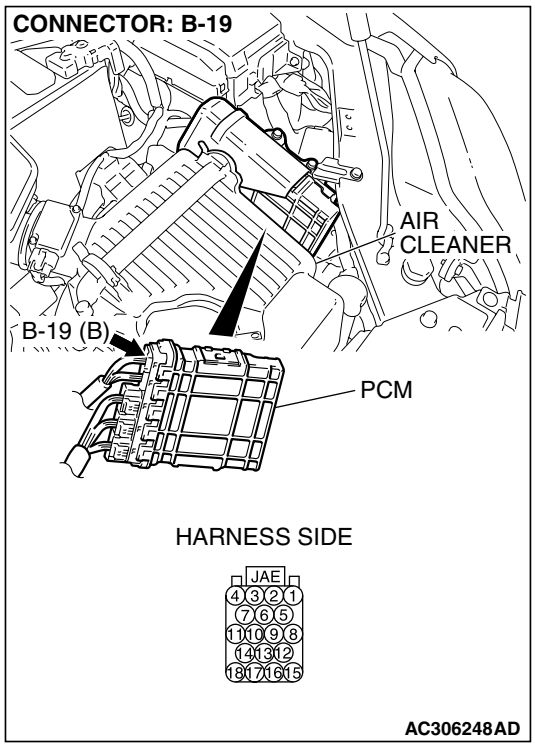
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

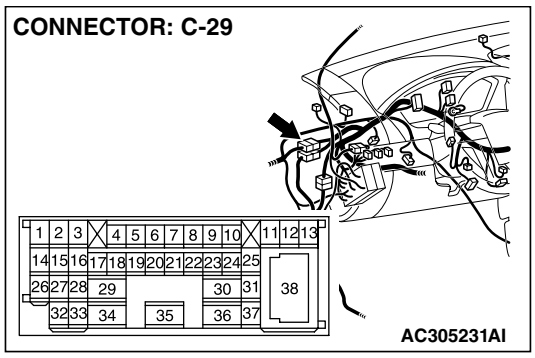
(2) Turn the ignition switch to the "LOCK" (OFF) position.

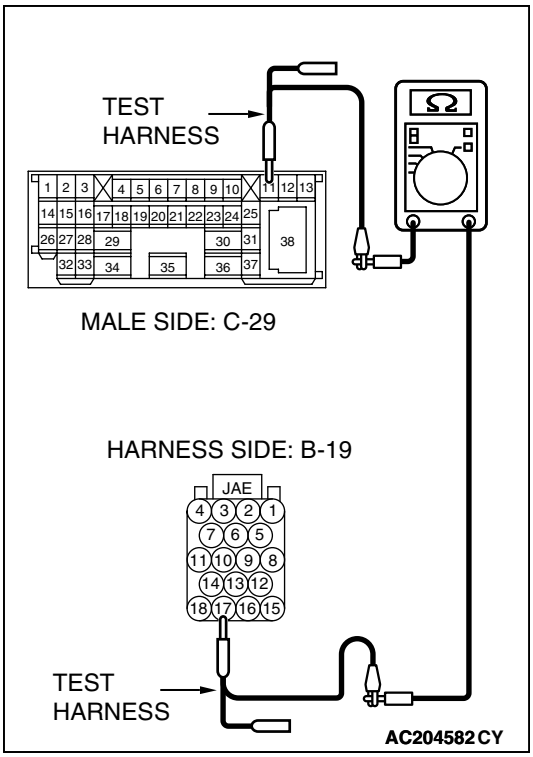
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

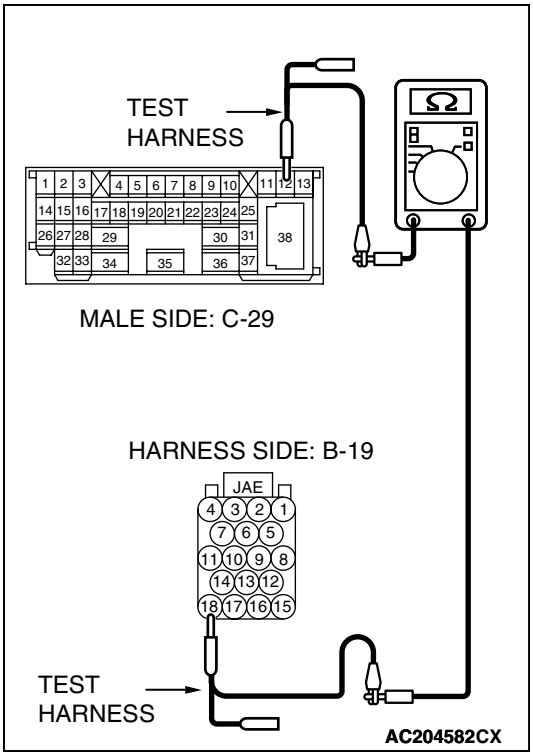






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If the resistance measures 2 ohms or less, go to Step 9.

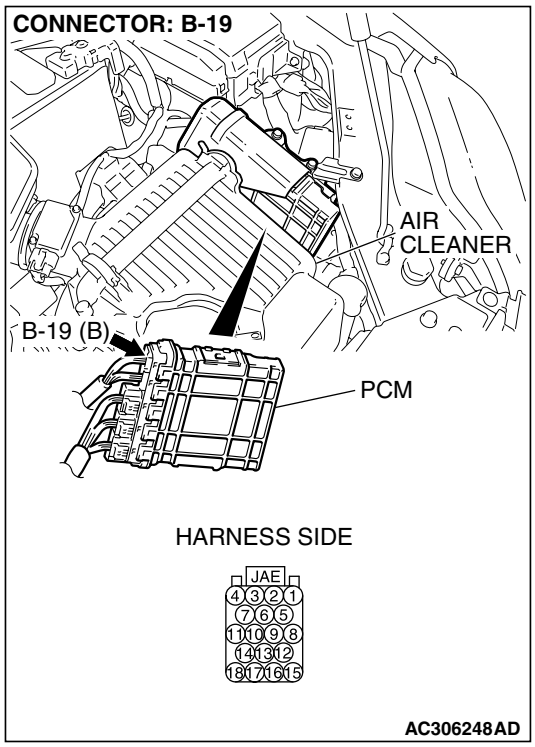
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the powertrain control module connector.

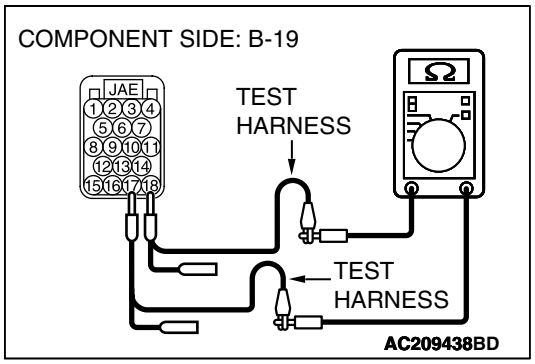
STEP 9. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

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

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

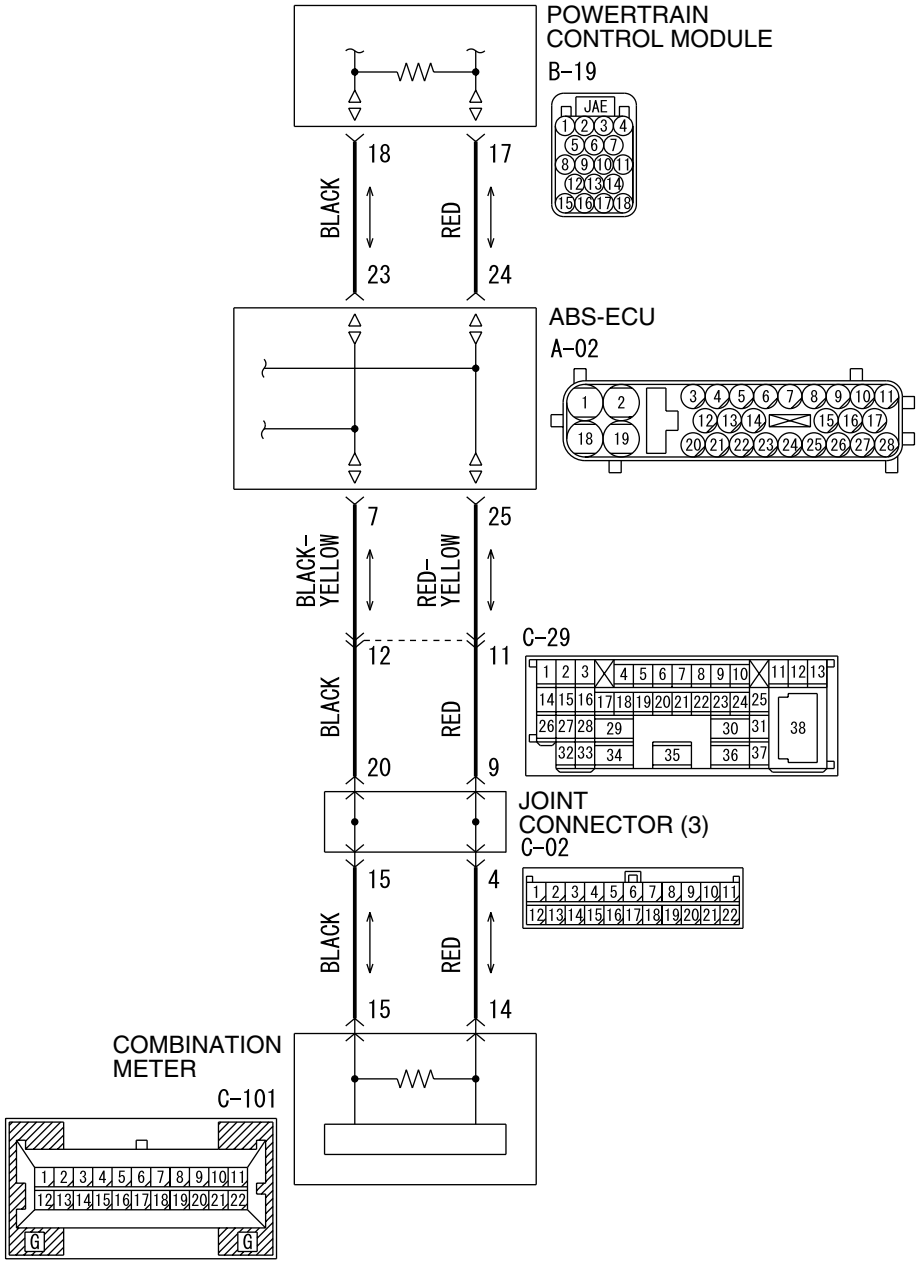
Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-456.

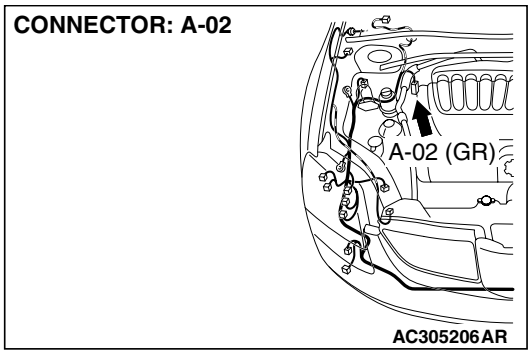
NO : If the resistance does not measure 120 ± 20 , replace the powertrain control module.

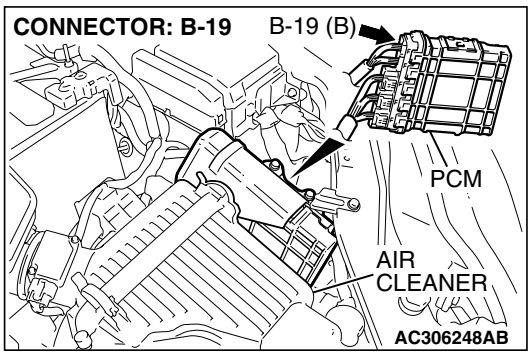
DIAGNOSTIC ITEM 13: Diagnose a terminator resistor at either end <Vehicles with ABS>

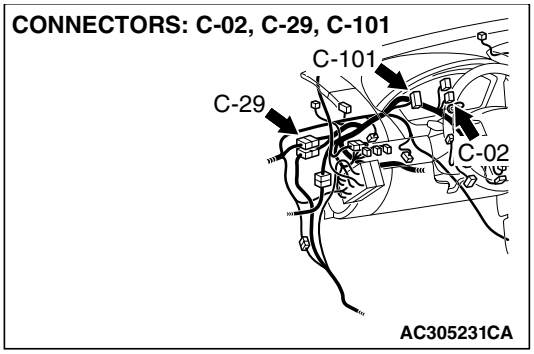
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.



W4P54M100A







TROUBLE JUDGMENT

A terminator resistor at either end (including the CAN bus lines) may be damaged, when the resistance between the CAN bus lines (CAN_L and H lines) is 120 ± 20 Ω.

COMMENTS ON TROUBLE SYMPTOM

The CAN bus line harness wires or connectors may be damaged or the combination meter or the powertrain control module may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective
- The ABS-ECU may be defective
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

STEP 1. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

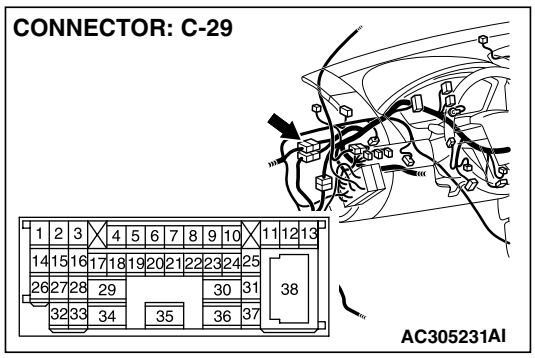
⚠ CAUTION

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

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

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the front wiring harness side CAN bus lines (communication line including the powertrain control module). Measure the resistance at intermediate connector C-29.

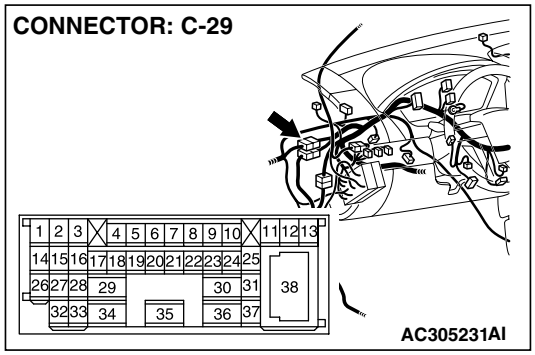
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

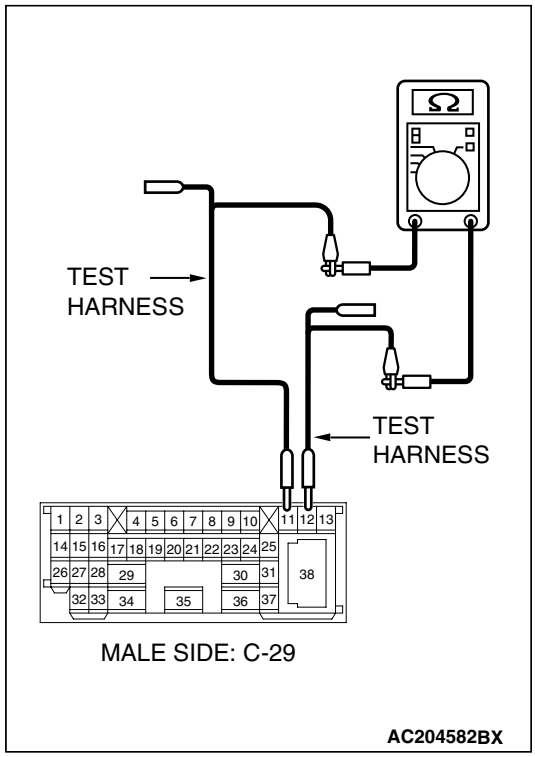
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

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

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



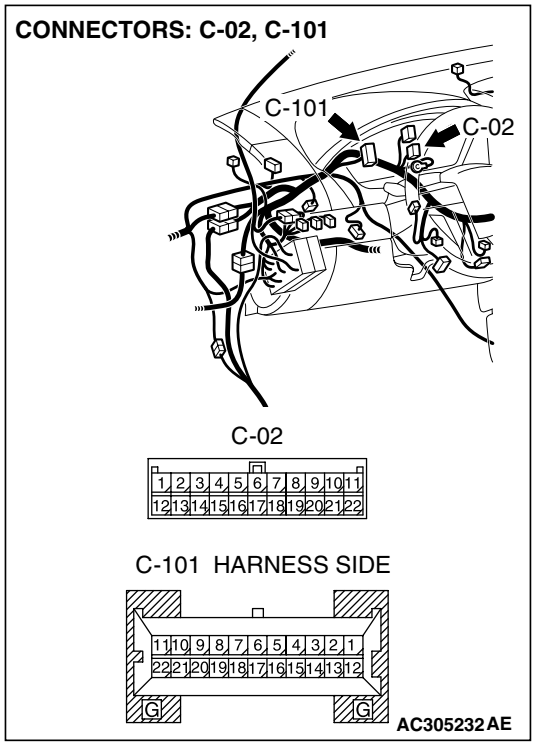


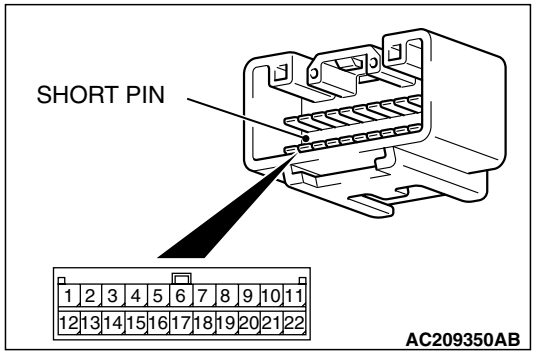
(4) Measure the resistance between intermediate connector terminals 11 and 12.
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?
YES : If the resistance measures 120 ± 20 Ω, go to Step 3.
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 7 .

STEP 3. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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





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

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 4.

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

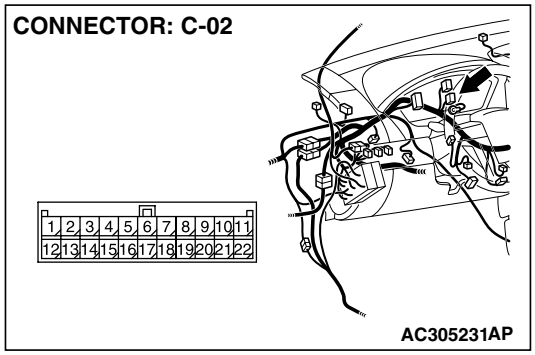
STEP 4. Check the CAN bus lines (communication line including the combination meter) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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



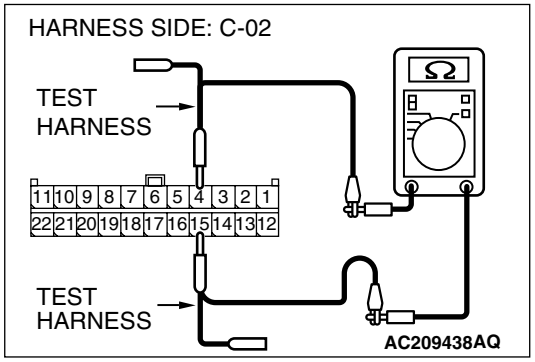
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

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

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



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

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-486 <Vehicles without multi-center display (middle-grade type)> or P.54C-520 <Vehicles with multi-center display (middle-grade type)>.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 5 .

STEP 5. Check the CAN bus lines (communication line only) between joint connector (3) and the combination meter. Measure the resistance at joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

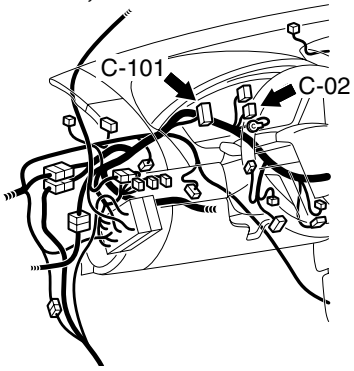
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

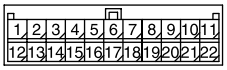
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

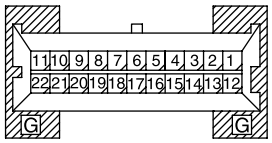
CONNECTORS: C-02, C-101



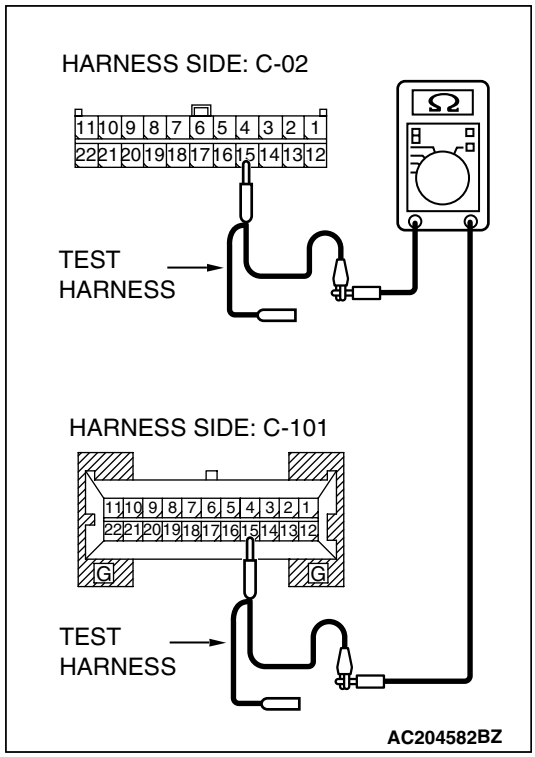
C-02



C-101 HARNESS SIDE

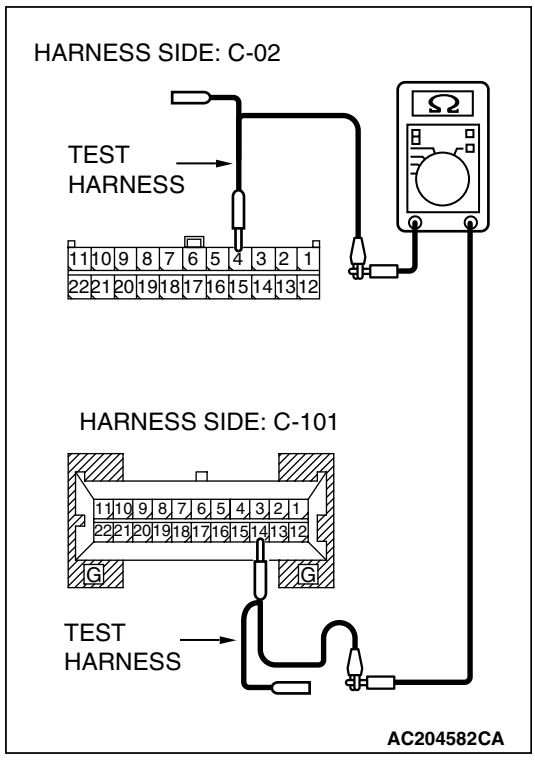


AC305232AE



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

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

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

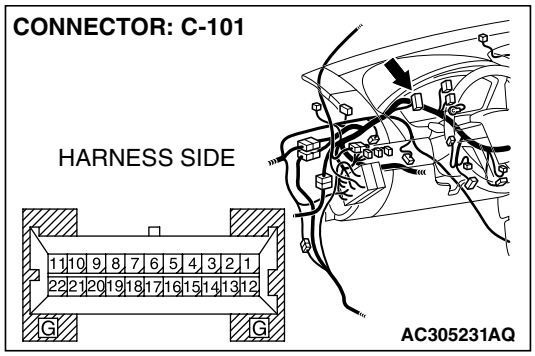
YES : If all the resistances measure 2 ohms or less, go to Step 6.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

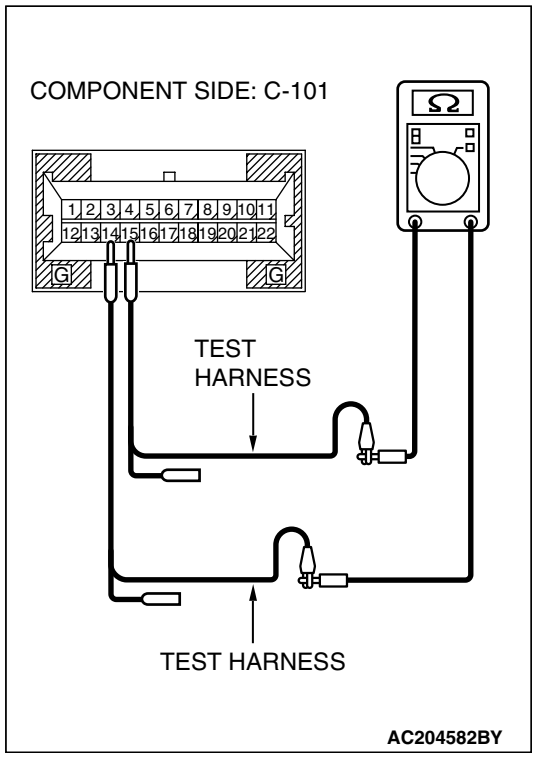
STEP 6. Check the terminator resistor inside the combination meter. Measure the resistance at combination meter connector C-101.

⚠ CAUTION

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



(1) Disconnect combination meter C-101, and measure the resistance at the component side of combination meter connector C-101.



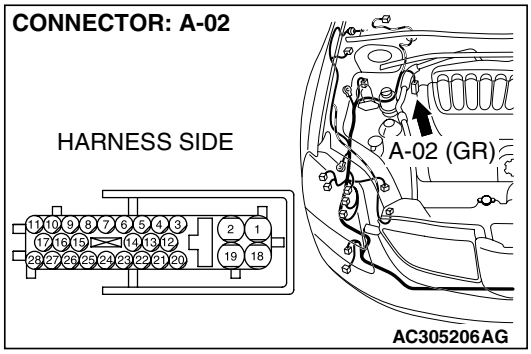
(2) Measure the resistance between combination meter connector terminals 14 and 15.

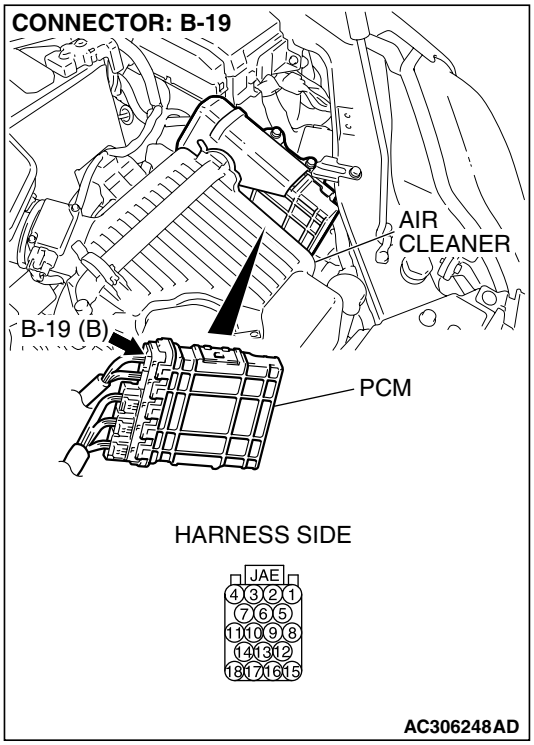
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-486 <Vehicles without multi-center display (middle-grade type)> or P.54C-520 <Vehicles with multi-center display (middle-grade type)>.

NO : If the resistance does not measure 120 ± 20 , replace the combination meter.





STEP 7. Check powertrain control module connector B-19 and ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

Q: Are powertrain control module connector B-19 and ABS-ECU connector A-02 in good condition?

YES : Go to Step 8.
NO : Repair the damaged parts.

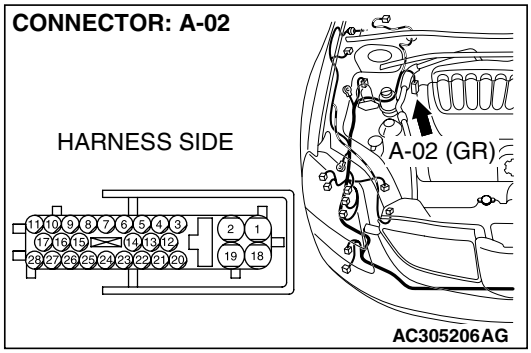
STEP 8. Check the CAN bus lines between the ABS-ECU and the powertrain control module (communication line including the powertrain control module). Measure the resistance at ABS-ECU connector A-02.

⚠ CAUTION

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

⚠ CAUTION

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

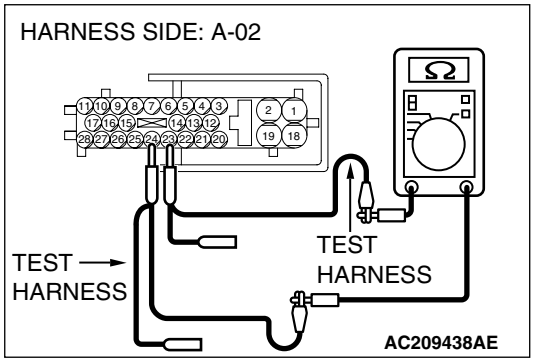


(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the wiring harness side of ABS-ECU connector A-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position. position

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 23 and 24.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-486 <Vehicles without multi-center display (middle-grade type)> or P.54C-520 <Vehicles with multi-center display (middle-grade type)>.

NO : If the resistance does not measure 120 ± 20 Ω, go to Step 9 .

STEP 9. Check the CAN bus lines (communication line only) between ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

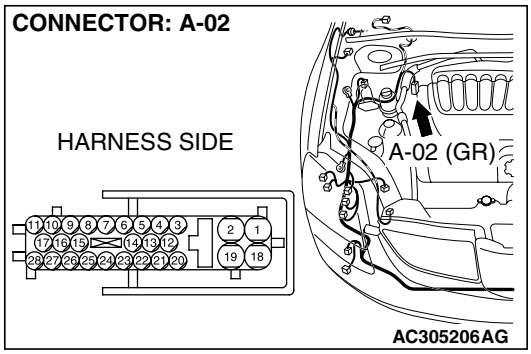
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

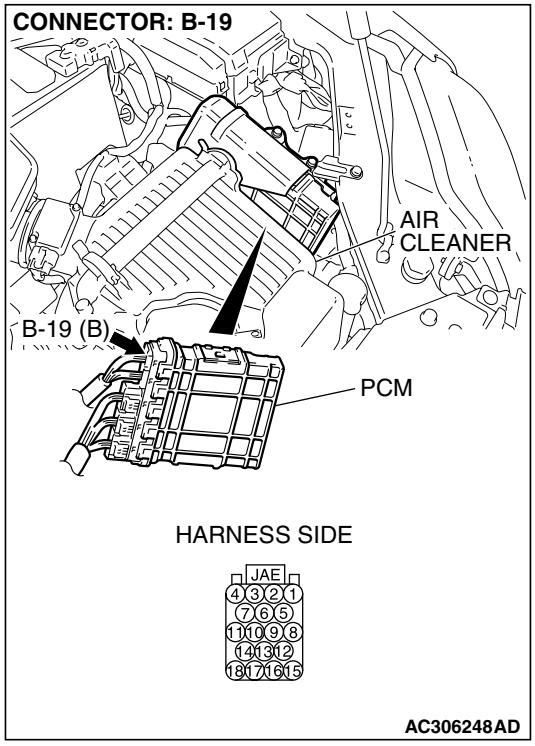
(2) Turn the ignition switch to the "LOCK" (OFF) position.

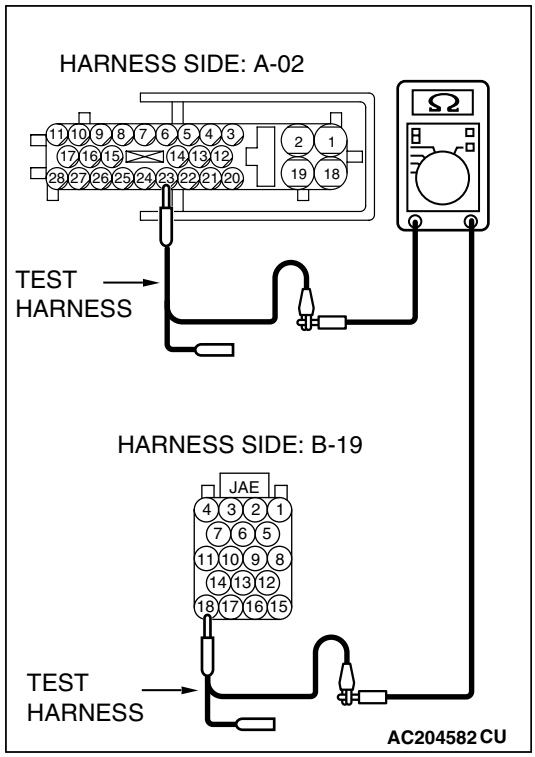
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

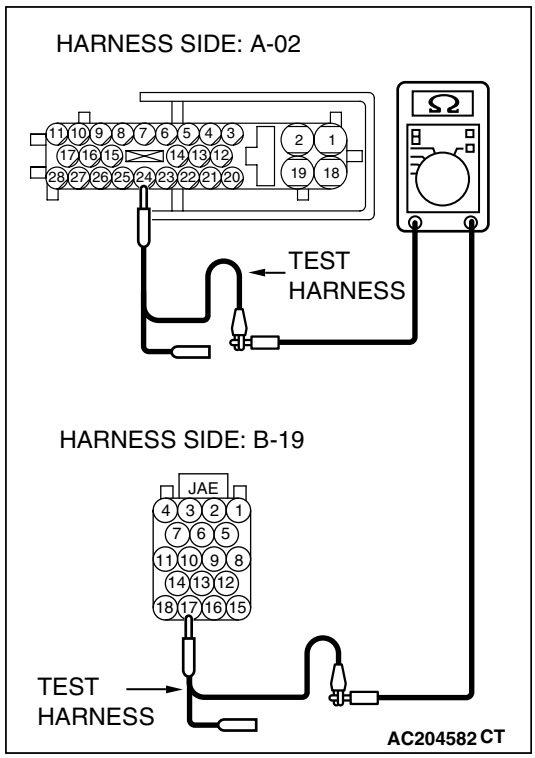






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 10.

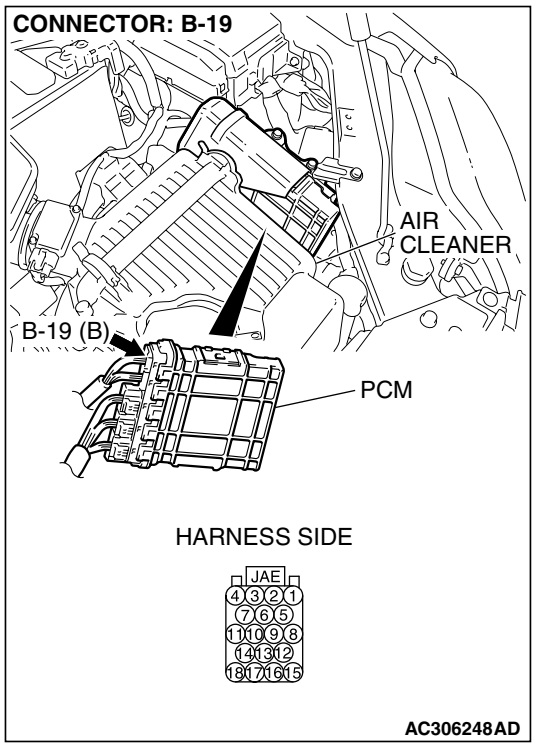
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the powertrain control module connector.

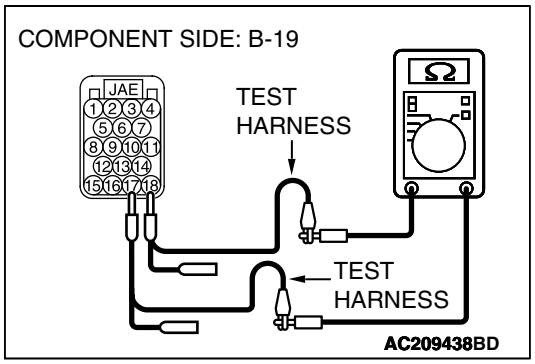
STEP 10. Check the terminator resistor inside the powertrain control module. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

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

(1) Disconnect powertrain control module connector B-19, and measure the resistance at the component side of powertrain control module connector B-19.





(2) Measure the resistance between powertrain control module connector terminals 17 and 18.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

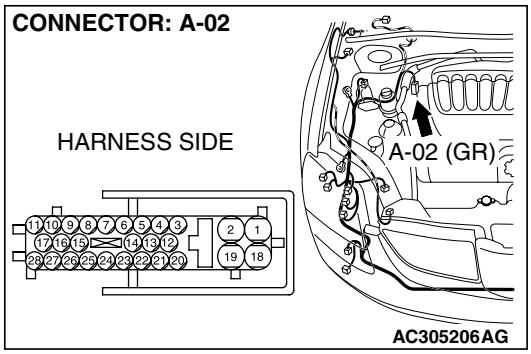
YES : If the resistance measures 120 ± 20 Ω, go to Step 11.

NO : If the resistance does not measure 120 ± 20 , replace the powertrain control module.

STEP 11. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

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

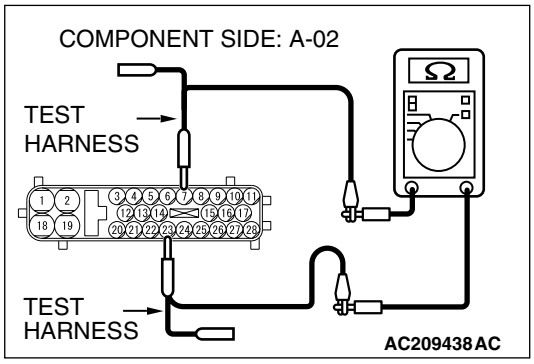
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



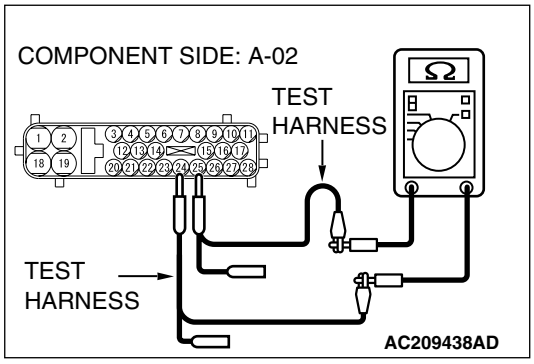
(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.
OK: 2 ohms or less



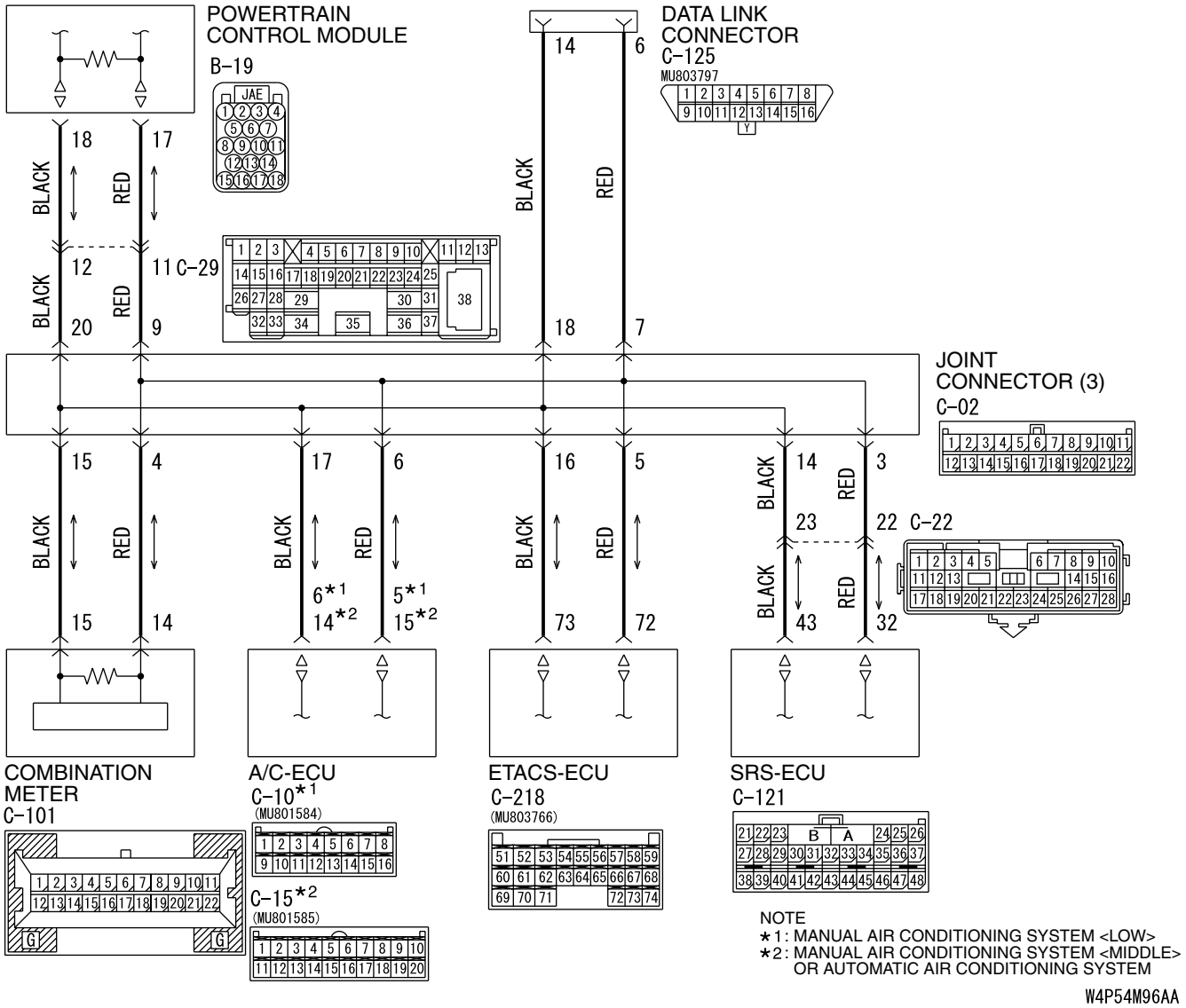
(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.
OK: 2 ohms or less

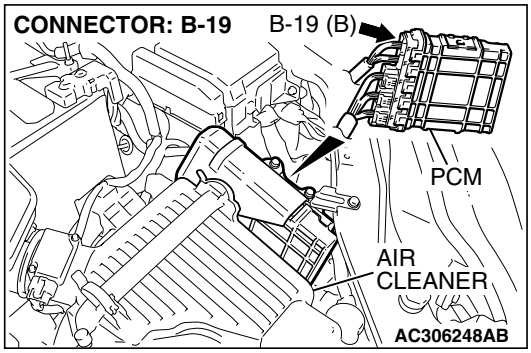
⚠ CAUTION
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

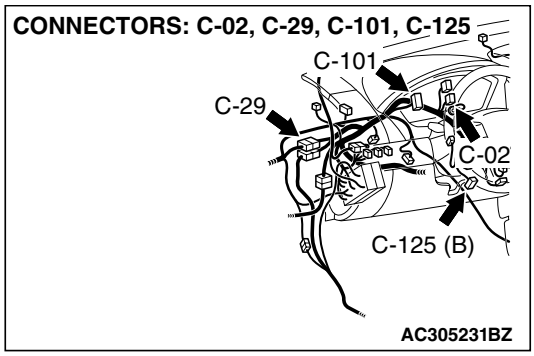
Q: Do all the resistances measure 2 ohms or less?
YES : If the voltage measures 2 V or less, diagnose CAN bus lines thoroughly by referring to P.54C-486 <Vehicles without multi-center display (middle-grade type)> or P.54C-520 <Vehicles with multi-center display (middle-grade type)>.
NO : Replace the ABS-ECU.

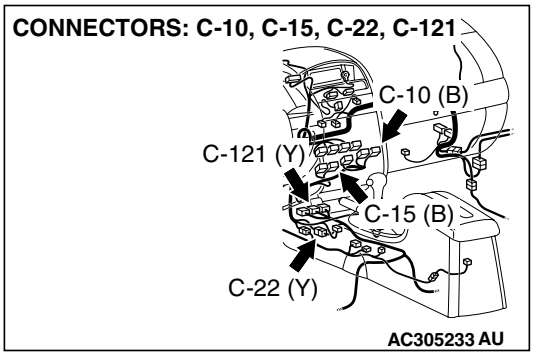
DIAGNOSTIC ITEM 14: Diagnose CAN bus lines thoroughly <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>

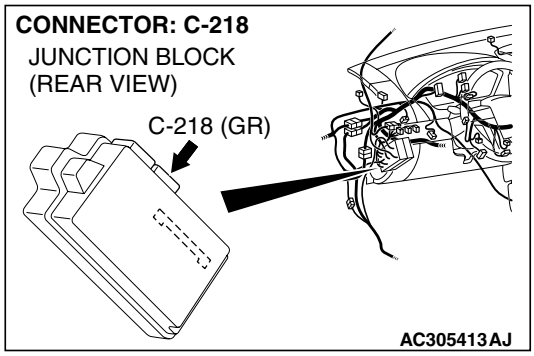
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.











TROUBLE JUDGMENT

If the MUT-III cannot received signals from ECUs, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

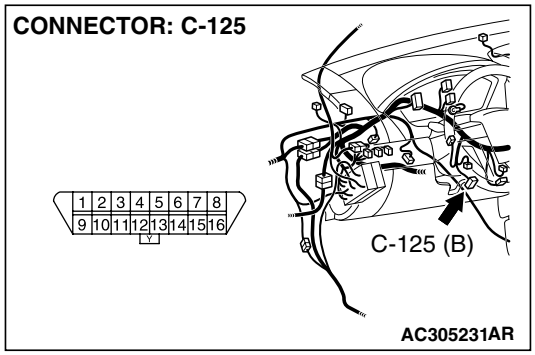
Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A

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

⚠ CAUTION

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



Q: Is data link connector C-125 in good condition?

YES : Go to Step 2.
NO : Repair the damaged parts.

STEP 2. Check the CAN bus lines at the data link connector. Measure the resistance at the data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

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

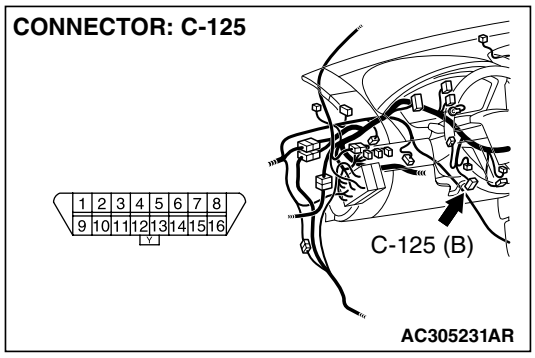
(1) Measure the resistance at the data link connector.

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

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



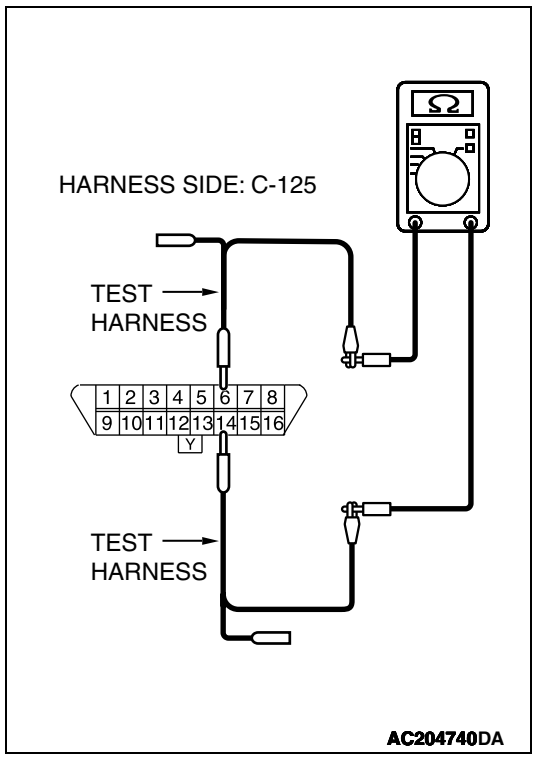
(4) Measure the resistance between data link connector terminals 6 and 14.

Q: How much resistance is measured?

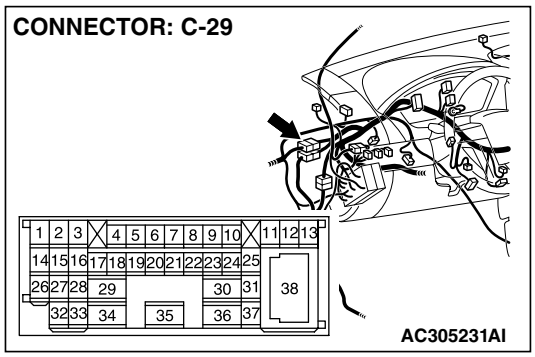
2 ohms or less : Diagnostic Item 7: Check the CAN_L and H lines for a short circuit. Refer to P.54C-304.

No continuity : Diagnostic Item 10: Diagnose terminator resistors at both ends. Refer to P.54C-390.

More than 2 ohms but continuity exists : Go to Step 3.



