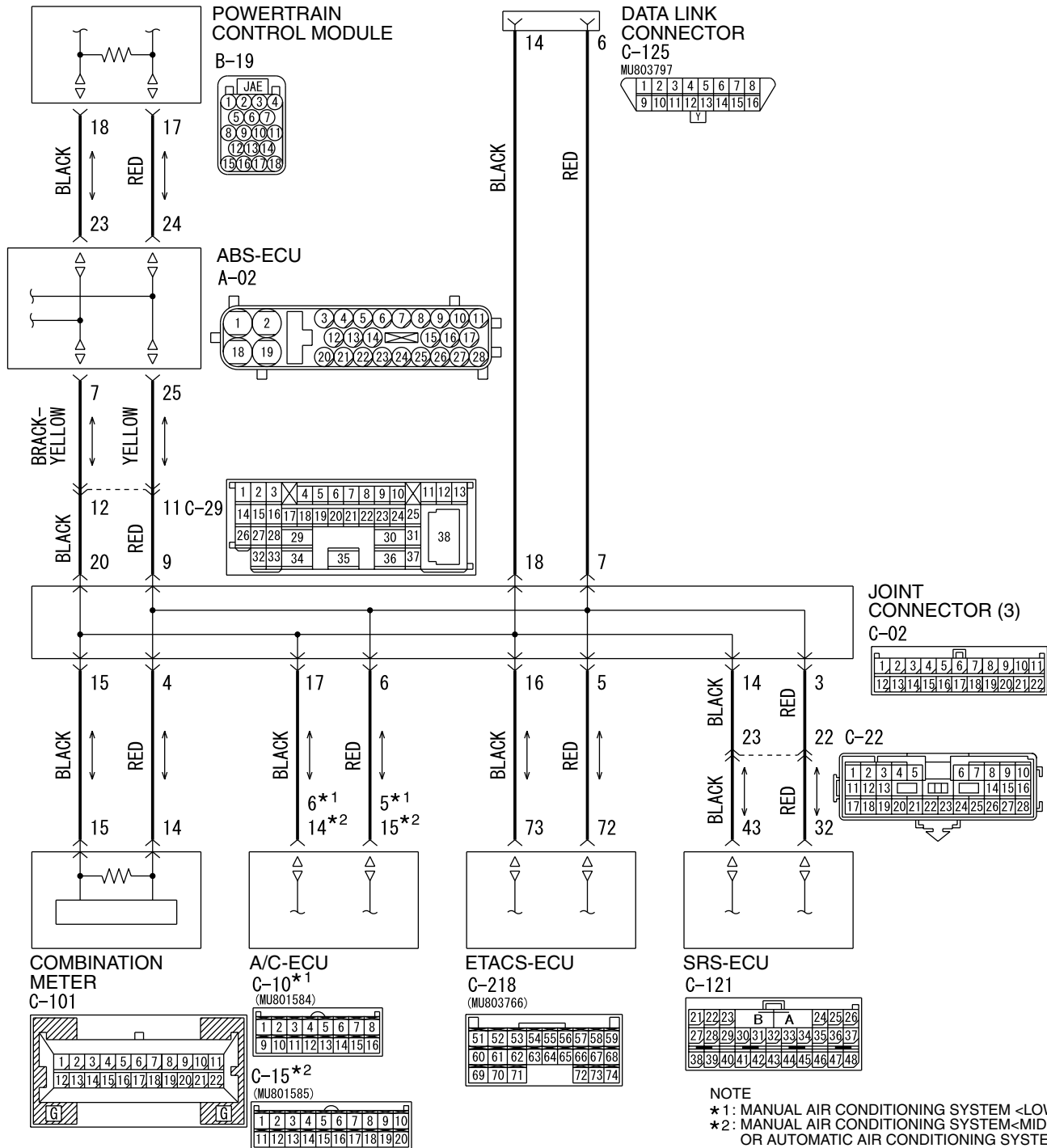


DIAGNOSTIC ITEM 5: Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>

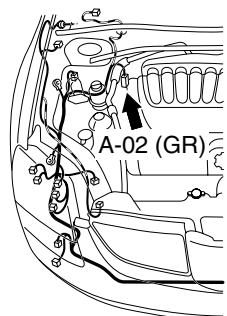
CAUTION

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

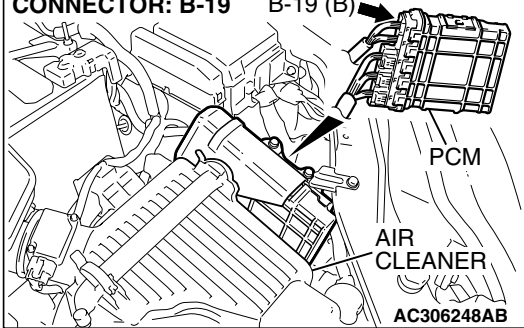
CONNECTOR: A-02



AC305206AR

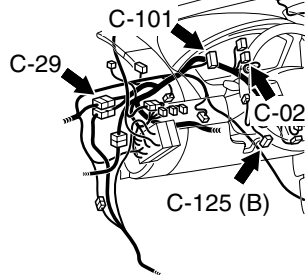
CONNECTOR: B-19

B-19 (B)



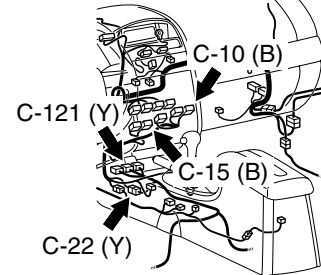
AC306248AB

CONNECTORS: C-02, C-29, C-101, C-125



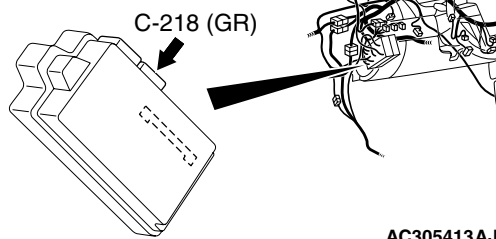
AC305231BZ

CONNECTORS: C-10, C-15, C-22, C-121



AC305233AU

CONNECTOR: C-218
JUNCTION BLOCK
(REAR VIEW)