STEP 3. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

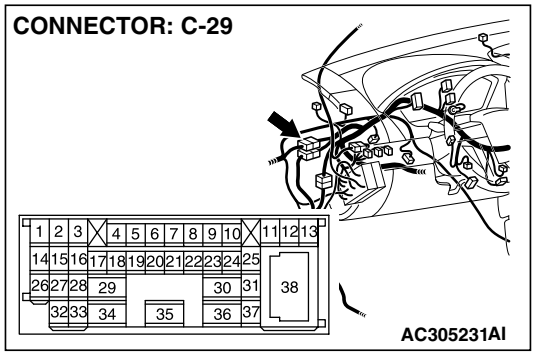


⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

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

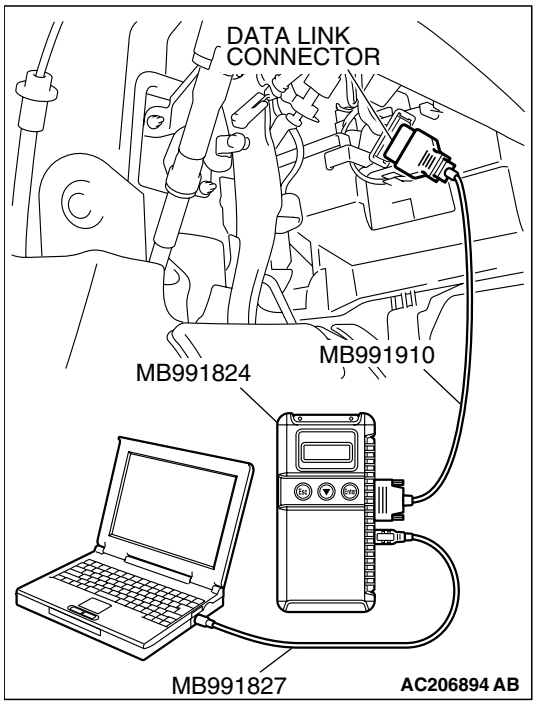
YES : Go to Step 4.
NO : Repair the damaged parts.

STEP 4. Using scan tool MB991958, diagnose the CAN bus line (Disconnect intermediate connector C-29, and then determine that a failure is present at either the front wiring harness side or the instrument panel wiring harness side).

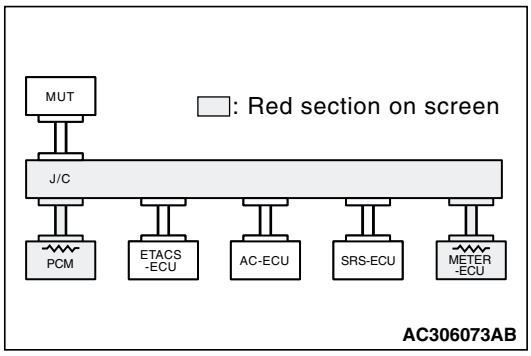


(1) Disconnect intermediate connector C-29.

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



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



(4) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(5) Turn the ignition switch to the "LOCK" (OFF) position.
(6) Connect intermediate connector C-29.

Q: Does the MUT-III screen correspond to the illustration?

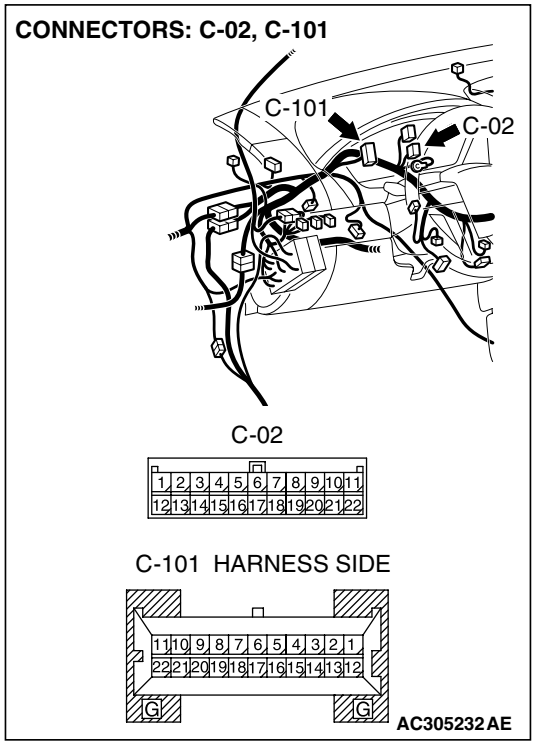
YES : If the MUT-III screen corresponds to the illustration, go to Step 20 .

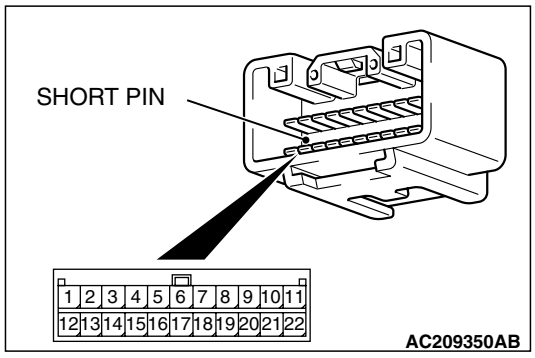
NO : If the MUT-III screen does not correspond to the illustration, go to Step 5.

STEP 5. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

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





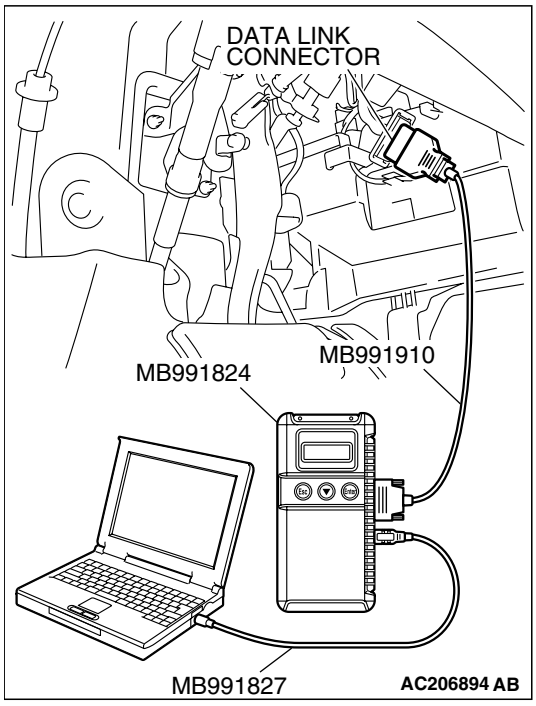
Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

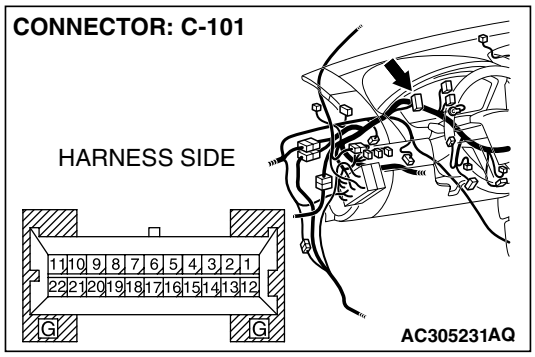
Q: Is joint connector (3) C-02 in good condition?

YES : Go to Step 6.

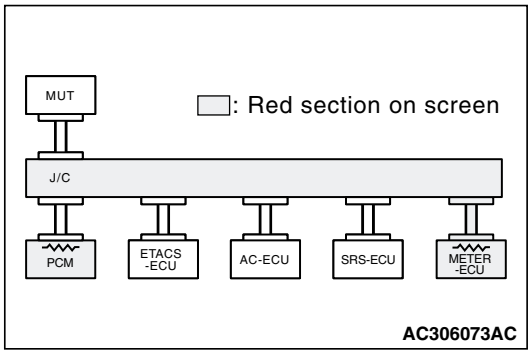
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 6. Using scan tool MB991958, diagnose the CAN bus line (Disconnect combination meter connector C-101, and check the combination meter system).





(1) Disconnect combination meter connector C-101.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Disconnect combination meter connector C-101.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 7 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 8.

STEP 7. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

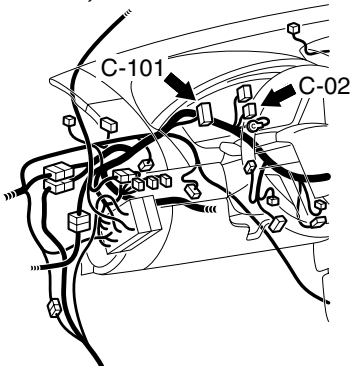
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

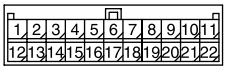
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

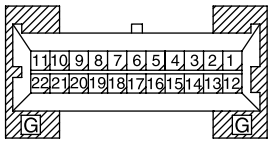
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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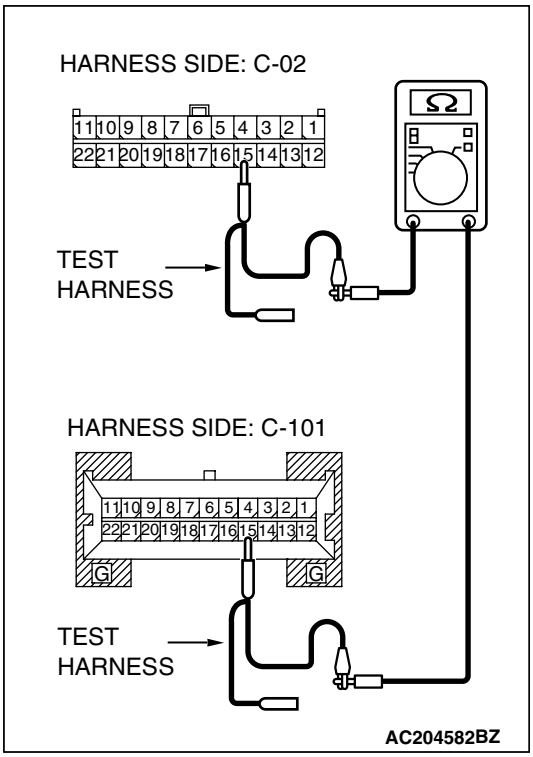
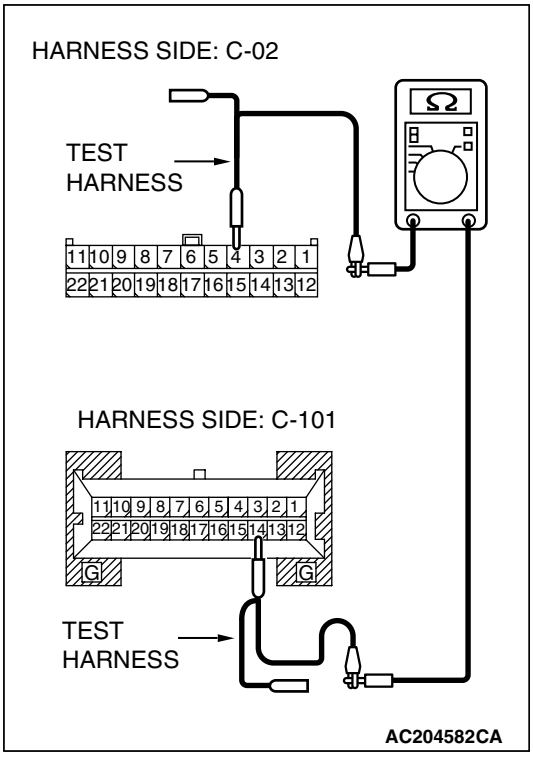


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter by referring to GROUP 54A, Combination meter assembly P.54A-252.

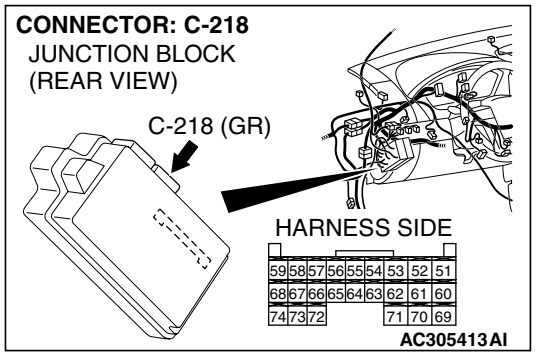
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 8. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

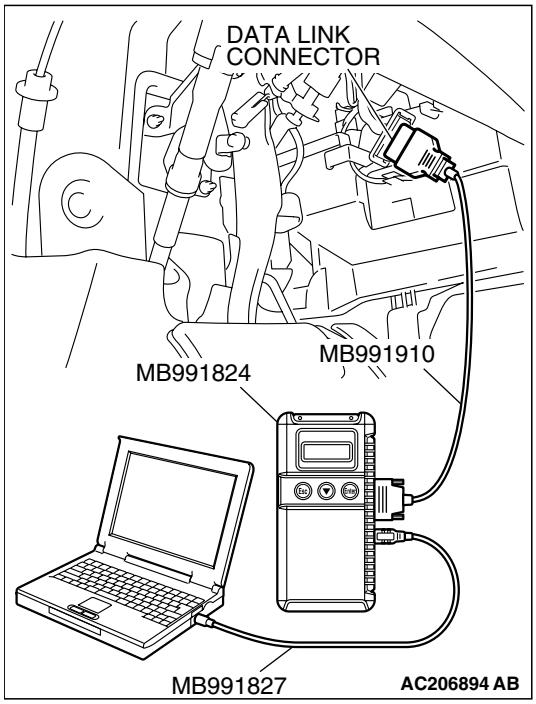
⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

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

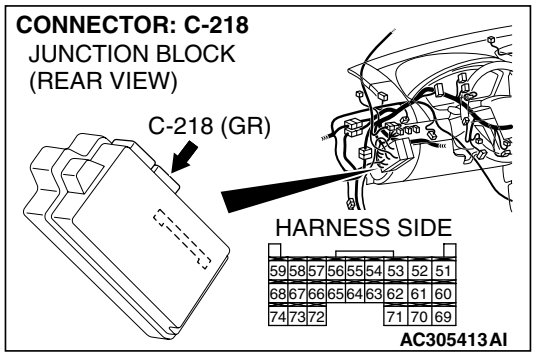
YES : Go to Step 9.
NO : Repair the damaged parts.

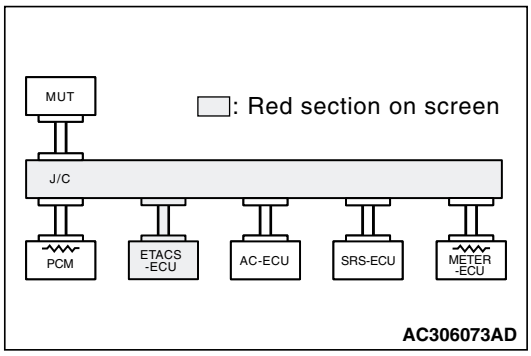


STEP 9. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ETACS-ECU connector C-218, and check the ETACS-ECU system).



(1) Disconnect ETACS-ECU connector C-218.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect ETACS-ECU connector C-218.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 10 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 11.

STEP 10. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

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

⚠ CAUTION

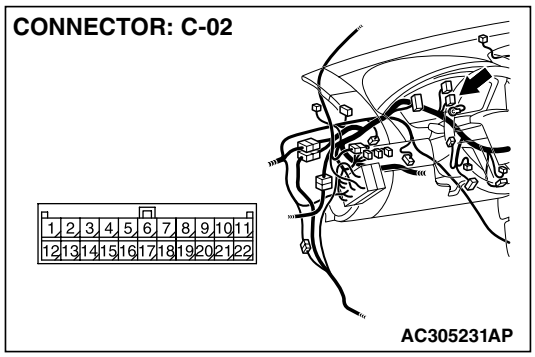
The test wiring harness should be used. For details refer to P.54C-4.

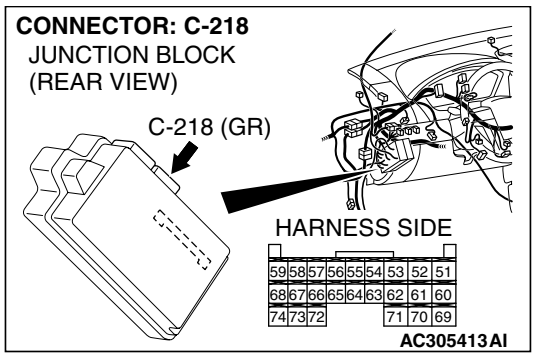
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

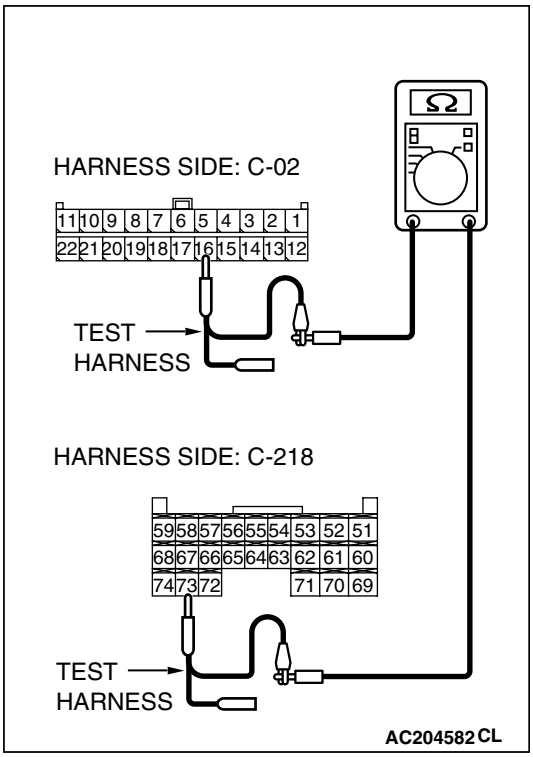
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

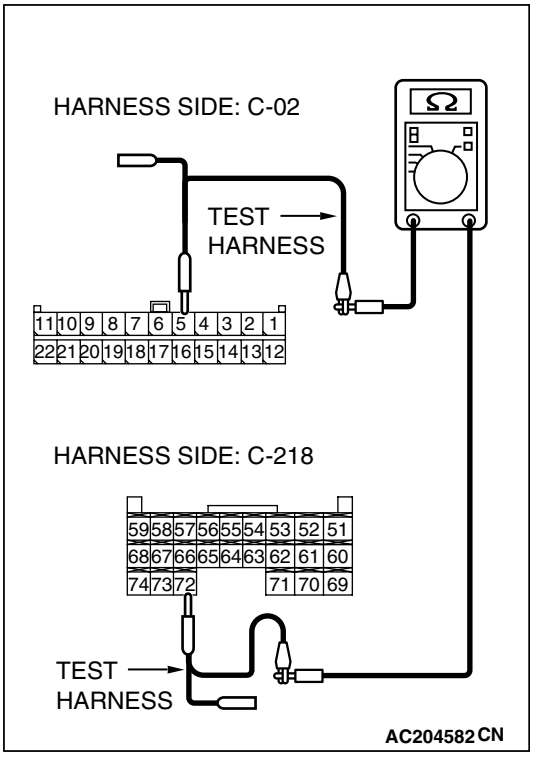






(4) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

OK: 2 ohms or less



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

OK: 2 ohms or less

⚠ CAUTION

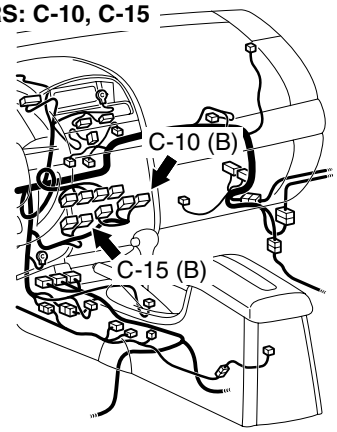
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

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

YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the ETACS-ECU by referring to GROUP 54B, Diagnosis P.54B-78.

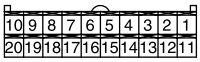
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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STEP 11. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

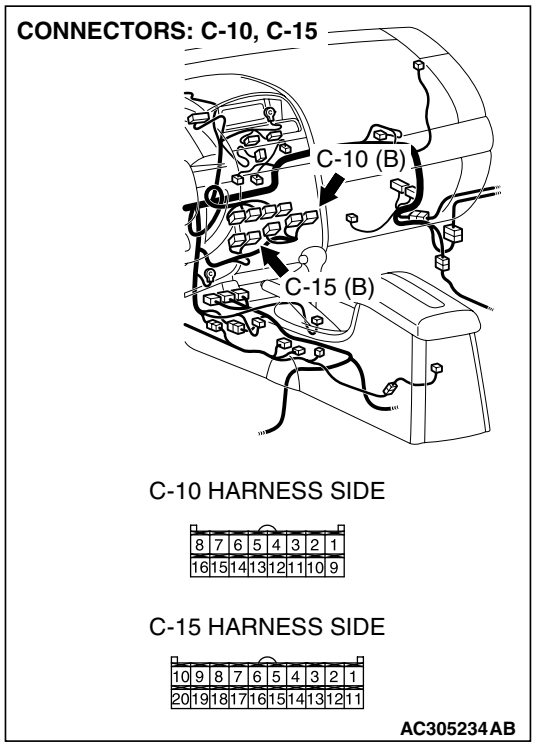
Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

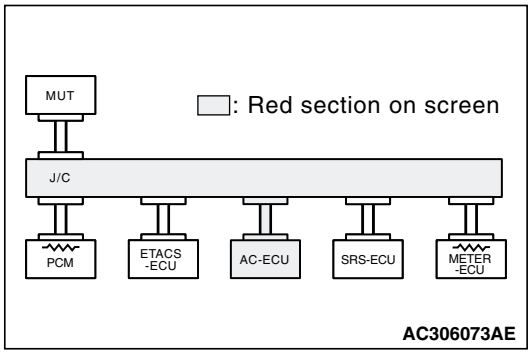
YES : Go to Step 12.
NO : Repair the damaged parts.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line (Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and check the A/C-ECU system).

(1) Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

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





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

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

(5) Connect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 13 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 14.

STEP 13. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

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

⚠ CAUTION

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

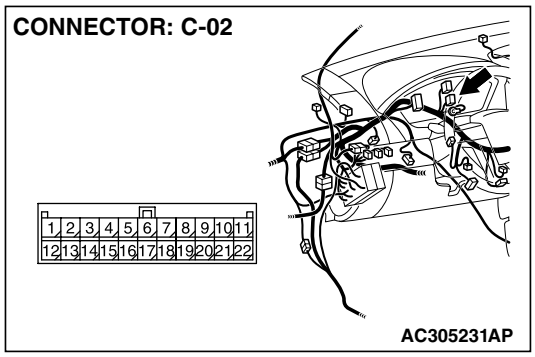
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

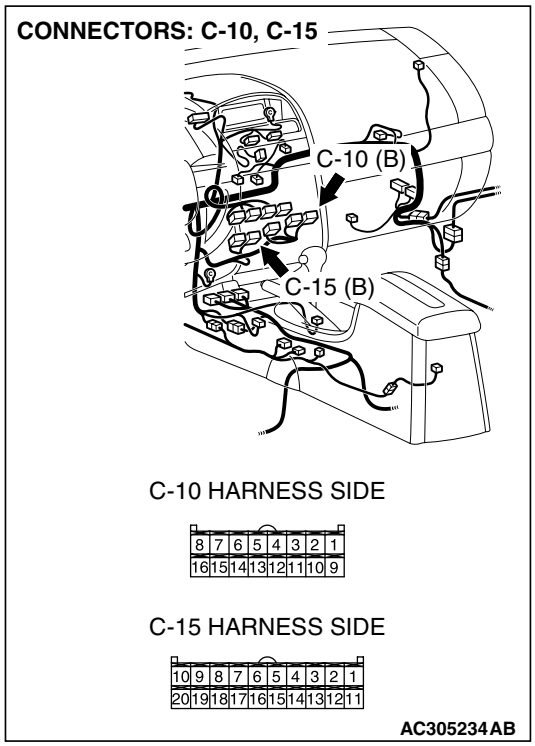
(2) Turn the ignition switch to the "LOCK" (OFF) position.

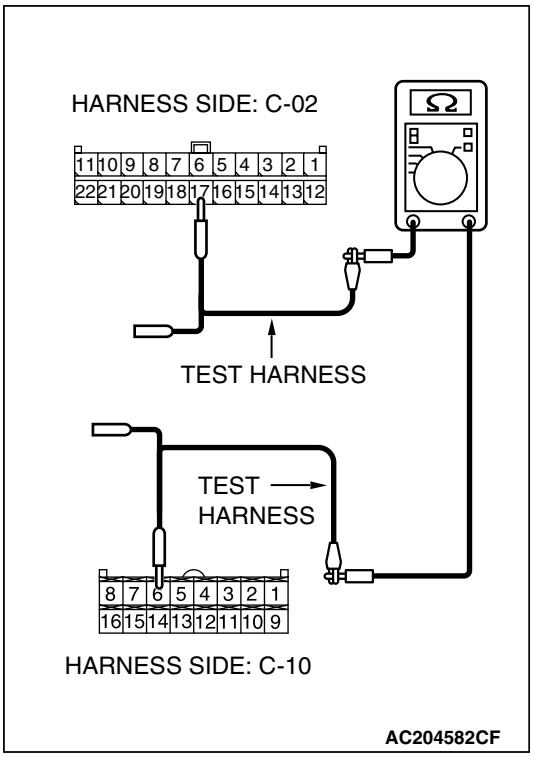
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

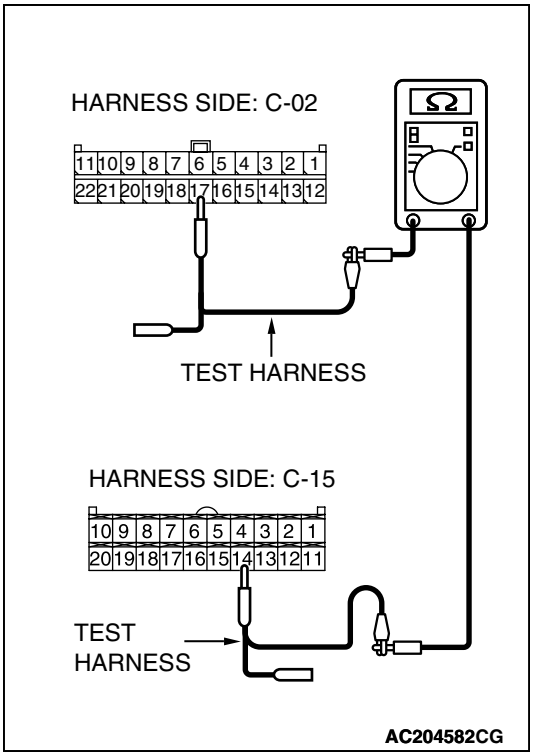


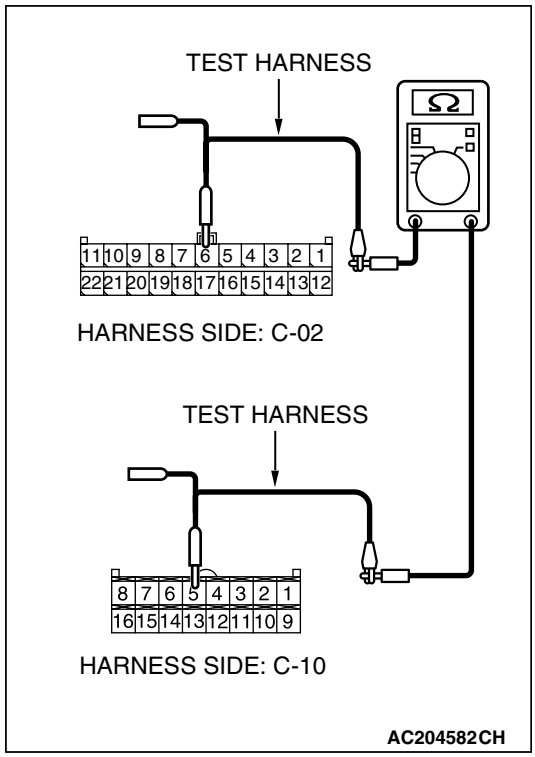


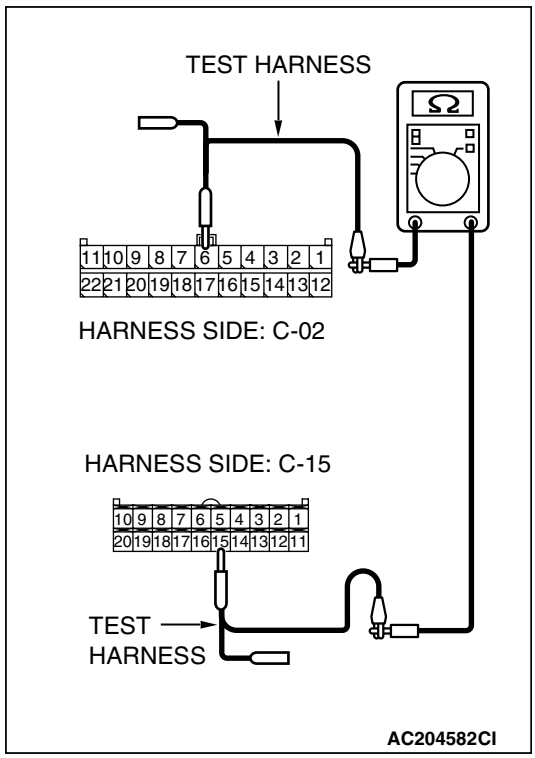


(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 6 <manual air conditioning system (low)> or 14 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less







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

OK: 2 ohms or less

⚠ CAUTION

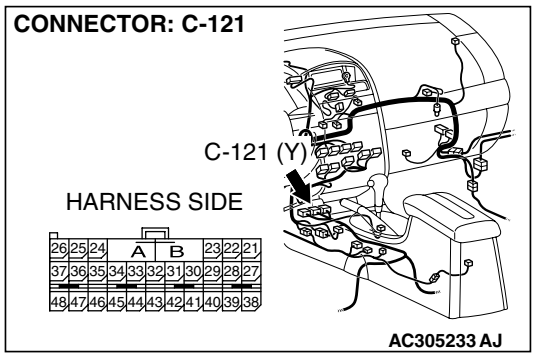
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

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

YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-242.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 14. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



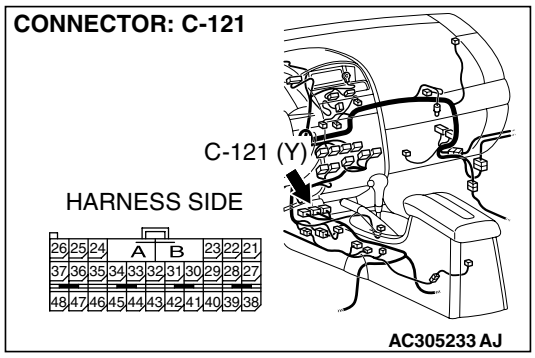
⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

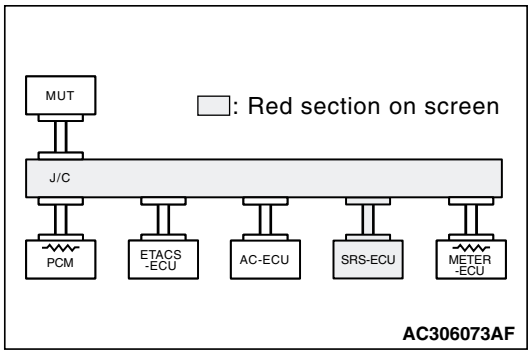
Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 15.
NO : Repair the damaged parts.

STEP 15. Using scan tool MB991958, diagnose the CAN bus line (Disconnect SRS-ECU connector C-121, and check the supplemental restraint system).

(1) Disconnect SRS-ECU connector C-121.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the SRS-ECU connector C-121.

Q: Does the MUT-III screen correspond to the illustration?

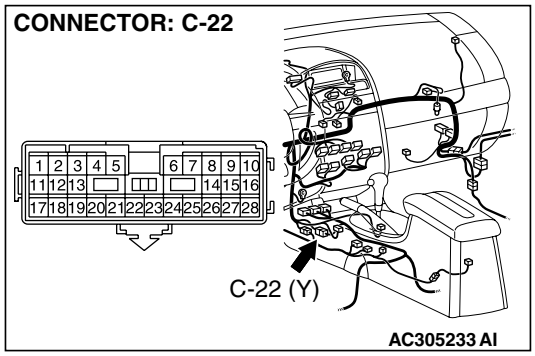
YES : If the MUT-III screen corresponds to the illustration, go to Step 16 .
NO : If the MUT-III screen does not correspond to the illustration, go to Step 19.

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

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

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

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



STEP 17. Check the CAN bus lines between intermediate connector and the SRS-ECU. Measure the resistance between intermediate connector C-22 and SRS-ECU connector C-121.

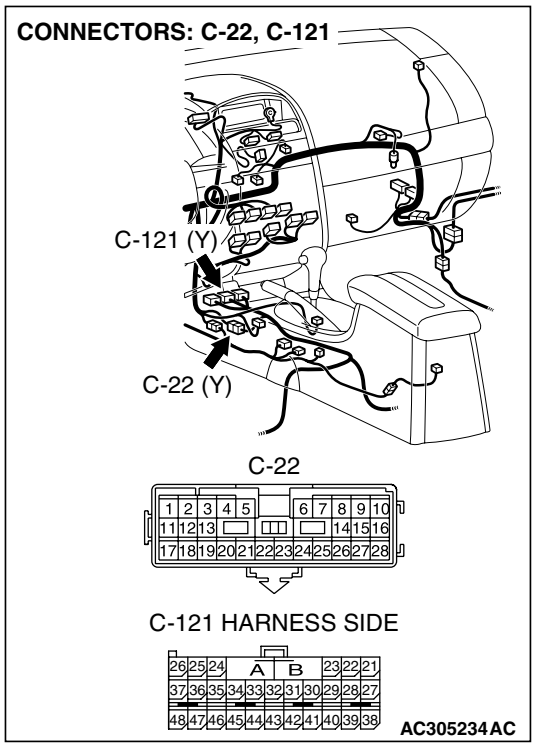
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

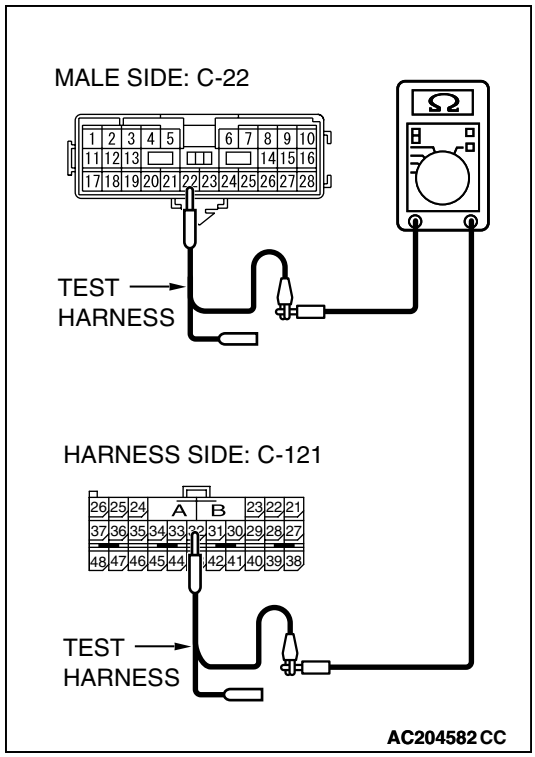
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the wiring harness sides of intermediate connector C-22 and SRS-ECU connector C-121.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

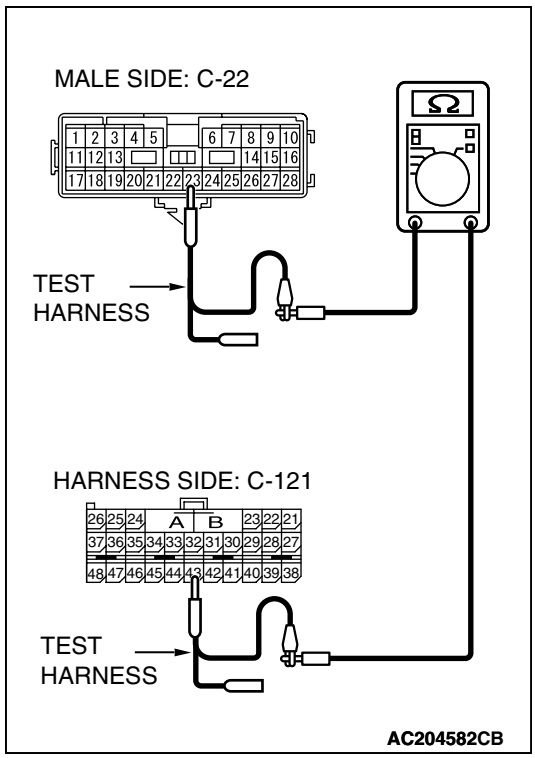
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 22 and SRS-ECU connector terminal 32.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 23 and SRS-ECU connector terminal 43.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 18.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector and the SRS-ECU connector.

STEP 18. Check the CAN bus lines between joint connector (3) and the intermediate connector. Measure the resistance between joint connector (3) C-02 and intermediate connector C-22.

⚠ CAUTION

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

⚠ CAUTION

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

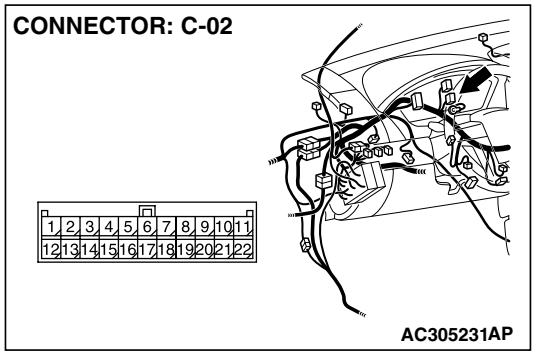
(1) Disconnect joint connector (3) C-02 and intermediate connector C-22, and measure the resistance at the wiring harness sides of joint connector (3) C-02 and intermediate connector C-22.

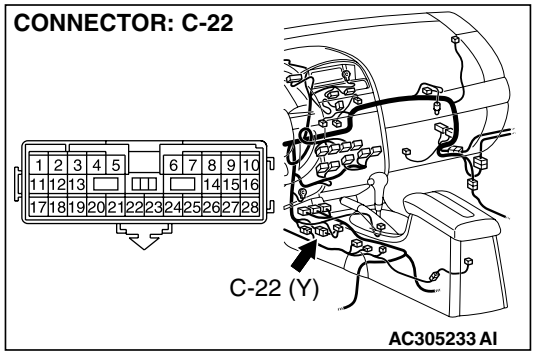
(2) Turn the ignition switch to the "LOCK" (OFF) position.

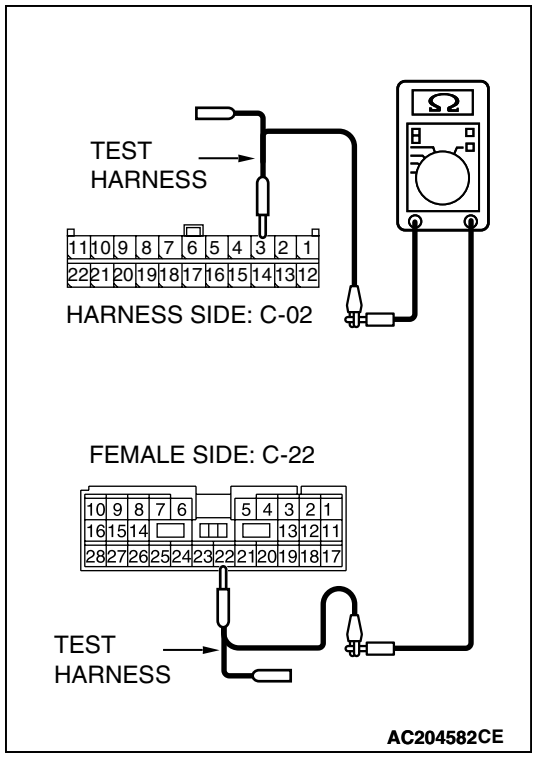
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

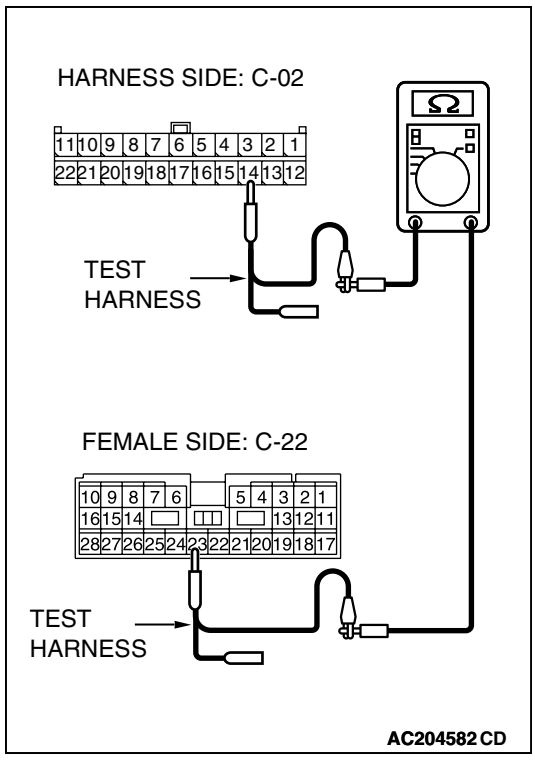






(4) Measure the resistance between joint connector (3) terminal 3 and intermediate connector terminal 22.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 14 and intermediate connector terminal 23.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-29.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector.

STEP 19. Check the CAN bus lines between joint connector (3) and the data link connector. Measure the resistance between joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

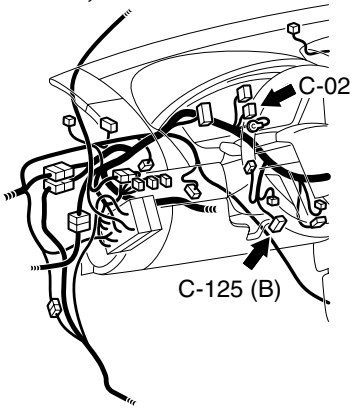
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

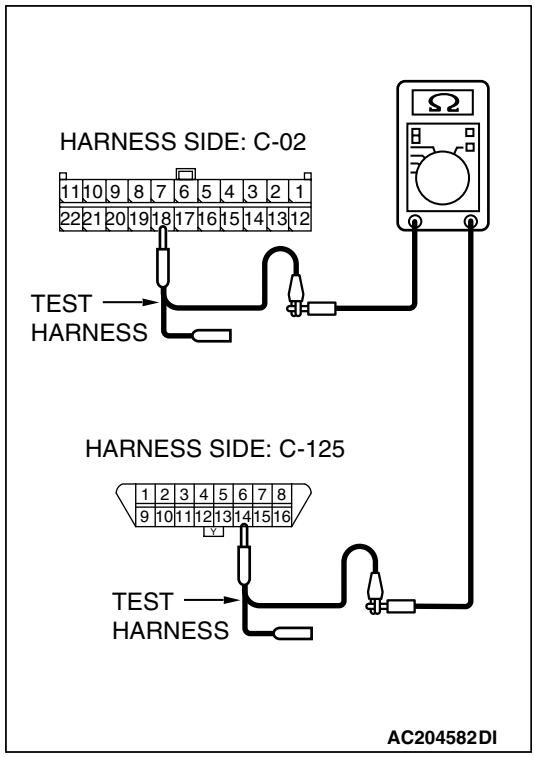
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

CONNECTORS: C-02, C-125

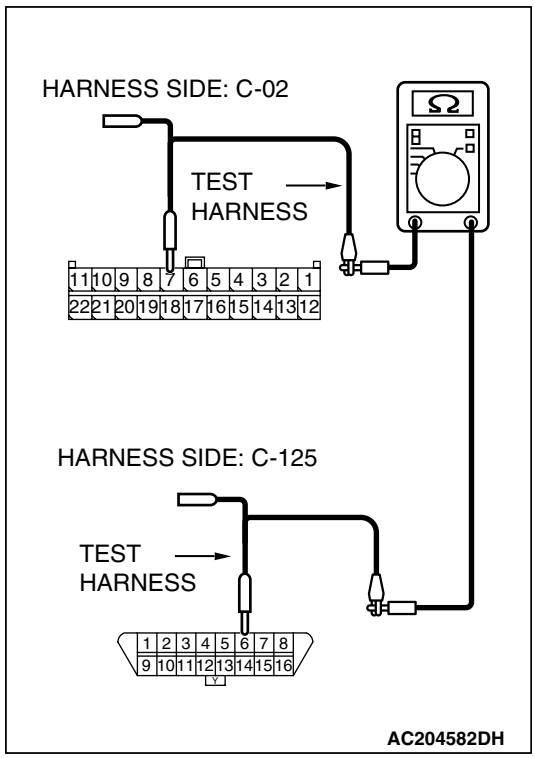


AC305232AF



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

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

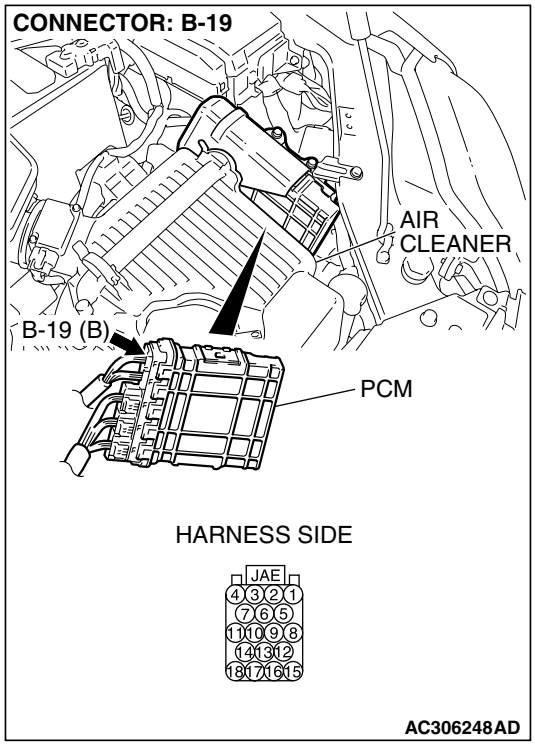
⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, refer to diagnostics item 7: Check the CAN_L and H lines for a short circuit (Refer to P.54C-304).

NO : If all the resistances measure 2 ohms or less, repair the wiring harness between joint connector (3) and the data link connector.



STEP 20. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

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

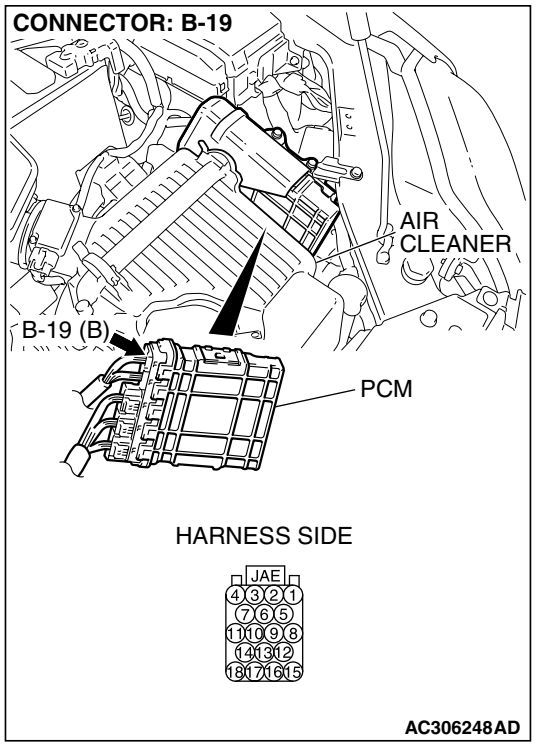
Q: Is powertrain control module connector B-19 in good condition?

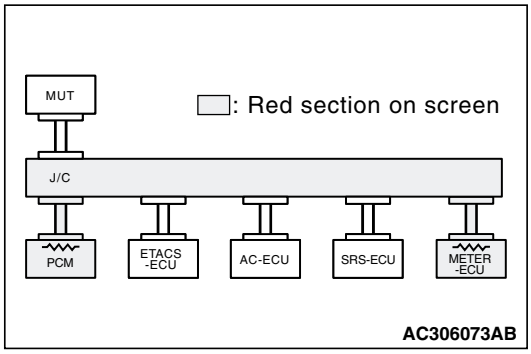
YES : Go to Step 21.

NO : Repair the damaged parts.

STEP 21. Using scan tool MB991958, diagnose the CAN bus line (Disconnect powertrain control module connector B-19, and check the powertrain control module system).

(1) Disconnect powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect powertrain control module connector B-19.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 22 .

NO : If the MUT-III screen does not correspond to the illustration, refer to diagnostics item 7: Check the CAN_L and H lines for a short circuit (Refer to P.54C-304).

STEP 22. Check the CAN bus lines between intermediate connector C-29 and the powertrain control module. Measure the resistance between intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

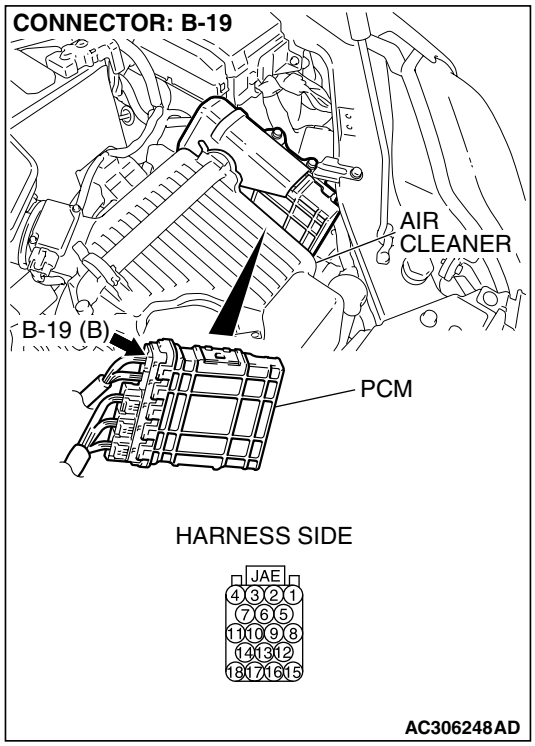
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

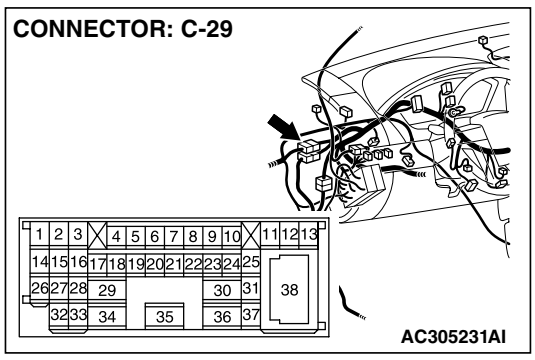
(2) Turn the ignition switch to the "LOCK" (OFF) position.