AC305413AJ

TROUBLE JUDGMENT

A short to ground may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is less than 1.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

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 damaged 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
- MB991970: ABS Check Harness

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

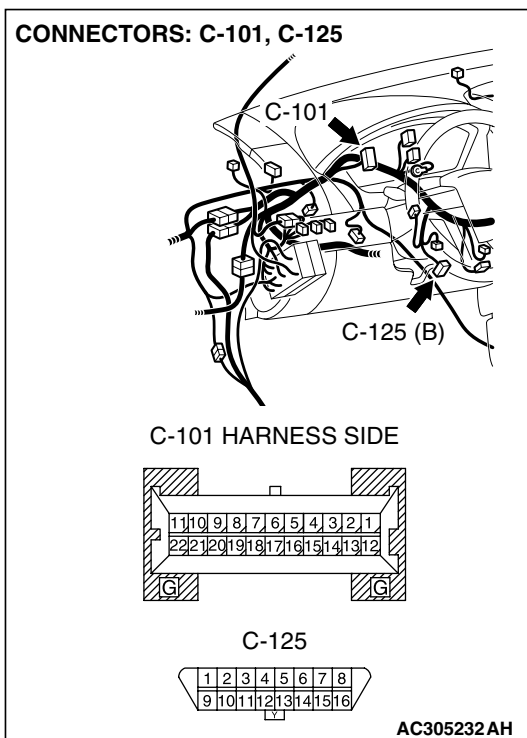
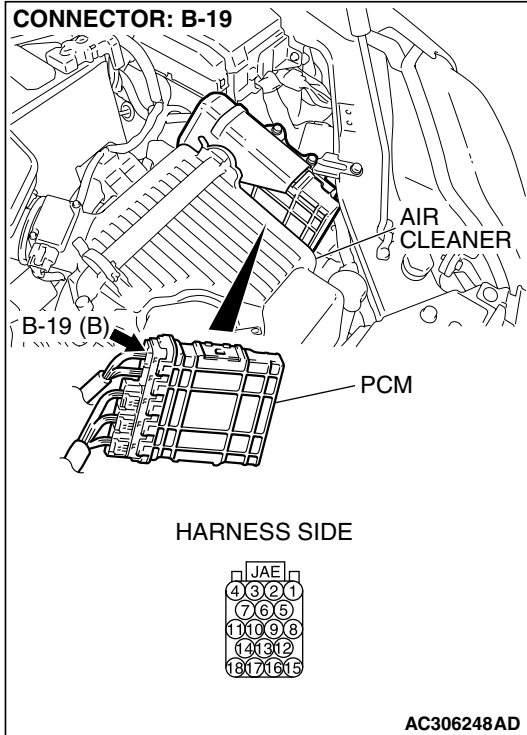
⚠ CAUTION

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: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

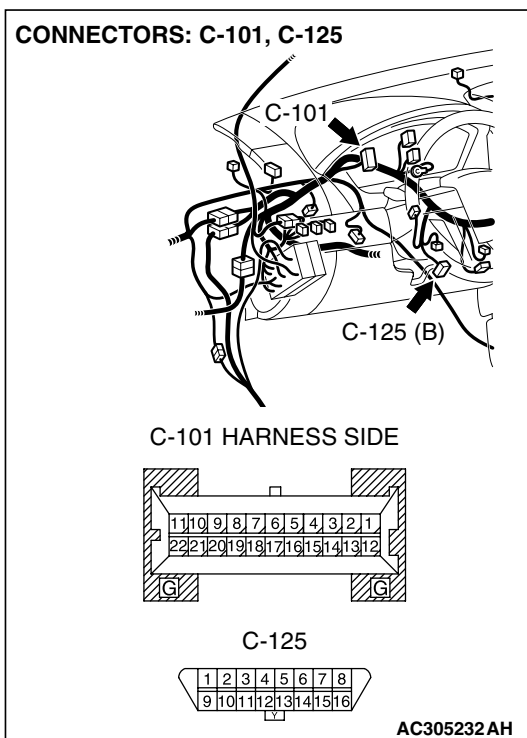
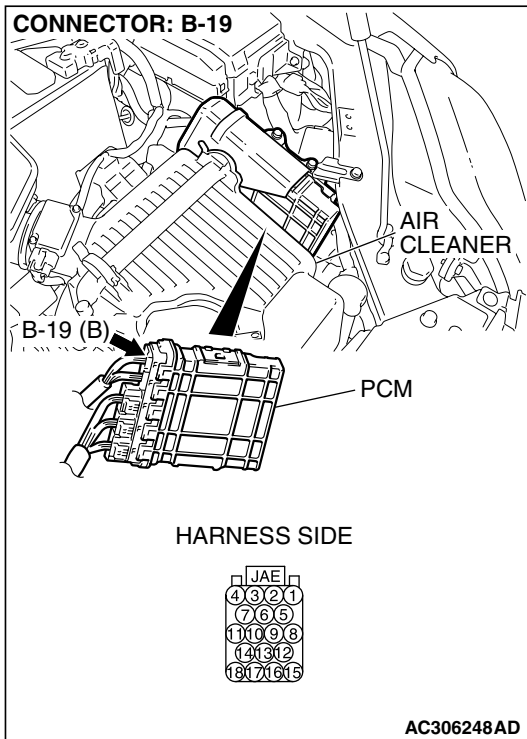
The test wiring harness should be used. For details refer to [P.54C-4](#).

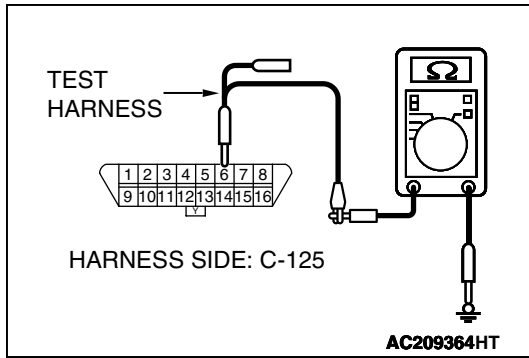
- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





(4) Measure the resistance between data link connector terminal 6 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 3

NO : If the resistance measures less than 1 k Ω , go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

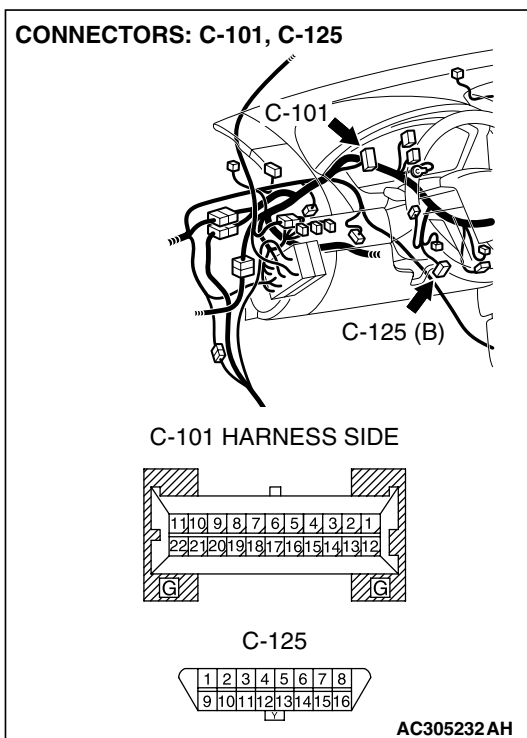
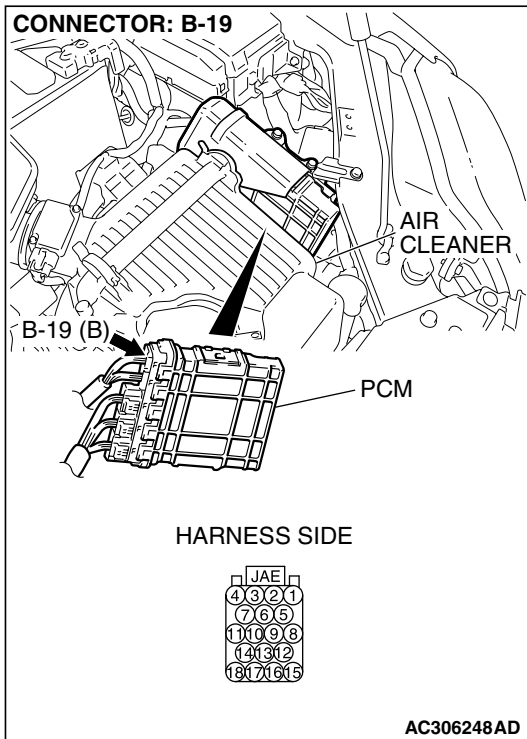
The test wiring harness should be used. For details refer to [P.54C-4](#).

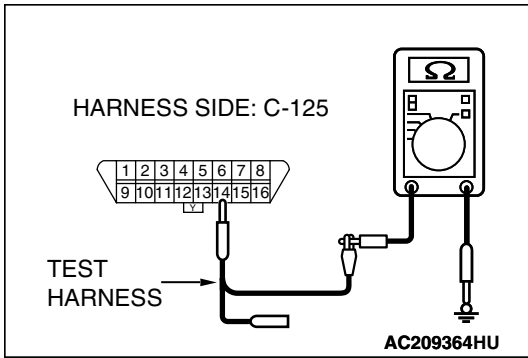
- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





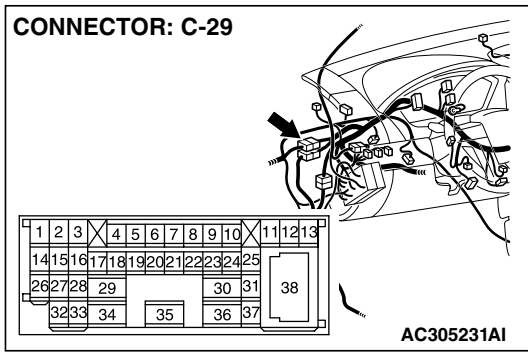
(4) Measure the resistance between data link connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 kΩ, go to Step 27.



STEP 4. 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 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

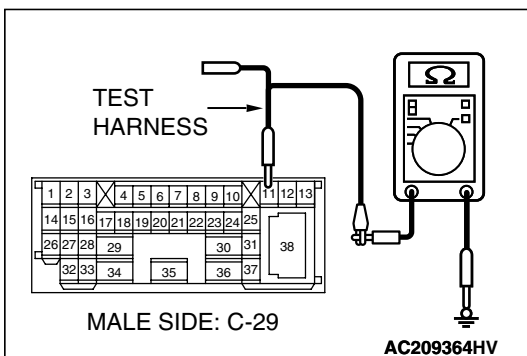
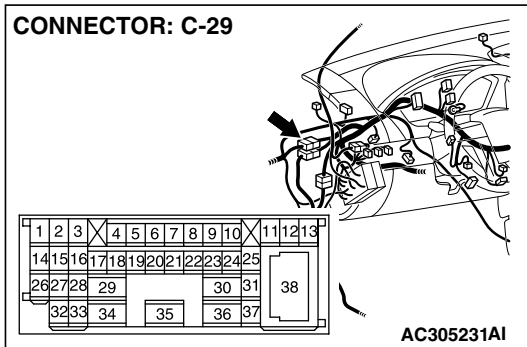
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 terminal 11 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