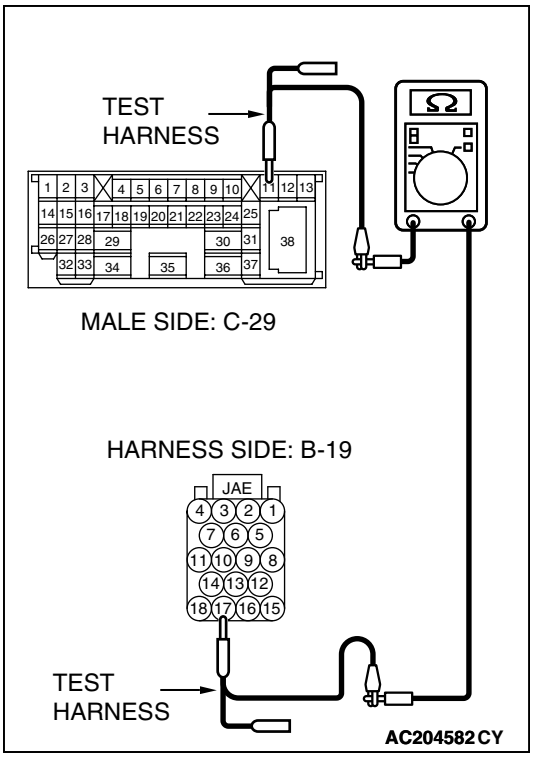
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

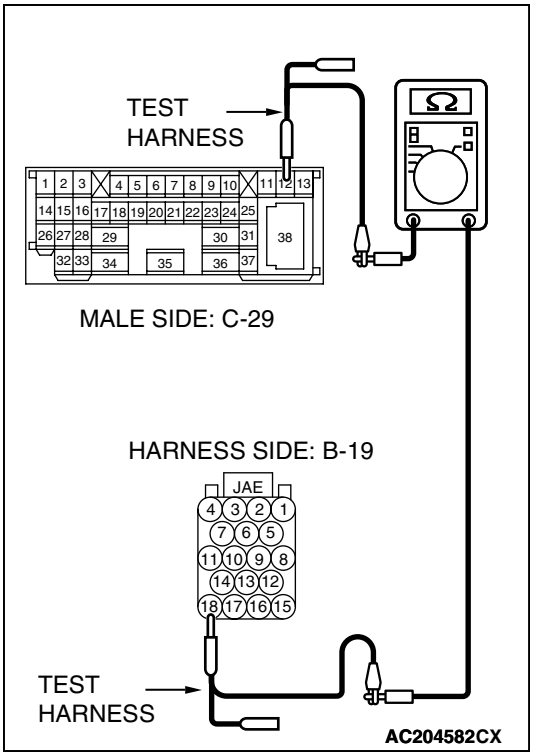






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 23.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

STEP 23. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

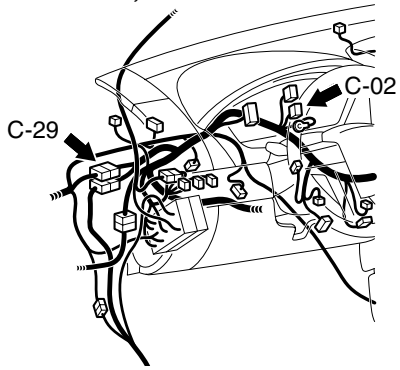
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

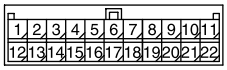
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

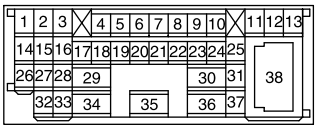
CONNECTORS: C-02, C-29



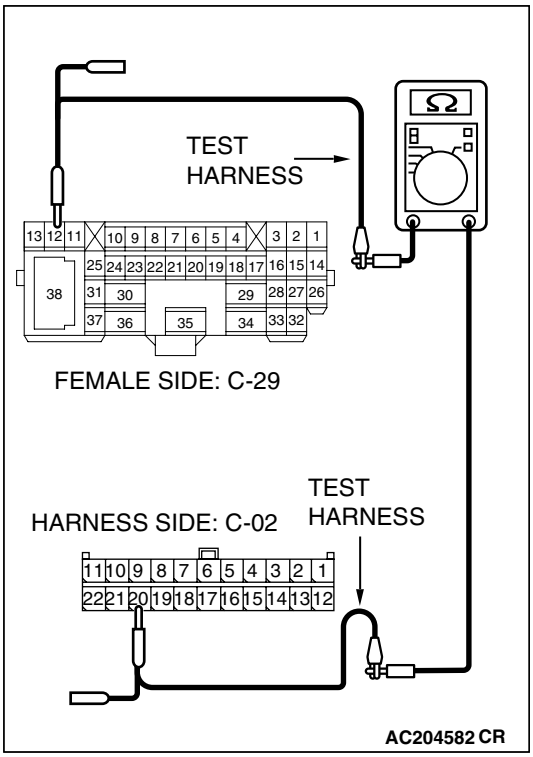
C-02



C-29

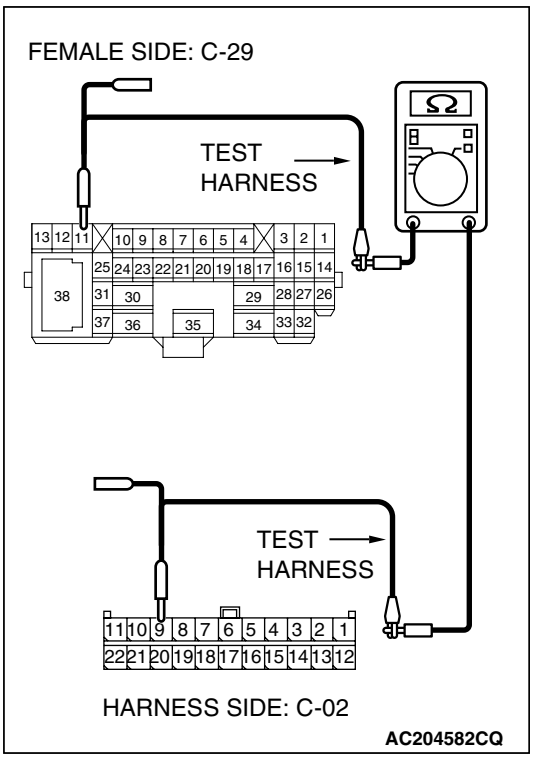


AC305232AG



(4) Measure the resistance between joint connector (3) terminal 20 and intermediate connector terminal 12.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 9 and intermediate connector C-29 terminal 11.

OK: 2 ohms or less

⚠ CAUTION

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

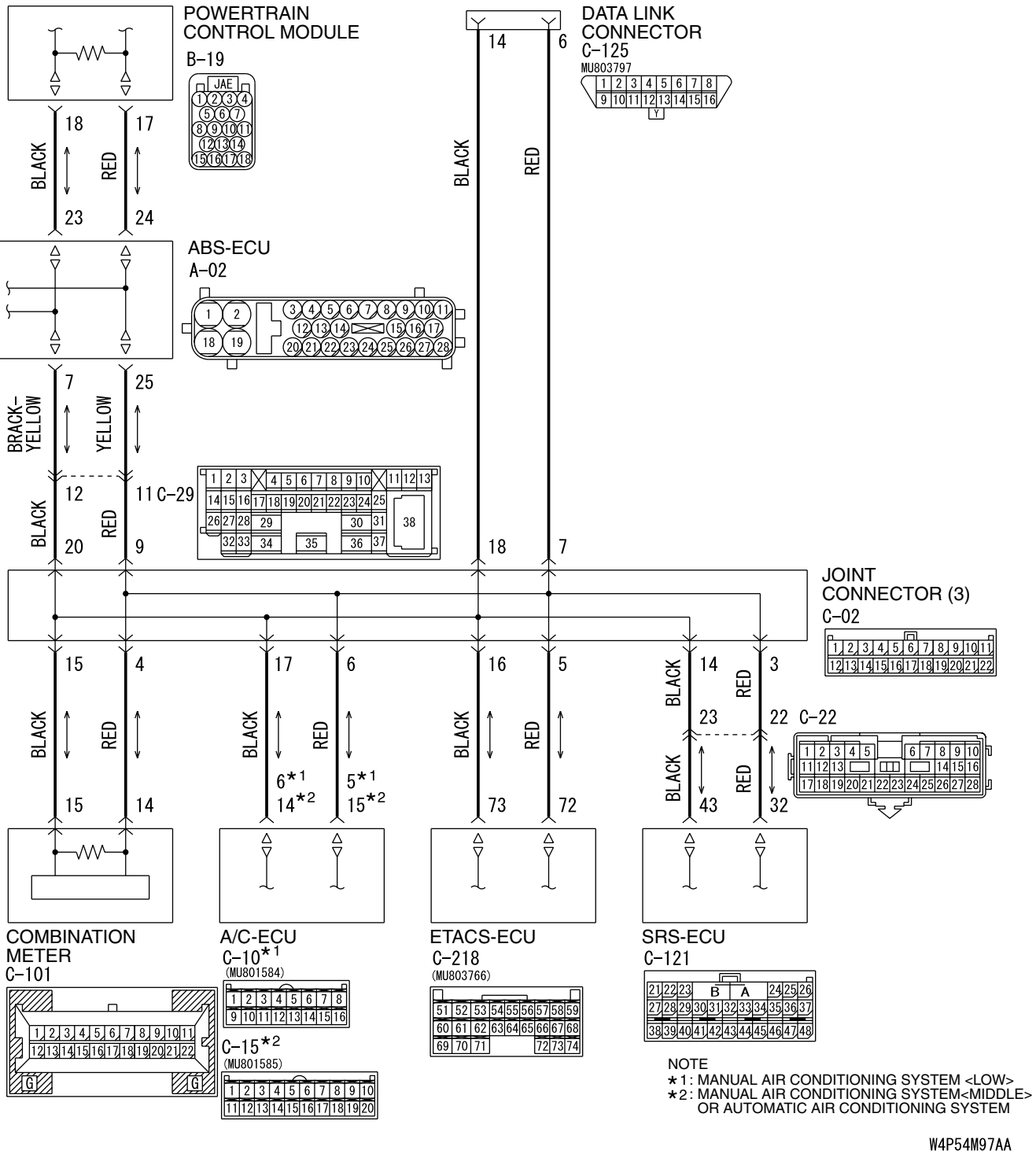
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-970 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1016 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector.

DIAGNOSTIC ITEM 15: Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>

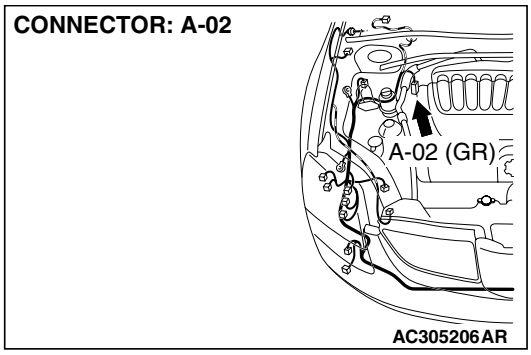
⚠ CAUTION
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.

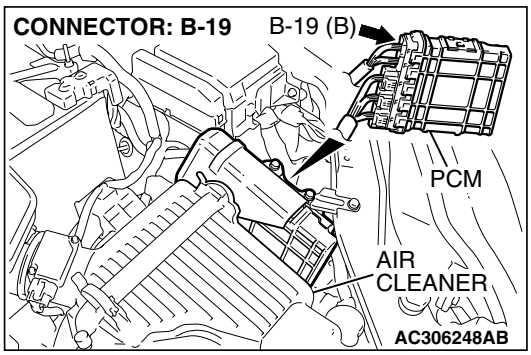


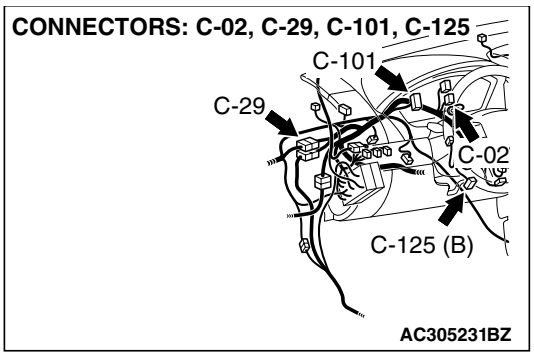
NOTE
*1: MANUAL AIR CONDITIONING SYSTEM <LOW>
*2: MANUAL AIR CONDITIONING SYSTEM<MIDDLE> OR AUTOMATIC AIR CONDITIONING SYSTEM

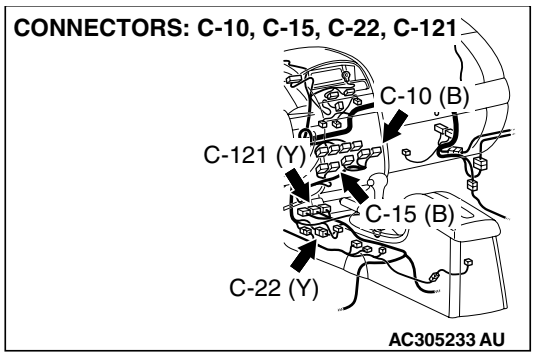
W4P54M97AA

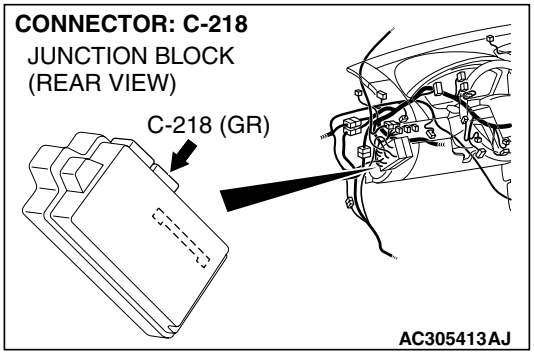
TSB Revision











TROUBLE JUDGMENT

If the MUT-III cannot received signals from ECUs, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A
- MB991970: ABS Check Harness

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

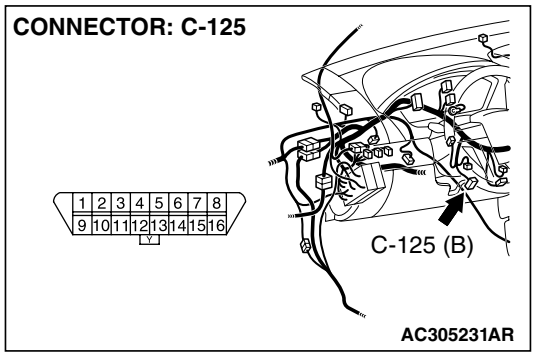
⚠ CAUTION

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

Q: Is data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN bus lines at the data link connector. Measure the resistance at the data link connector C-125.

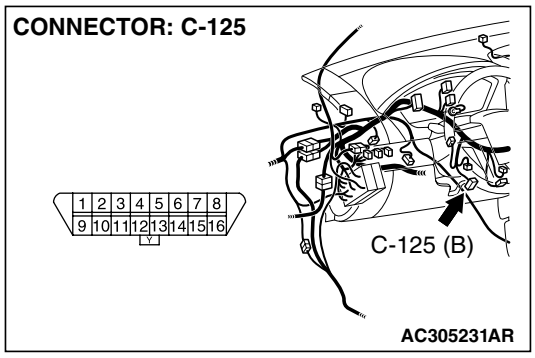
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

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

(1) Measure the resistance at the data link connector.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

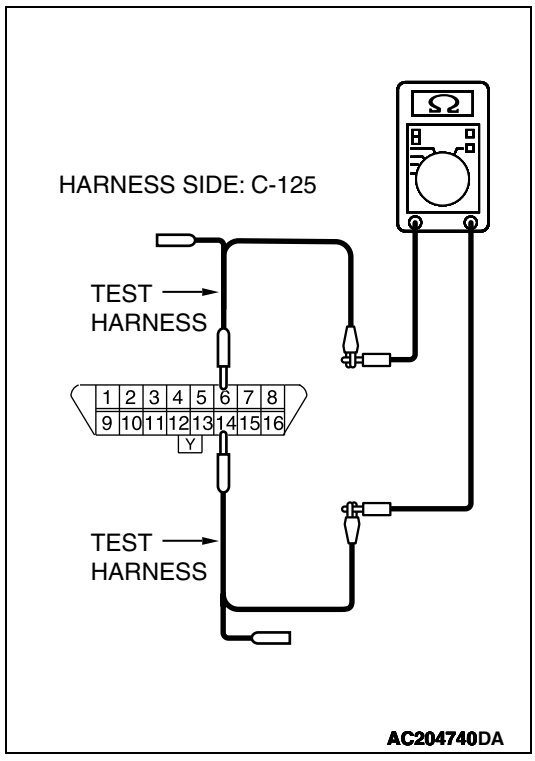
(3) Disconnect the negative battery terminal.



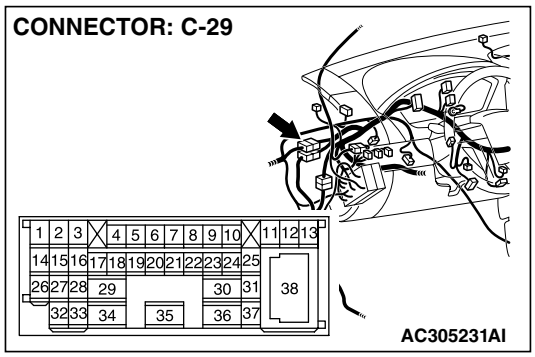
(4) Measure the resistance between data link connector terminals 6 and 14.

Q: How much resistance is measured?

2 ohms or less : Diagnostic Item 8: Check the CAN_L and H lines for a short circuit. Refer to P.54C-331.
No continuity : Diagnostic Item 11: Diagnose terminator resistors at both ends. Refer to P.54C-407.
More than 2 ohms but continuity exists : Go to Step 3.



STEP 3. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

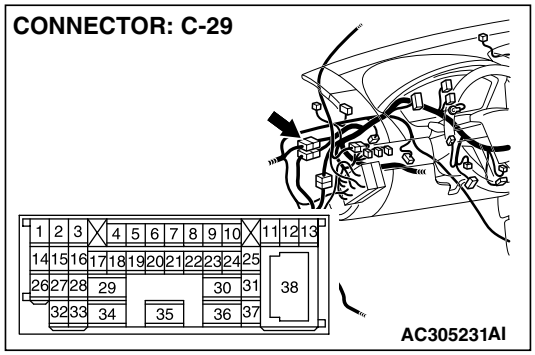


⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

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

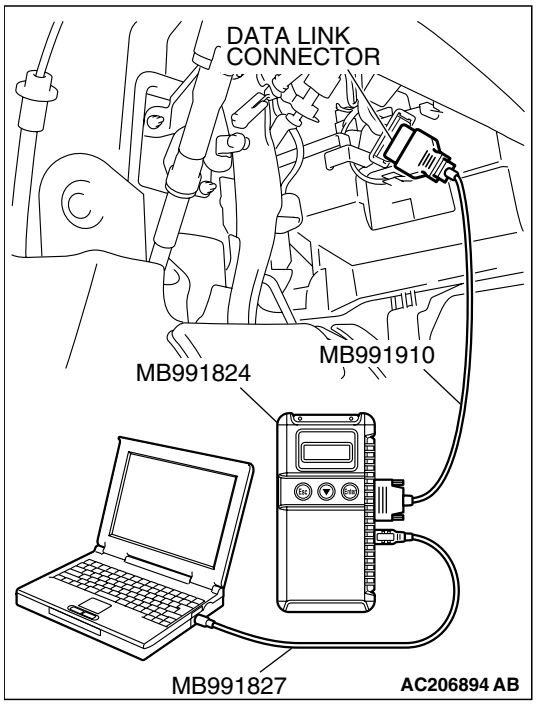
YES : Go to Step 4.
NO : Repair the damaged parts.

STEP 4. Using scan tool MB991958, diagnose the CAN bus line (Disconnect intermediate connector C-29, and then determine that a failure is present at either the front wiring harness side or the instrument panel wiring harness side).

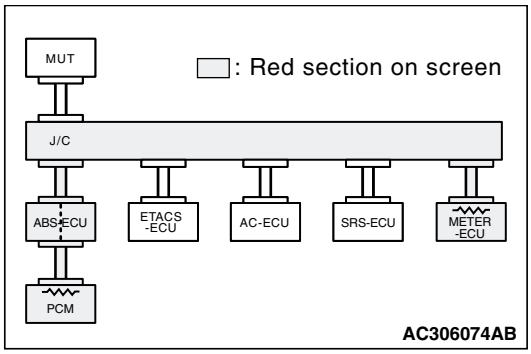


(1) Disconnect intermediate connector C-29.

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



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



(4) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(5) Turn the ignition switch to the "LOCK" (OFF) position.
(6) Connect intermediate connector C-29.

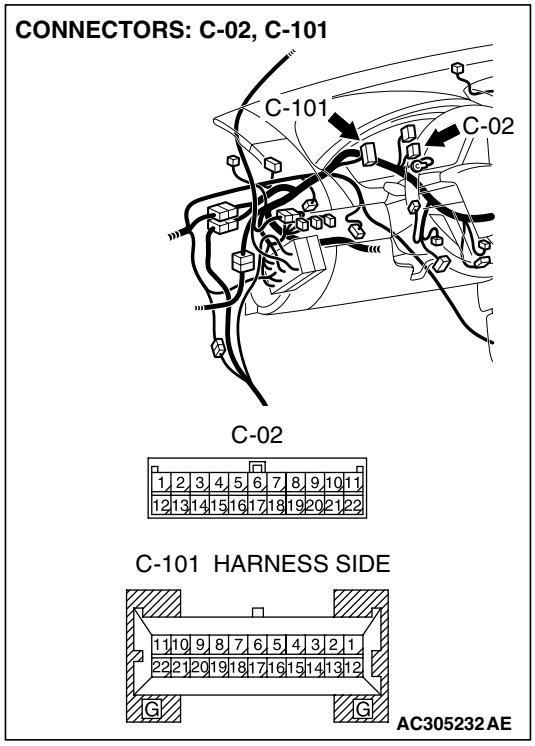
Q: Does the MUT-III screen correspond to the illustration?

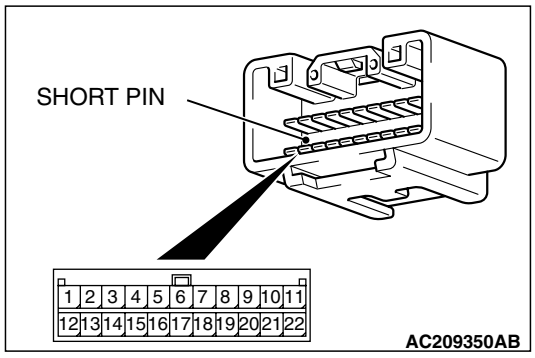
YES : If the MUT-III screen corresponds to the illustration, go to Step 20 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 5.

STEP 5. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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





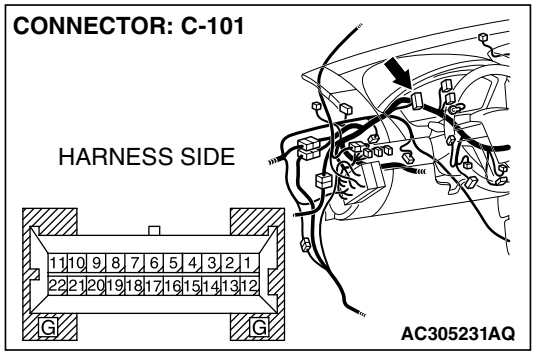
Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

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

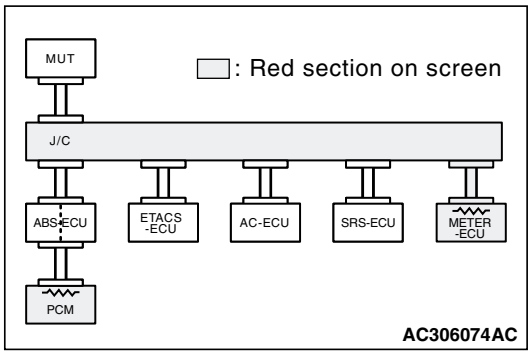
YES : Go to Step 6.

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

STEP 6. Using scan tool MB991958, diagnose the CAN bus line (Disconnect combination meter connector C-101, and check the combination meter system).



(1) Disconnect combination meter connector C-101.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Disconnect combination meter connector C-101.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 7.

NO : If the MUT-III screen does not correspond to the illustration, go to Step 8.

STEP 7. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

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

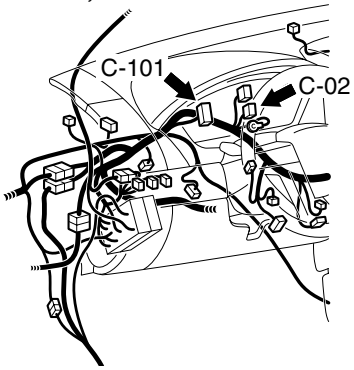
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

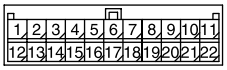
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

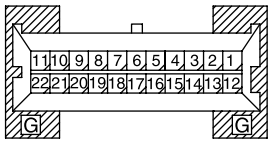
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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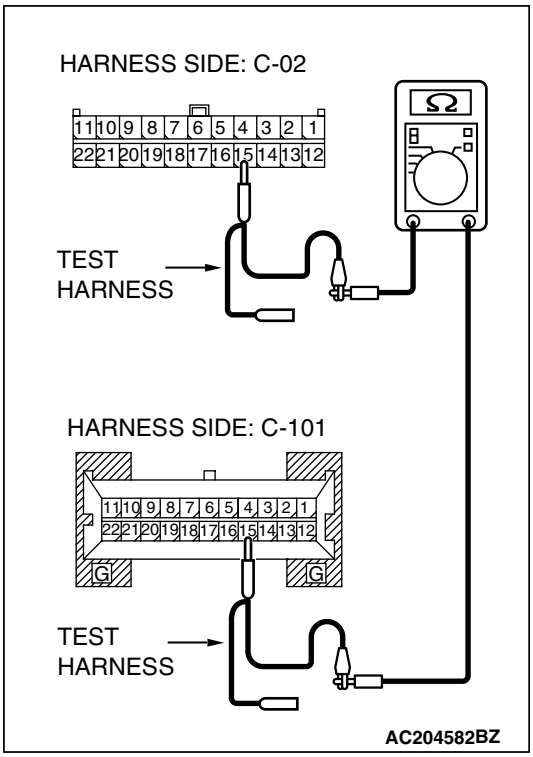
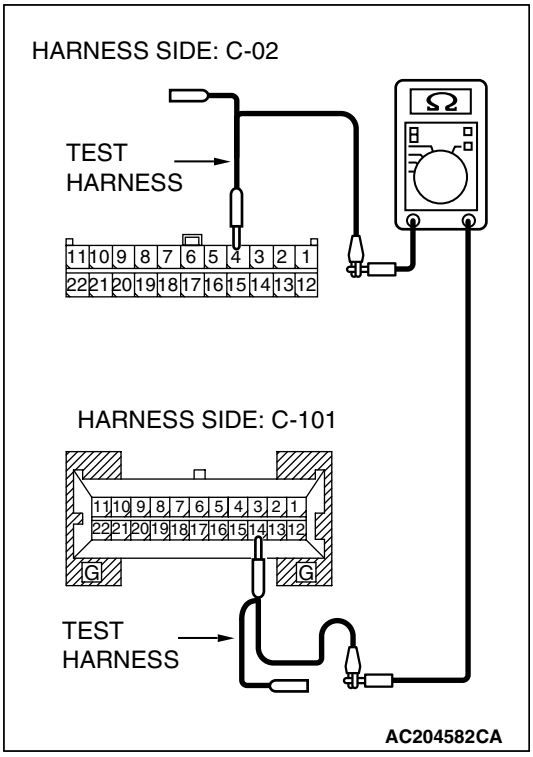


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

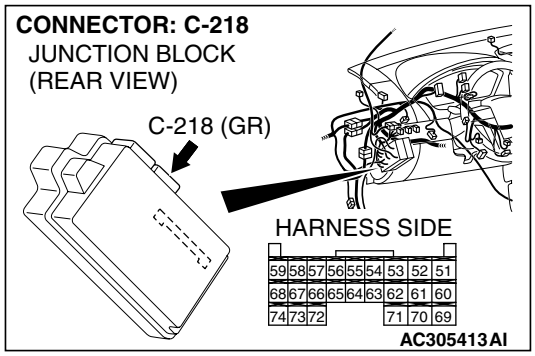
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter by referring to GROUP 54A, Combination meter assembly P.54A-252.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 8. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

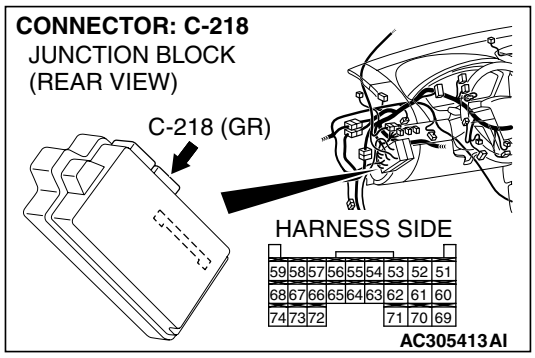


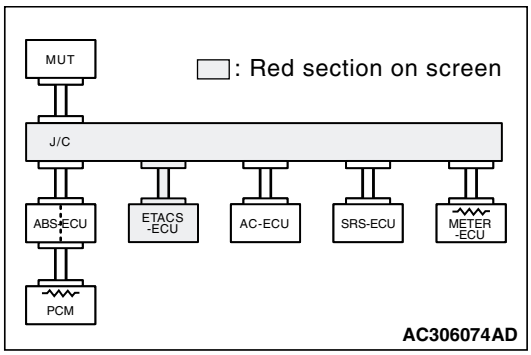
Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 9.
NO : Repair the damaged parts.

STEP 9. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ETACS-ECU connector C-218, and check the ETACS-ECU system).

(1) Disconnect ETACS-ECU connector C-218.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect ETACS-ECU connector C-218.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 10 .
NO : If the MUT-III screen does not correspond to the illustration, go to Step 11.

STEP 10. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

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

⚠ CAUTION

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

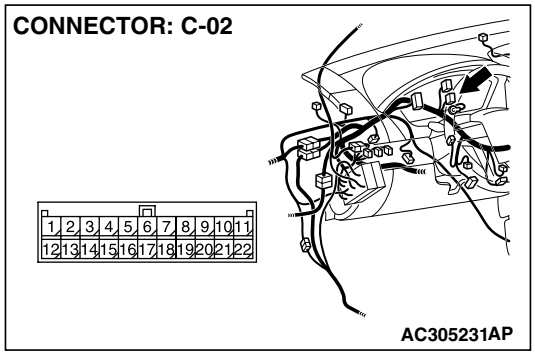
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.

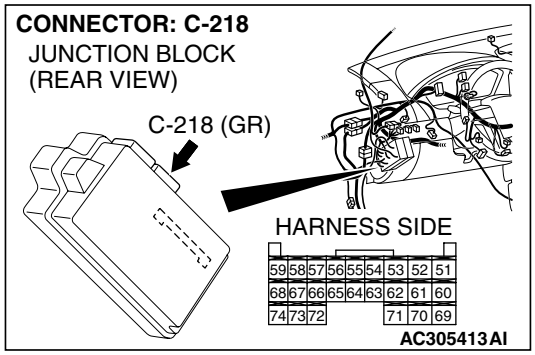
(2) Turn the ignition switch to the "LOCK" (OFF) position.

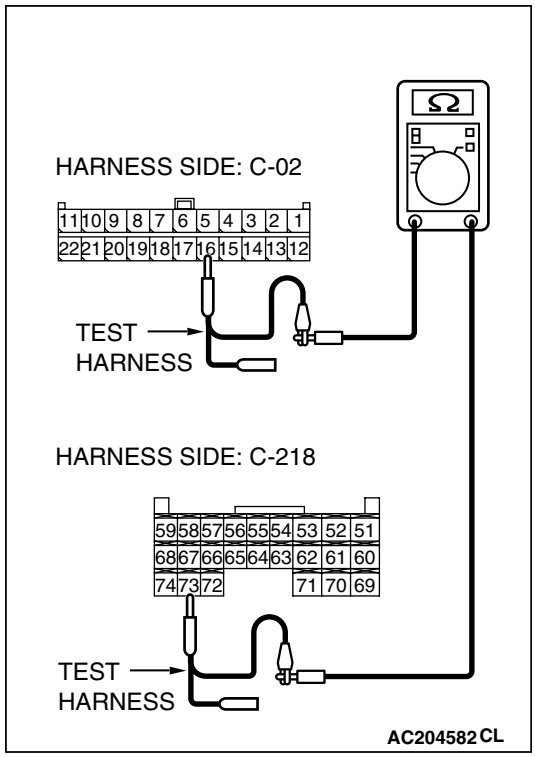
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

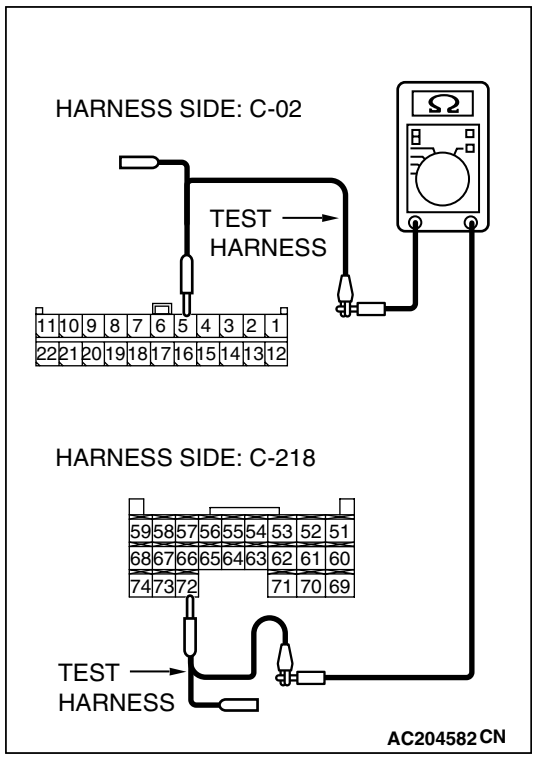






(4) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

OK: 2 ohms or less



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

OK: 2 ohms or less

⚠ CAUTION

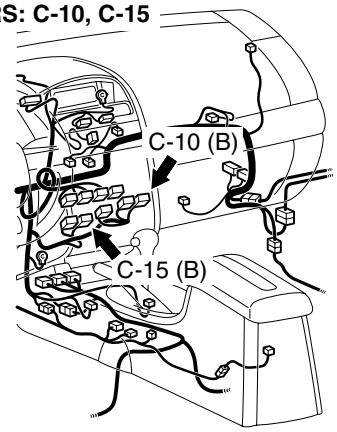
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

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

YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the ETACS-ECU by referring to GROUP 54B, Diagnosis P.54B-78.

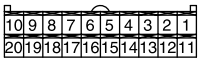
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

CONNECTORS: C-10, C-15



C-10 HARNESS SIDE

C-15 HARNESS SIDE



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STEP 11. Check A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

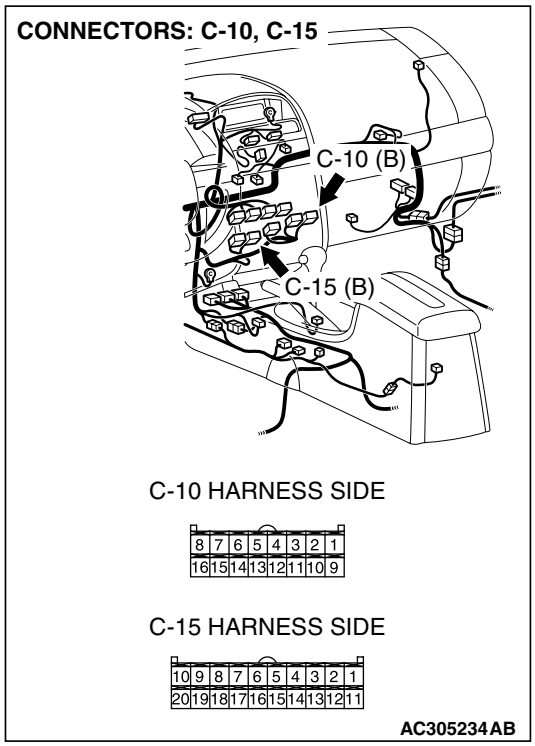
Q: Is A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

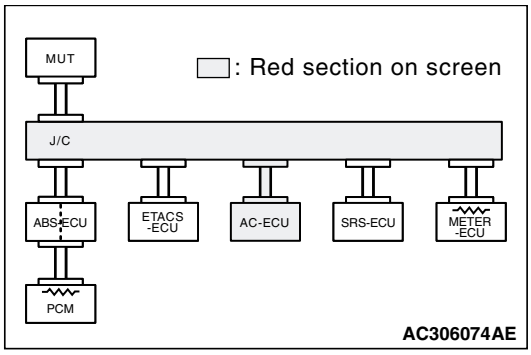
YES : Go to Step 12.
NO : Repair the damaged parts.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line (Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and check the A/C-ECU system).

(1) Disconnect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

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





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

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

(5) Connect A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 13 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 14.

STEP 13. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

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

⚠ CAUTION

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

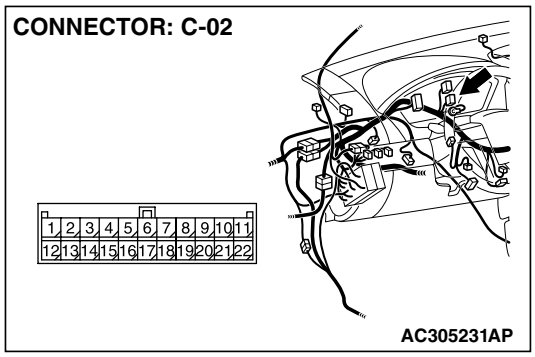
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

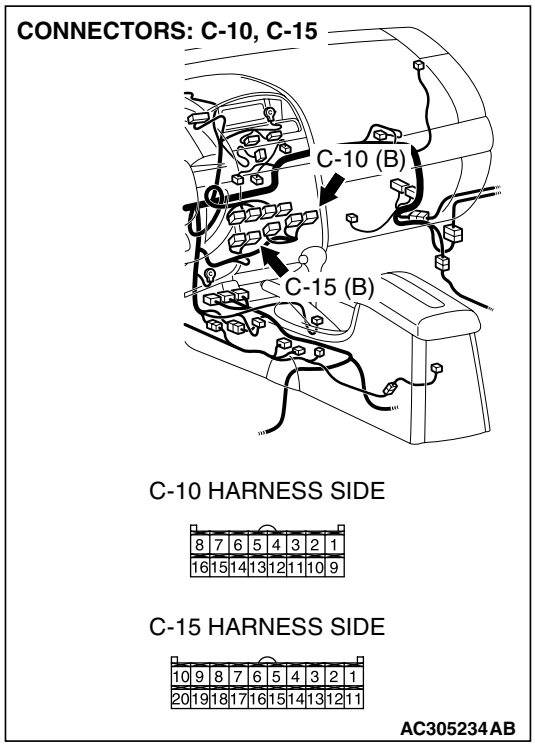
(2) Turn the ignition switch to the "LOCK" (OFF) position.

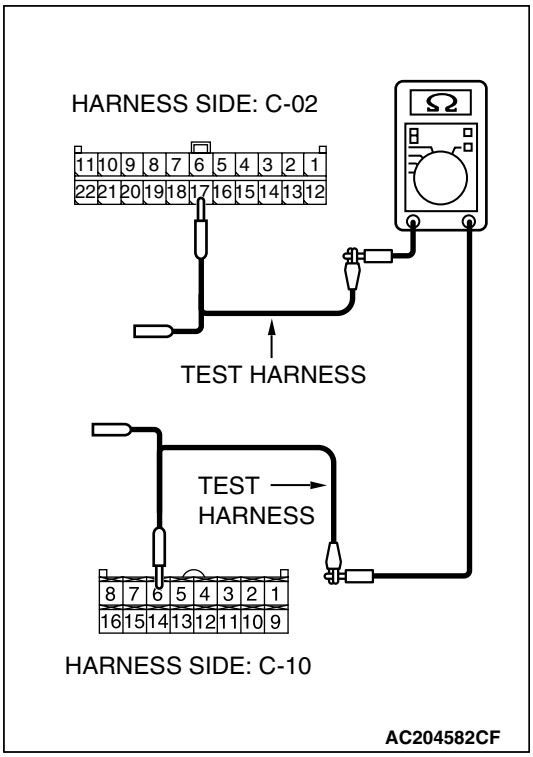
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

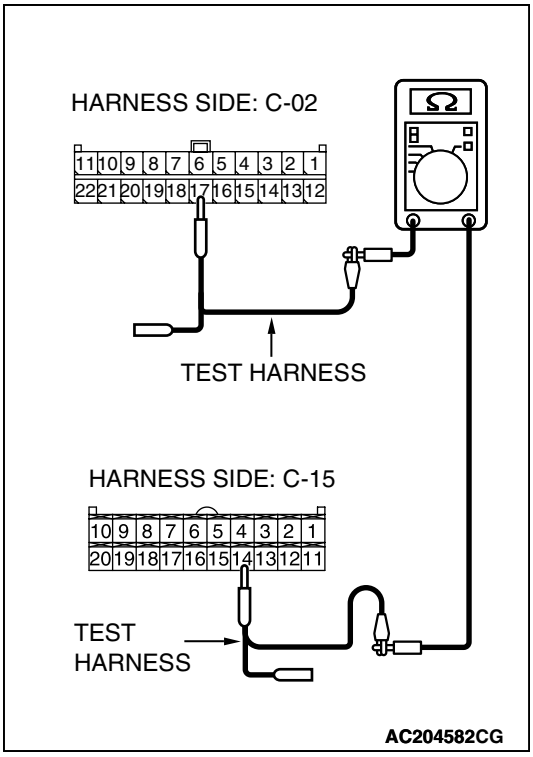


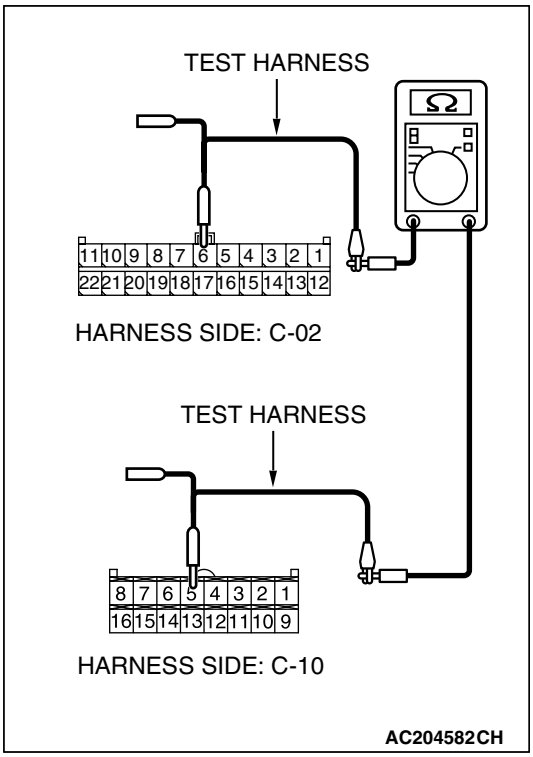


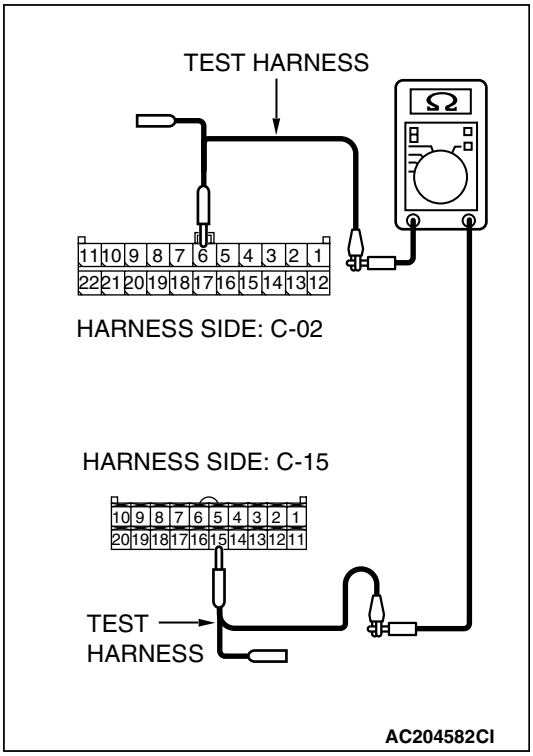


(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 6 <manual air conditioning system (low)> or 14 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less







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

OK: 2 ohms or less

⚠ CAUTION

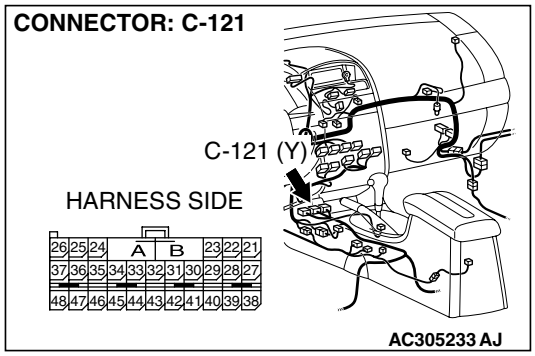
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

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

YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-242.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 14. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



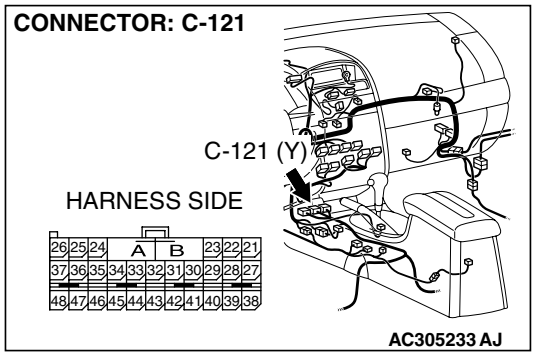
⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

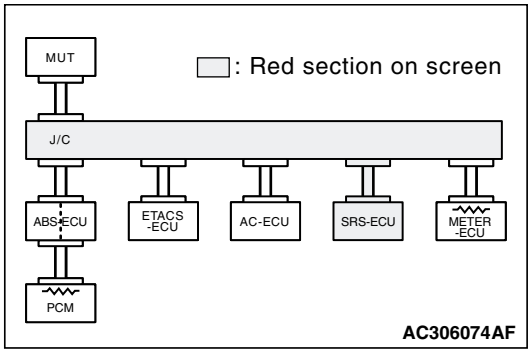
Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 15.
NO : Repair the damaged parts.

STEP 15. Using scan tool MB991958, diagnose the CAN bus line (Disconnect SRS-ECU connector C-121, and check the supplemental restraint system).

(1) Disconnect SRS-ECU connector C-121.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the SRS-ECU connector C-121.

Q: Does the MUT-III screen correspond to the illustration?

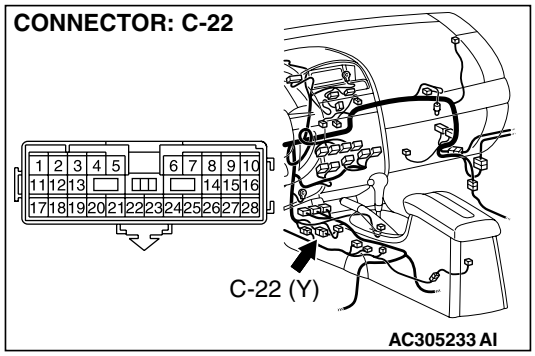
YES : If the MUT-III screen corresponds to the illustration, go to Step 16 .
NO : If the MUT-III screen does not correspond to the illustration, go to Step 19.

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

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

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

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



STEP 17. Check the CAN bus lines between intermediate connector and the SRS-ECU. Measure the resistance between intermediate connector C-22 and SRS-ECU connector C-121.

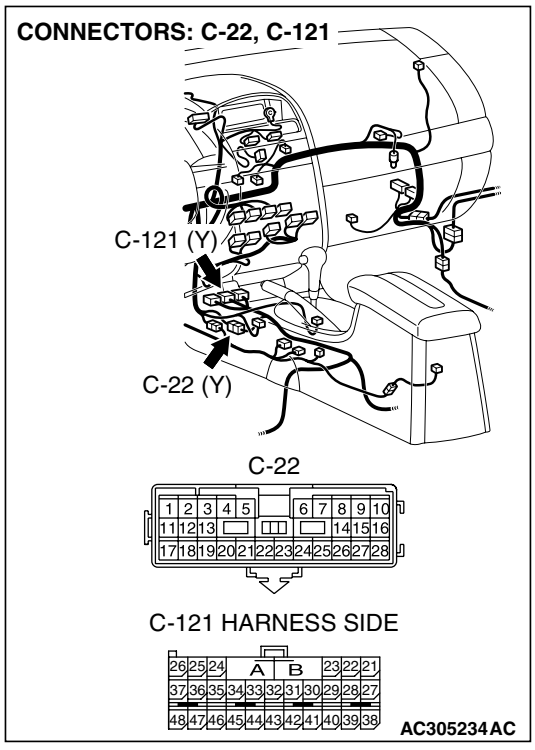
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

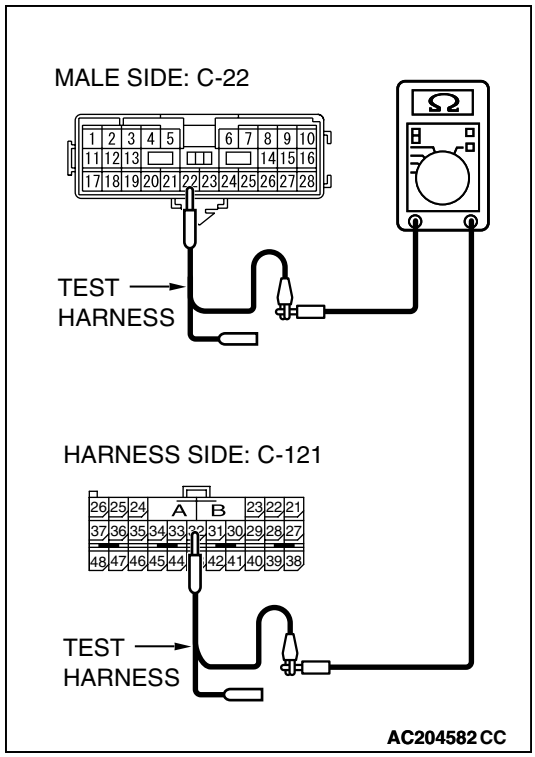
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the wiring harness sides of intermediate connector C-22 and SRS-ECU connector C-121.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

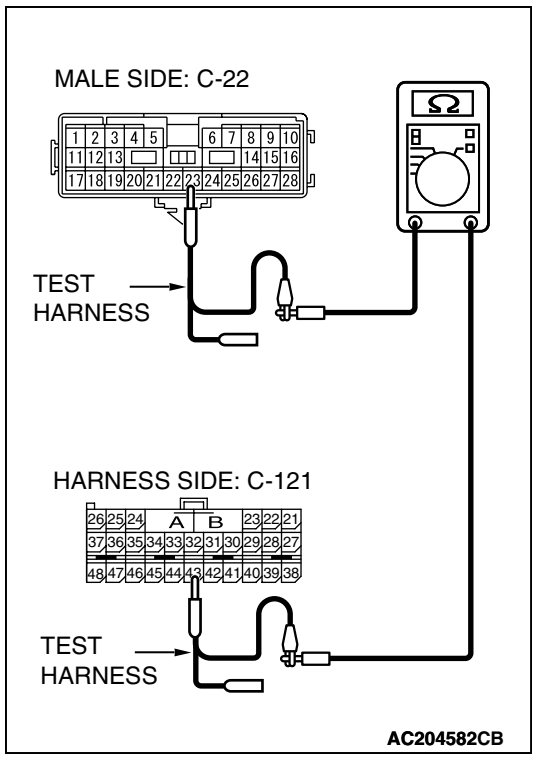
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 22 and SRS-ECU connector terminal 32.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 23 and SRS-ECU connector terminal 43.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 18.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector and the SRS-ECU connector.

STEP 18. Check the CAN bus lines between joint connector (3) and the intermediate connector. Measure the resistance between joint connector (3) C-02 and intermediate connector C-22.

⚠ CAUTION

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

⚠ CAUTION

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

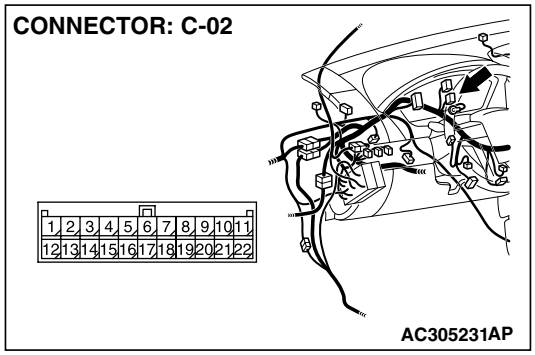
(1) Disconnect joint connector (3) C-02 and intermediate connector C-22, and measure the resistance at the wiring harness sides of joint connector (3) C-02 and intermediate connector C-22.

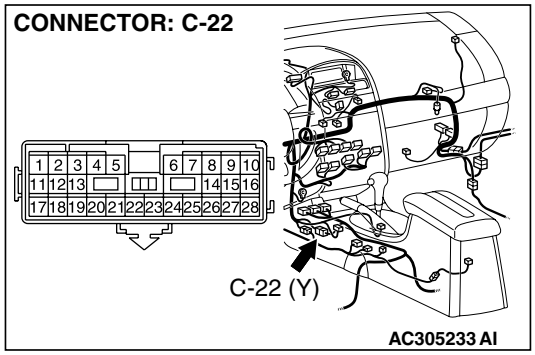
(2) Turn the ignition switch to the "LOCK" (OFF) position.

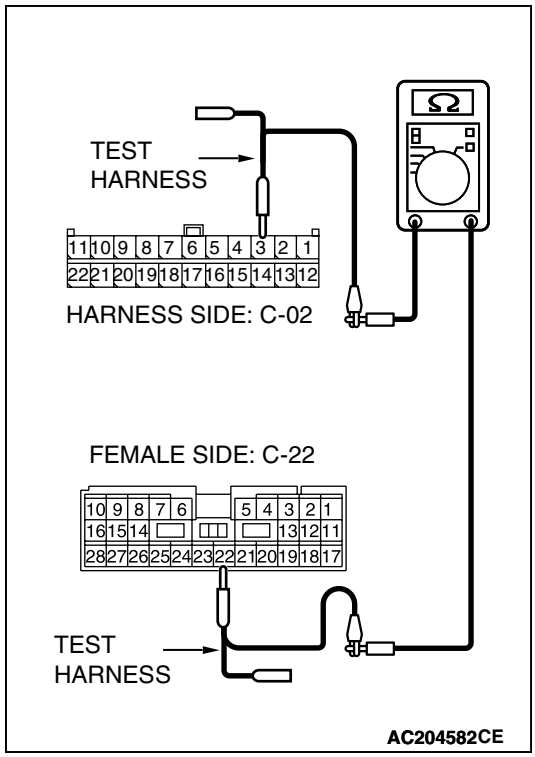
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

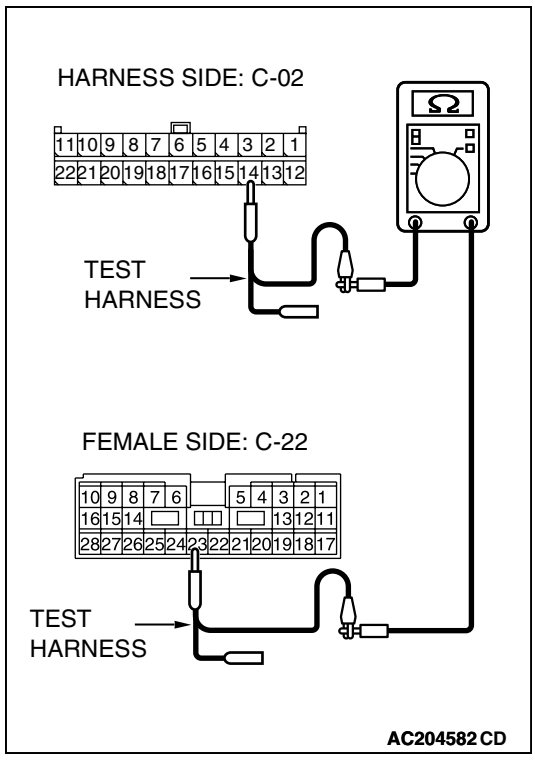






(4) Measure the resistance between joint connector (3) terminal 3 and intermediate connector terminal 22.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 14 and intermediate connector terminal 23.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-29.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector.

STEP 19. Check the CAN bus lines between joint connector (3) and the data link connector. Measure the resistance between joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

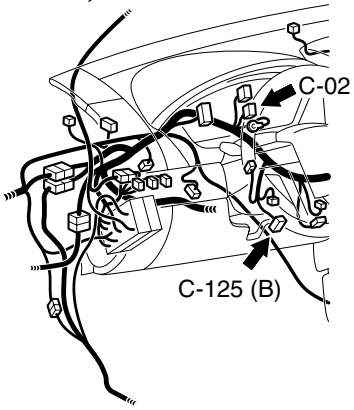
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

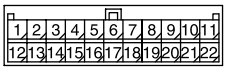
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

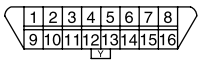
CONNECTORS: C-02, C-125



C-02



C-125



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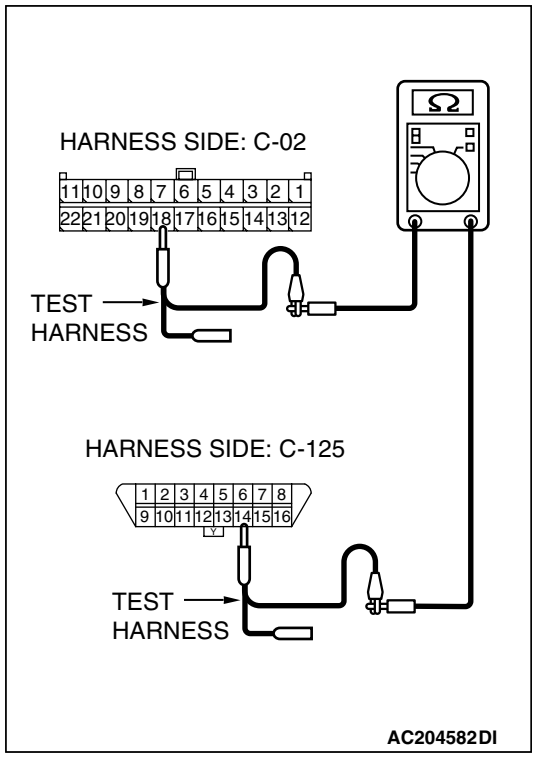
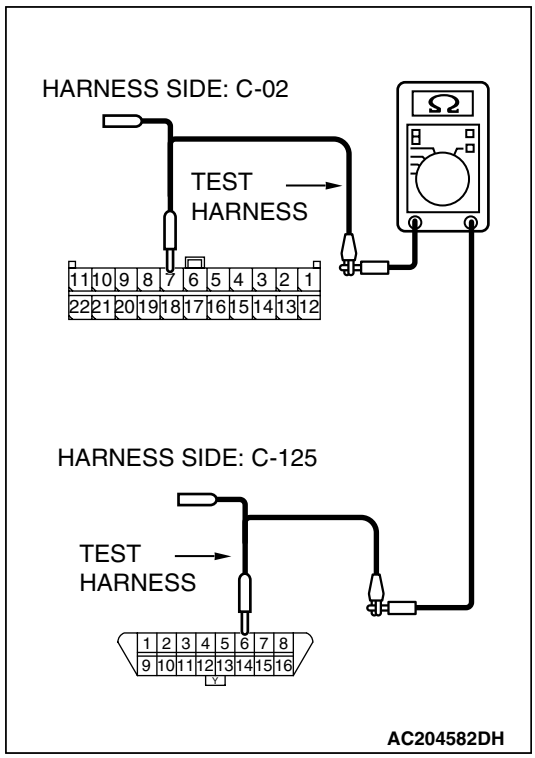


(4) Measure the resistance between joint connector (3) terminal 18 and data link connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

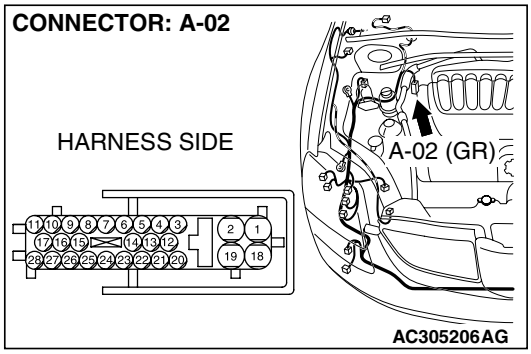
⚠ CAUTION

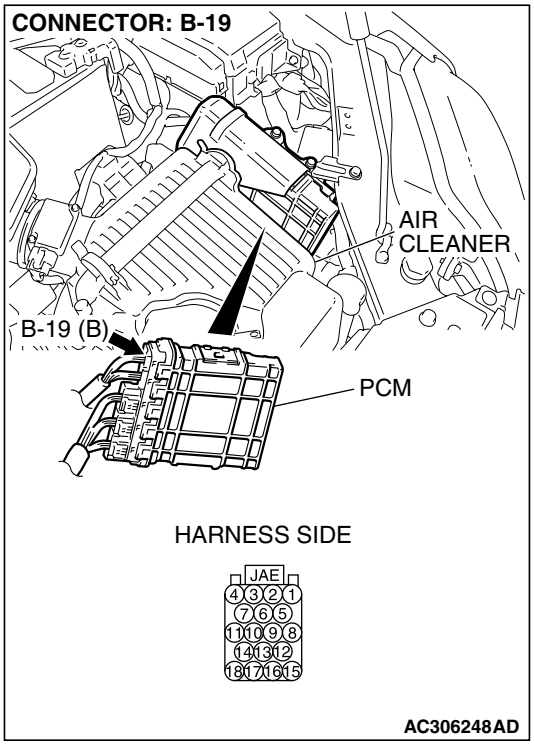
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

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

YES : If all the resistances measure 2 ohms or less, refer to diagnostics item 8: Check the CAN_L and H lines for a short circuit (Refer to P.54C-331).

NO : If all the resistances measure 2 ohms or less, repair the wiring harness between joint connector (3) and the data link connector.





STEP 20. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

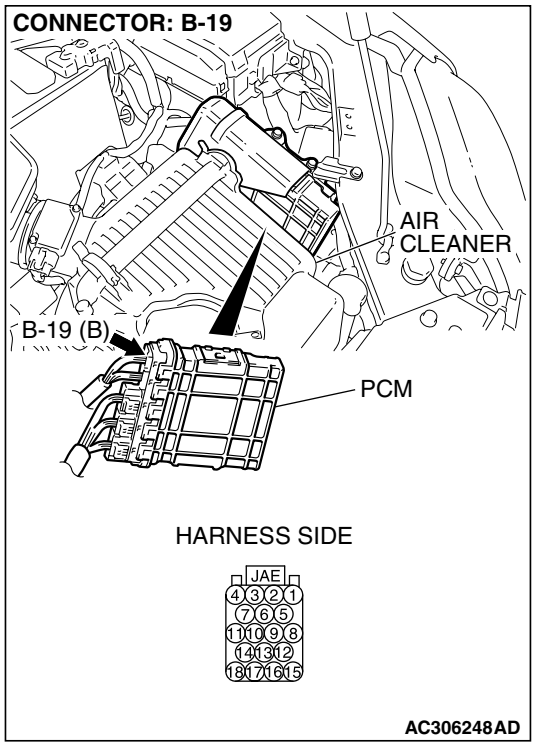
⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

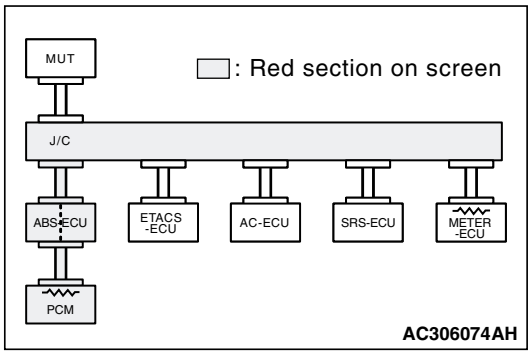
Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

YES : Go to Step 21.
NO : Repair the damaged parts.

STEP 21. Using scan tool MB991958, diagnose the CAN bus line (Disconnect powertrain control module connector B-19, and check the powertrain control module system).

(1) Disconnect powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect powertrain control module connector B-19.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 22 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 24.

STEP 22. Check the CAN bus lines between the ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

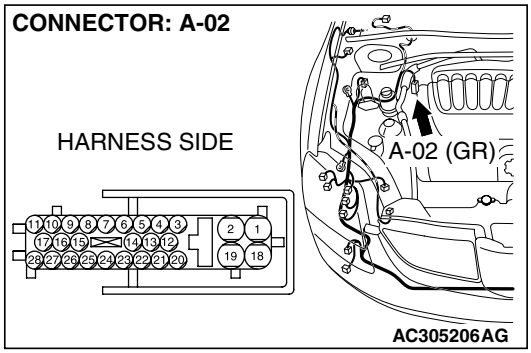
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

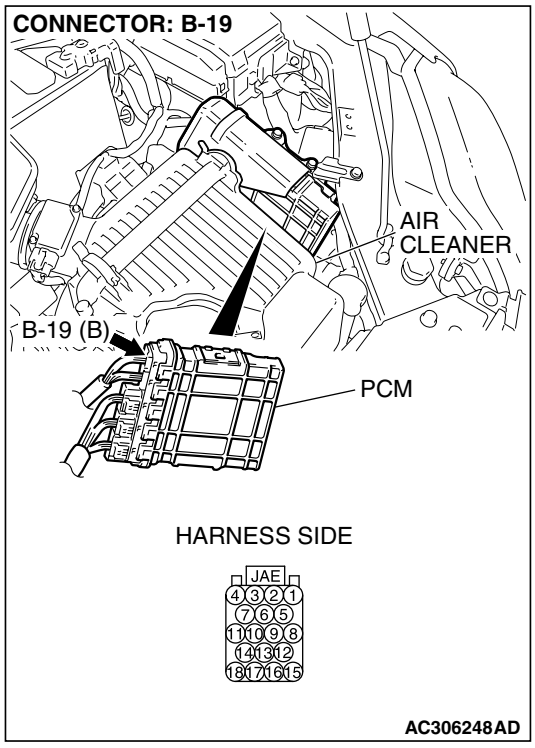
(2) Turn the ignition switch to the "LOCK" (OFF) position.

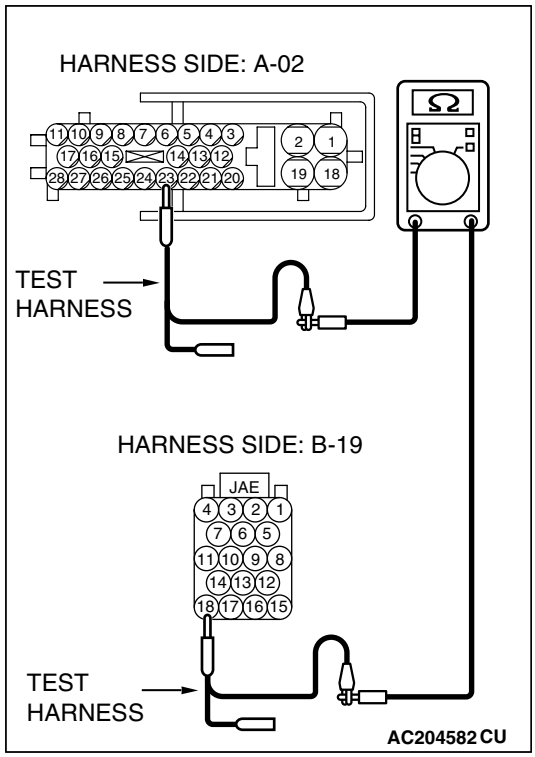
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

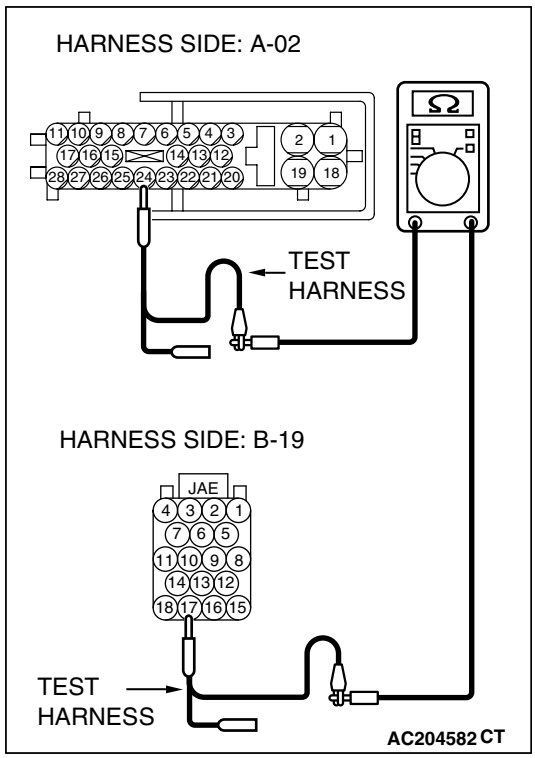






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

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

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

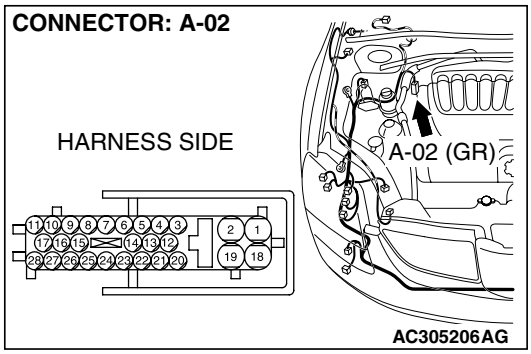
YES : If all the resistances measure 2 ohms or less, go to Step 23.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between ABS-ECU connector and the powertrain control module connector.

STEP 23. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

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

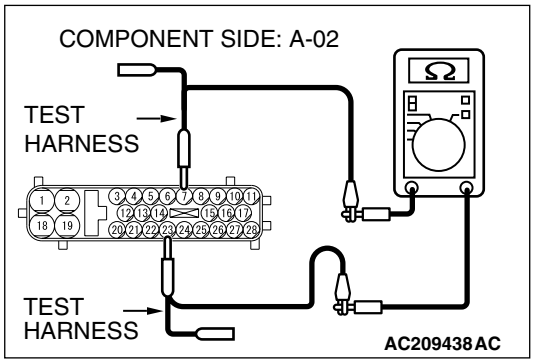
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

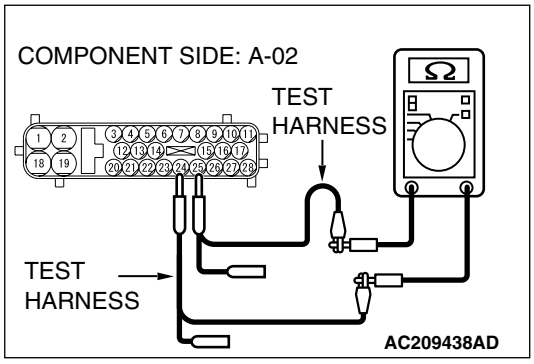
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less

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

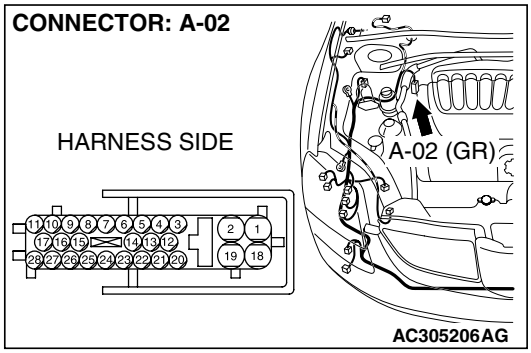
Q: Do all the resistances measure 2 ohms or less?

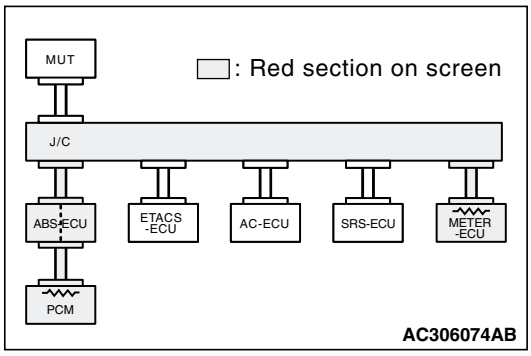
YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-970 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1016 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

STEP 24. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ABS-ECU connector A-02, and check the ABS-ECU system).

(1) Disconnect ABS-ECU connector A-02.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Check ABS-ECU connector A-02.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 25 .

NO : If the MUT-III screen does not correspond to the illustration, refer to diagnostics item 8: Check the CAN_L and H lines for a short circuit (Refer to P.54C-331).

STEP 25. Check the CAN bus lines between intermediate connector C-29 and the ABS-ECU. Measure the resistance between intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

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

⚠ CAUTION

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

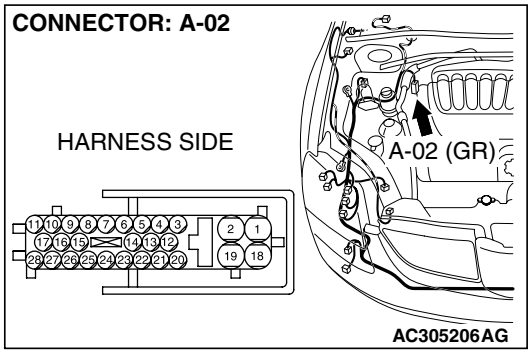
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

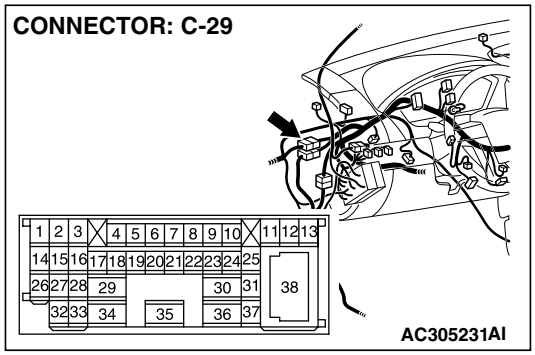
(2) Turn the ignition switch to the "LOCK" (OFF) position.

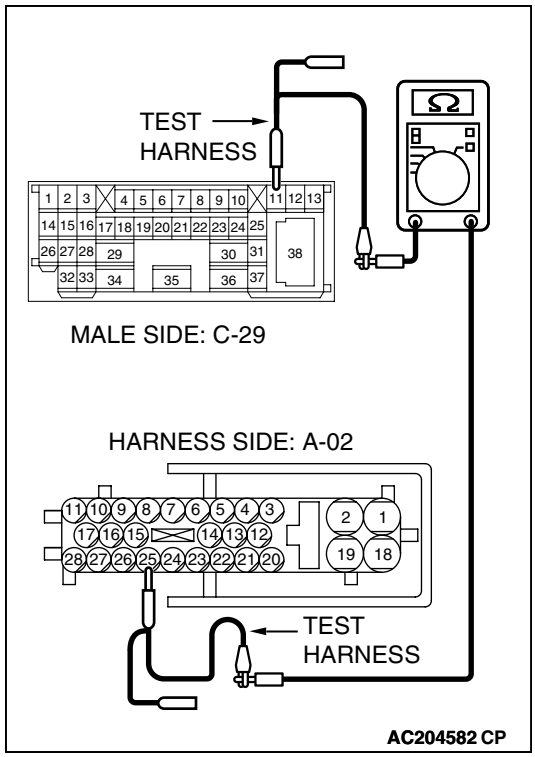
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

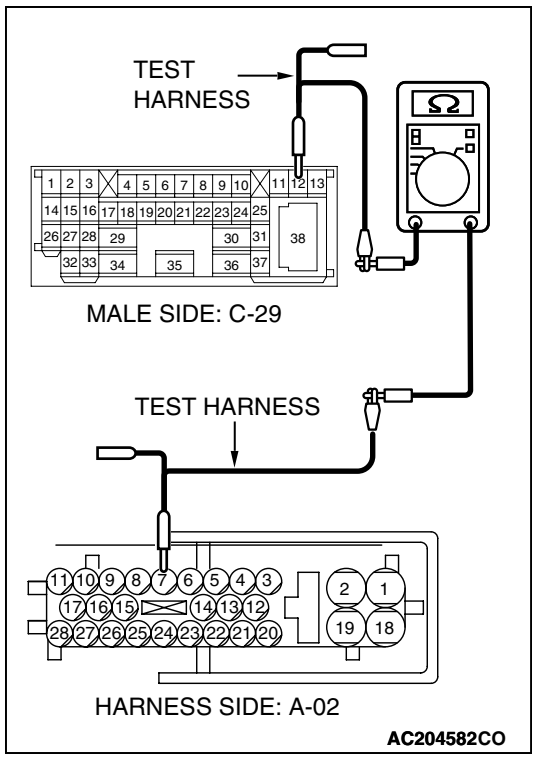






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 26.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector.

STEP 26. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

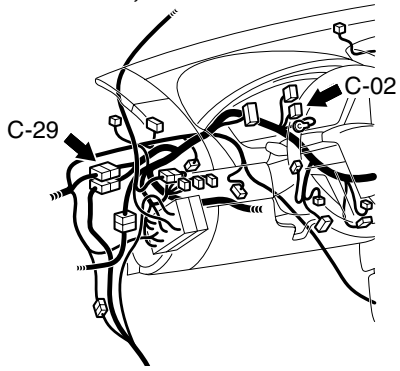
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

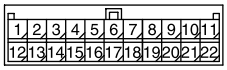
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

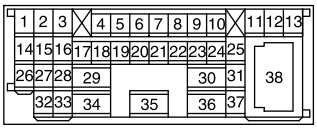
CONNECTORS: C-02, C-29



C-02



C-29



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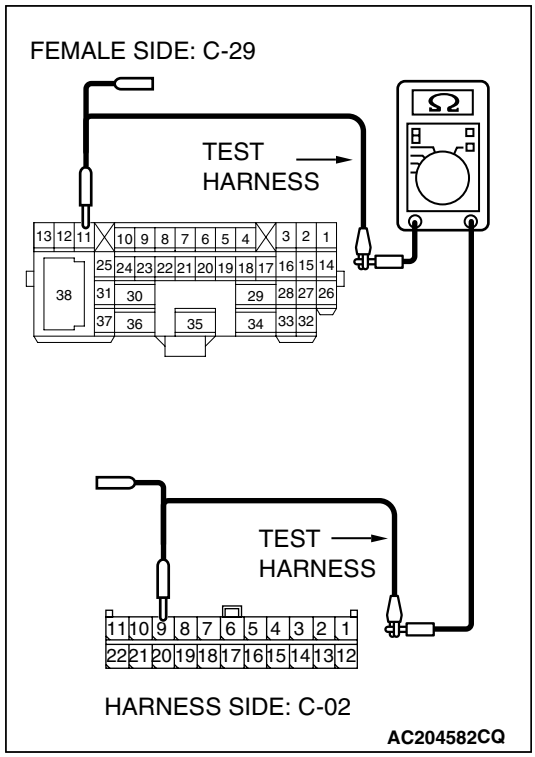
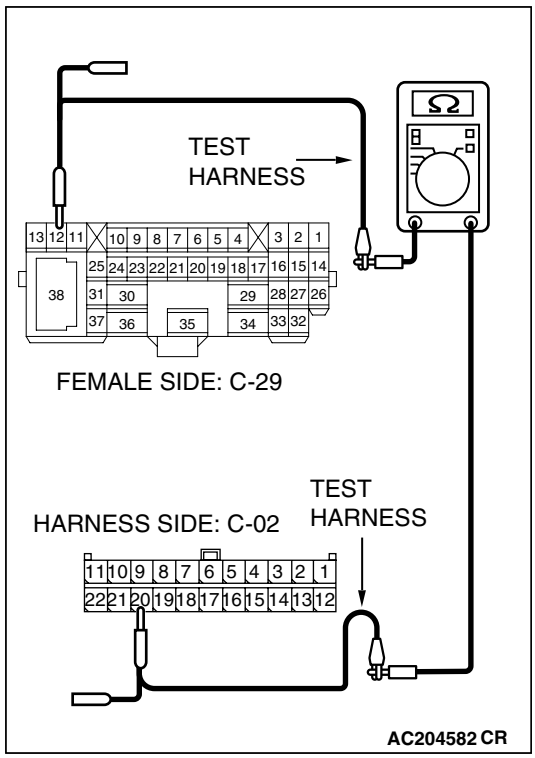


(4) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less



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

OK: 2 ohms or less

⚠ CAUTION

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

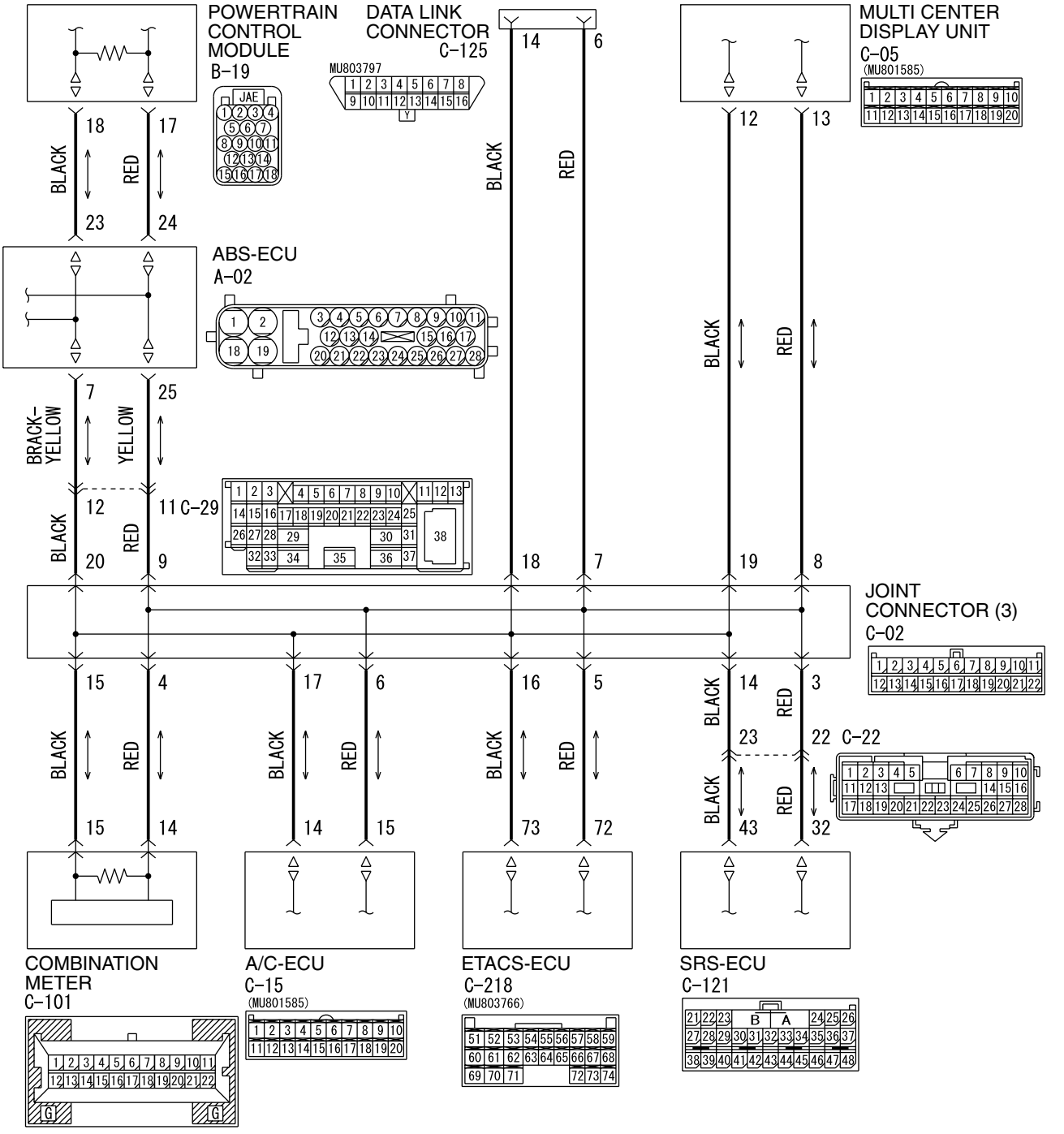
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the ABS-ECU may be suspected. Diagnose the ABS system. Refer to GROUP 35B, ABS diagnosis P.35B-82.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and intermediate connector C-29.

DIAGNOSTIC ITEM 16: Diagnose CAN bus lines thoroughly <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>

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



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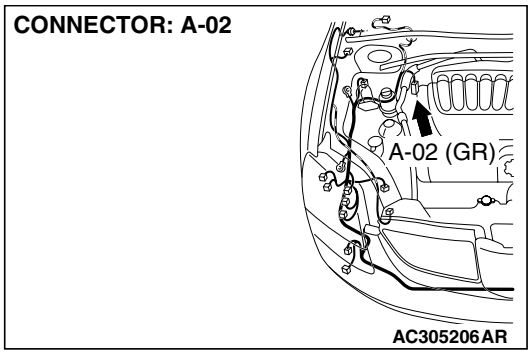
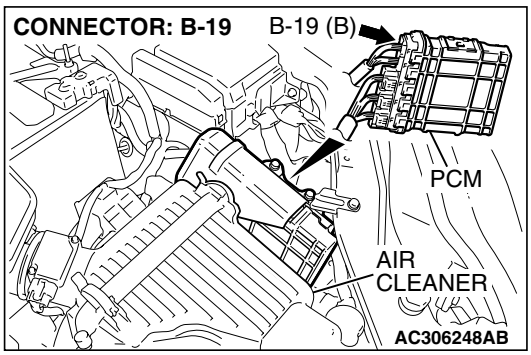
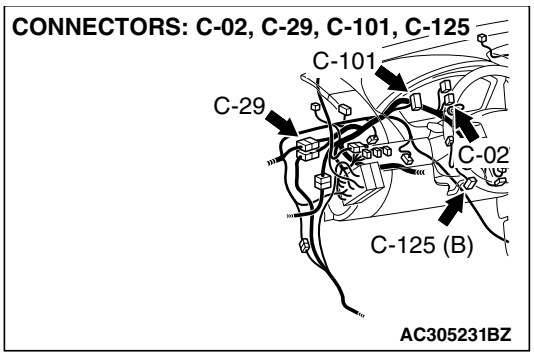
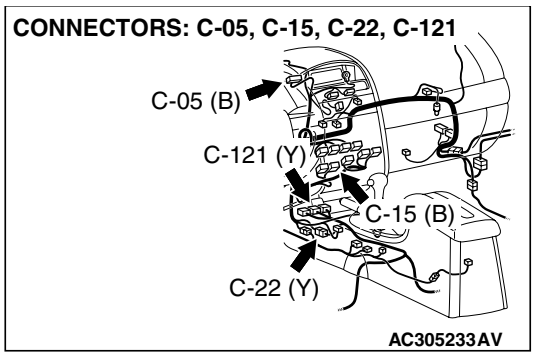
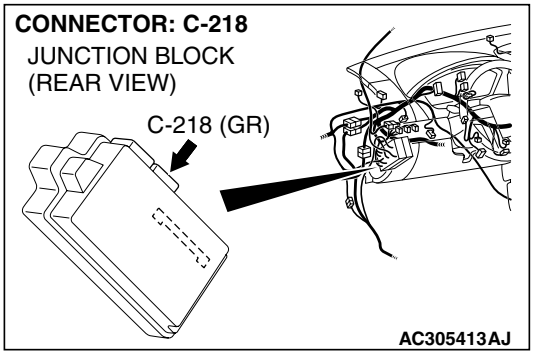
TSB Revision











TROUBLE JUDGMENT

If the MUT-III cannot received signals from ECUs, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A
- MB991970: ABS Check Harness

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

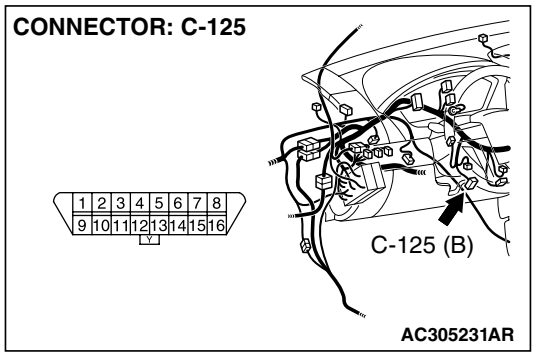
⚠ CAUTION

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

Q: Is data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN bus lines at the data link connector. Measure the resistance at the data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

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

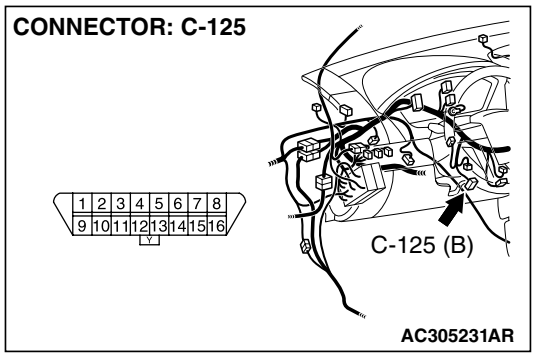
(1) Measure the resistance at the data link connector.

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

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



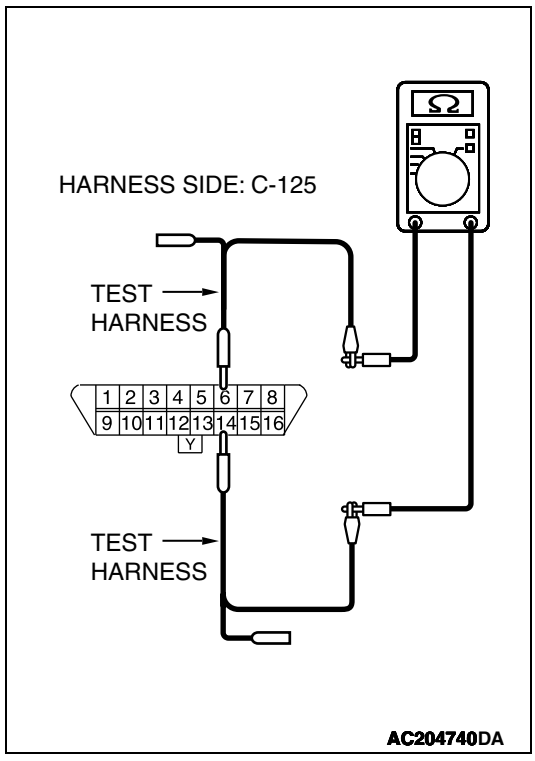
(4) Measure the resistance between data link connector terminals 6 and 14.

Q: How much resistance is measured?

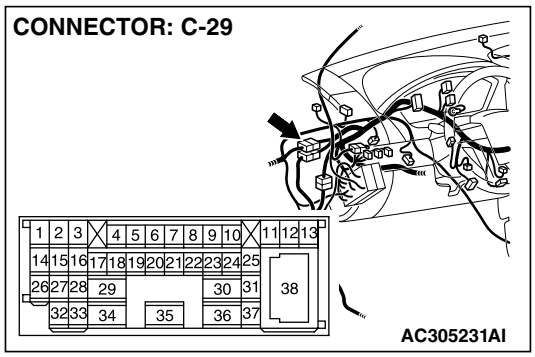
2 ohms or less : Diagnostic Item 9: Check the CAN_L and H lines for a short circuit. Refer to P.54C-360.

No continuity : Diagnostic Item 11: Diagnose terminator resistors at both ends. Refer to P.54C-407.

More than 2 ohms but continuity exists : Go to Step 3.



STEP 3. Check intermediate connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

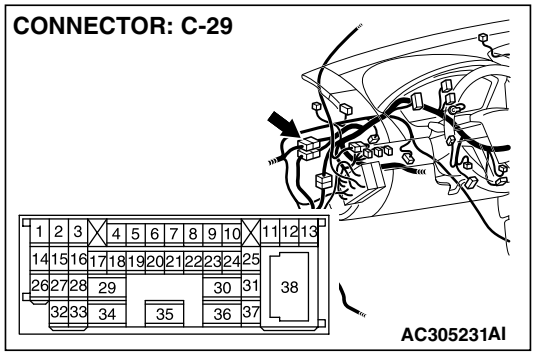


⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

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

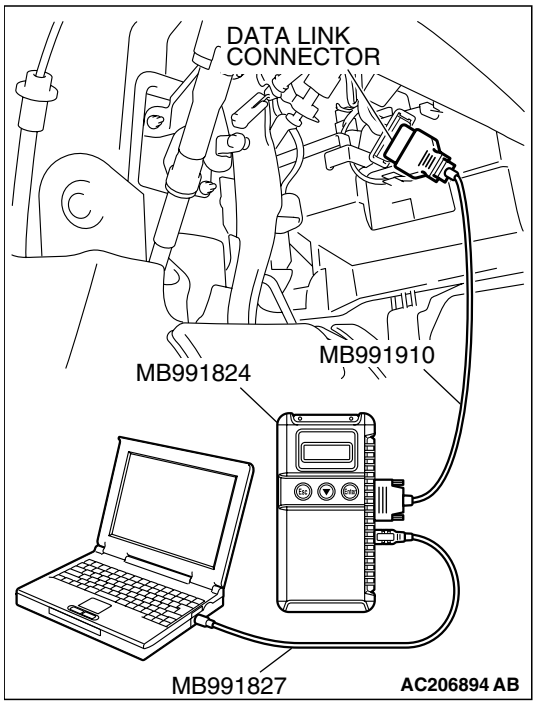
YES : Go to Step 4.
NO : Repair the damaged parts.

STEP 4. Using scan tool MB991958, diagnose the CAN bus line (Disconnect intermediate connector C-29, and then determine that a failure is present at either the front wiring harness side or the instrument panel wiring harness side).

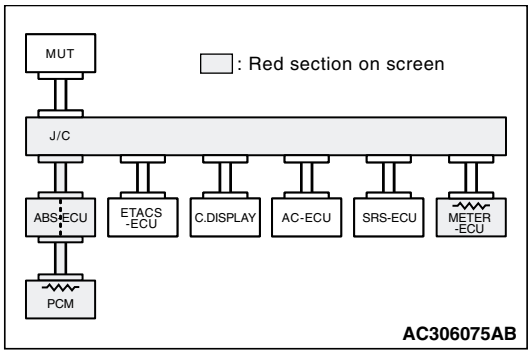


(1) Disconnect intermediate connector C-29.

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



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



(4) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(5) Turn the ignition switch to the "LOCK" (OFF) position.
(6) Connect intermediate connector C-29.

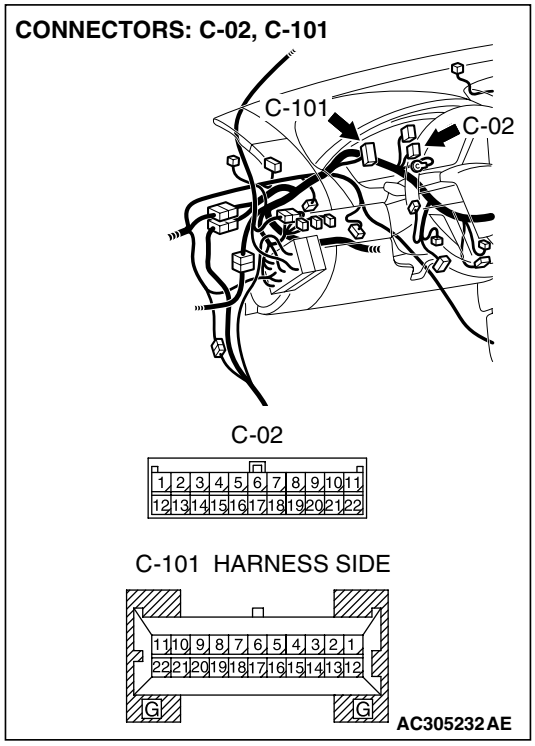
Q: Does the MUT-III screen correspond to the illustration?

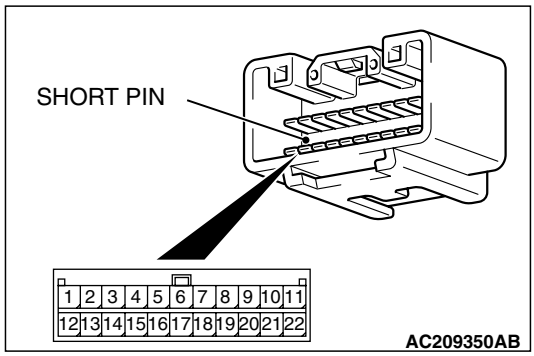
YES : If the MUT-III screen corresponds to the illustration, go to Step 23 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 5.

STEP 5. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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





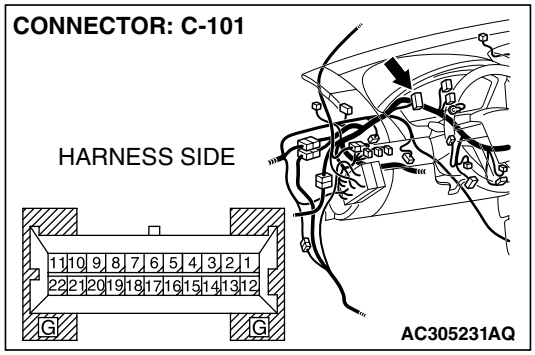
Check the joint connector at the wiring harness side for loose, corroded or damaged terminals, or terminals pushed back in the connector, and also check the short pin behind the connector for corrosion, deformation and delamination.

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

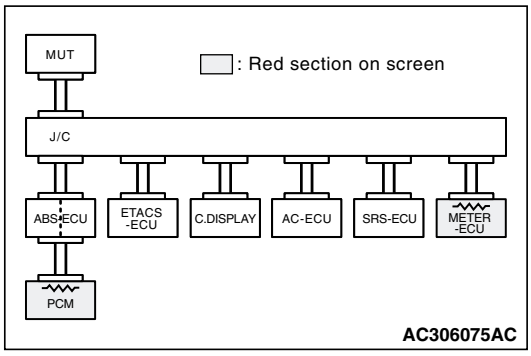
YES : Go to Step 6.