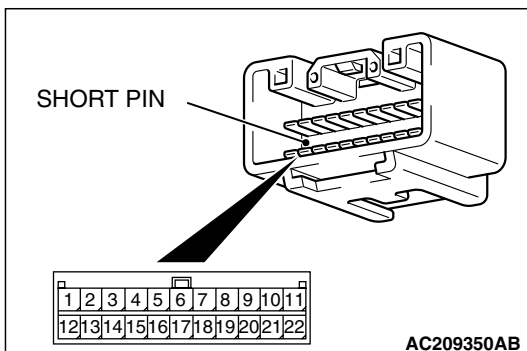
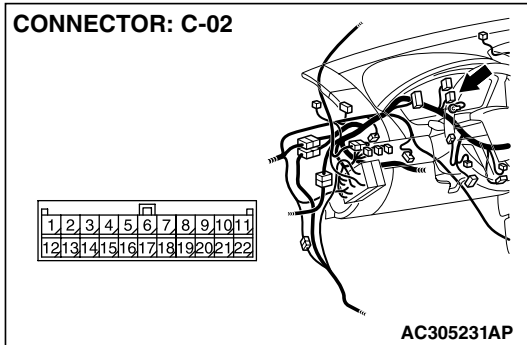
YES : If the resistance measures 1 kΩ or more, go to Step 6

NO : If the resistance measures less than 1 kΩ, go to Step 23.

STEP 6. 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 7.

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

STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. 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.

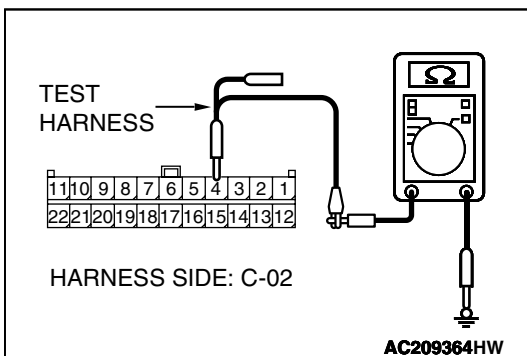
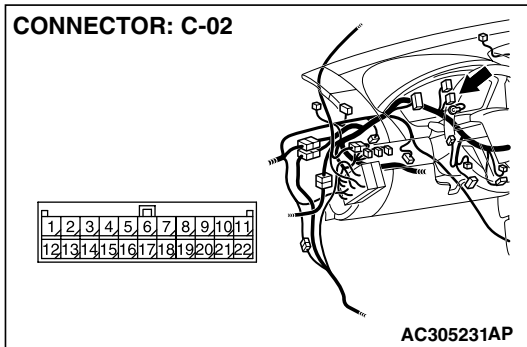
- (4) Measure the resistance between joint connector (3) terminal 4 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 9

NO : If the resistance measures less than 1 kΩ, go to Step 8.



STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

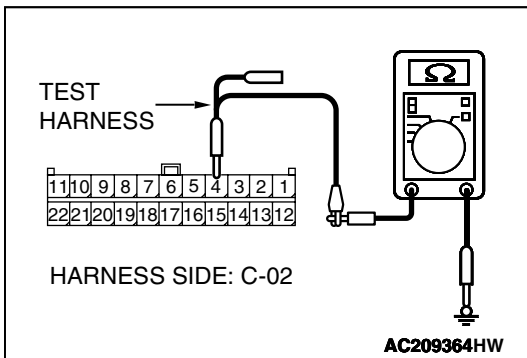
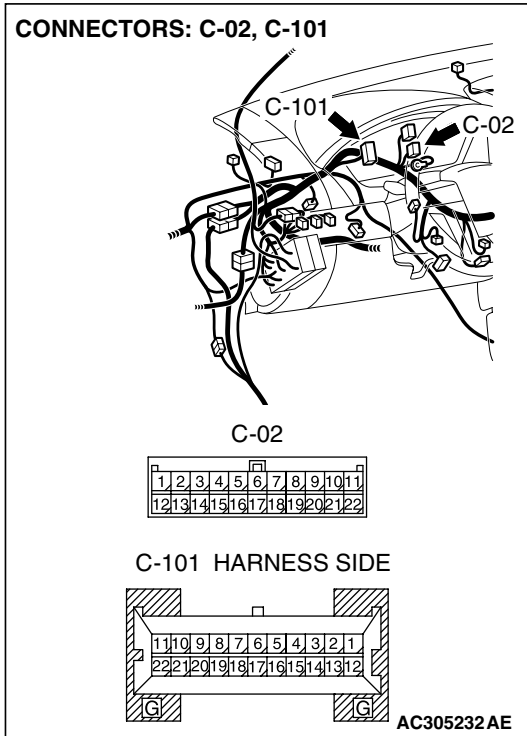
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, 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) terminal 4 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. 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.

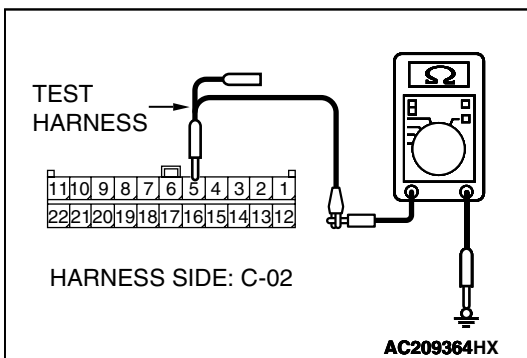
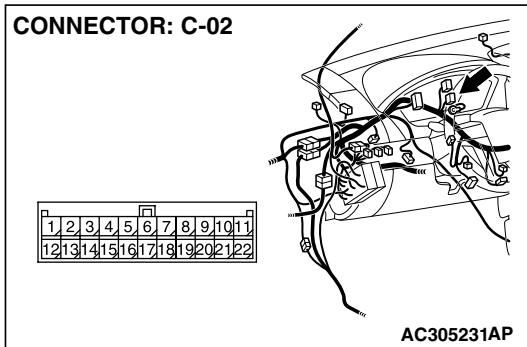
- (4) Measure the resistance between joint connector (3) terminal 5 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .

NO : If the resistance measures less than 1 kΩ, go to Step 10.



STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

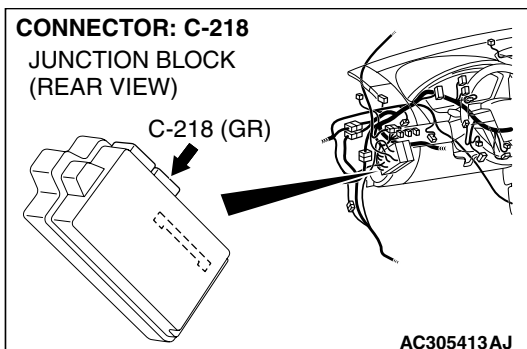
⚠ CAUTION

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 11.

NO : Repair the damaged parts.



STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

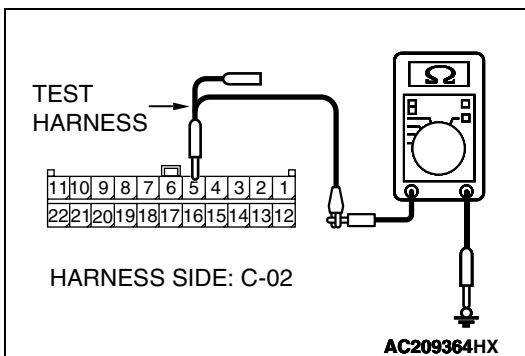
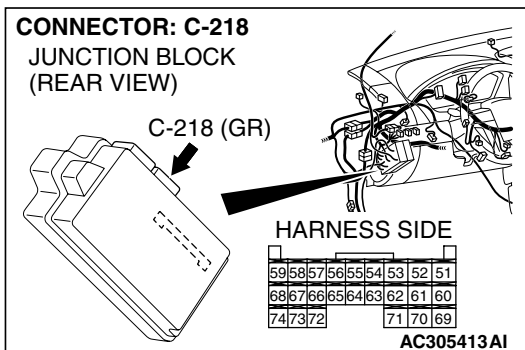
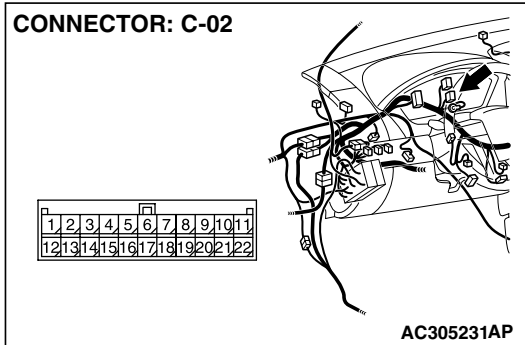
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, 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) terminal 5 and body ground.

OK: 1 k Ω or more

⚠ CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. 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.

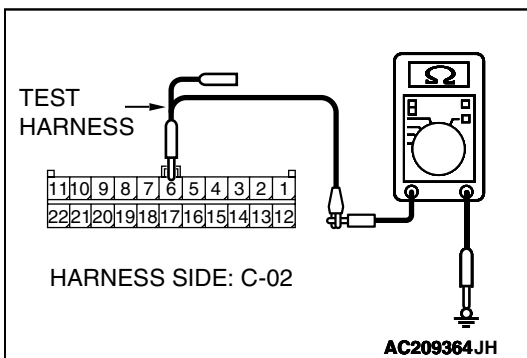
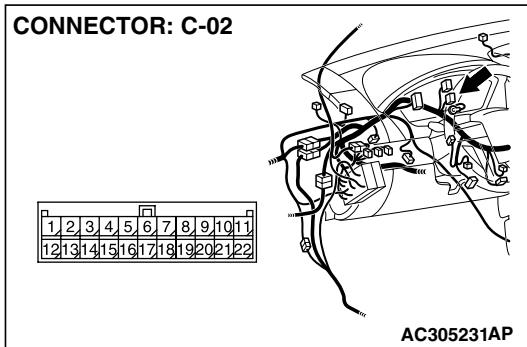
(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.



STEP 13. 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.

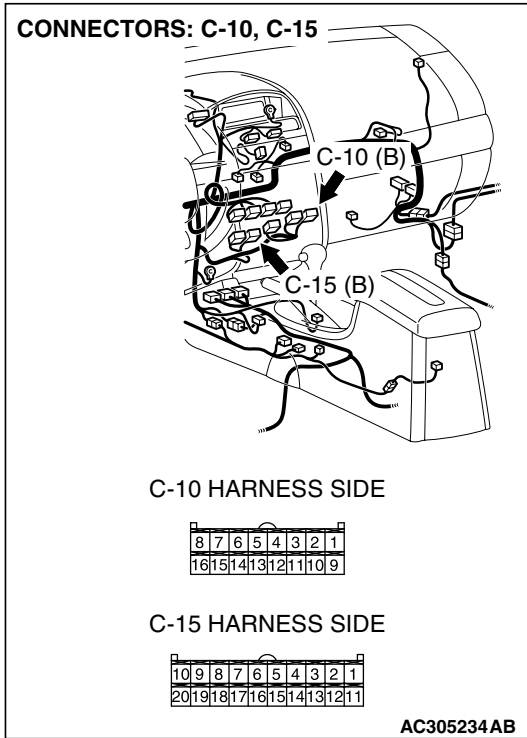
⚠ CAUTION

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 14.

NO : Repair the damaged parts.



STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

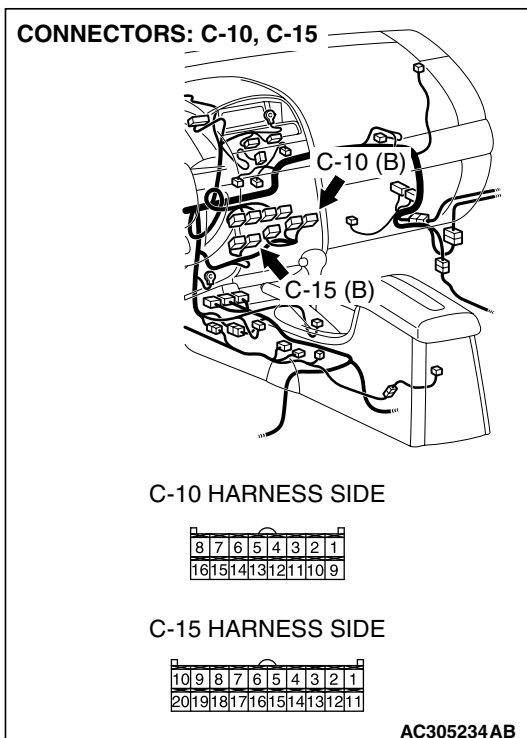
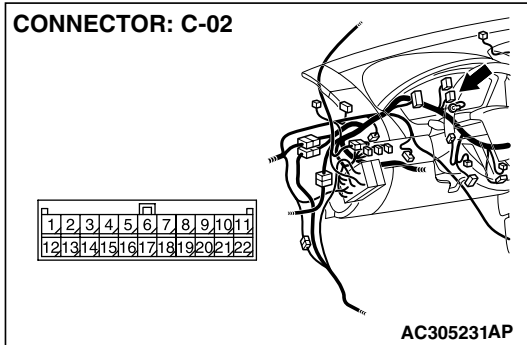
The test wiring harness should be used. For details refer to [P.54C-4](#).

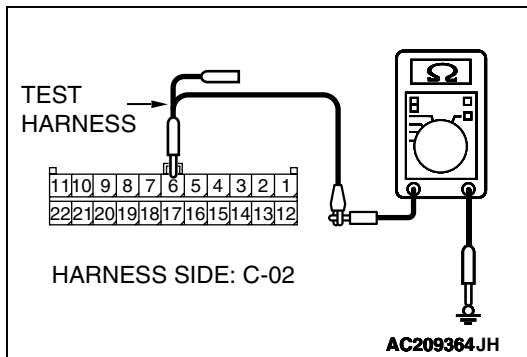
- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition 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) terminal 6 and body ground.

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. 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](#).

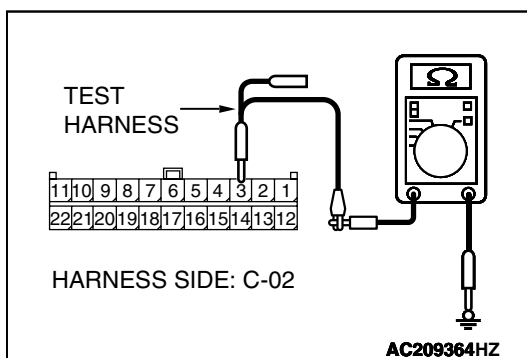
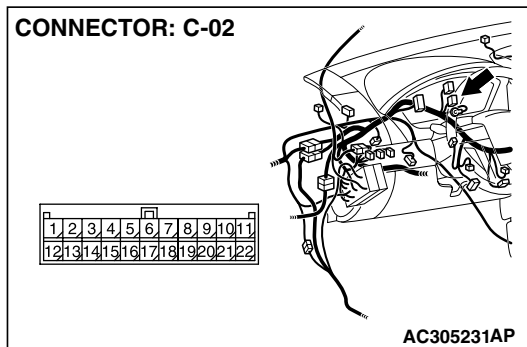
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (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.



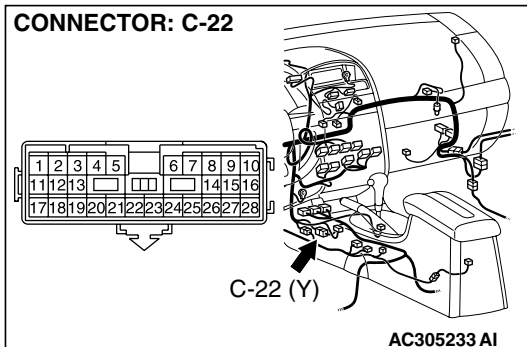
- (4) Measure the resistance between joint connector (3) terminals 3 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 21 .

NO : If the resistance measures less than 1 k Ω , go to Step 16.



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_H-side bus line (communication line including ECUs) of the floor wiring harness for short to ground. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

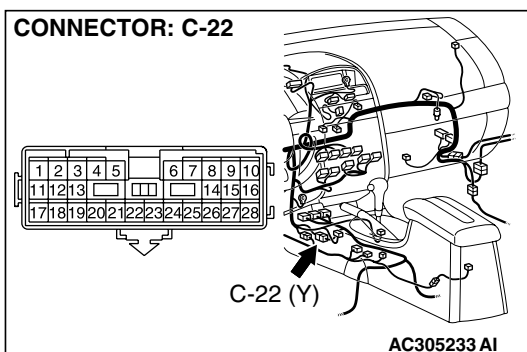
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor 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.



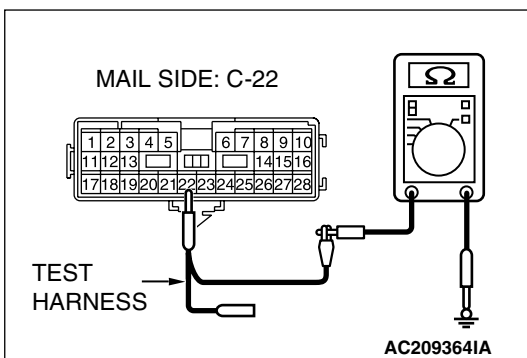
- (4) Measure the resistance between intermediate connector terminal 22 and body ground.

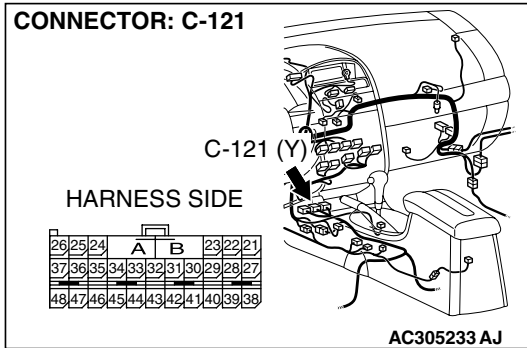
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 20.