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

STEP 6. Using scan tool MB991958, diagnose the CAN bus line (Disconnect combination meter connector C-101, and check the combination meter system).



(1) Disconnect combination meter connector C-101.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Disconnect combination meter connector C-101.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 7 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 8.

STEP 7. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

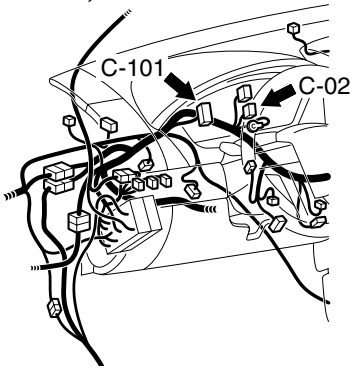
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

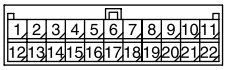
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

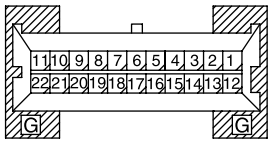
CONNECTORS: C-02, C-101



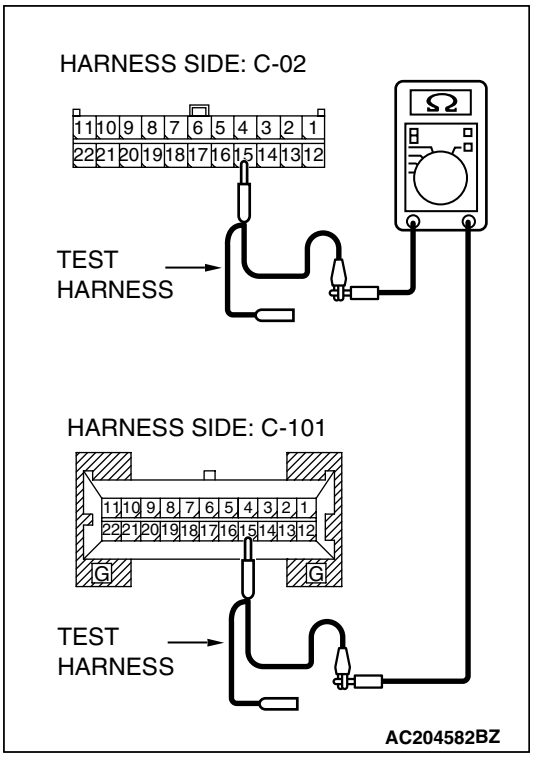
C-02



C-101 HARNESS SIDE

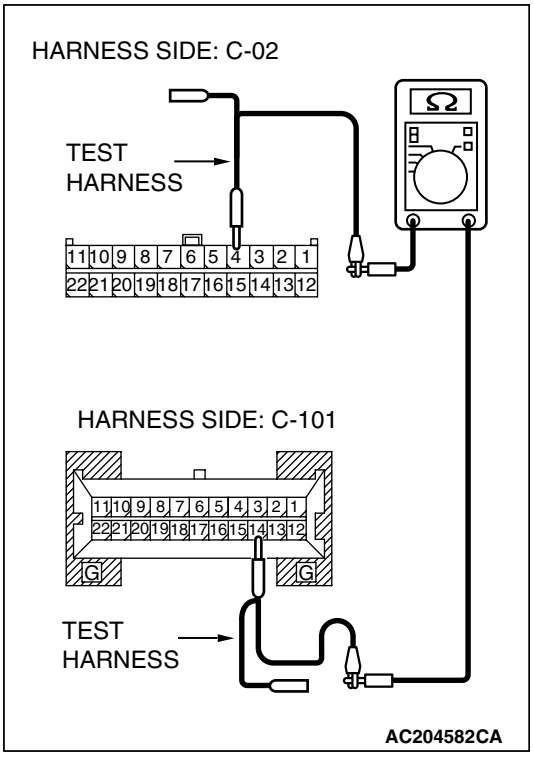


AC305232AE



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

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

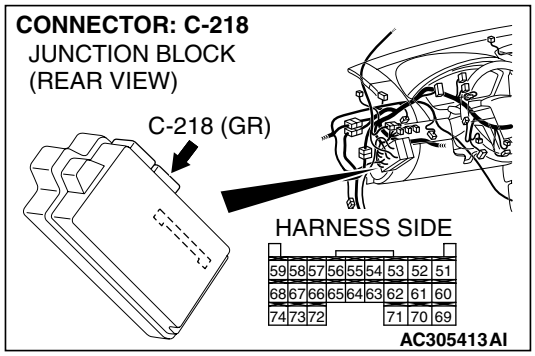
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter by referring to GROUP 54A, Combination meter assembly P.54A-252.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 8. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

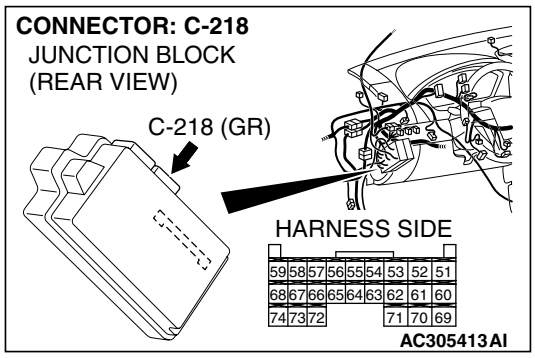


Q: Is ETACS-ECU connector C-218 in good condition?

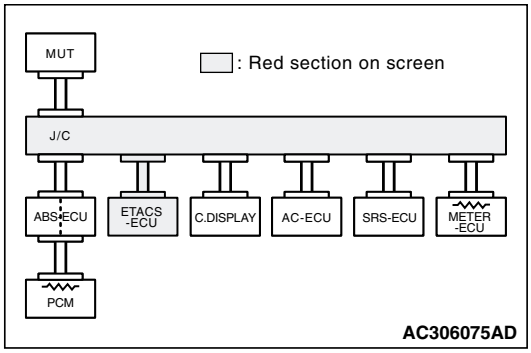
YES : Go to Step 9.
NO : Repair the damaged parts.

STEP 9. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ETACS-ECU connector C-218, and check the ETACS-ECU system).

(1) Disconnect ETACS-ECU connector C-218.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect ETACS-ECU connector C-218.



Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 10 .
NO : If the MUT-III screen does not correspond to the illustration, go to Step 11.

STEP 10. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

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

⚠ CAUTION

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

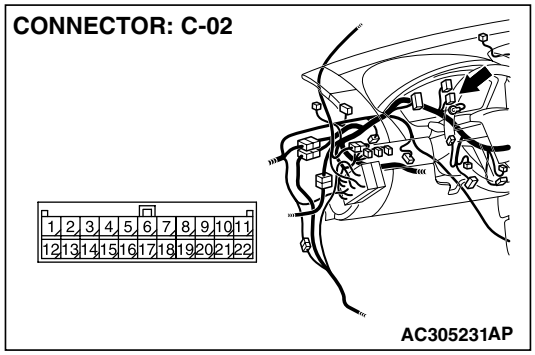
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.

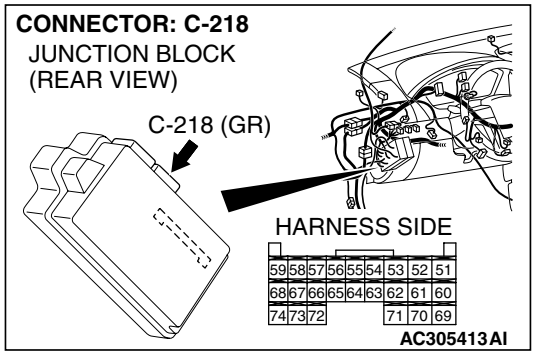
(2) Turn the ignition switch to the "LOCK" (OFF) position.

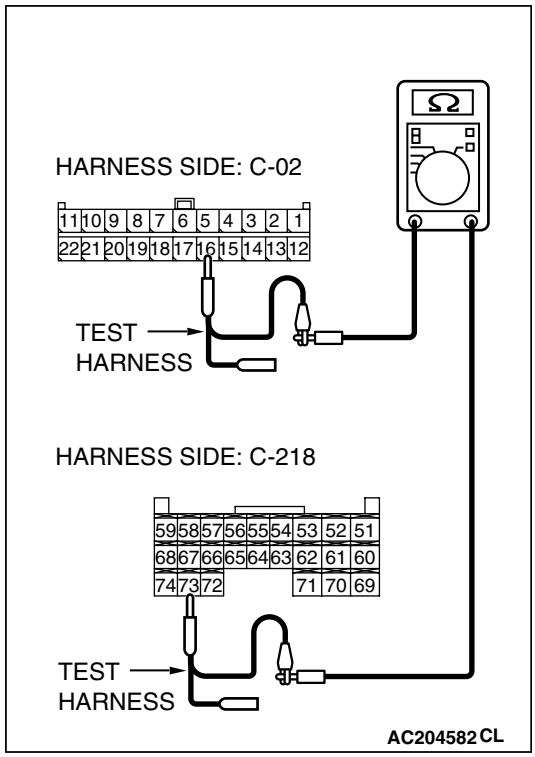
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

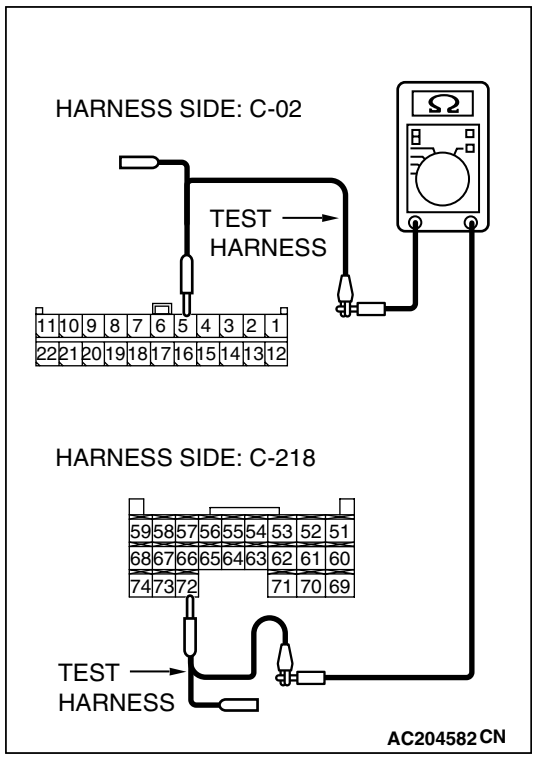






(4) Measure the resistance between joint connector (3) terminal 16 and ETACS-ECU connector terminal 73.

OK: 2 ohms or less



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

OK: 2 ohms or less

⚠ CAUTION

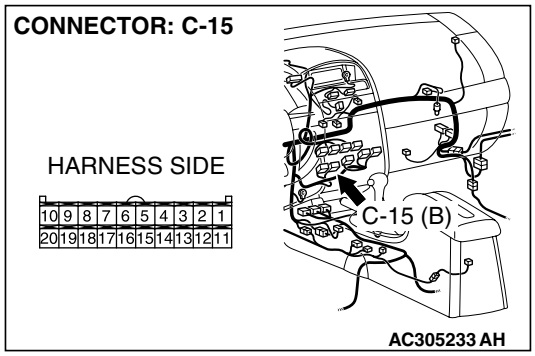
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

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

YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the ETACS-ECU by referring to GROUP 54B, Diagnosis P.54B-78.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 11. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



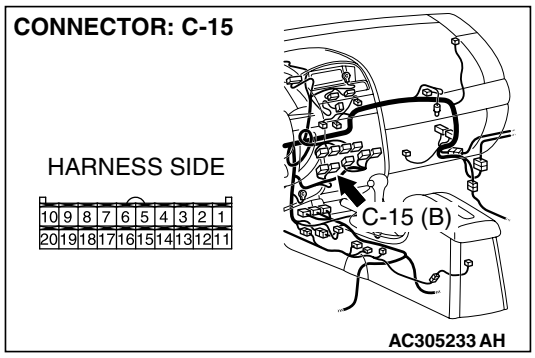
⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

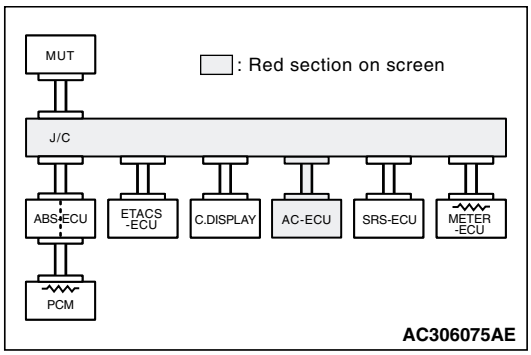
Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 12.
NO : Repair the damaged parts.

STEP 12. Using scan tool MB991958, diagnose the CAN bus line (Disconnect A/C-ECU connector C-15, and check the A/C-ECU system).

(1) Disconnect A/C-ECU connector C-15.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect A/C-ECU connector C-15.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 13 .
NO : If the MUT-III screen does not correspond to the illustration, go to Step 14.

STEP 13. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-15.

⚠ CAUTION

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

⚠ CAUTION

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

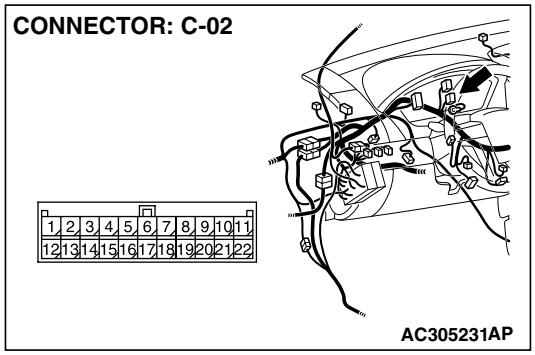
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-15.

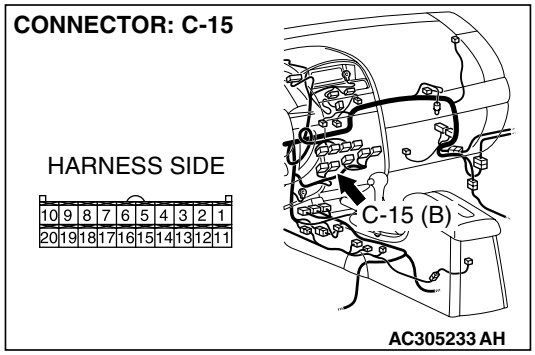
(2) Turn the ignition switch to the "LOCK" (OFF) position.

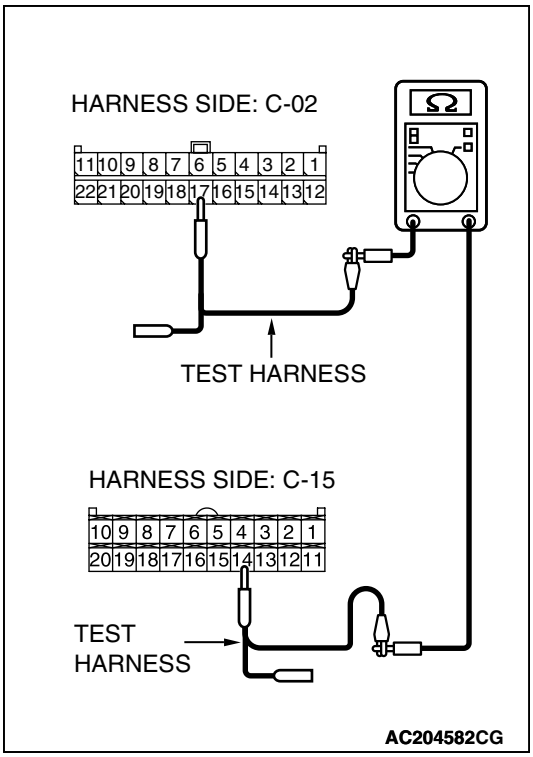
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

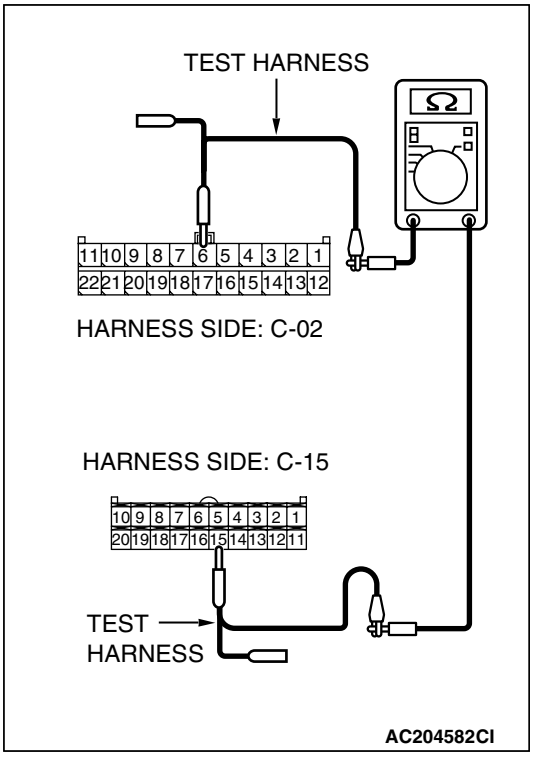






(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 14.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 6 and A/C-ECU connector terminal 15.

OK: 2 ohms or less

⚠ CAUTION

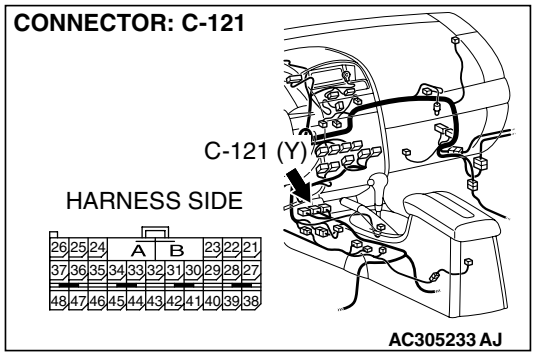
Strictly observe the specified wiring harness repair procedure. For details refer to P.54C-5.

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

YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-242.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 14. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



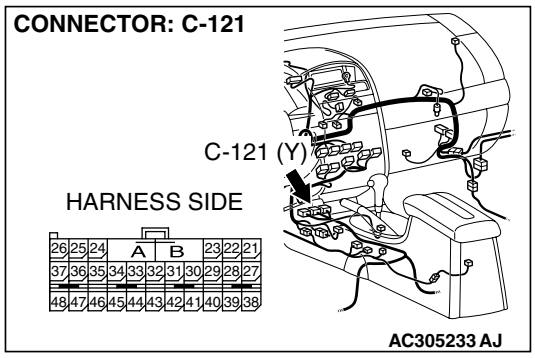
⚠ CAUTION
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

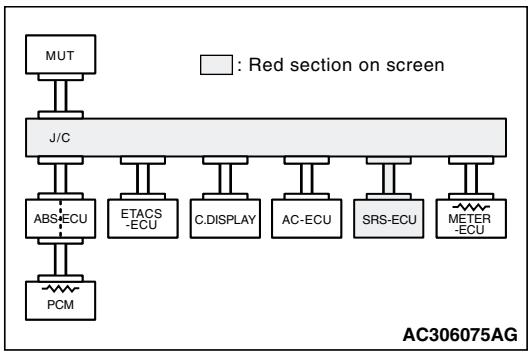
Q: Is SRS-ECU connector C-121 in good condition?

YES : Go to Step 15.
NO : Repair the damaged parts.

STEP 15. Using scan tool MB991958, diagnose the CAN bus line (Disconnect SRS-ECU connector C-121, and check the supplemental restraint system).

(1) Disconnect SRS-ECU connector C-121.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the SRS-ECU connector C-121.

Q: Does the MUT-III screen correspond to the illustration?

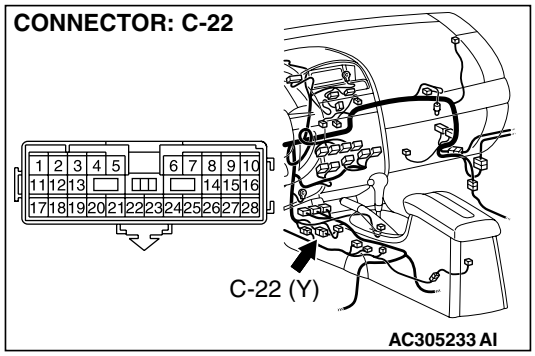
YES : If the MUT-III screen corresponds to the illustration, go to Step 16 .
NO : If the MUT-III screen does not correspond to the illustration, go to Step 19.

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

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

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

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



STEP 17. Check the CAN bus lines between intermediate connector and the SRS-ECU. Measure the resistance between intermediate connector C-22 and SRS-ECU connector C-121.

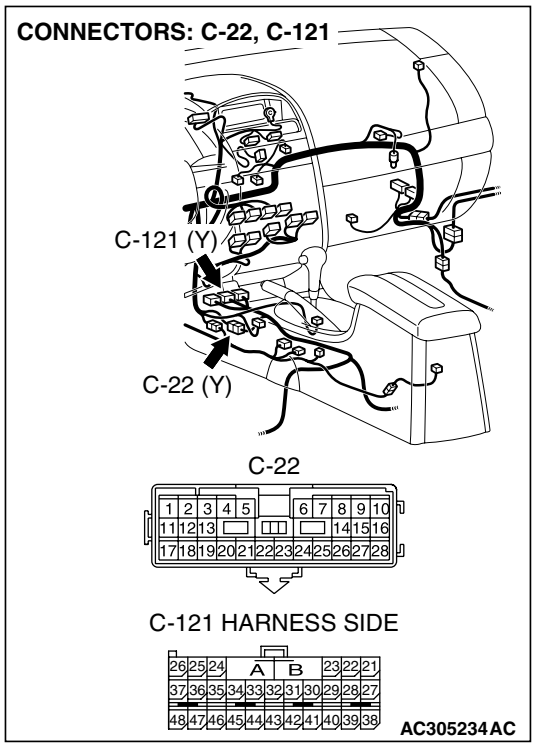
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

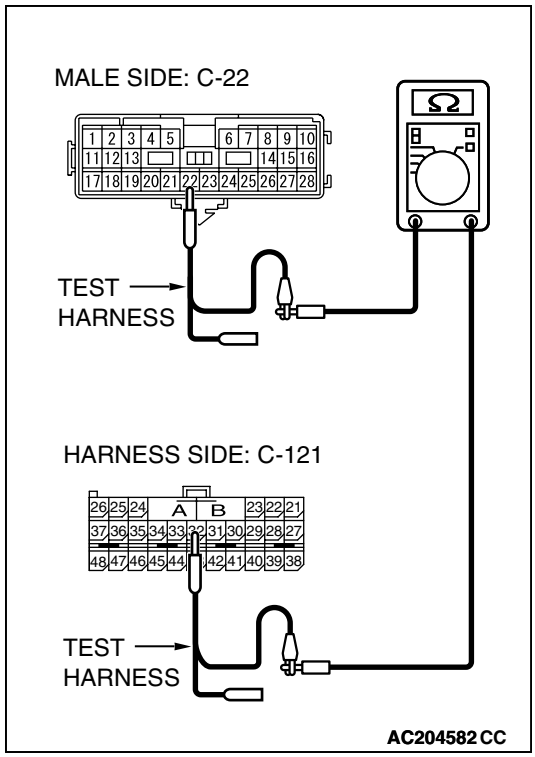
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the wiring harness sides of intermediate connector C-22 and SRS-ECU connector C-121.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

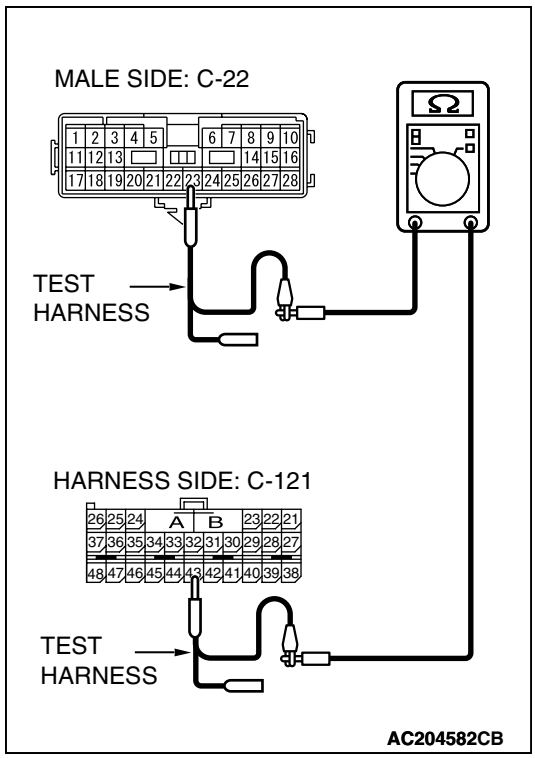
(3) Disconnect the negative battery terminal.





(4) Measure the resistance between intermediate connector terminal 22 and SRS-ECU connector terminal 32.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 23 and SRS-ECU connector terminal 43.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 18.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector and the SRS-ECU connector.

STEP 18. Check the CAN bus lines between joint connector (3) and the intermediate connector. Measure the resistance between joint connector (3) C-02 and intermediate connector C-22.

⚠ CAUTION

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

⚠ CAUTION

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

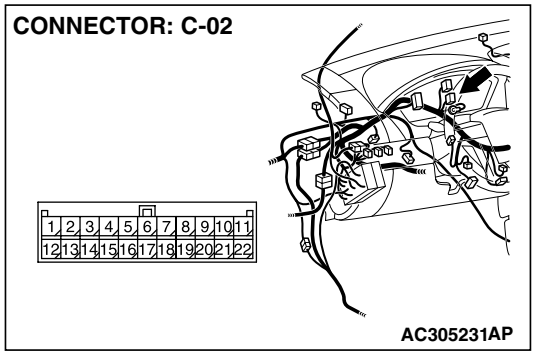
(1) Disconnect joint connector (3) C-02 and intermediate connector C-22, and measure the resistance at the wiring harness sides of joint connector (3) C-02 and intermediate connector C-22.

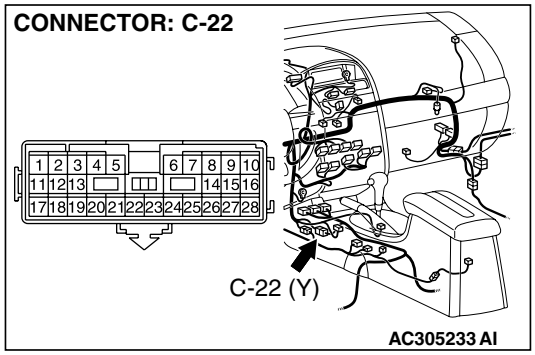
(2) Turn the ignition switch to the "LOCK" (OFF) position.

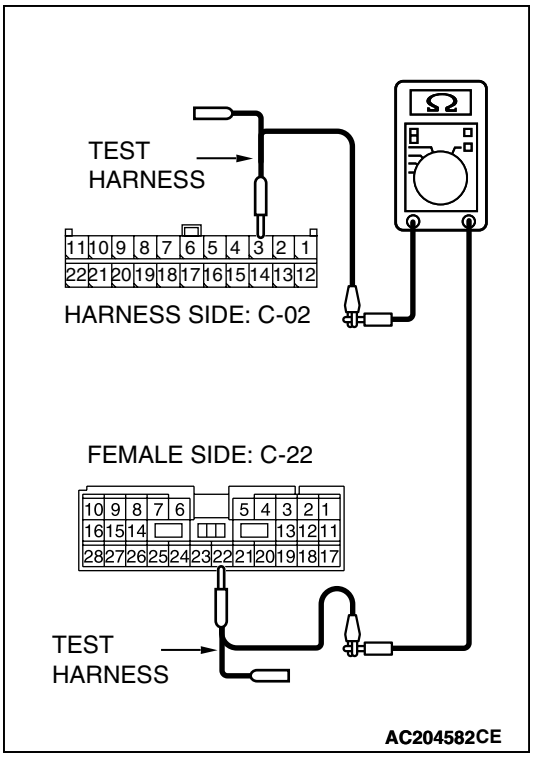
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

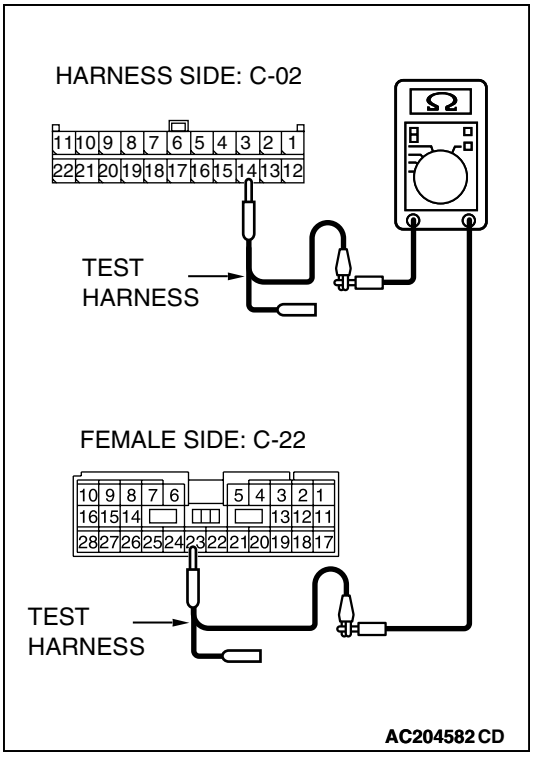






(4) Measure the resistance between joint connector (3) terminal 3 and intermediate connector terminal 22.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 14 and intermediate connector terminal 23.

OK: 2 ohms or less

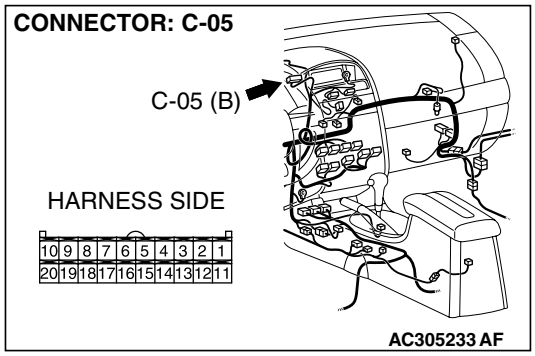
⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis, equipment diagnosis P.52B-29.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the intermediate connector.

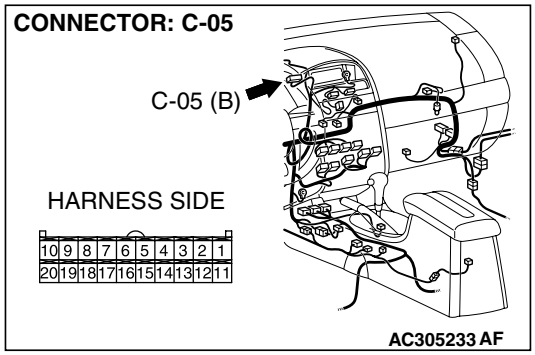


STEP 19. Check multi-center display unit (middle-grade type) connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

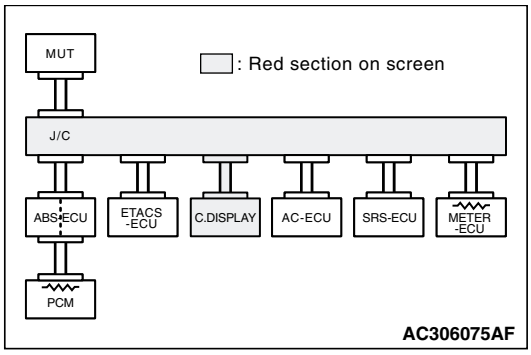
Q: Is multi-center display unit (middle-grade type) connector C-05 in good condition?

YES : Go to Step 20.
NO : Repair the damaged parts.



STEP 20. Using scan tool MB991958, diagnose the CAN bus line (Disconnect multi-center display unit (middle-grade type) connector C-05, and check the multi-center display unit (middle-grade type) system).

(1) Disconnect multi-center display unit (middle-grade type) connector C-05.
(2) Turn the ignition switch to the "ON" position.



(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect the multi-center display unit (middle-grade type) connector C-05.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 21 .
NO : If the MUT-III screen does not correspond to the illustration, go to Step 22.

STEP 21. Check the CAN bus lines between joint connector (3) and the multi-center display unit (middle-grade type). Measure the resistance between joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05.

⚠ CAUTION

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

⚠ CAUTION

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

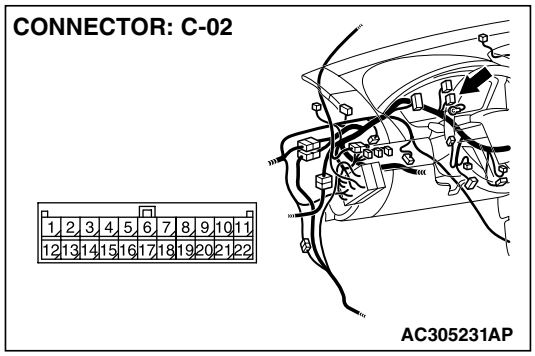
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05, and measure the resistance at the wiring harness sides of joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05.

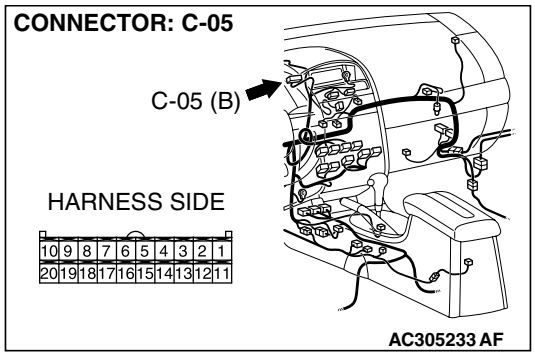
(2) Turn the ignition switch to the "LOCK" (OFF) position.

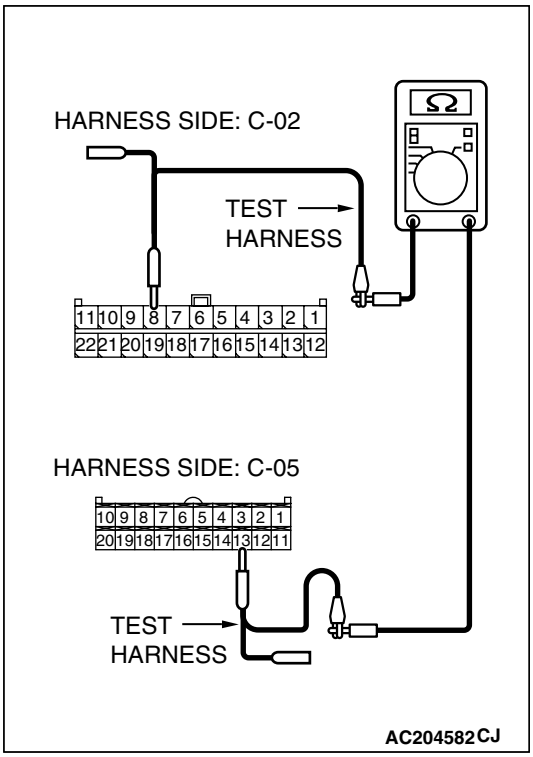
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

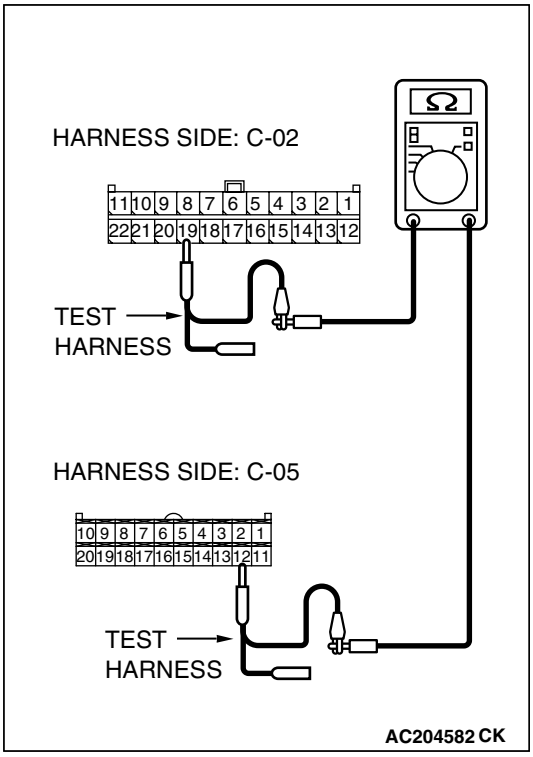






(4) Measure the resistance between joint connector (3) terminal 8 and middle-grade multi-center display connector terminal 13.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 19 and middle-grade multi-center display connector terminal 12.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, power supply to the multi-center display (middle-grade type) may be suspected. Diagnose the multi-center display (middle-grade type). Refer to GROUP 54A, Multi-center display, equipment diagnosis P.54A-252.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type) connector.

STEP 22. Check the CAN bus lines between joint connector (3) and the data link connector. Measure the resistance between joint connector (3) C-02 and data link connector C-125.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and wiring harness side connector of data link connector C-125.

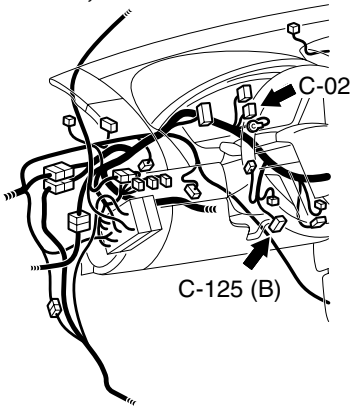
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

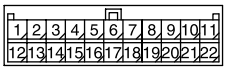
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

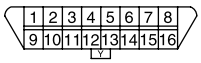
CONNECTORS: C-02, C-125



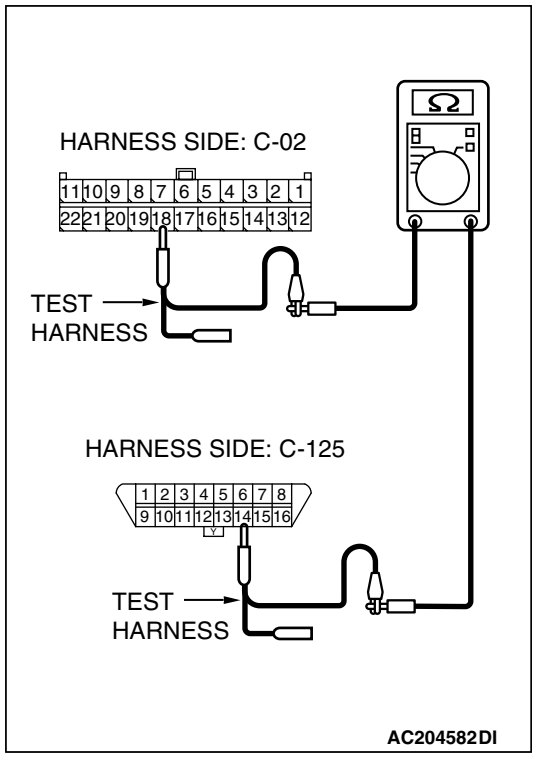
C-02



C-125

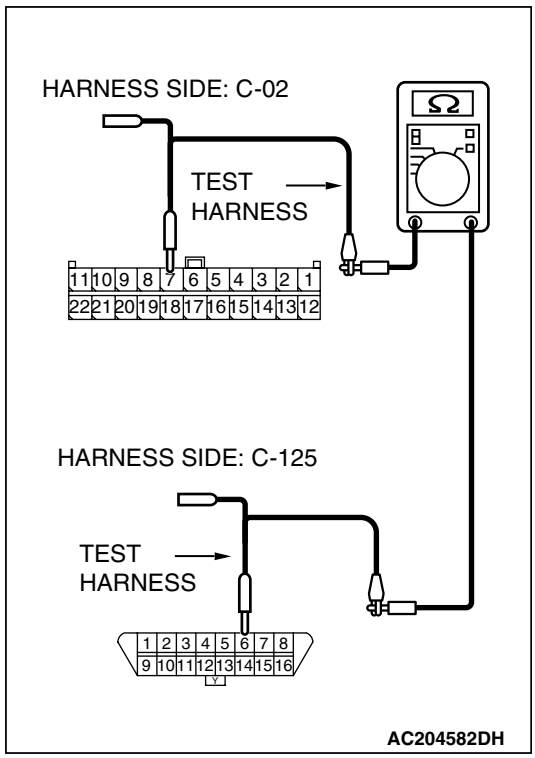


AC305232AF



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

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 7 and data link connector terminal 6.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, refer to diagnostics item 9: Check the CAN_L and H lines for a short circuit (Refer to P.54C-360).

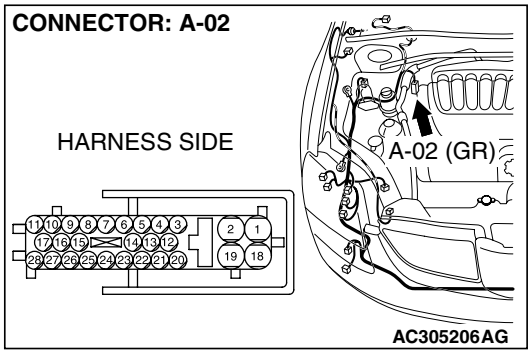
NO : If all the resistances measure 2 ohms or less, repair the wiring harness between joint connector (3) and the data link connector.

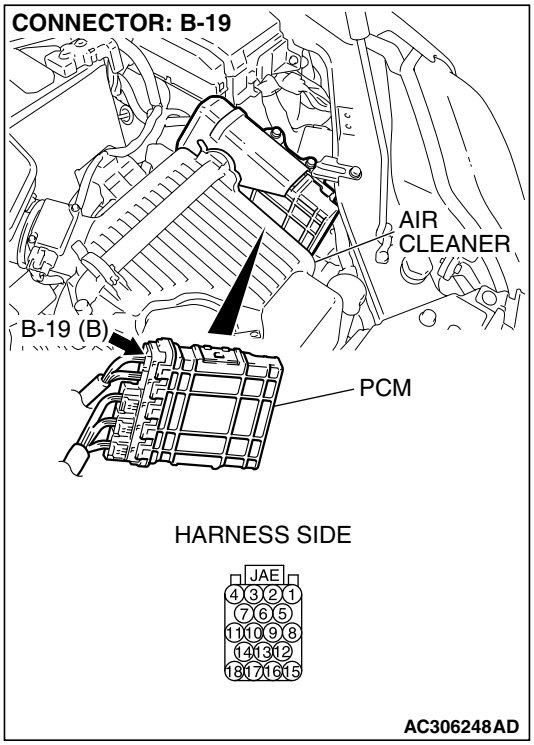
STEP 23. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

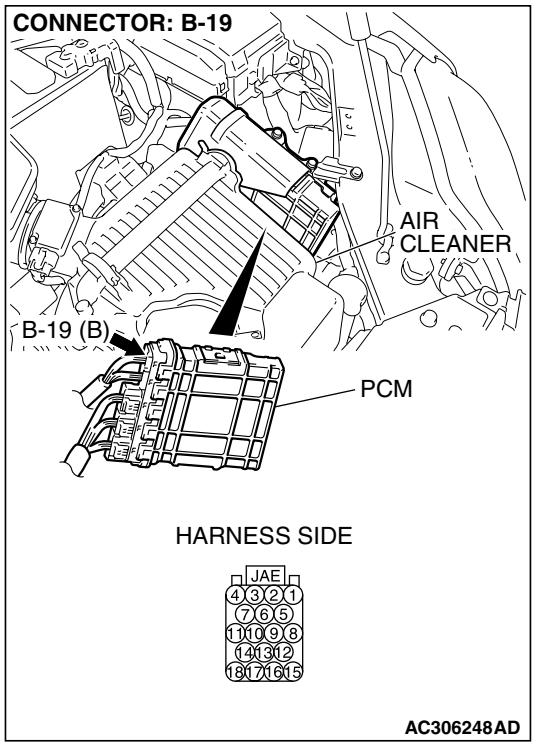
YES : Go to Step 24.
NO : Repair the damaged parts.

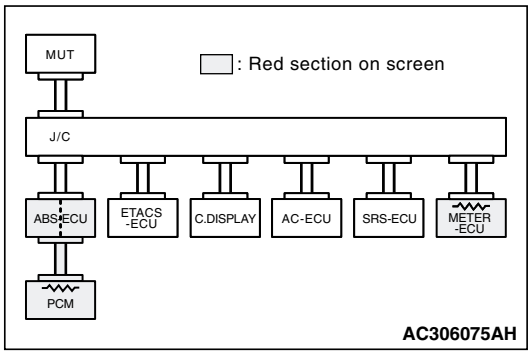




STEP 24. Using scan tool MB991958, diagnose the CAN bus line (Disconnect powertrain control module connector B-19, and check the powertrain control module system).

(1) Disconnect powertrain control module connector B-19.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Connect powertrain control module connector B-19.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 25 .

NO : If the MUT-III screen does not correspond to the illustration, go to Step 27.

STEP 25. Check the CAN bus lines between the ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

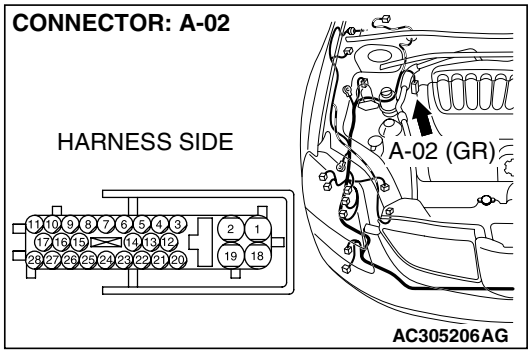
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

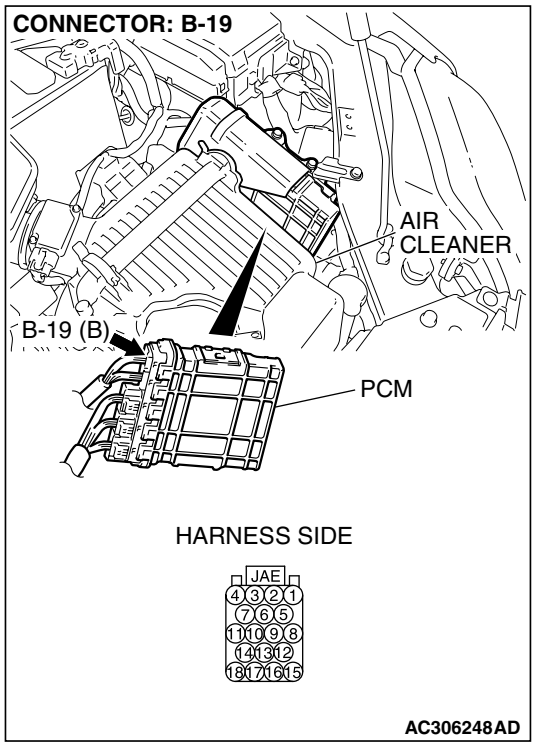
(2) Turn the ignition switch to the "LOCK" (OFF) position.

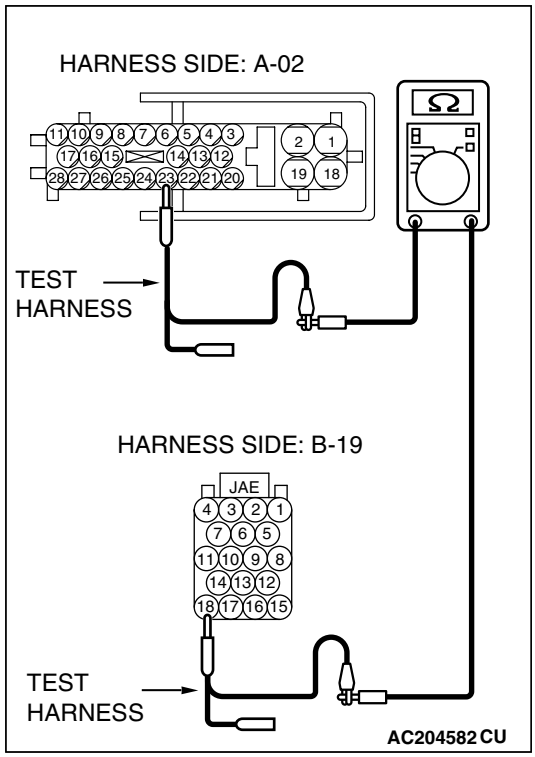
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

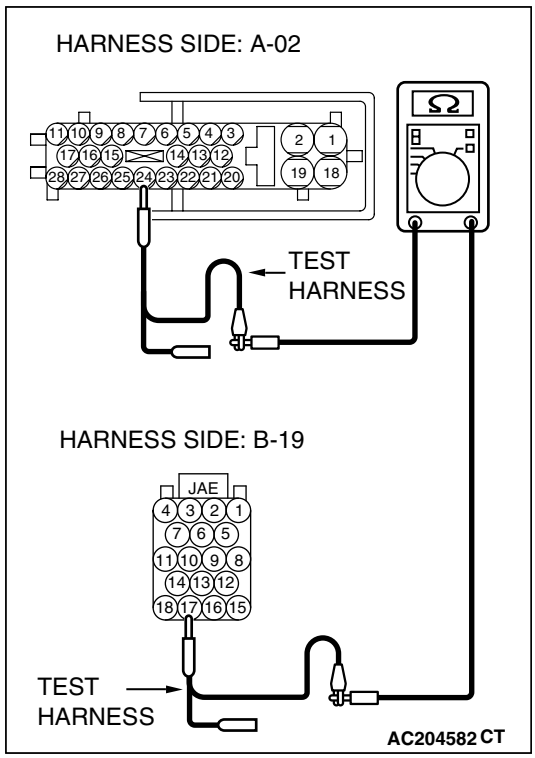






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

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

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

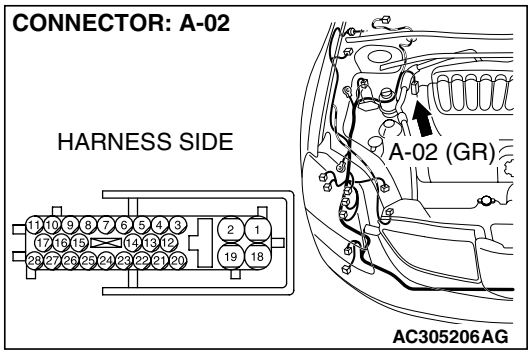
YES : If all the resistances measure 2 ohms or less, go to Step 26.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between ABS-ECU connector and the powertrain control module connector.

STEP 26. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

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

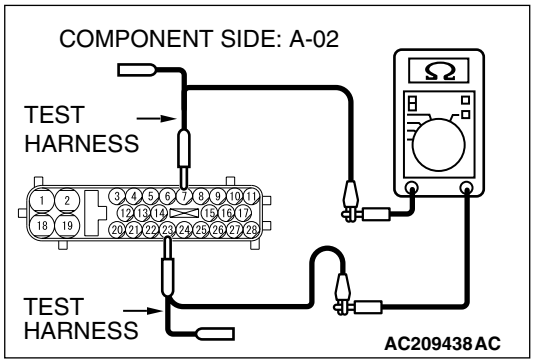
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

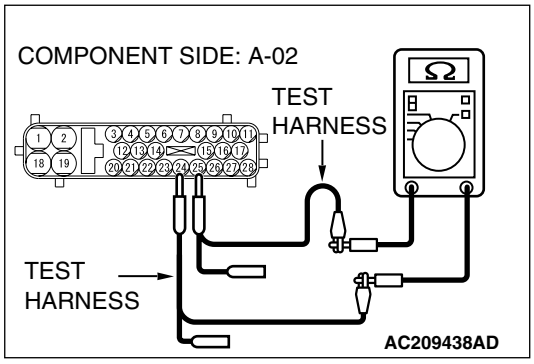
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less

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

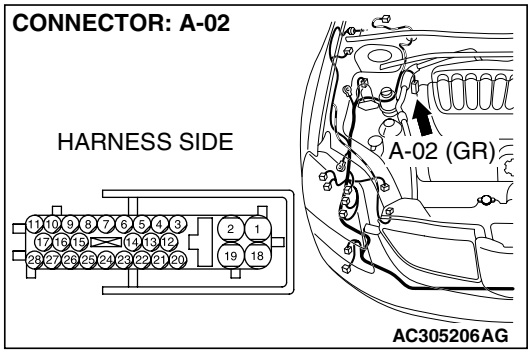
Q: Do all the resistances measure 2 ohms or less?

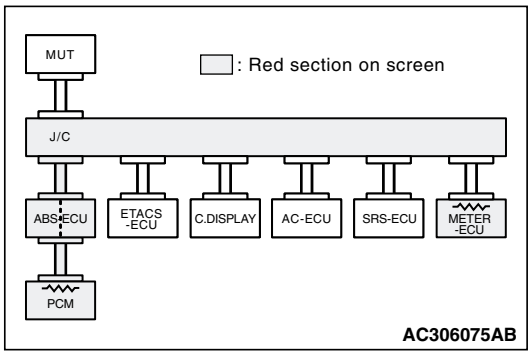
YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-970 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1016 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

STEP 27. Using scan tool MB991958, diagnose the CAN bus line (Disconnect ABS-ECU connector A-02, and check the ABS-ECU system).

(1) Disconnect ABS-ECU connector A-02.
(2) Turn the ignition switch to the "ON" position.





(3) Diagnose CAN bus lines, and check if the MUT-III screen is as shown in the illustration.
(4) Turn the ignition switch to the "LOCK" (OFF) position.
(5) Check ABS-ECU connector A-02.

Q: Does the MUT-III screen correspond to the illustration?

YES : If the MUT-III screen corresponds to the illustration, go to Step 28 .

NO : If the MUT-III screen does not correspond to the illustration, refer to diagnostics item 9: Check the CAN_L and H lines for a short circuit (Refer to P.54C-360).

STEP 28. Check the CAN bus lines between intermediate connector C-29 and the ABS-ECU. Measure the resistance between intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

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

⚠ CAUTION

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

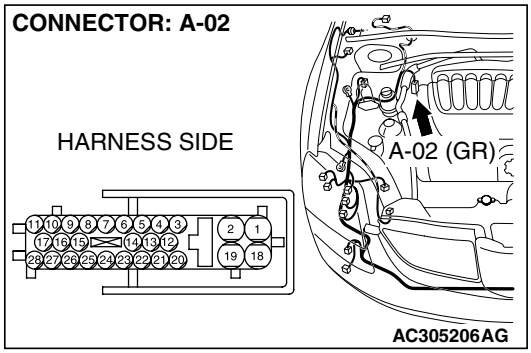
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

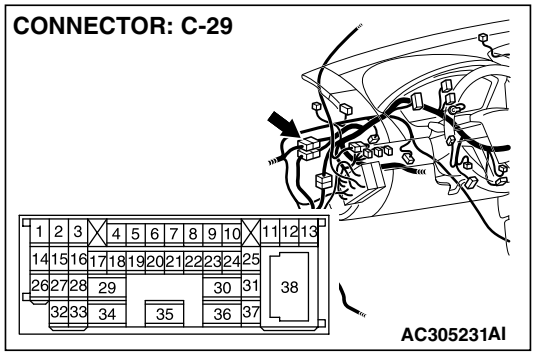
(2) Turn the ignition switch to the "LOCK" (OFF) position.

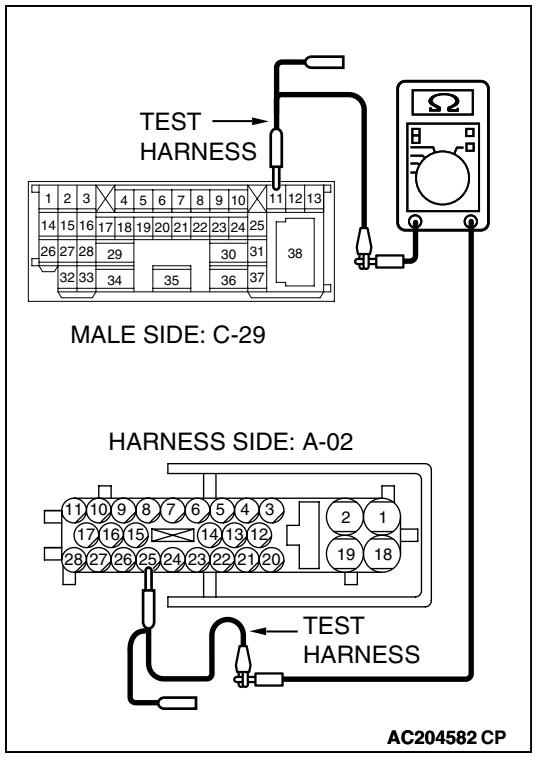
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

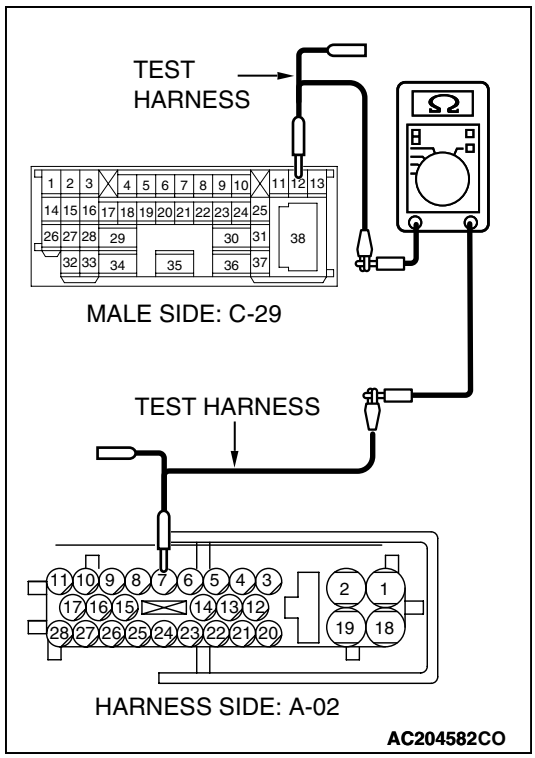






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, go to Step 29.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector.

STEP 29. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

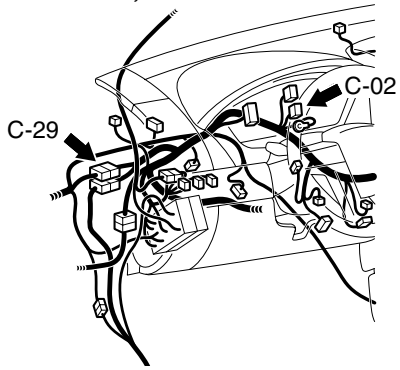
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

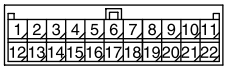
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

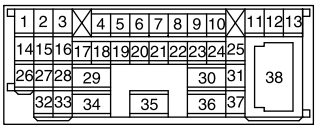
CONNECTORS: C-02, C-29



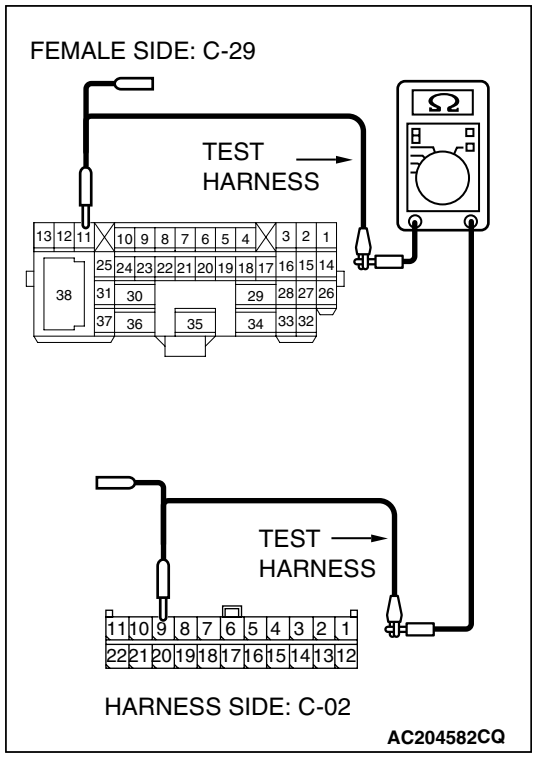
C-02



C-29

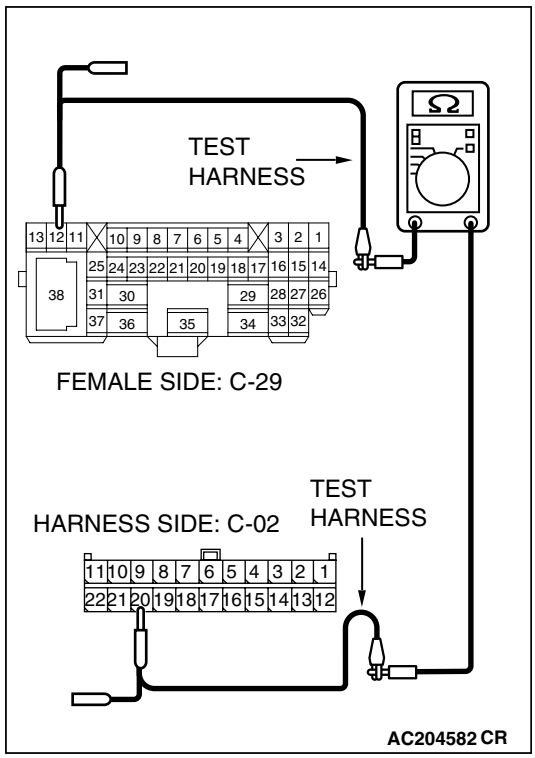


AC305232AG



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

OK: 2 ohms or less



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

OK: 2 ohms or less

⚠ CAUTION

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

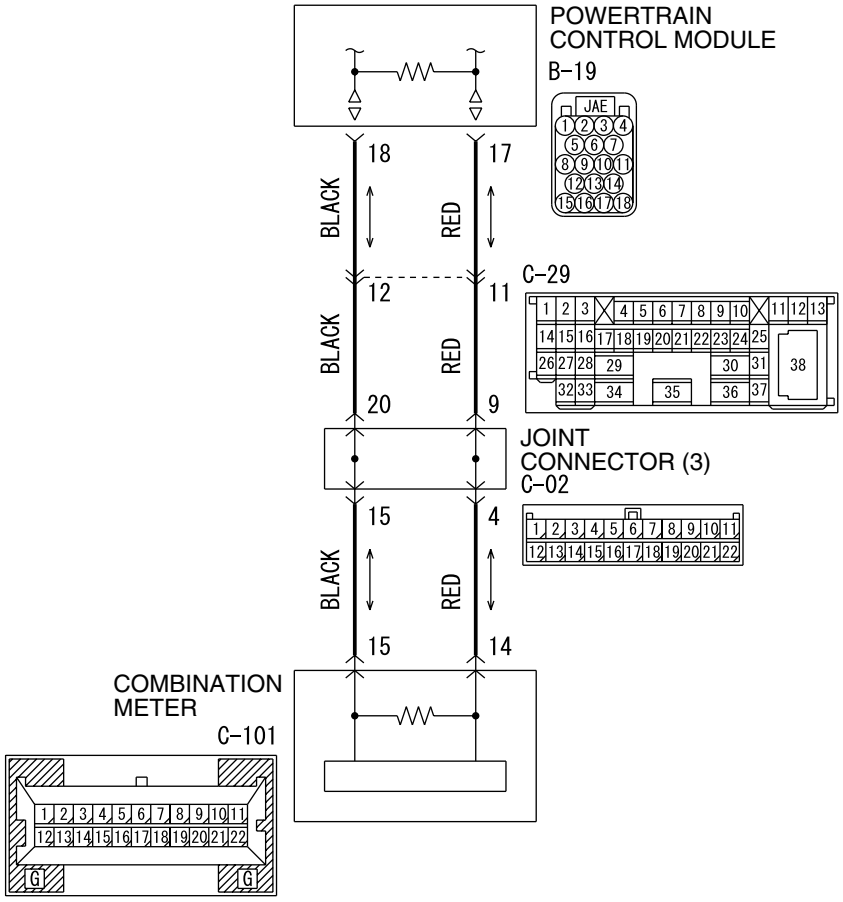
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the ABS-ECU may be suspected. Diagnose the ABS system. Refer to GROUP 35B, ABS diagnosis P.35B-82.

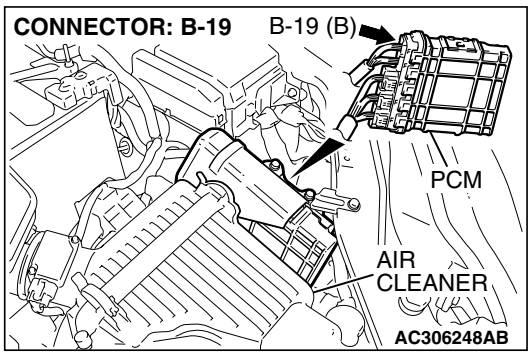
NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and intermediate connector C-29.

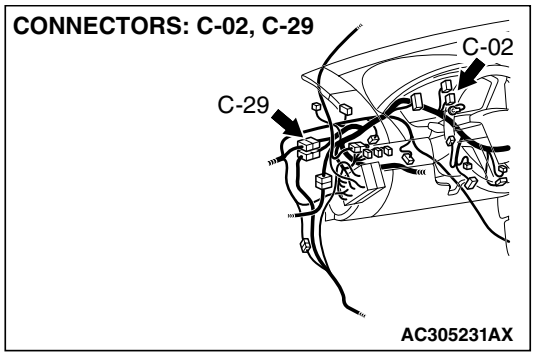
DIAGNOSTIC ITEM 17: Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles without ABS>

⚠ 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.



W4P54M99AA





TROUBLE JUDGMENT

If the MUT-III cannot received signals from the powertrain control module, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The powertrain control module may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check intermediate connector C-29 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

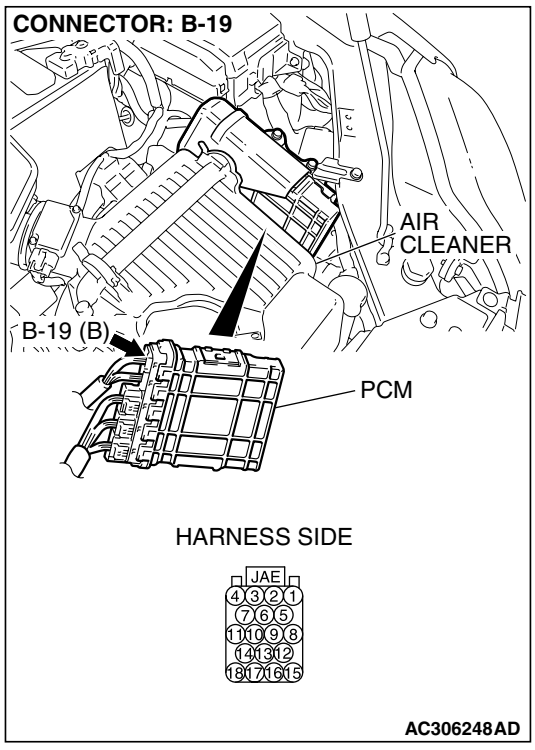
⚠ CAUTION

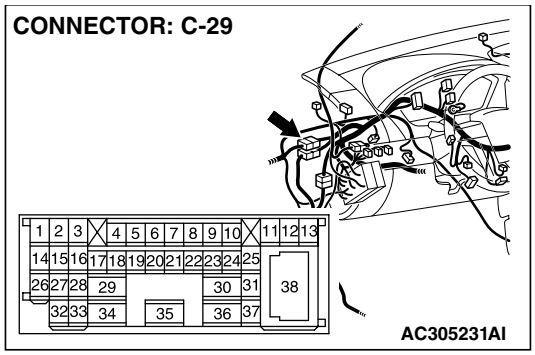
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

Q: Are intermediate connector C-29 and powertrain control module connector B-19 in good condition?

YES : Go to Step 2.

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





STEP 2. Check the CAN bus lines between intermediate connector C-29 and the powertrain control module. Measure the resistance between intermediate connector C-29 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

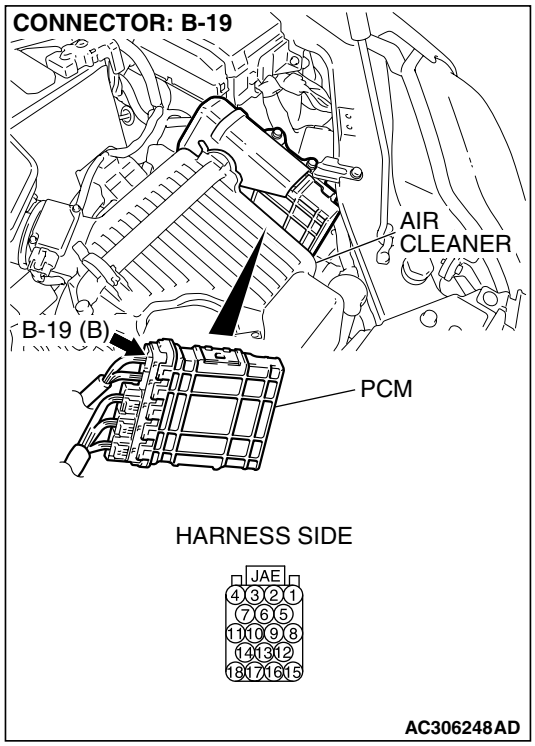
(1) Disconnect intermediate connector C-29 and powertrain control module connector B-19, and measure the resistance between the wiring harness side connector of powertrain control module connector B-19 and the male side connector of intermediate connector C-29 (at front wiring harness side).

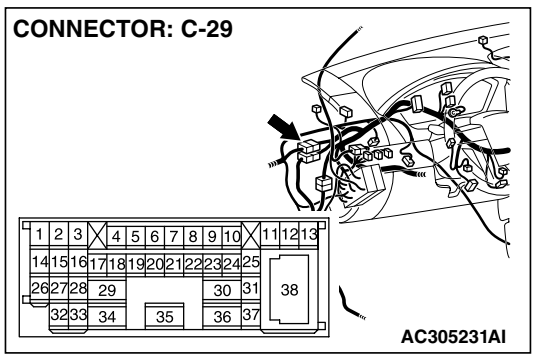
(2) Turn the ignition switch to the "LOCK" (OFF) position.

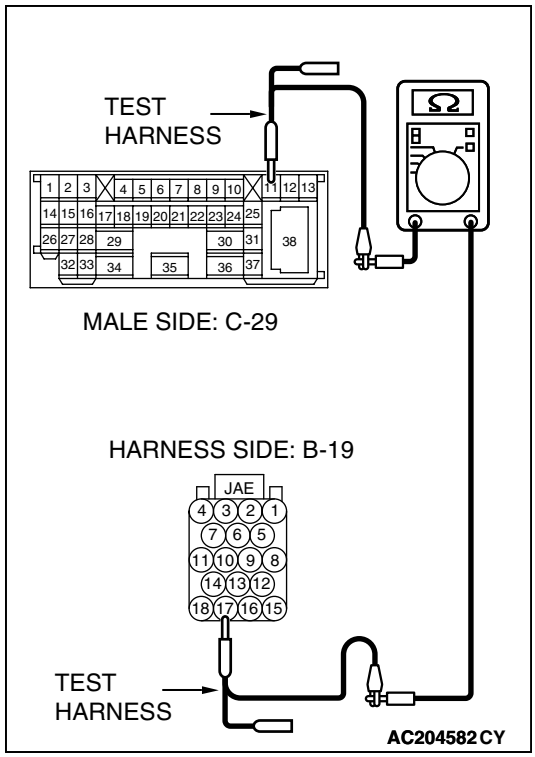
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

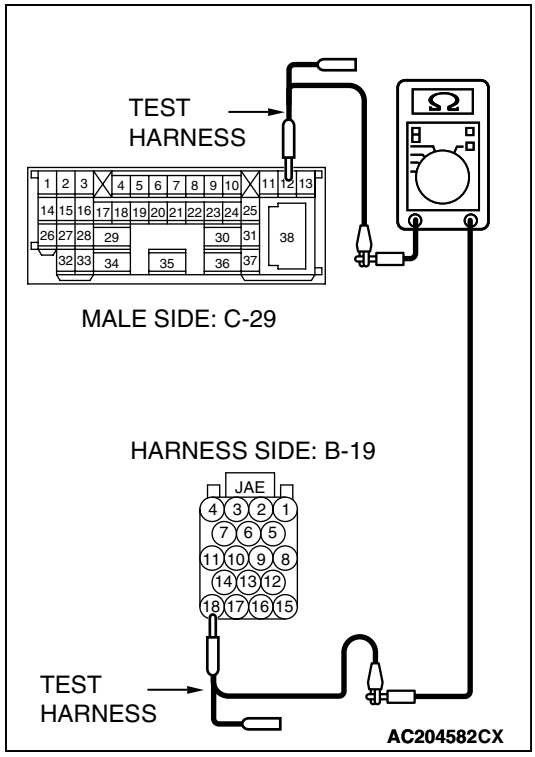






(4) Measure the resistance between intermediate connector terminal 11 and powertrain control module connector terminal 17.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and powertrain control module connector terminal 18.

OK: 2 ohms or less

⚠ CAUTION

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

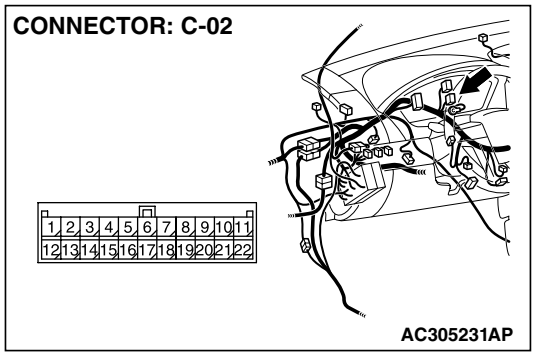
Q: Do all the resistances measure 2 ohms or less?

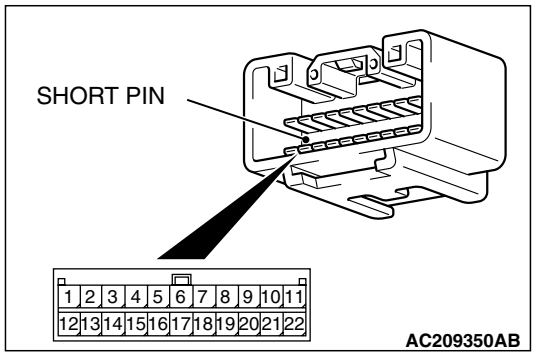
YES : If all the resistances measure 2 ohms or less, go to Step 3.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

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

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





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

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

YES : Go to Step 4.

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

STEP 4. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

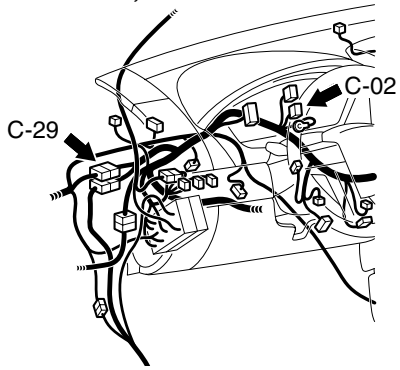
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

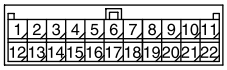
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

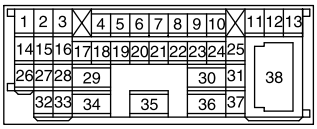
CONNECTORS: C-02, C-29



C-02



C-29



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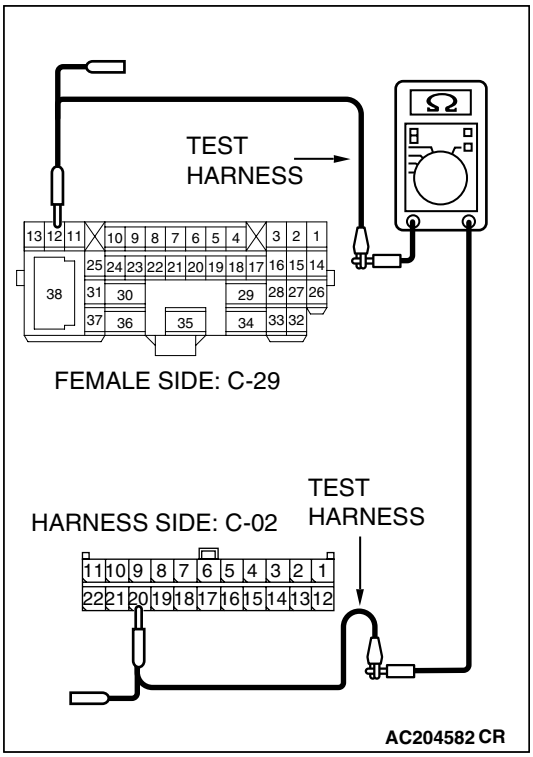
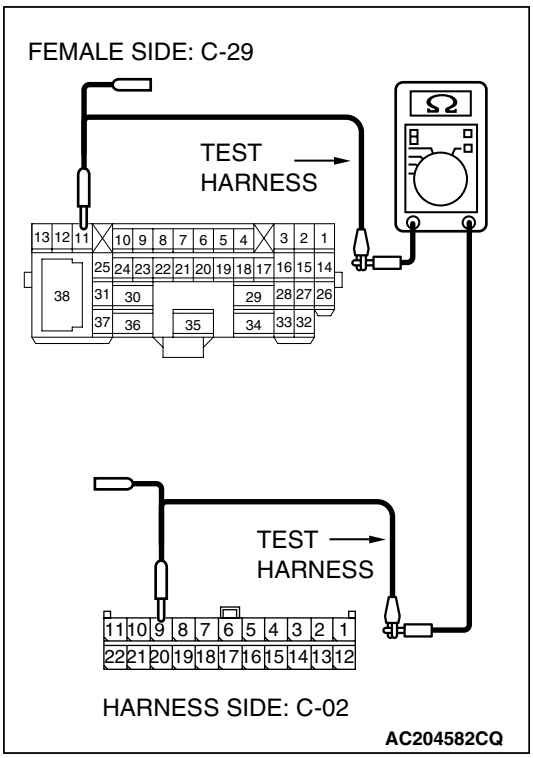


(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

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

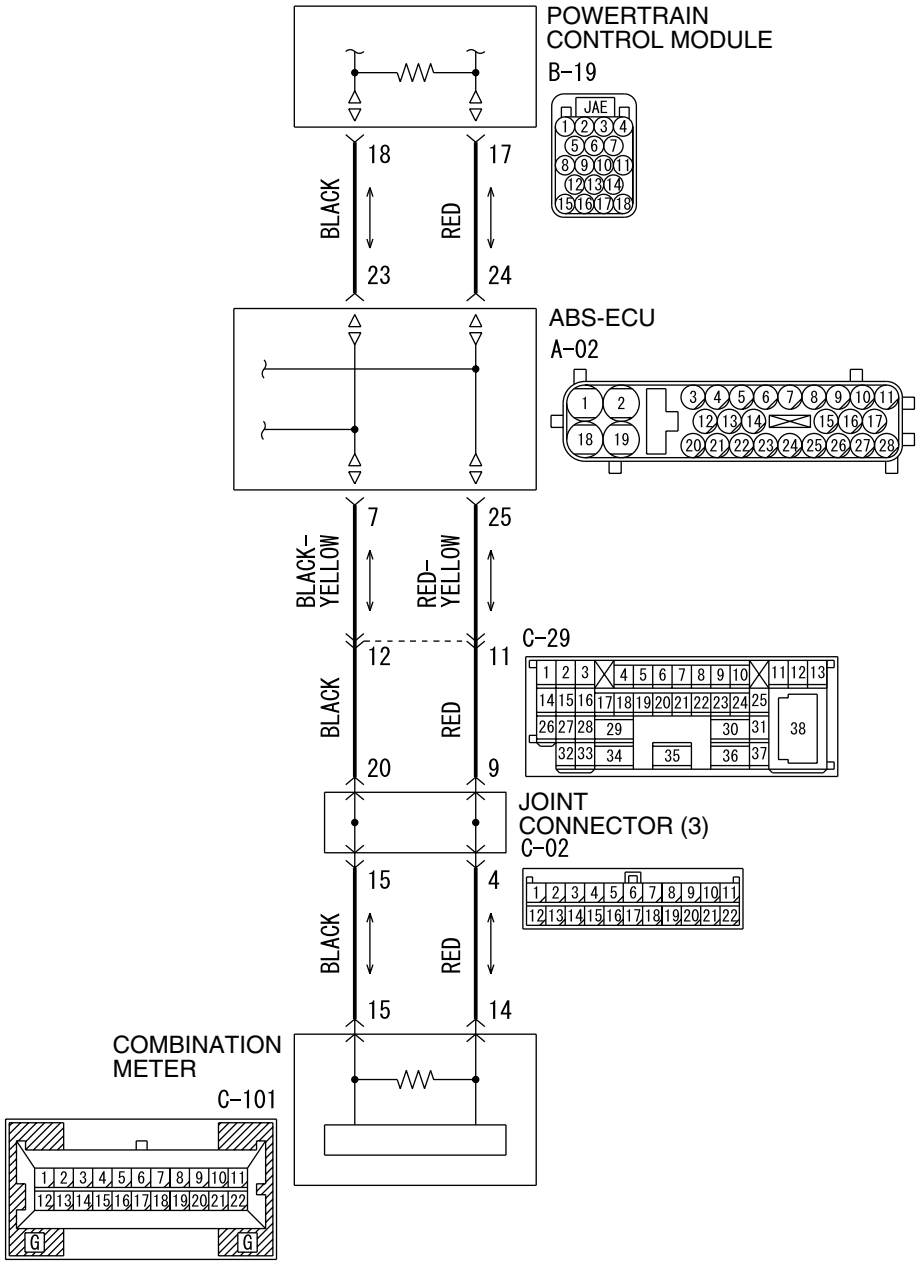
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-970 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1016 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness wires between intermediate connector C-29 and joint connector (3).

DIAGNOSTIC ITEM 18: Diagnose the lines between CAN main bus line and the powertrain control module <Vehicles with ABS>

⚠ 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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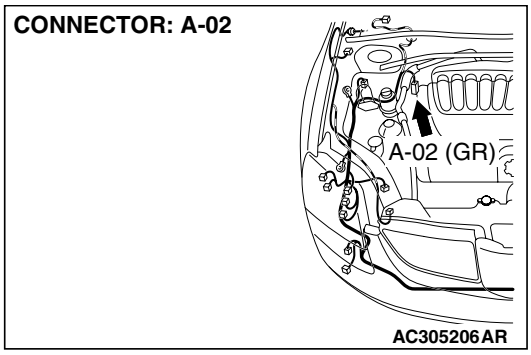
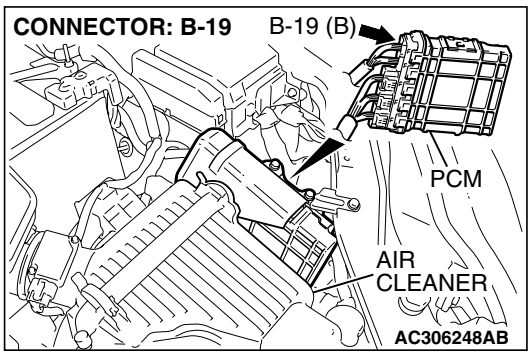




TROUBLE JUDGMENT

If the MUT-III cannot received signals from the powertrain control module, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The powertrain control module may be defective
- The ABS-ECU may be defective

DIAGNOSIS

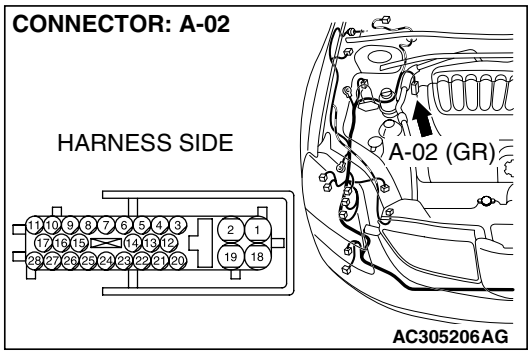
Required Special Tools:

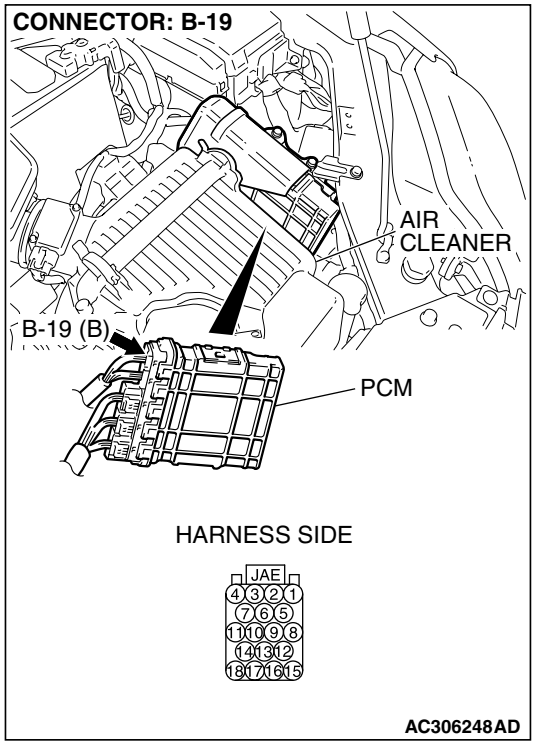
- MB991223: Harness Set
- MB991970: ABS Check Harness

STEP 1. Check ABS-ECU connector A-02 and powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

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





Q: Are ABS-ECU connector A-02 and powertrain control module connector B-19 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the CAN bus lines between the ABS-ECU and the powertrain control module. Measure the resistance between ABS-ECU connector A-02 and powertrain control module connector B-19.

⚠ CAUTION

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

⚠ CAUTION

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

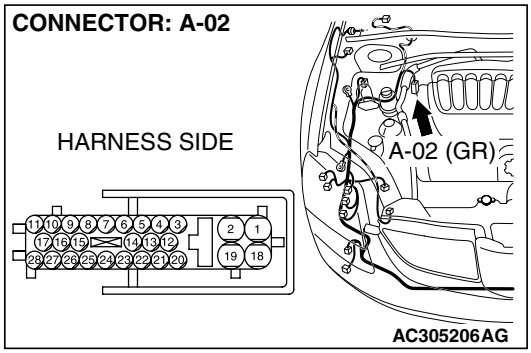
(1) Disconnect ABS-ECU connector A-02 and powertrain control module connector B-19, and measure the resistance between each wiring harness side connector.

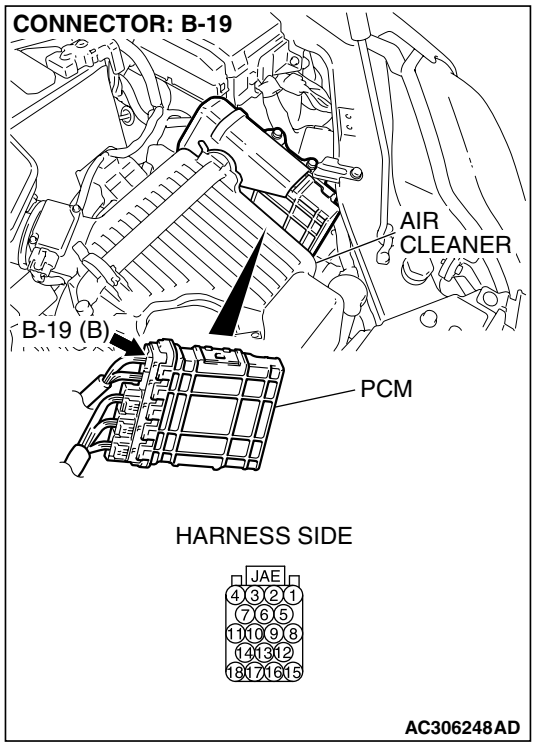
(2) Turn the ignition switch to the "LOCK" (OFF) position.

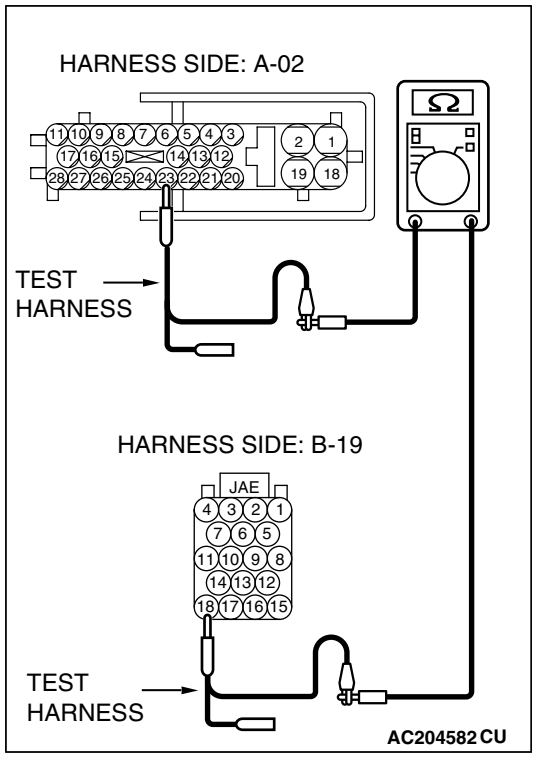
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

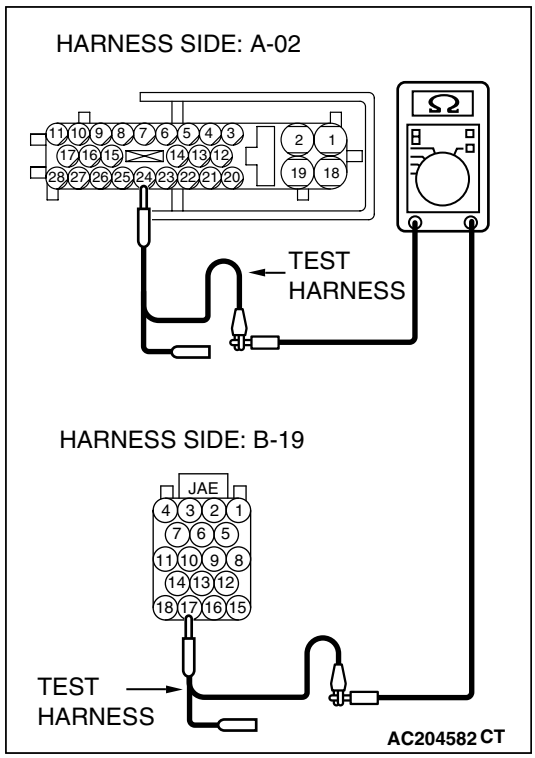






(4) Measure the resistance between ABS-ECU connector terminal 23 and powertrain control module connector terminal 18.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminal 24 and powertrain control module connector terminal 17.

OK: 2 ohms or less

⚠ CAUTION

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

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

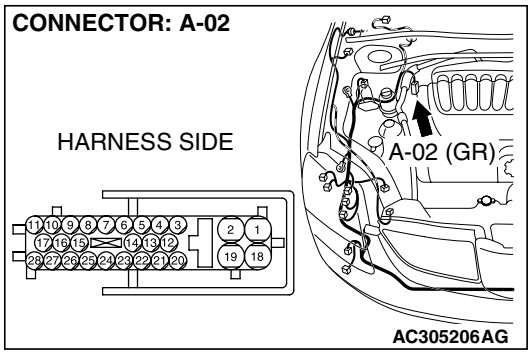
YES : If all the resistances measure 2 ohms or less, go to Step 3.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between ABS-ECU connector and the powertrain control module connector.

STEP 3. Check the CAN bus lines inside the ABS-ECU. Measure the resistance at ABS-ECU connector A-02.

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

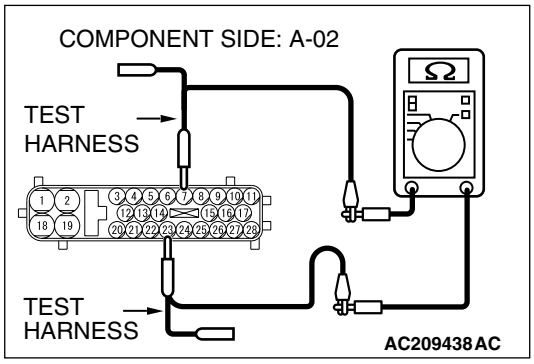
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



(1) Disconnect ABS-ECU connector A-02, and measure the resistance at the component side of ABS-ECU connector A-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

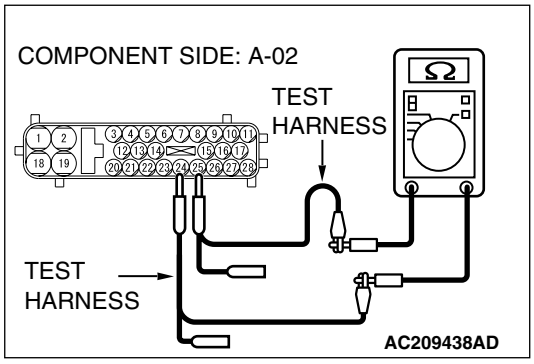
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between ABS-ECU connector terminals 7 and 23.

OK: 2 ohms or less



(5) Measure the resistance between ABS-ECU connector terminals 24 and 25.

OK: 2 ohms or less

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

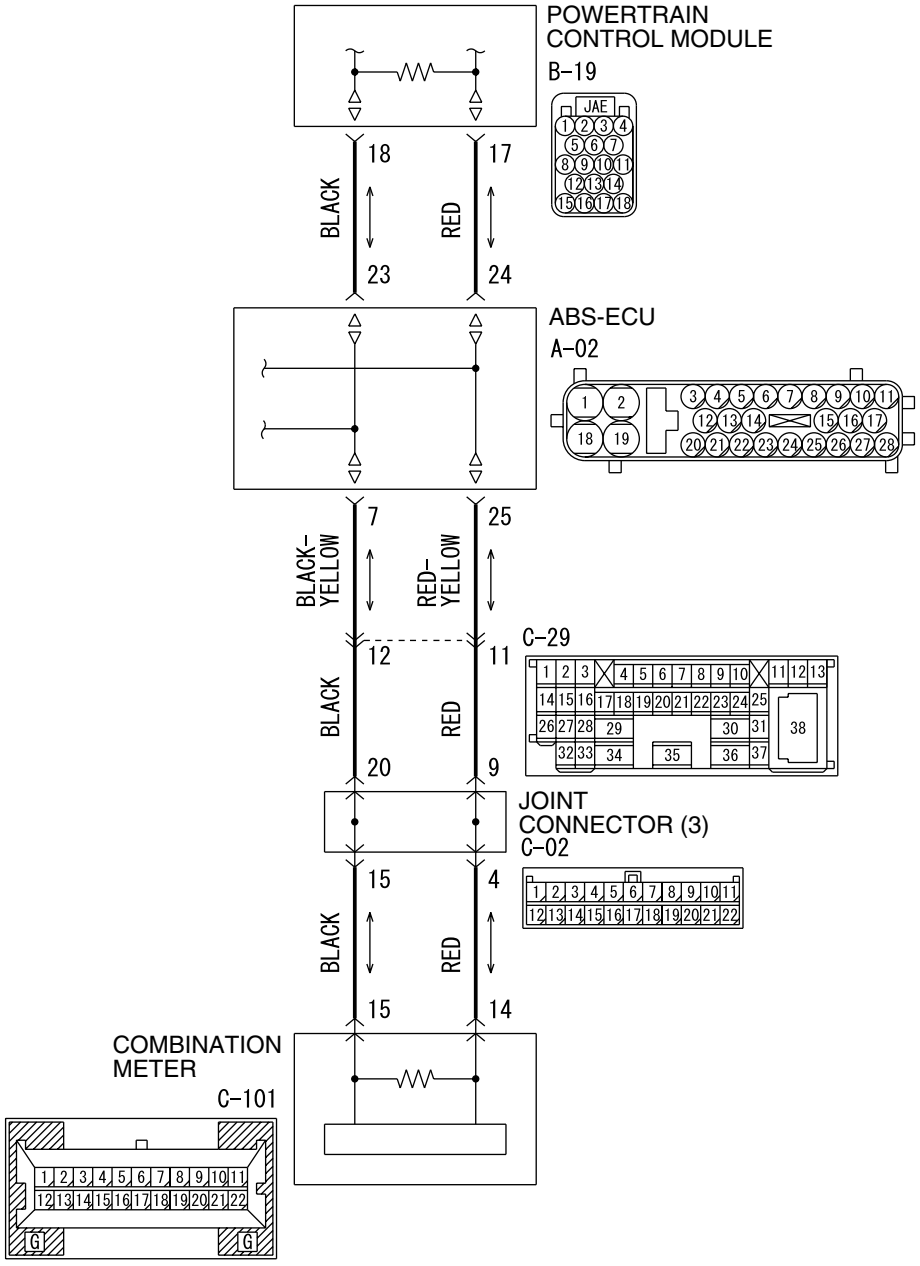
Q: Do all the resistances measure 2 ohms or less?

YES : If all the resistances measure 2 ohms or less, power supply to the powertrain control module may be suspected. Diagnose the engine. Refer to GROUP 13A, MFI diagnosis P.13A-970 <2.4L engine> or GROUP 13B, MFI diagnosis P.13B-1016 <3.8L engine>.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, replace the ABS-ECU.

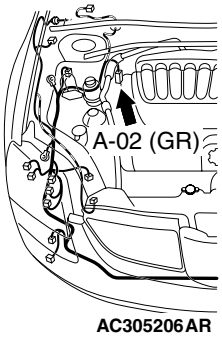
DIAGNOSTIC ITEM 19: Diagnose the lines between CAN main bus line and the ABS-ECU.

⚠ 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.



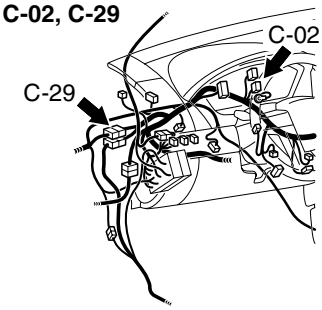
W4P54M100A

CONNECTOR: A-02



AC305206AR

CONNECTORS: C-02, C-29



AC305231AX

TROUBLE JUDGMENT

If the MUT-III cannot received signals from ABS-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991970: ABS Check Harness

STEP 1. Check intermediate connector C-29 and ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

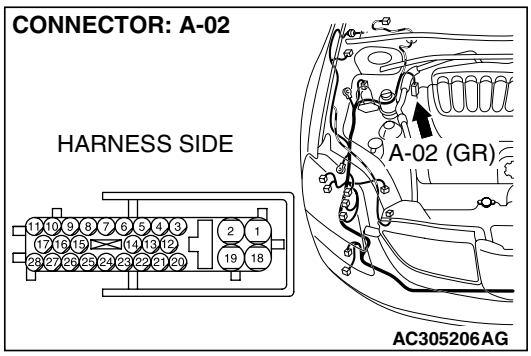
⚠ CAUTION

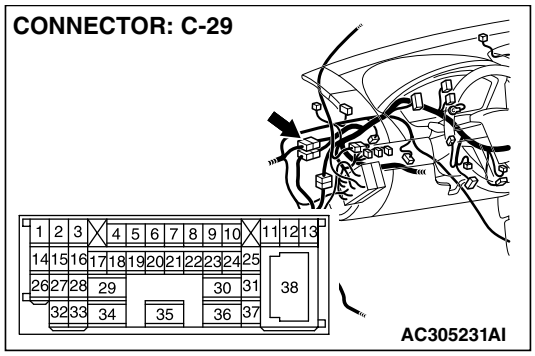
The strand end of the twisted wire should be within 10 cm (4 inches) from the connector. For details refer to P.54C-4.