NO : If the resistance measures less than 1 kΩ, go to Step 18.





STEP 18. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

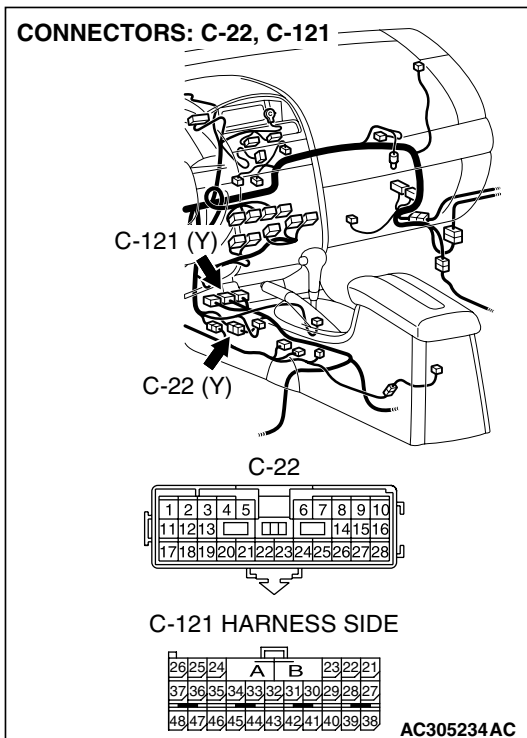
CAUTION

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 19.

NO : Repair the damaged parts.



STEP 19. Check the CAN_ H line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-22.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

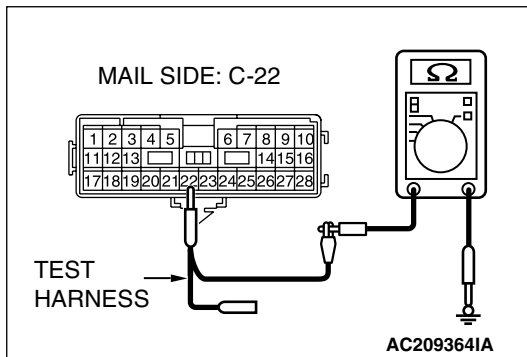
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor 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 22 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and SRS-ECU connector.

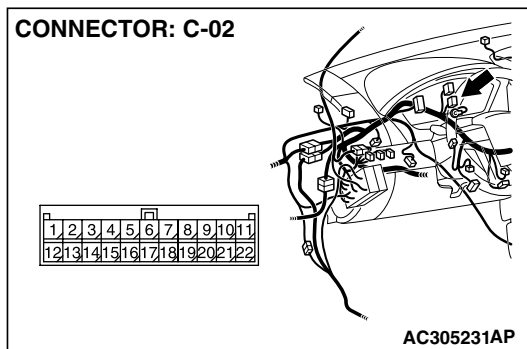
STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ 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](#).

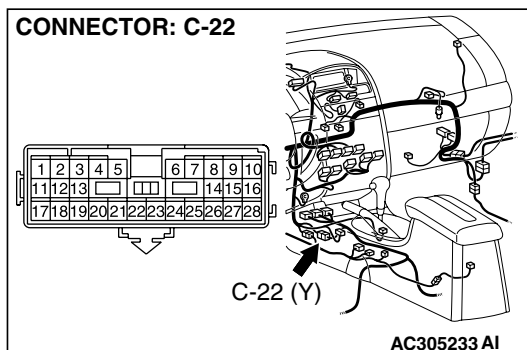


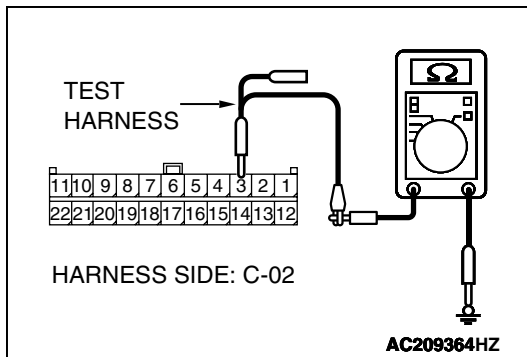
- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 3 and body ground.

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

- YES** : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).
- NO** : If the resistance measures less than 1 k Ω , repair the wiring harness between intermediate connector C-22 and joint connector (3).

STEP 21. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for short to ground. 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](#).

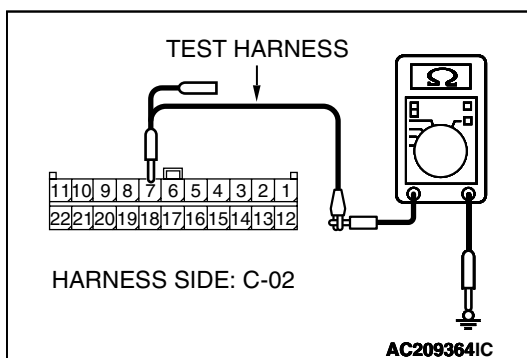
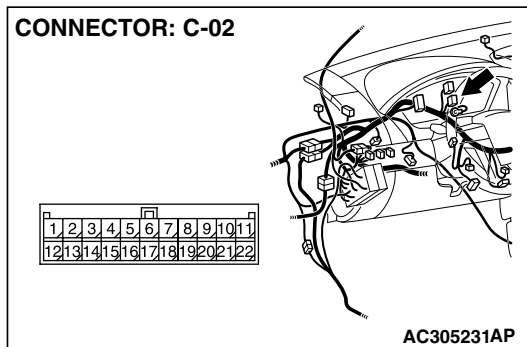
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (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) terminal 7 and body ground.

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

- YES** : If the resistance measures 1 k Ω or more, go to Step 22 .
- NO** : If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the data link connector.