Q: Are intermediate connector C-29 and ABS-ECU connector A-02 in good condition?

YES : Go to Step 2.

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





STEP 2. Check the CAN bus lines between intermediate connector C-29 and the ABS-ECU. Measure the resistance between intermediate connector C-29 and ABS-ECU connector A-02.

⚠ CAUTION

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

⚠ CAUTION

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

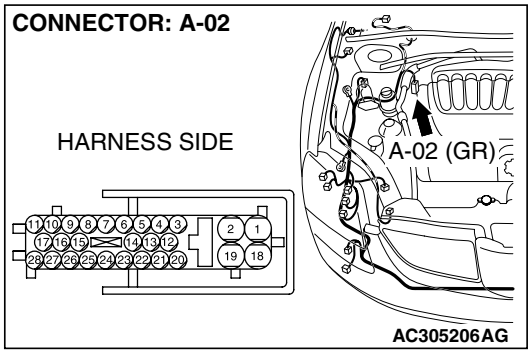
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance between the wiring harness side connector of ABS-ECU connector A-02 and the male side connector of intermediate connector C-29 (at front wiring harness side).

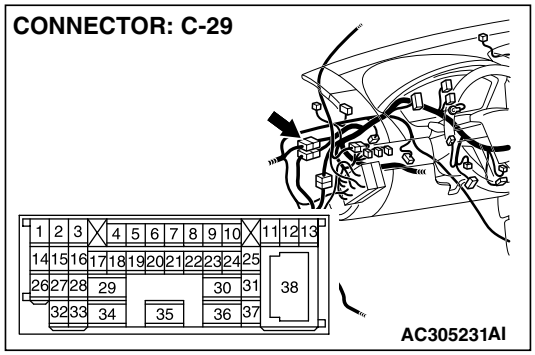
(2) Turn the ignition switch to the "LOCK" (OFF) position.

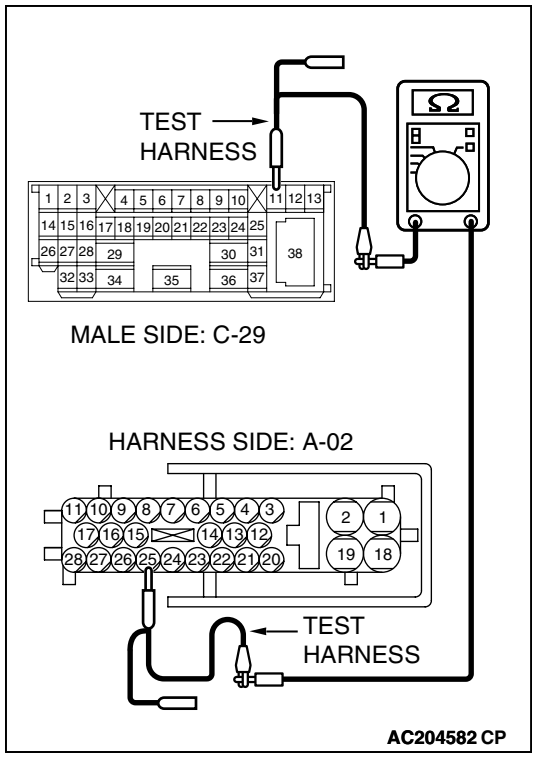
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

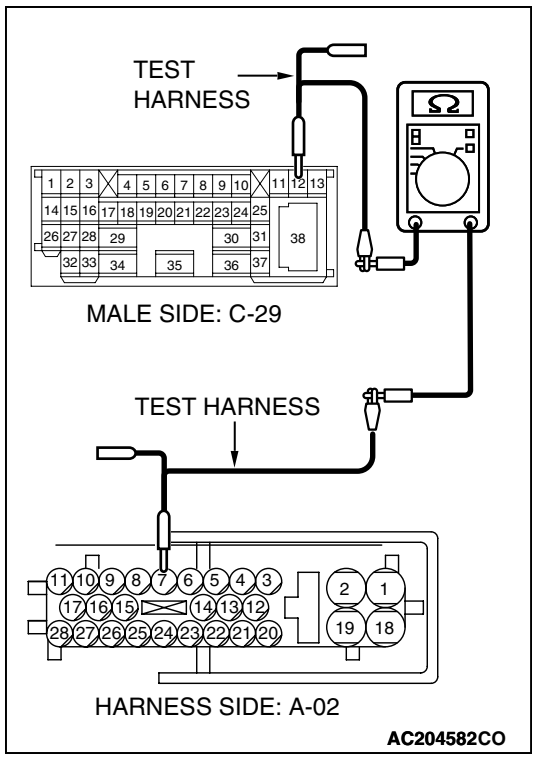






(4) Measure the resistance between intermediate connector terminal 11 and ABS-ECU connector terminal 25.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 12 and ABS-ECU connector terminal 7.

OK: 2 ohms or less

⚠ CAUTION

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

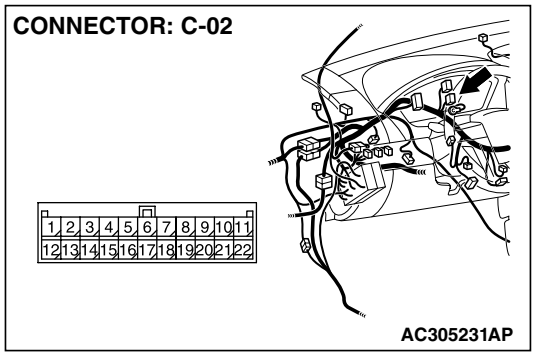
Q: Do all the resistances measure 2 ohms or less?

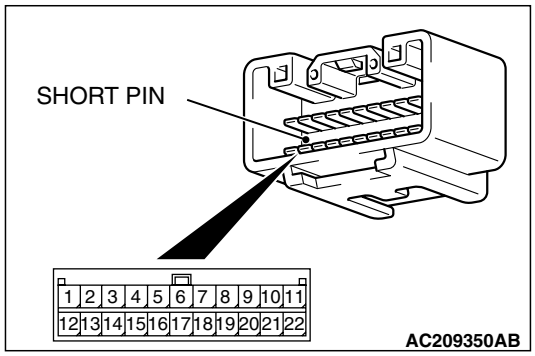
YES : If all the resistances measure 2 ohms or less, go to Step 3.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-29 and the ABS-ECU connector.

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

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





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

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

YES : Go to Step 4.

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

STEP 4. Check the CAN bus lines between intermediate connector C-29 and the joint connector (3). Measure the resistance between intermediate connector C-29 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-29, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-29 (instrument panel wiring harness side).

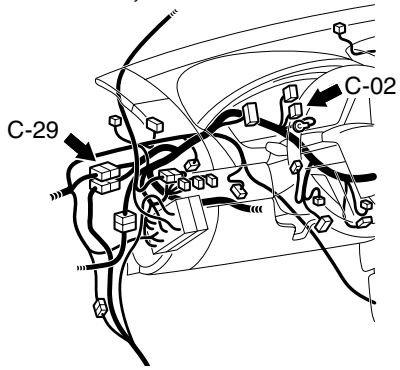
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

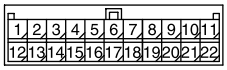
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

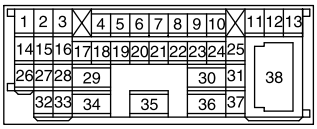
CONNECTORS: C-02, C-29



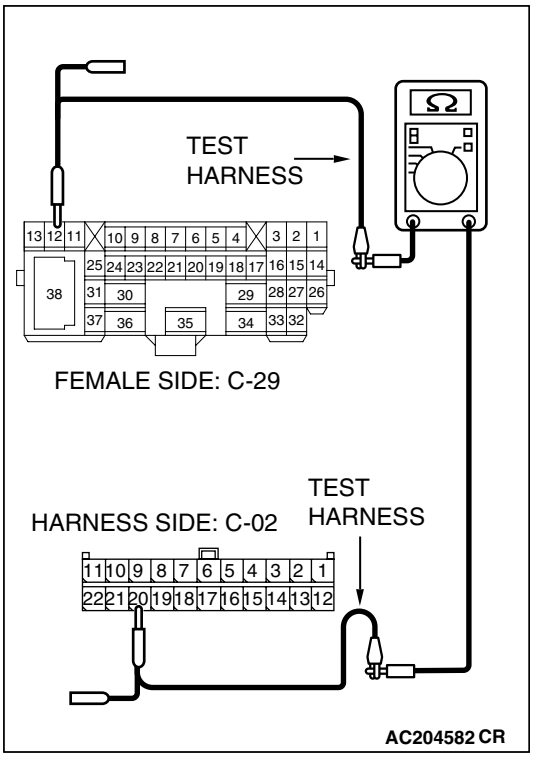
C-02



C-29

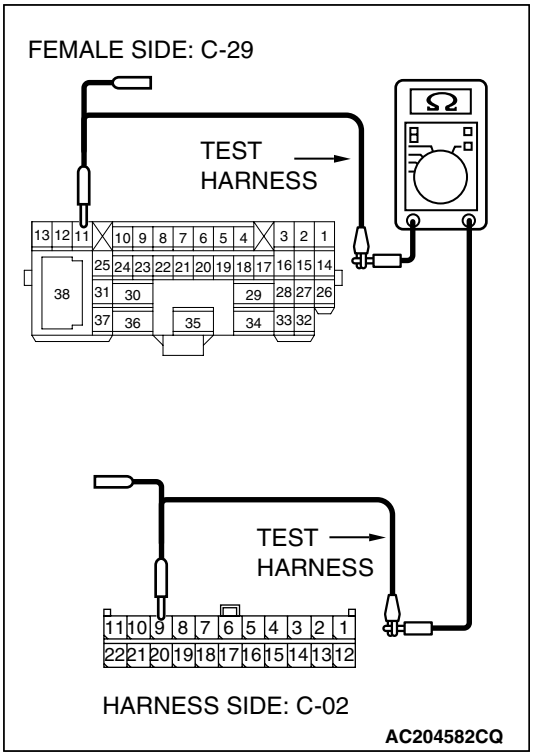


AC305232AG



(4) Measure the resistance between intermediate connector terminal 12 and joint connector (3) terminal 20.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 11 and joint connector (3) terminal 9.

OK: 2 ohms or less

⚠ CAUTION

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

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

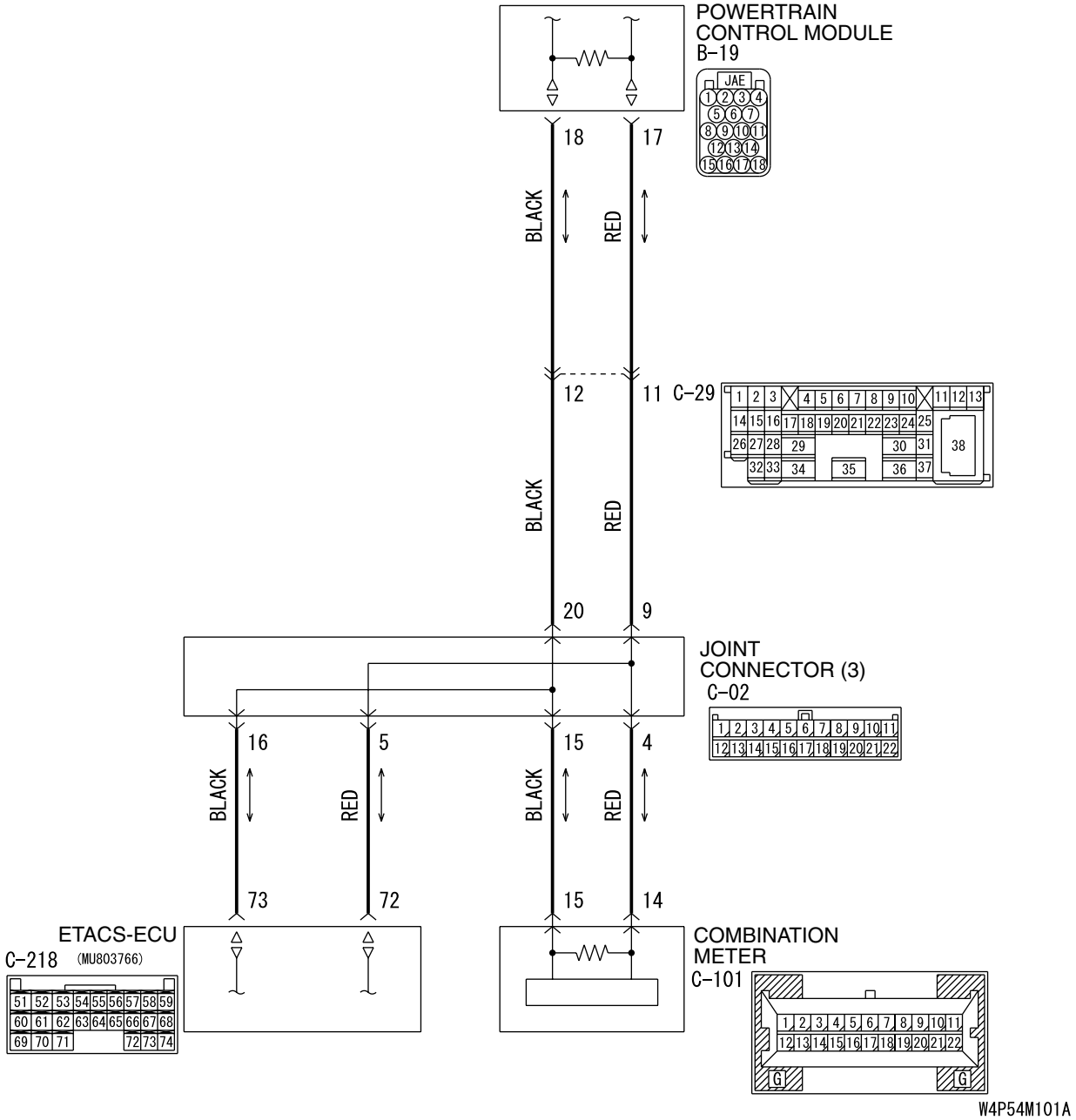
YES : If all the resistances measure 2 ohms or less, power supply to the ABS-ECU may be suspected. Diagnose the ABS system. Refer to GROUP 35B ABS diagnosis P.35B-84.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and intermediate connector C-29.

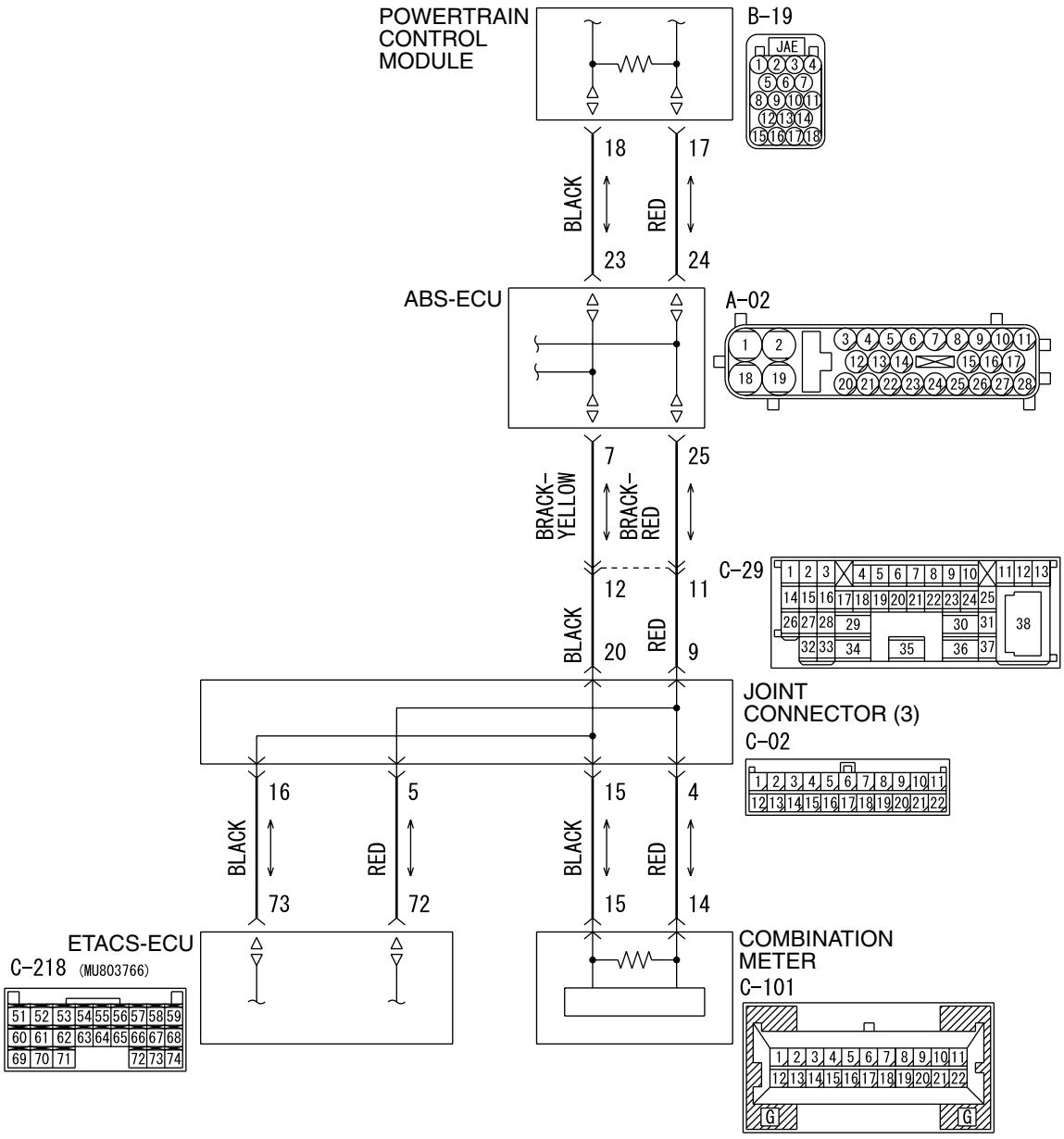
DIAGNOSTIC ITEM 20: Failure in the lines between CAN main bus line and the ETACS-ECU.

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

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>

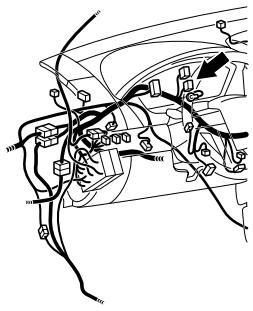


<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



W4P54M102A

CONNECTOR: C-02

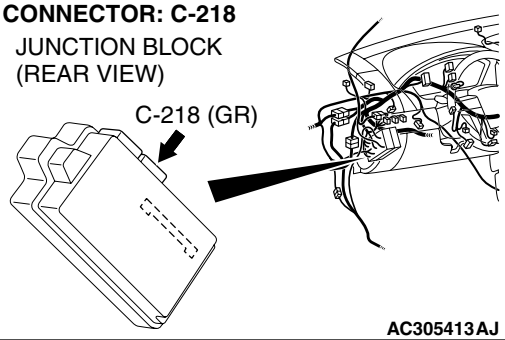


AC305231BD

CONNECTOR: C-218

JUNCTION BLOCK
(REAR VIEW)

C-218 (GR)



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TSB Revision

TROUBLE JUDGMENT

If the MUT-III cannot received signals from ETACS-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

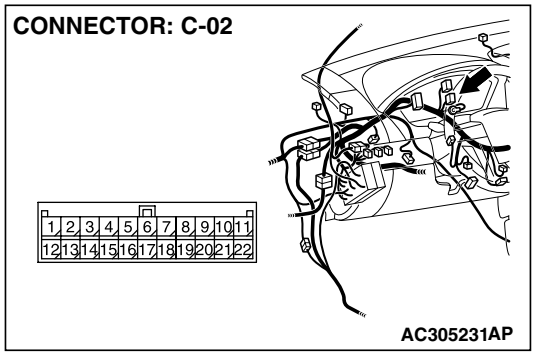
Required Special Tool:

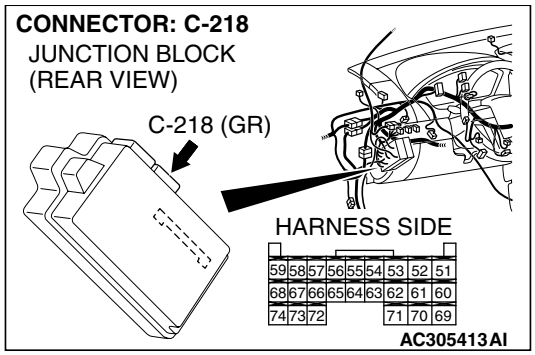
- MB991223: Harness Set

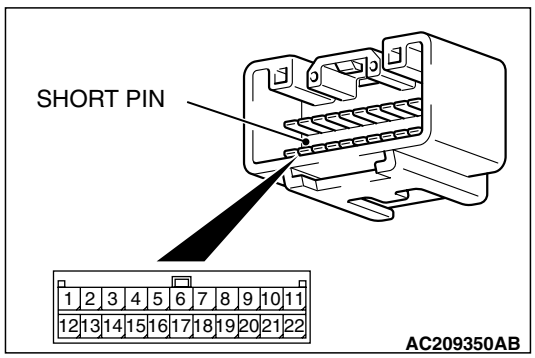
STEP 1. Check joint connector (3) C-02 and ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

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







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

Q: Are joint connector (3) C-02 and ETACS-ECU connector C-218 in good condition?

YES : Go to Step 2.

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

STEP 2. Check the CAN bus lines between joint connector (3) and the ETACS-ECU. Measure the resistance between joint connector (3) C-02 and ETACS-ECU connector C-218.

⚠ CAUTION

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

⚠ CAUTION

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

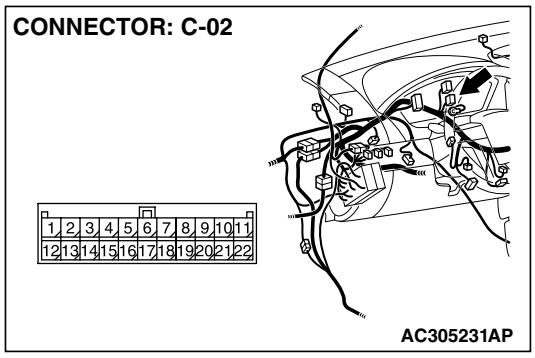
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and ETACS-ECU connector C-218.

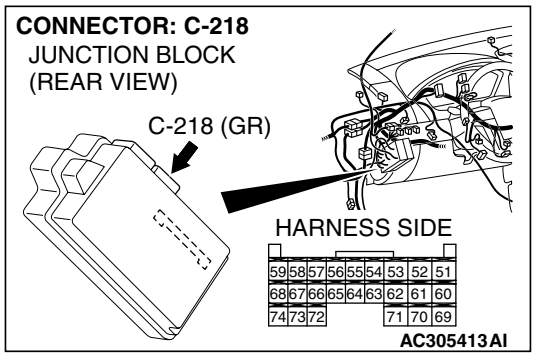
(2) Turn the ignition switch to the "LOCK" (OFF) position.

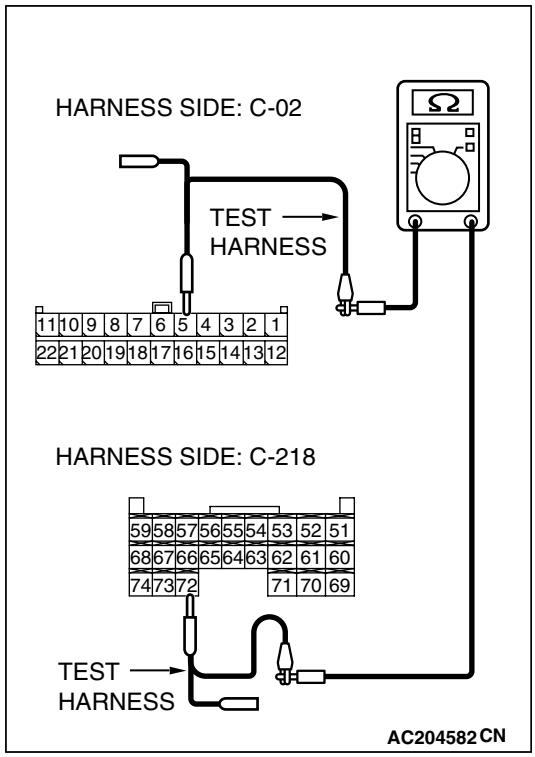
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

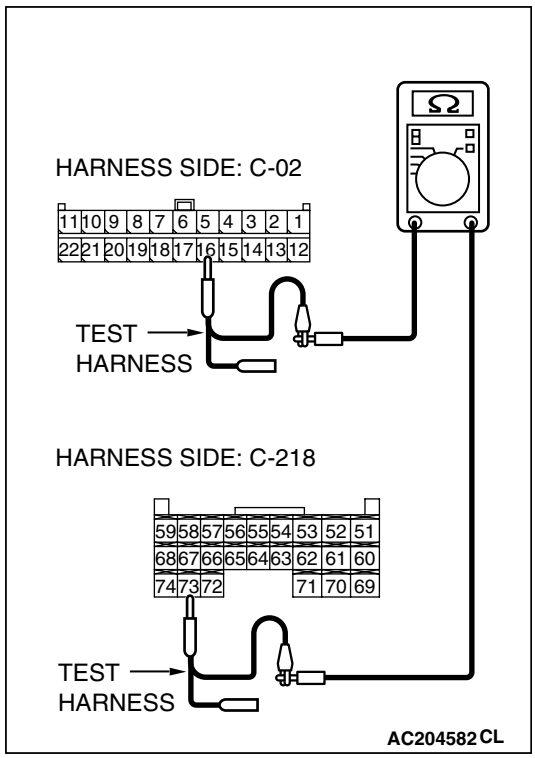






(4) Measure the resistance between joint connector (3) terminal 5 and ETACS-ECU connector terminal 72.

OK: 2 ohms or less



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

OK: 2 ohms or less

⚠ CAUTION

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

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

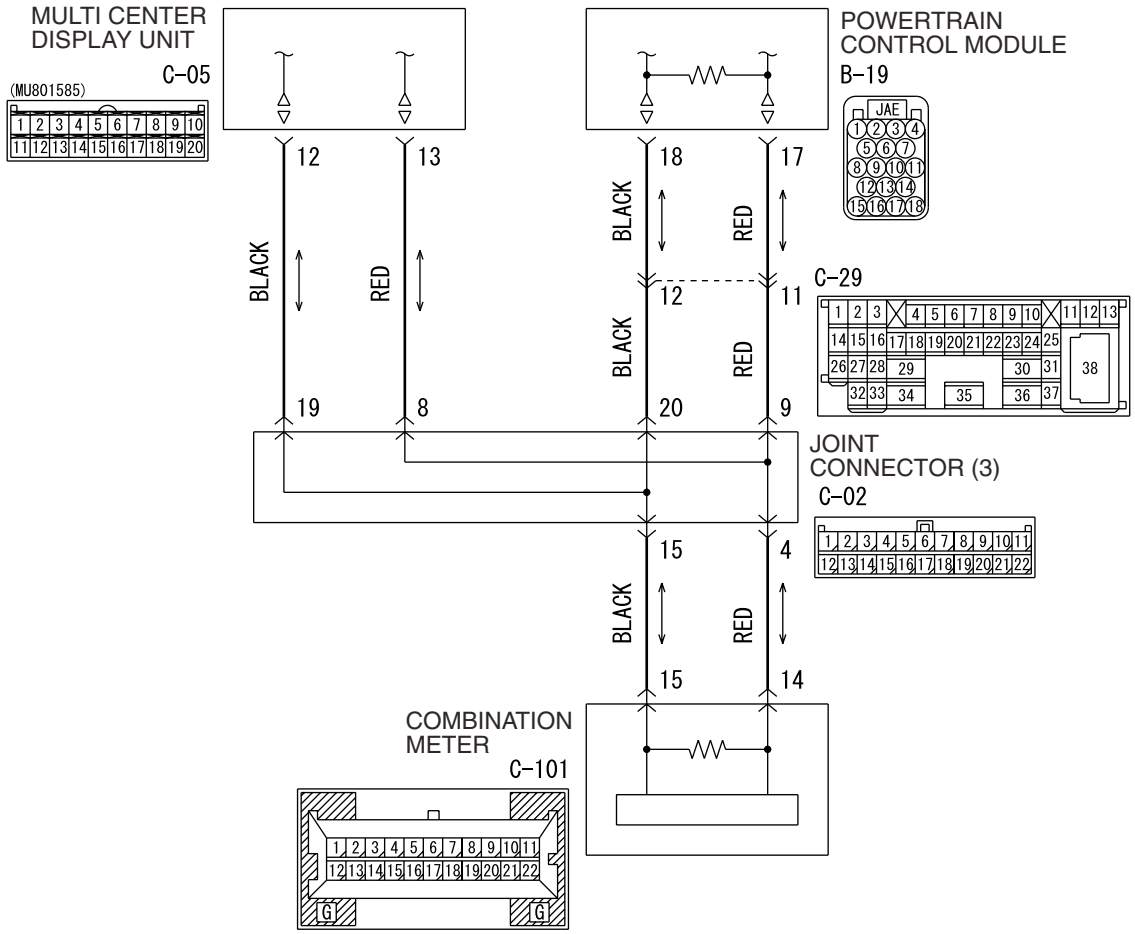
YES : If all the resistances measure 2 ohms or less, power supply to the ETACS-ECU may be suspected. Diagnose the SWS. Refer to GROUP 54B, Symptom procedures P.54B-78.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

DIAGNOSTIC ITEM 21: Diagnose the lines between CAN main bus line and the multi-center display (middle-grade type)

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

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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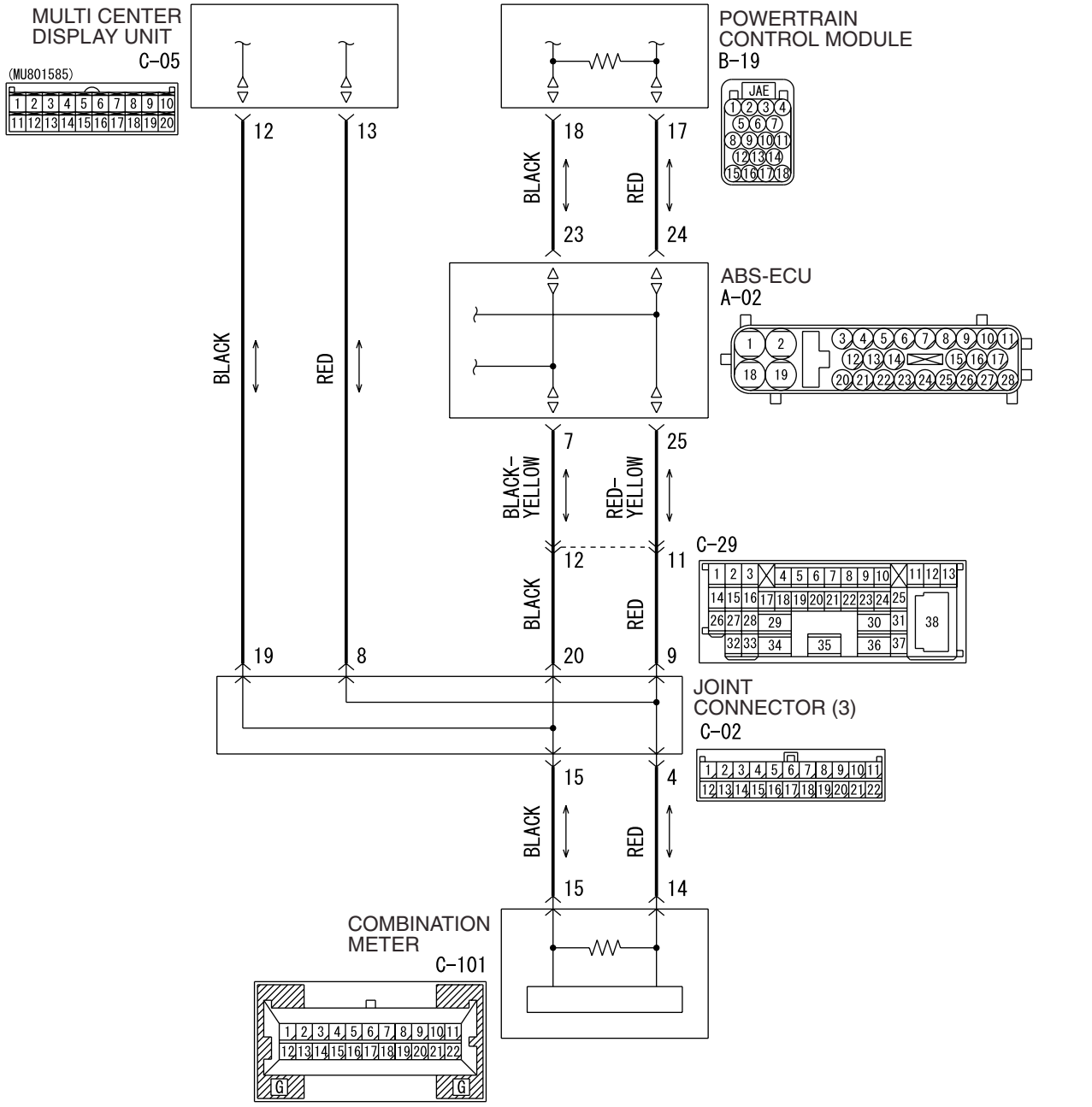
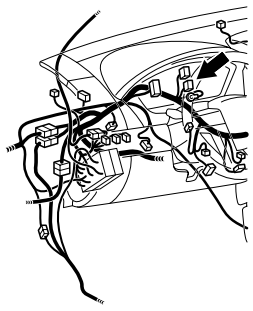
TSB Revision

<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



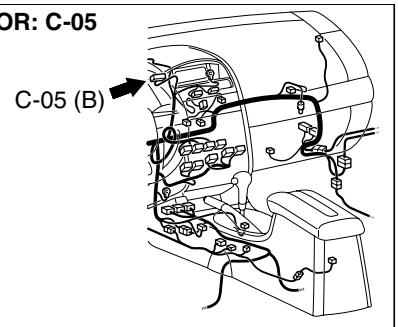
W4P54M104A

CONNECTOR: C-02



AC305231BD

CONNECTOR: C-05



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TSB Revision

TROUBLE JUDGMENT

If the MUT-III cannot received signals from the multi-center display unit (middle-grade type), CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or multi-center display unit (middle-grade type) may be defective.

TROUBLESHOOTING HINTS

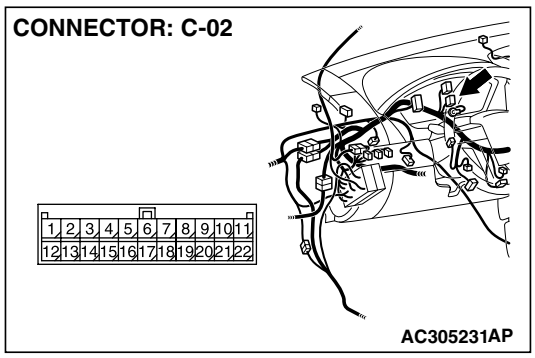
- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The multi-center display unit (middle-grade type) may be defective

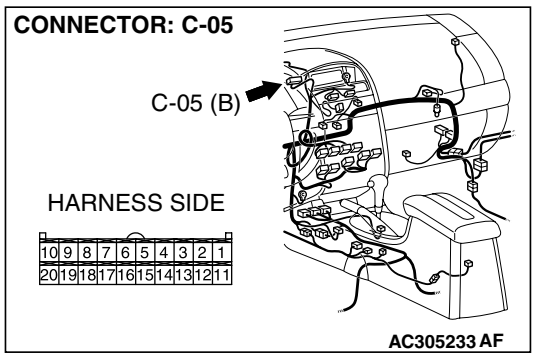
DIAGNOSIS

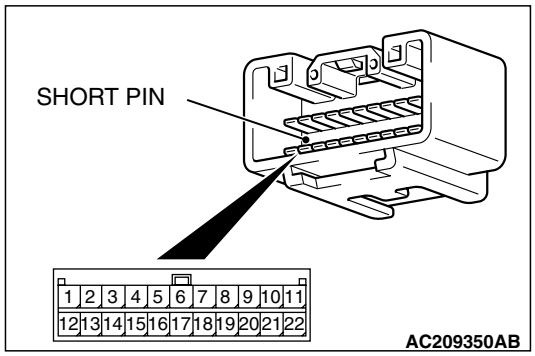
Required Special Tool:
- MB991223: Harness Set

STEP 1. Check joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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







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

Q: Are joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05 in good condition?

YES : Go to Step 2.
NO : Repair the damaged parts. Replace the joint connector as necessary.

STEP 2. Check the CAN bus lines between joint connector (3) and the multi-center display unit (middle-grade type). Measure the resistance between joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05.

⚠ CAUTION

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

⚠ CAUTION

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

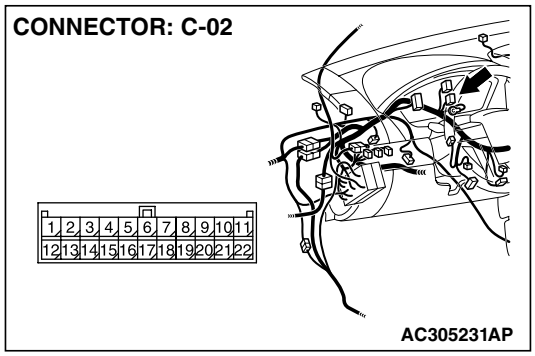
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05, and measure the resistance at the wiring harness sides of joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05.

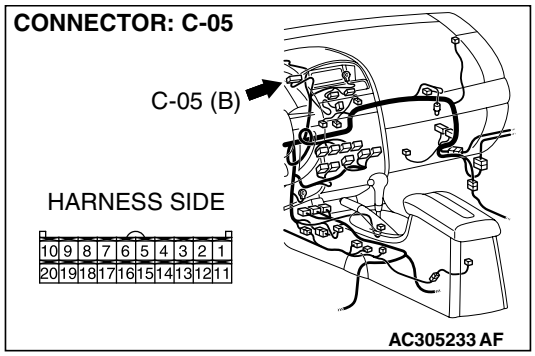
(2) Turn the ignition switch to the "LOCK" (OFF) position.

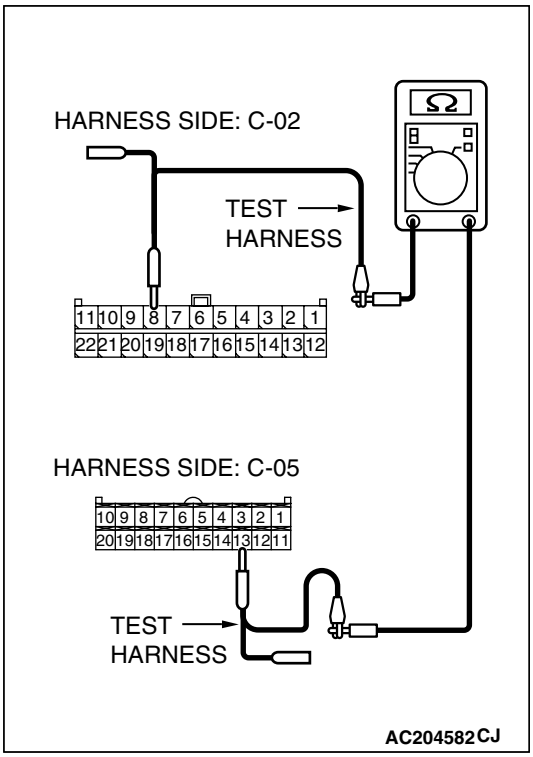
⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

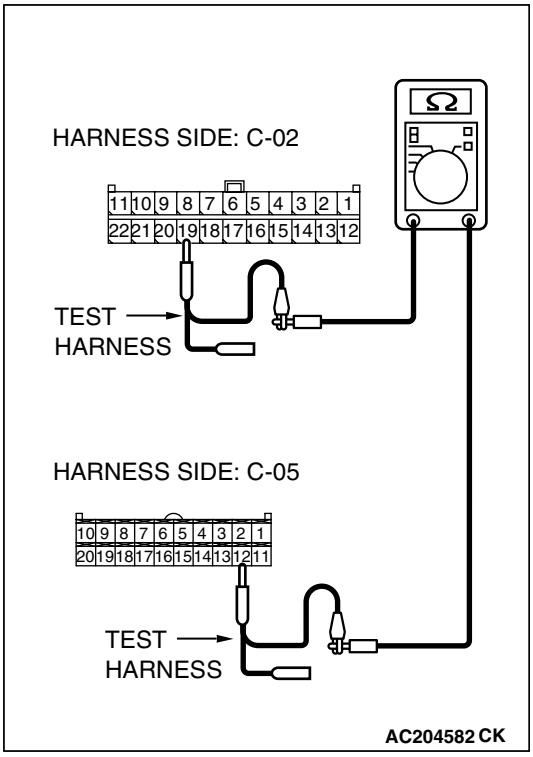






(4) Measure the resistance between joint connector (3) terminal 8 and multi-center display unit (middle-grade type) connector terminal 13.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 19 and multi-center display unit (middle-grade type) connector terminal 12.

OK: 2 ohms or less

⚠ CAUTION

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

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

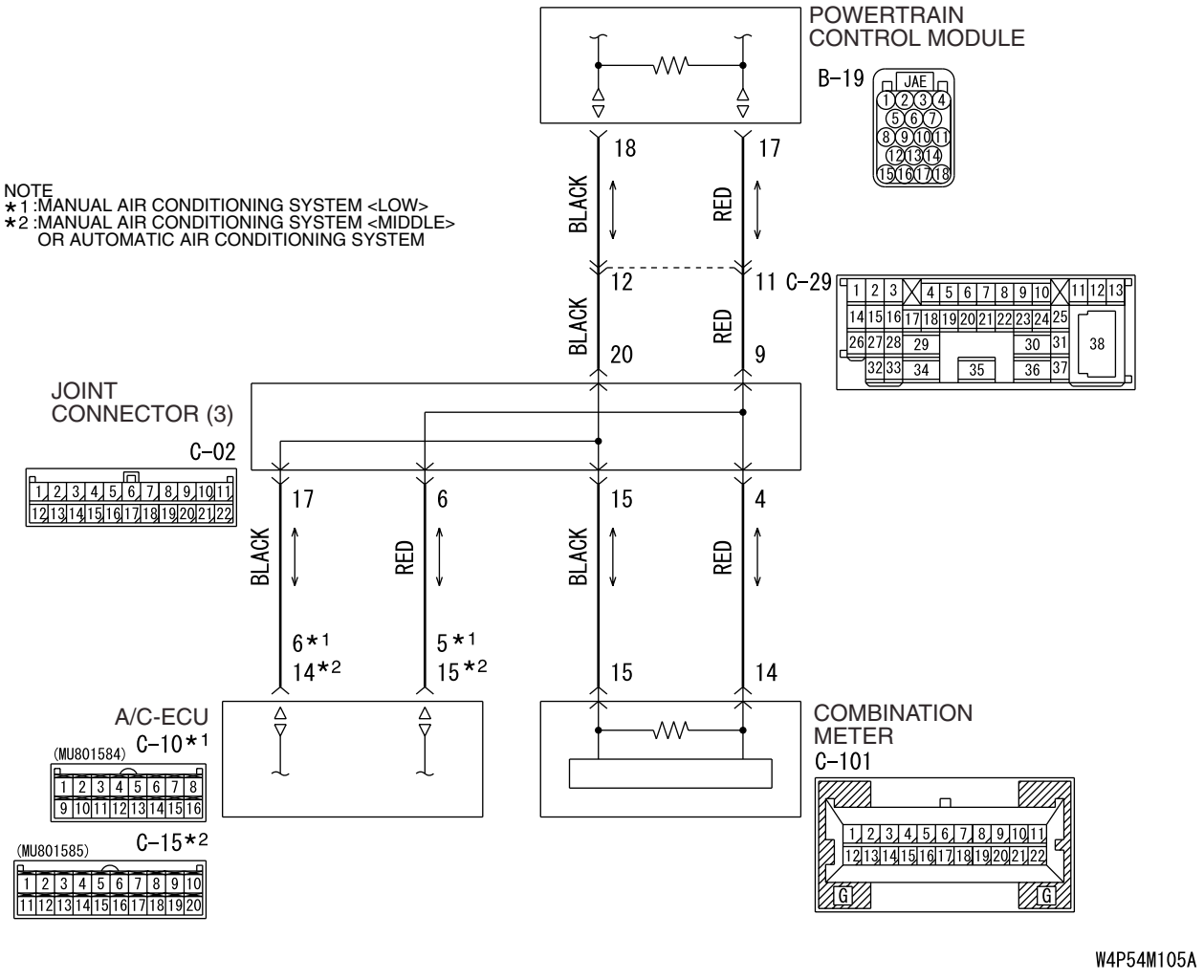
YES : If all the resistances measure 2 ohms or less, power supply to the multi-center display (middle-grade type) may be suspected. Diagnose the multi-center display (middle-grade type). Refer to GROUP 54A, P.54A-252.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the multi-center display unit (middle-grade type) connector.

DIAGNOSTIC ITEM 22: Diagnose the lines between CAN main bus line and the 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.

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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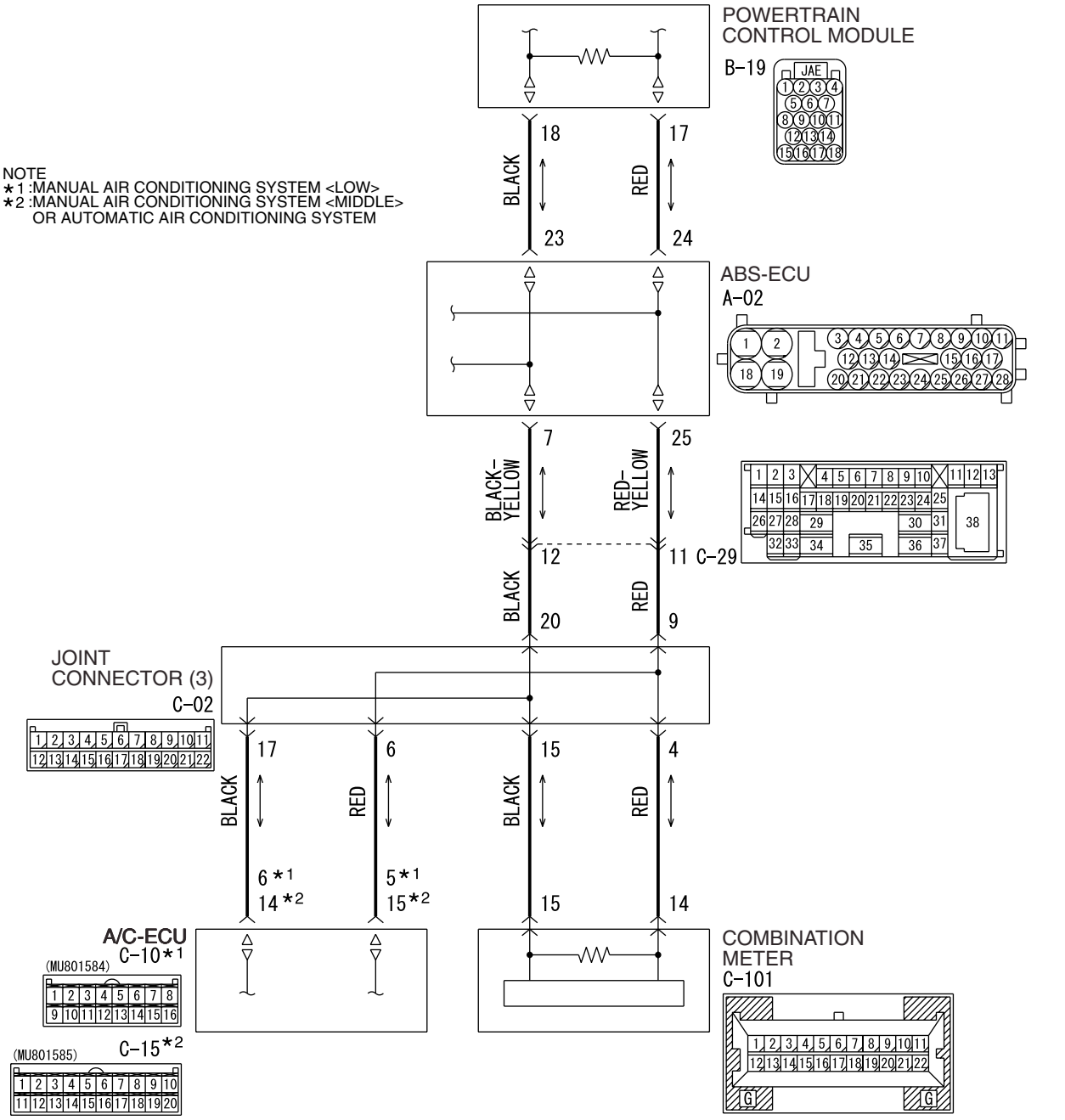
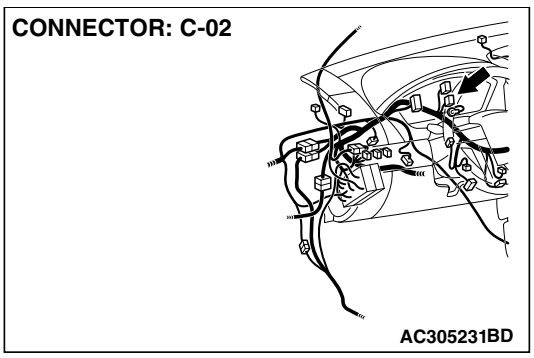
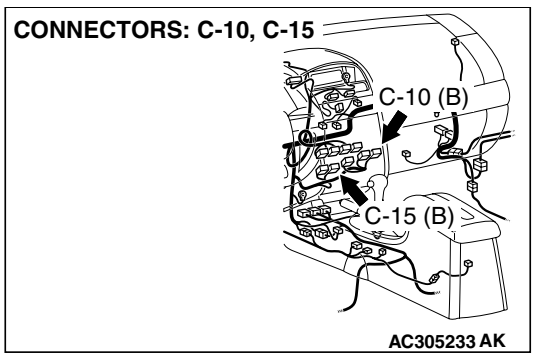
<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>







TSB Revision

TROUBLE JUDGMENT

If the MUT-III cannot received signals from the A/C-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The A/C-ECU may be defective

DIAGNOSIS

Required Special Tool:

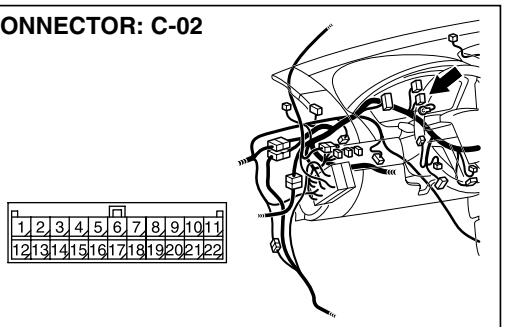
- MB991223: Harness Set

STEP 1. Check joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

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

CONNECTOR: C-02



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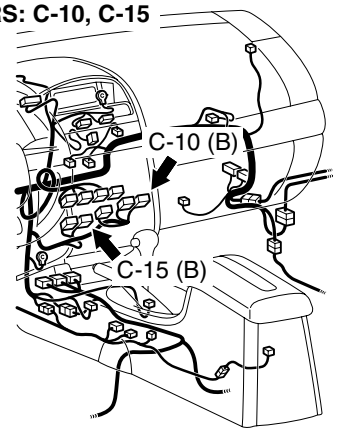
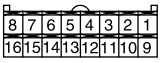
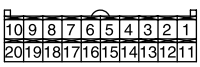
CONNECTORS: C-10, C-15



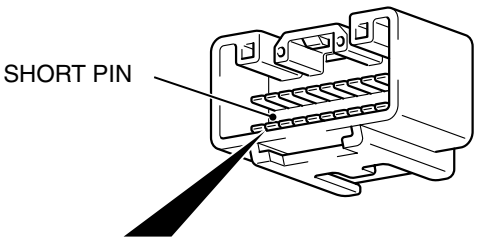
C-10 HARNESS SIDE



C-15 HARNESS SIDE



AC305234AB



AC209350AB

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

Q: Are joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system> in good condition?

YES : . Go to Step 2.

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

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STEP 2. Check the CAN bus lines between joint connector (3) and the A/C-ECU. Measure the resistance between joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistances at the wiring harness sides of joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

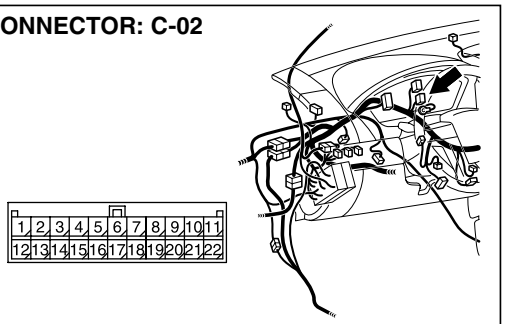
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

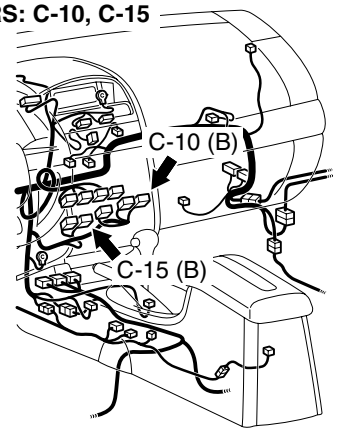
(3) Disconnect the negative battery terminal.

CONNECTOR: C-02

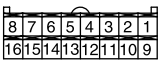


AC305231AP

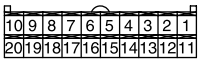
CONNECTORS: C-10, C-15



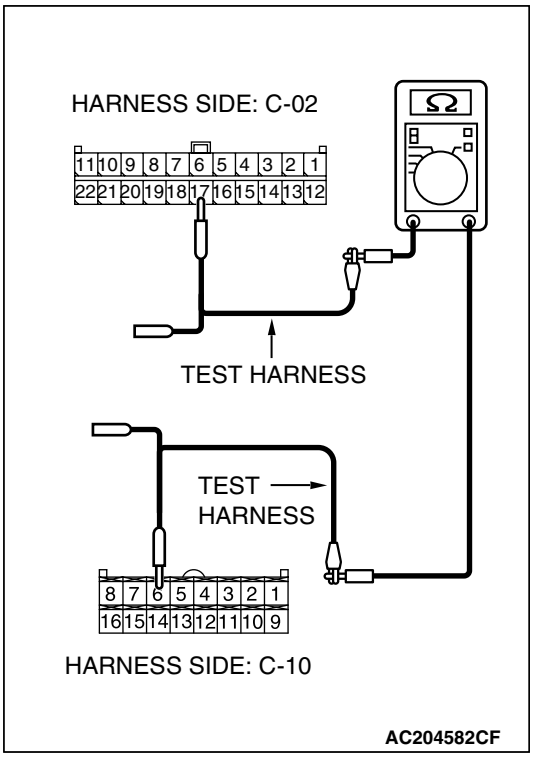
C-10 HARNESS SIDE



C-15 HARNESS SIDE

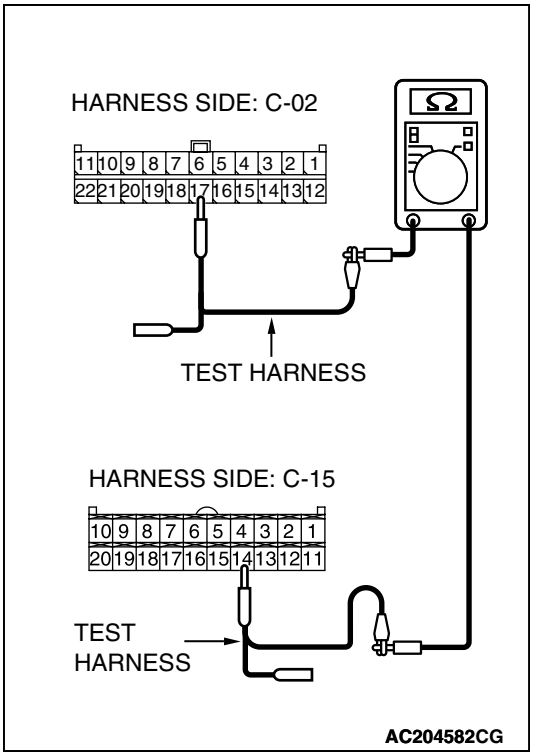


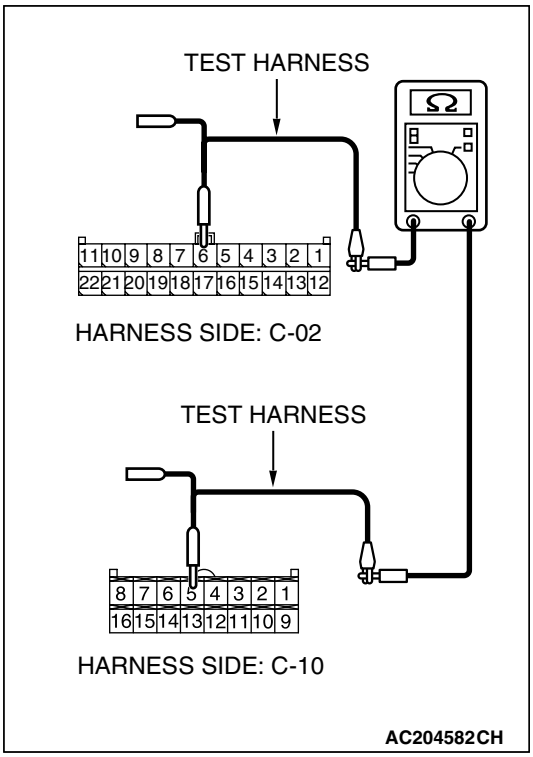
AC305234AB

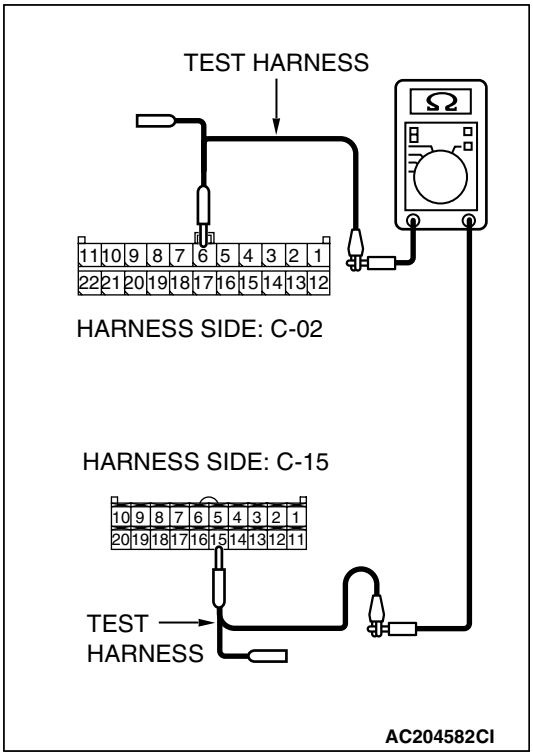


(4) Measure the resistance between joint connector (3) terminal 17 and A/C-ECU connector terminal 6 <manual air conditioning system (low)> or 14 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 2 ohms or less







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

OK: 2 ohms or less

⚠ CAUTION

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

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

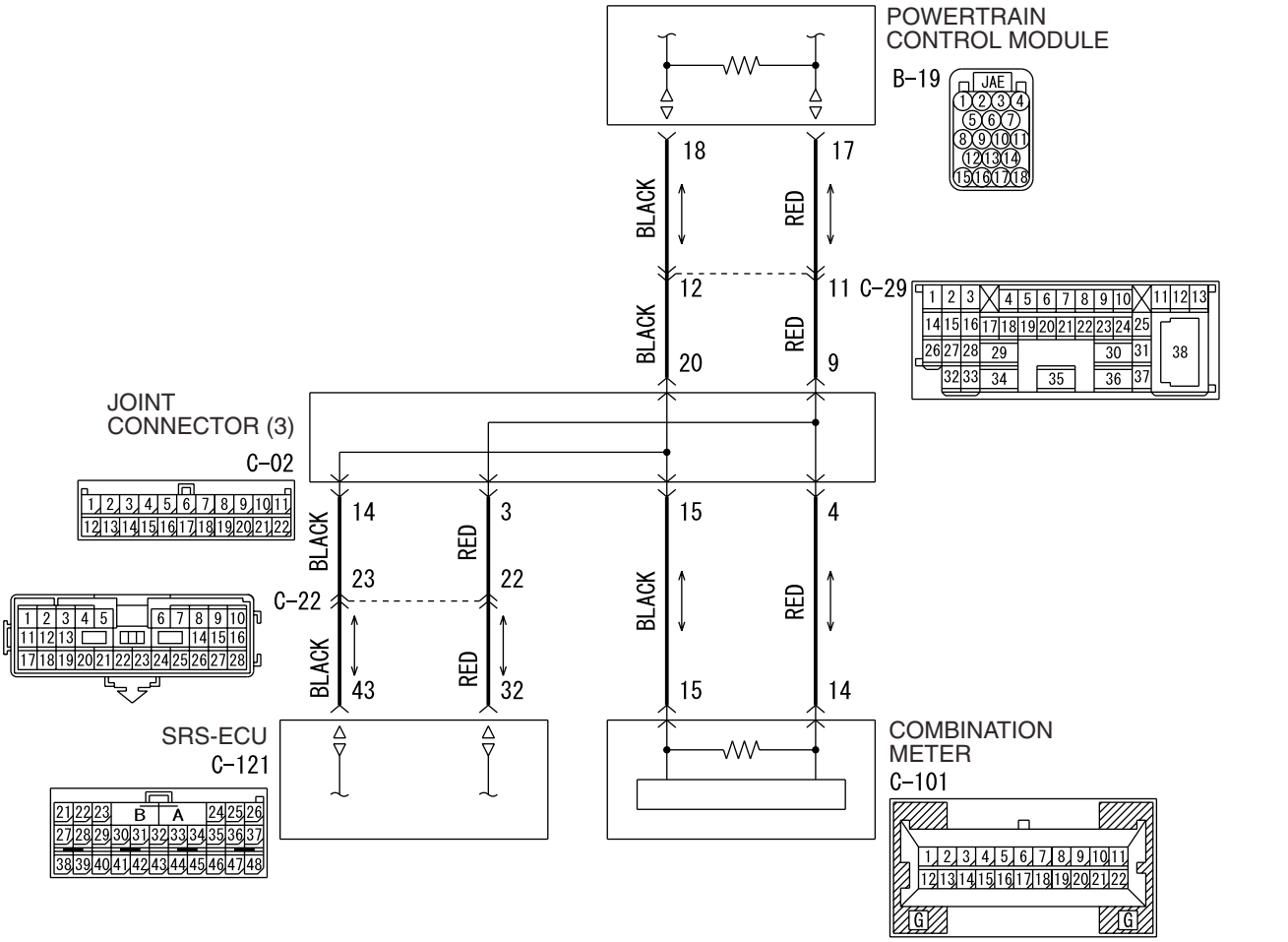
YES : If all the resistances measure 2 ohms or less, power supply to the A/C-ECU may be suspected. Diagnose the air conditioning system. Refer to GROUP 55A, Manual A/C diagnosis P.55A-242.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

DIAGNOSTIC ITEM 23: Diagnose the lines between CAN main bus line and the 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.

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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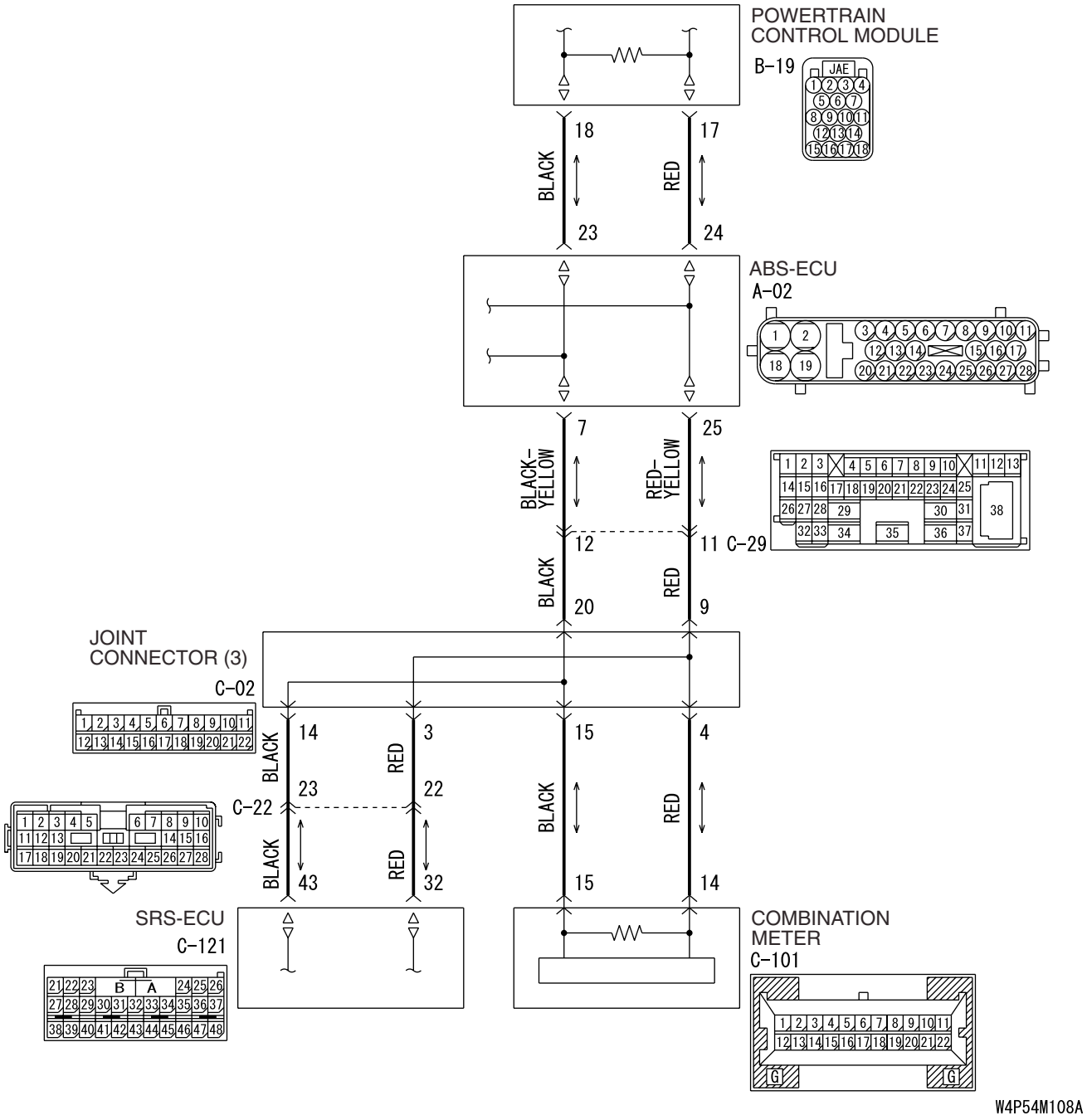
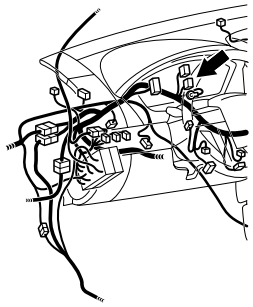
<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



CONNECTOR: C-02



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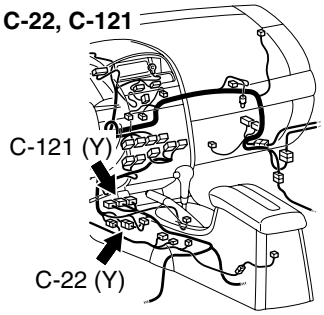
CONNECTORS: C-22, C-121



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TSB Revision

TROUBLE JUDGMENT

If the MUT-III cannot received signals from the SRS-ECU, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check intermediate connector C-22 and SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

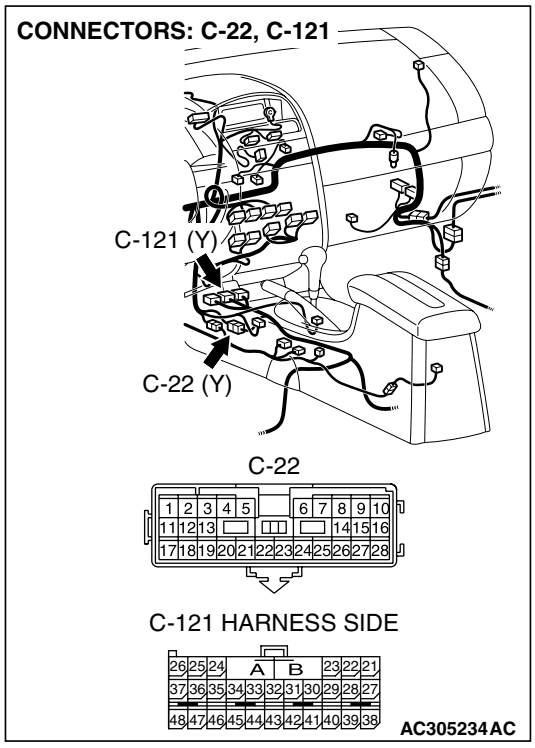
⚠ CAUTION

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

Q: Are intermediate connector C-22 and SRS-ECU connector C-121 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the CAN bus lines between intermediate connector C-22 and the SRS-ECU. Measure the resistance between intermediate connector C-22 and SRS-ECU connector C-121.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance between the wiring harness side connector of SRS-ECU connector C-121 and the male side connector of intermediate connector C-22 (at front wiring harness side).

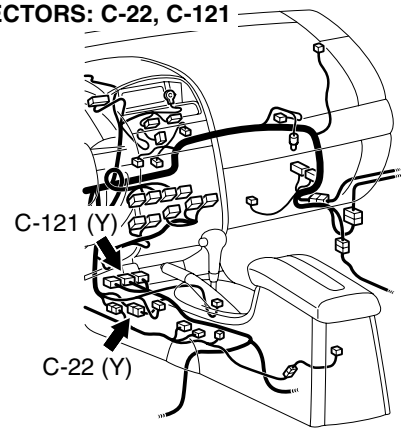
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

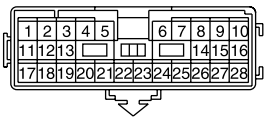
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

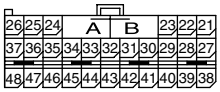
CONNECTORS: C-22, C-121



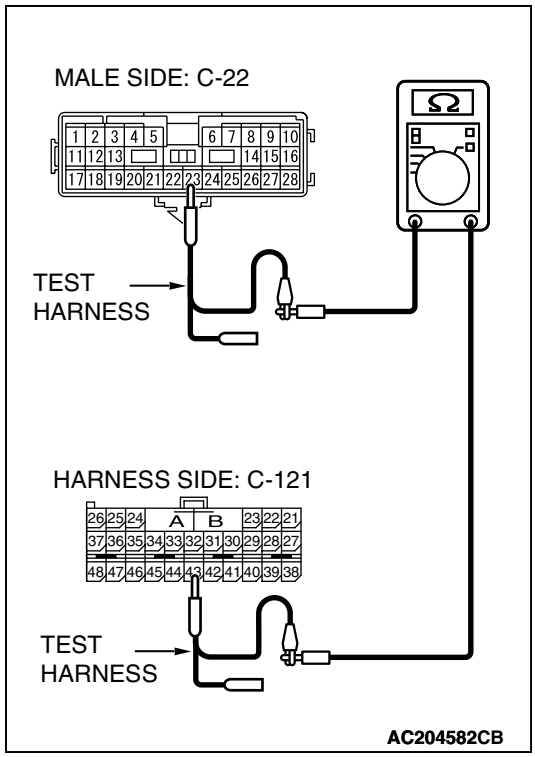
C-22



C-121 HARNESS SIDE

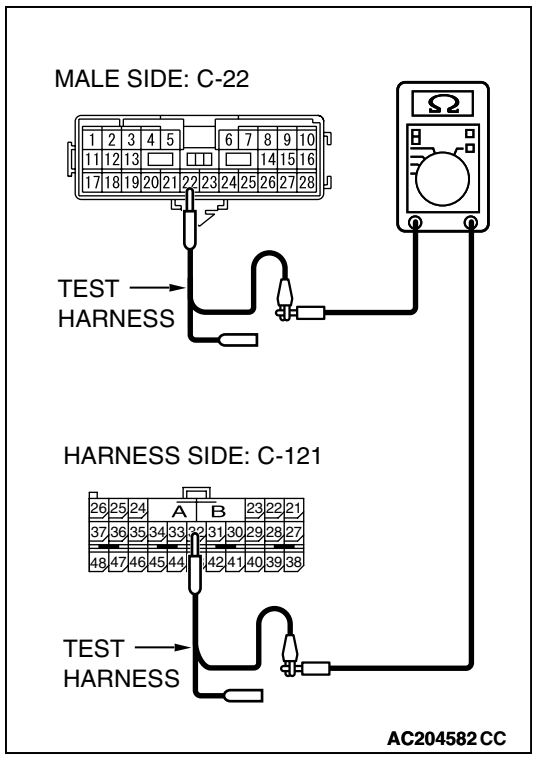


AC305234AC



(4) Measure the resistance between intermediate connector terminal 23 and SRS-ECU connector terminal 43.

OK: 2 ohms or less



(5) Measure the resistance between intermediate connector terminal 22 and SRS-ECU connector terminal 32.

OK: 2 ohms or less

⚠ CAUTION

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

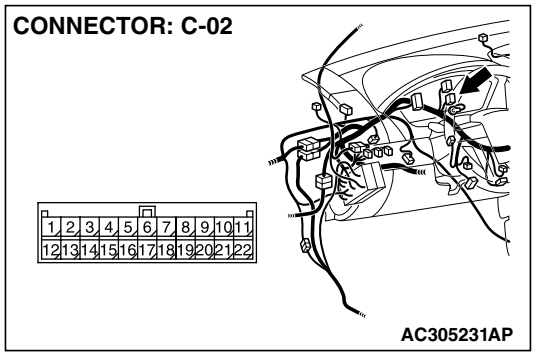
Q: Do all the resistances measure 2 ohms or less?

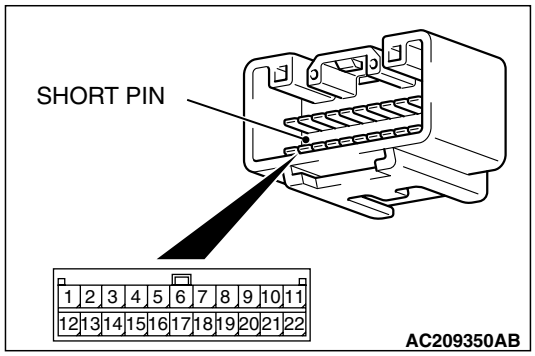
YES : If all the resistances measure 2 ohms or less, go to Step 3.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between intermediate connector C-22 and the SRS-ECU connector.

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

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





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

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

YES : Go to Step 4.

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

STEP 4. Check the CAN bus lines between intermediate connector C-22 and joint connector (3). Measure the resistance between intermediate connector C-22 and joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and intermediate connector C-22, and measure the resistance between the wiring harness side connector of joint connector (3) C-02 and the female side connector of intermediate connector C-22 (instrument panel wiring harness side).

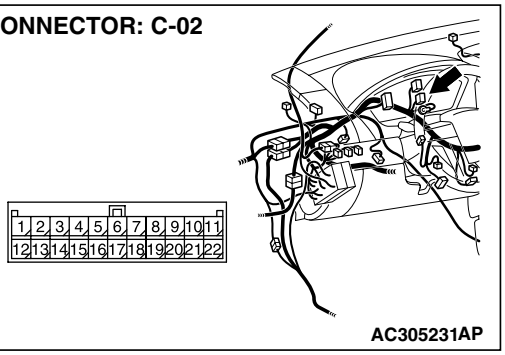
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

CONNECTOR: C-02



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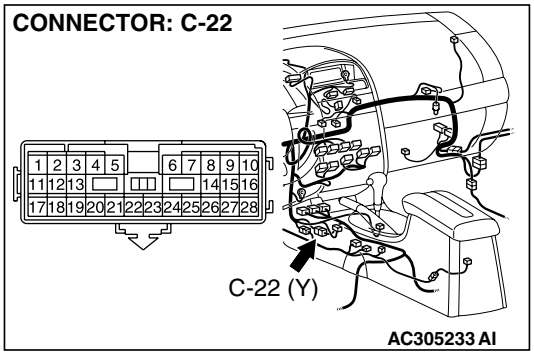
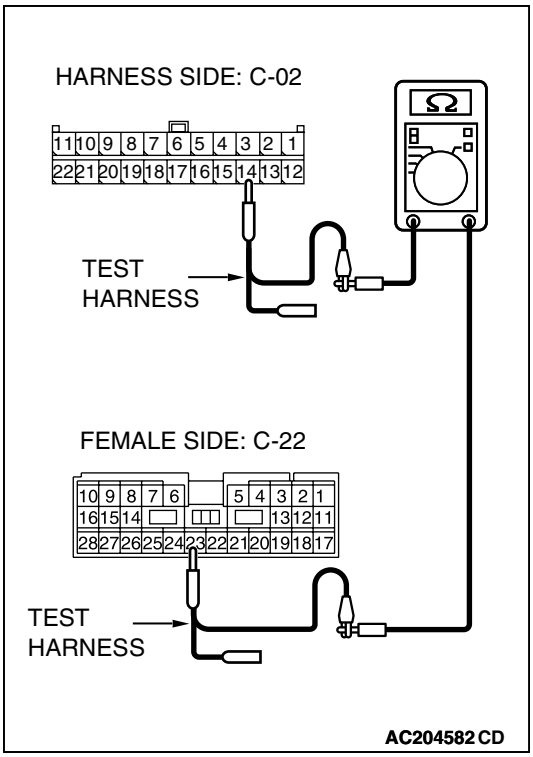
CONNECTOR: C-22

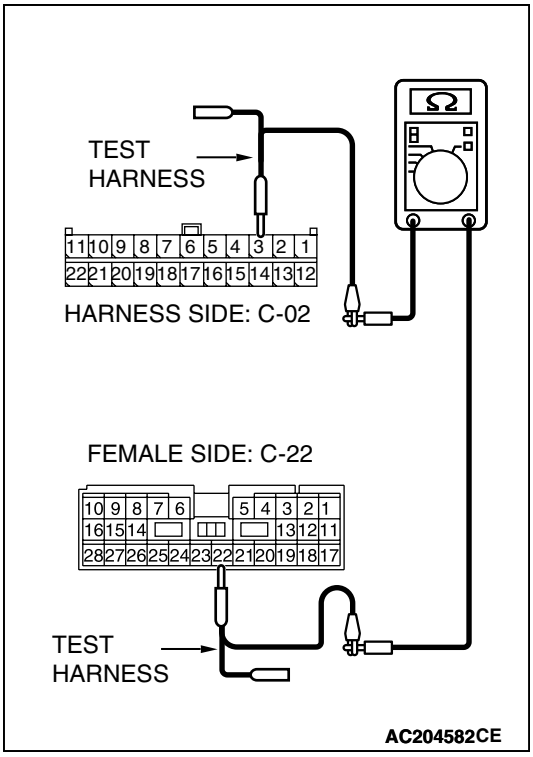


AC305233AI



(4) Measure the resistance between joint connector (3) terminal 14 and intermediate connector terminal 23.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 3 and intermediate connector terminal 22.

OK: 2 ohms or less

⚠ CAUTION

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

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

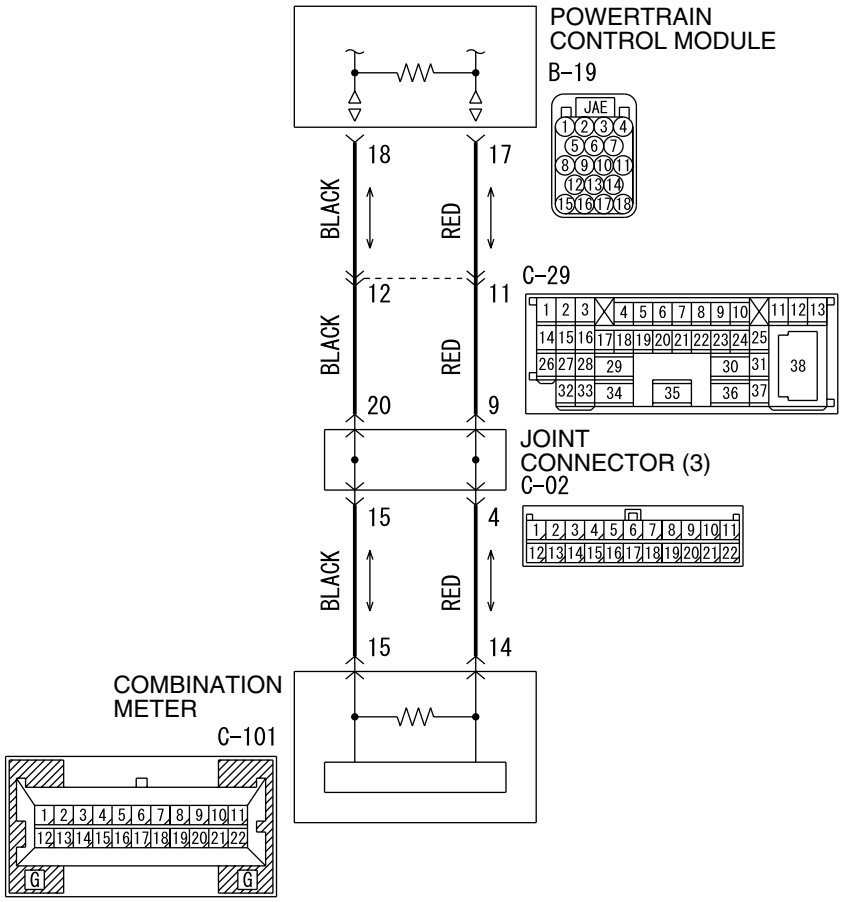
YES : If all the resistances measure 2 ohms or less, power supply to the SRS-ECU may be suspected. Diagnose the supplemental restraint system. Refer to GROUP 52B, SRS air bag diagnosis P.52B-29.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms repair the wiring harness between joint connector (3) and the SRS-ECU connector.

DIAGNOSTIC ITEM 24: Failure in the lines between CAN main bus line and the combination meter.

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

<WITHOUT ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD) AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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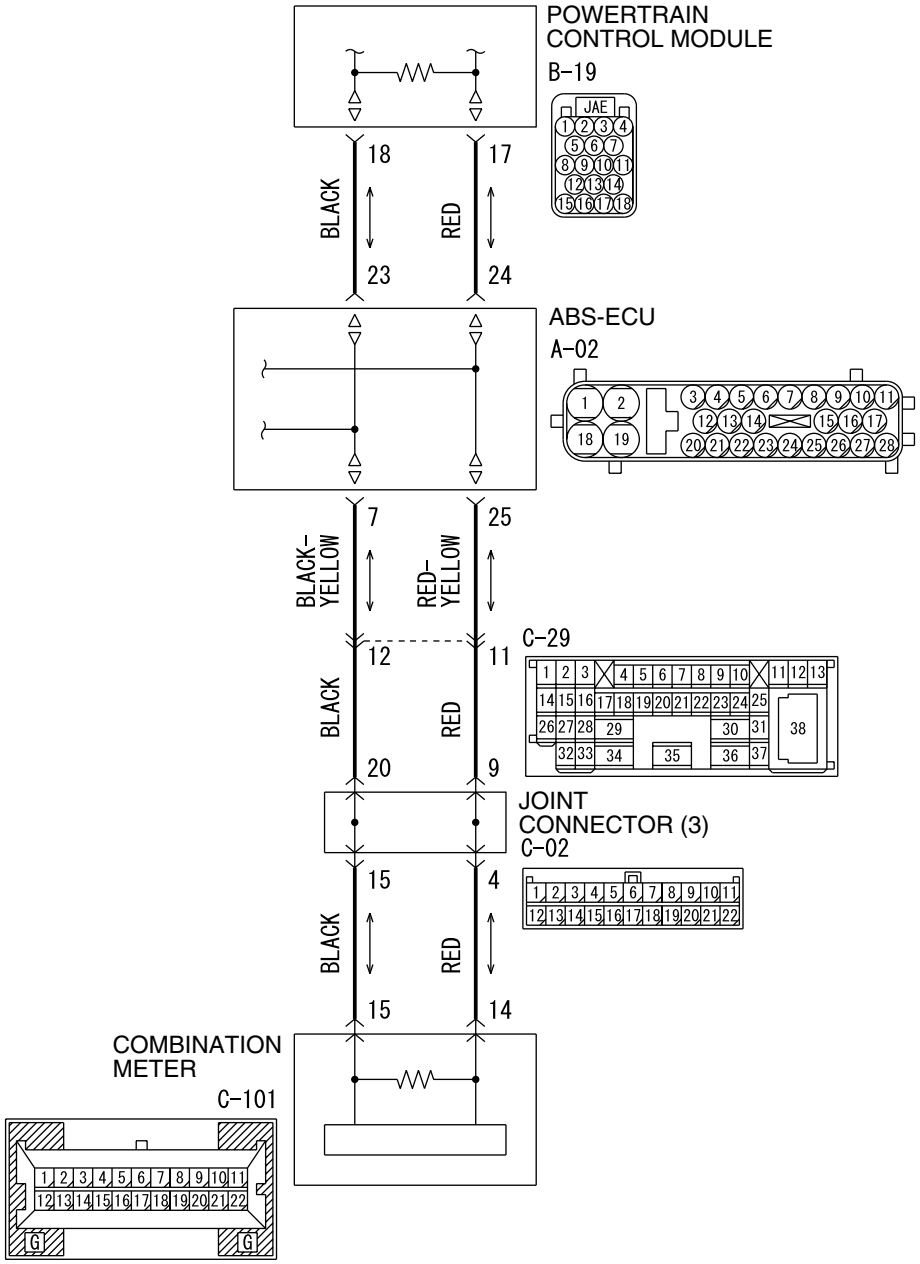
<WITH ELECTRONIC BRAKE-FORCE DISTRIBUTION (EBD)
AND ANTI-LOCK BRAKING SYSTEM (ABS)>



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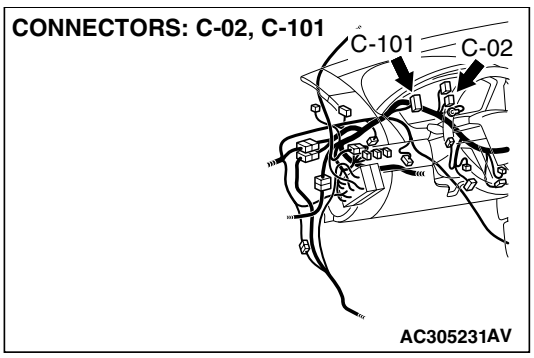


TSB Revision

TROUBLE JUDGMENT

If the MUT-III cannot received signals from the combination meter, CAN bus line connector(s) are broken or an open circuit has occurred.

COMMENTS ON TROUBLE SYMPTOM

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

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector
- The combination meter may be defective

DIAGNOSIS

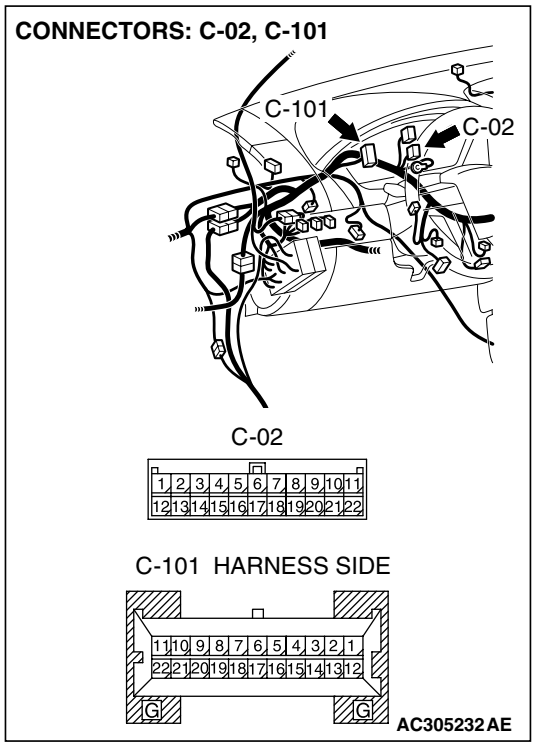
Required Special Tool:

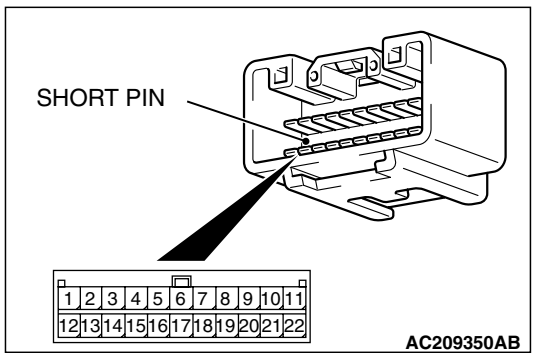
- MB991223: Harness Set

STEP 1. Check joint connector (3) C-02 and combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

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





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

Q: Are joint connector (3) C-02 and combination meter connector C-101 in good condition?

YES : Go to Step 2.

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

STEP 2. Check the CAN bus lines between joint connector (3) and the combination meter. Measure the resistance between joint connector (3) C-02 and combination meter connector C-101.

⚠ CAUTION

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

⚠ CAUTION

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

(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance between each wiring harness side connector.

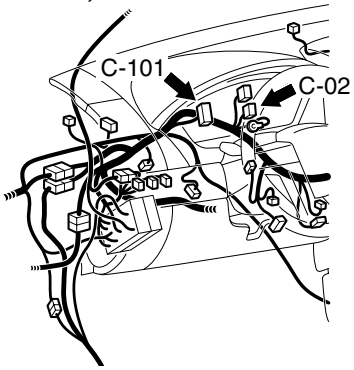
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

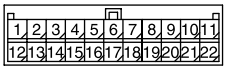
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

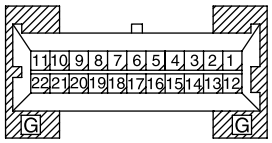
CONNECTORS: C-02, C-101



C-02



C-101 HARNESS SIDE



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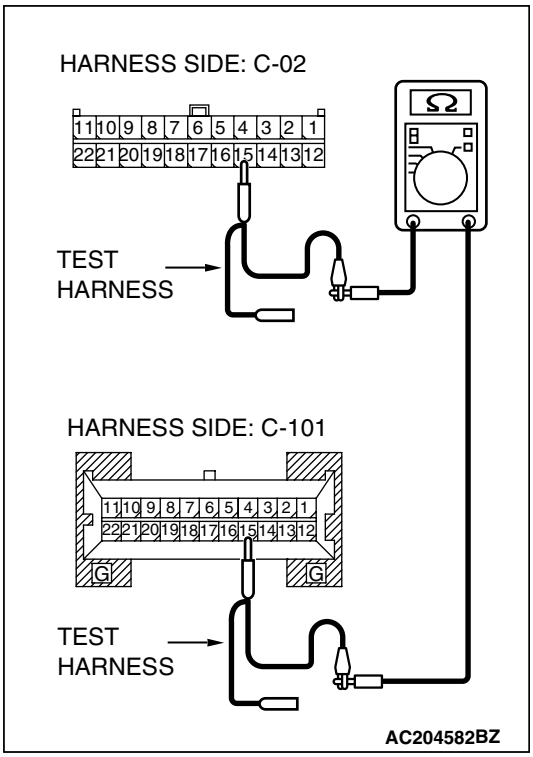
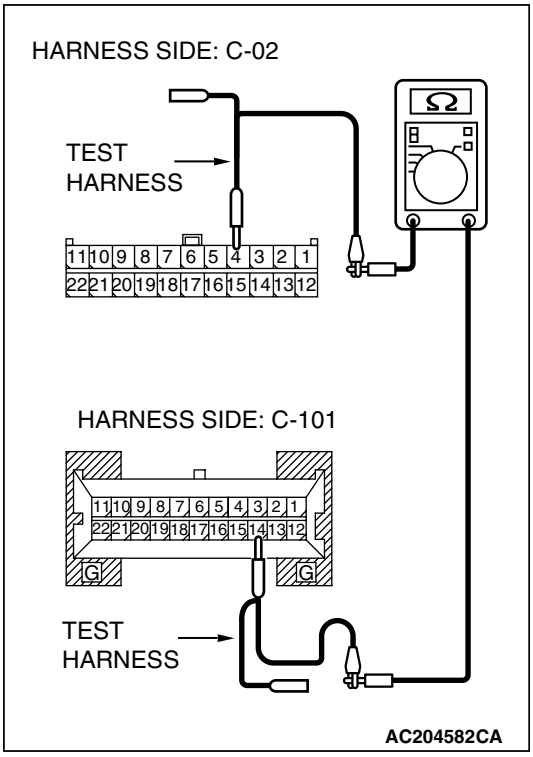


(4) Measure the resistance between joint connector (3) terminal 15 and combination meter connector terminal 15.

OK: 2 ohms or less



(5) Measure the resistance between joint connector (3) terminal 4 and combination meter connector terminal 14.

OK: 2 ohms or less

⚠ CAUTION

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

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

YES : If all the resistances measure 2 ohms or less, power supply to the combination meter may be suspected. Diagnose the combination meter. Refer to GROUP 54A, Combination meter assembly P.54A-252.

NO : If either of the resistances measures more than 2 ohms or all the resistances measure more than 2 ohms, repair the wiring harness between joint connector (3) and the combination meter connector.

CAN COMMUNICATION SIGNAL TABLE

M1548300400059

SIGNAL	TRANSMITTER ECU	RECEIVER ECU					
		POWER TRAIN CONTROL MODULE	ABS-ECU	MULTI-CENTER DISPLAY UNIT (MIDDLE-GRADE TYPE)	COMBINATION METER	A/C-ECU	ETACS-ECU
Engine speed signal	Power train control module	–	×	–	×	×	–
A/C information signal		–	–	–	–	×	–
Vehicle speed signal		–	–	–	×	×	–
Vehicle stop signal		–	–	×	×	×	×
Malfunction indicator lamp request signal		–	–	–	×	–	–
Auto-cruise control indicator lamp signal		–	–	–	×	–	–
Engine coolant temperature signal		–	–	–	×	×	–
Selector position signal		–	×	–	×	×	×
ABS warning light request signal	ABS-ECU	–	–	–	×	–	–
SRS warning light request signal	SRS-ECU	–	–	–	×	–	–
Communication continuation request signal	Multi-center display unit (middle-grade type)	–	–	–	–	×	×
Ignition switch (ACC) signal		–	–	–	–	×	×
Adjustment request signal		–	–	–	–	×	×
Customize signal		–	–	–	–	×	×
Tone alarm sound signal		–	–	–	–	×	×
Communication continuation request signal	Combination meter	–	–	–	–	–	×
Vehicle speed signal		–	–	–	–	–	×
Ignition switch (IG1) signal		–	–	–	–	–	×
Seat belt signal		–	–	–	–	–	×
Fuel information signal		×	–	–	–	–	–

SIGNAL	TRANSMITTER ECU	RECEIVER ECU					
		POWER TRAIN CONTROL MODULE	ABS-ECU	MULTI-CENTER DISPLAY UNIT (MIDDLE-GRADE TYPE)	COMBINATION METER	A/C-ECU	ETACS-ECU
Communication continuation request signal	A/C-ECU	–	–	–	–	–	×
Compressor signal		×	–	–	–	–	–
Idle-up request signal		×	–	–	–	–	–
Cooling fan request signal		×	–	–	–	–	–
Cooling fan signal		×	–	–	–	–	–
Set temperature signal		–	–	×	–	–	–
Ambient temperature signal		–	–	×	–	–	–
Fan air volume signal		–	–	×	–	–	–
Air outlet mode signal		–	–	×	–	–	–
Communication standby signal	ETACS-ECU	–	–	–	×	–	–
Ignition switch (ACC) signal		–	–	–	–	–	–
Ignition switch (IG1) signal		–	–	–	×	–	–
High-beam indicator request signal		–	–	–	×	–	–
Turn-signal indicator request signal		–	–	–	×	–	–
Fog light indicator request signal		–	–	–	×	–	–
Illumination signal		–	–	–	×	–	–
Door "open" signals		–	–	–	×	–	–
Interior light shut-off signal		–	–	–	×	–	–
Customize signal		–	–	×	–	–	–

CAN COMMUNICATION-RELATED DTC CODE (U CODE) TABLE

M1548300300052

OUTPUT ECU	CODE NO.	DIAGNOSTIC ITEM	ACTION
Power train control module	U1073	Bus Off	CAN main bus line diagnostics
	U1102	ABS-ECU time-out	
	U1108	Combination meter time-out	
	U1110	A/C-ECU time-out	
ABS-ECU	U1073	Bus Off	CAN main bus line diagnostics
ABS/TCL-ECU	U1073	Bus Off	CAN main bus line diagnostics
	U1100	Powertrain control module time-out (related to engine) <vehicles with TCL>	
	U1101	Powertrain control module time-out (related to automatic transmission) <vehicles with TCL>	
	U1120	Failure information on powertrain control module (related to engine) <vehicles with TCL>	Diagnose CAN main bus lines and confirm input signals.
Combination meter	U1073	Bus Off	CAN main bus line diagnostics
	U1100	Power train control module time-out (related to engine)	
	U1101	Power train control module time-out (related to A/T)	
	U1102	ABS-ECU time-out	
	U1109	ETACS-ECU time-out	
	U1120	Failure information on power train control module (related to engine)	Diagnose CAN main bus lines and confirm input signals.
Multi-center display unit (middle-grade type)	010	Bus Off	CAN main bus line diagnostics
	011	Power train control module time-out (related to engine)	
	012	Power train control module time-out (related to A/T)	
	013	A/C-ECU time-out	
	014	Combination meter time-out	
	019	ETACS-ECU time-out	
	020	Failure information on power train control module (related to engine)	Diagnose CAN main bus lines and confirm input signals.
	021	Failure information on combination meter	
	022	Failure information on A/C-ECU	

OUTPUT ECU	CODE NO.	DIAGNOSTIC ITEM	ACTION
ETACS-ECU	010	Bus Off	CAN main bus line diagnostics
	011	Power train control module time-out (related to engine)	
	012	Power train control module time-out (related to A/T)	
	013	A/C-ECU time-out	
	014	Combination meter time-out	
	015	Multi-center display unit (middle-grade type) time-out	
	021	Failure information on combination meter	Diagnose CAN main bus lines and confirm input signals.
A/C-ECU	U1073	Bus Off	CAN main bus line diagnostics
	U1100	Powertrain control module time-out (related to engine)	
	U1111	Multi-center display unit (middle-grade type) time-out	
	U1120	Failure information on powertrain control module (related to engine)	Diagnose CAN main bus lines and confirm input signals.
SRS-ECU	U1073	Bus Off	CAN main bus line diagnostics