STEP 22. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

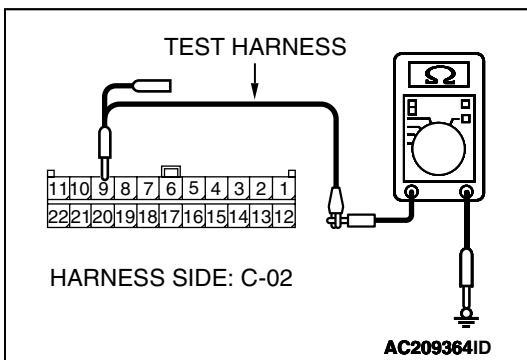
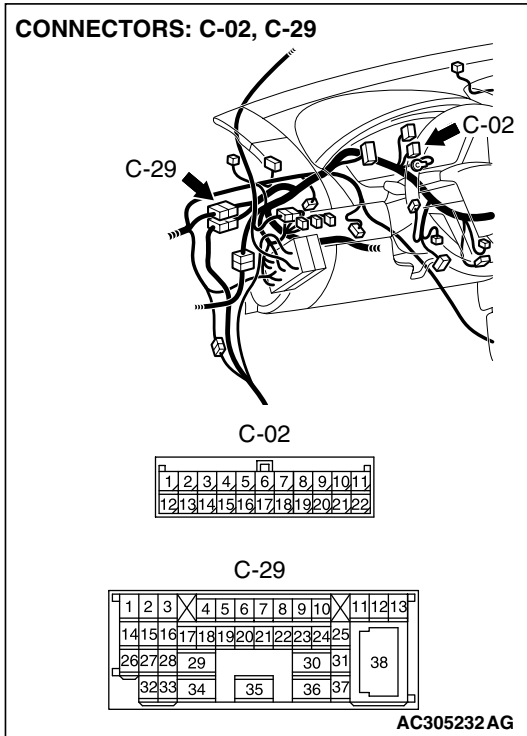
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and 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) terminal 9 and body ground.

OK: 1 kΩ or more

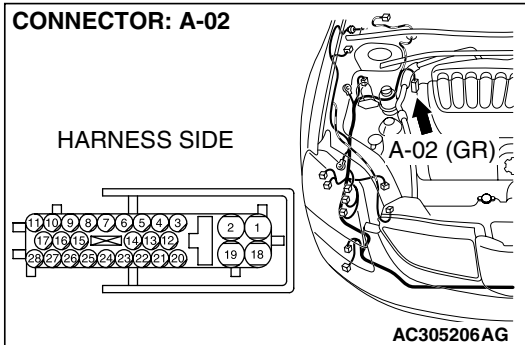
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 23. Check 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: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 24.

NO : Repair the damaged parts.

STEP 24. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for short to ground. 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](#).

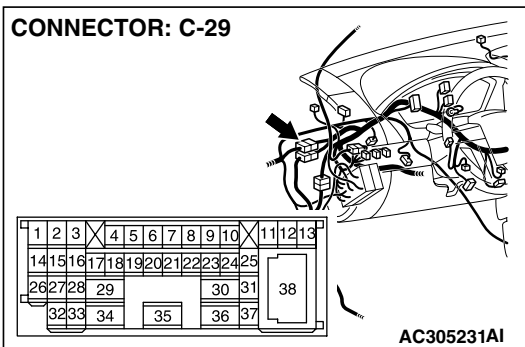
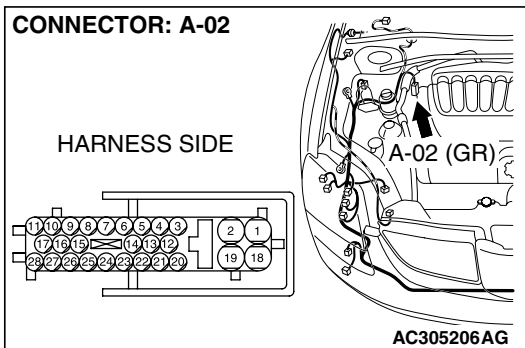
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

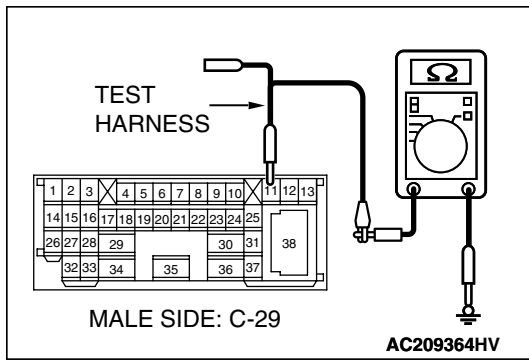
(2) Turn the ignition switch to the "LOCK" (OFF) position.

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 body ground.

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 25 .

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 25. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at 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](#).

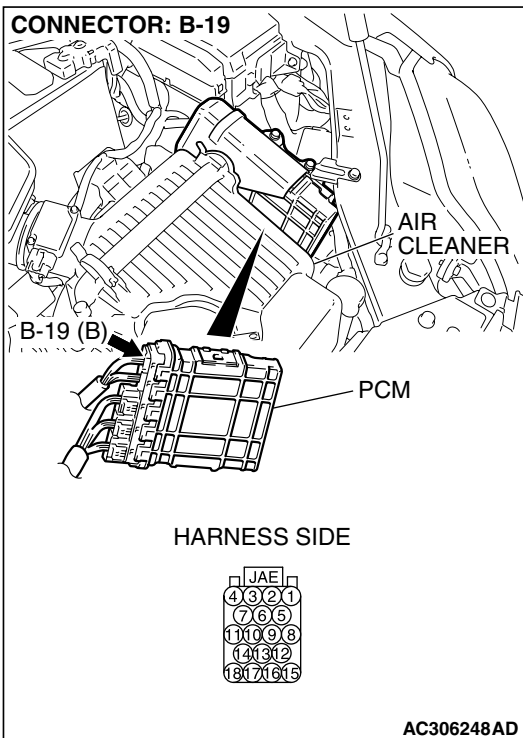
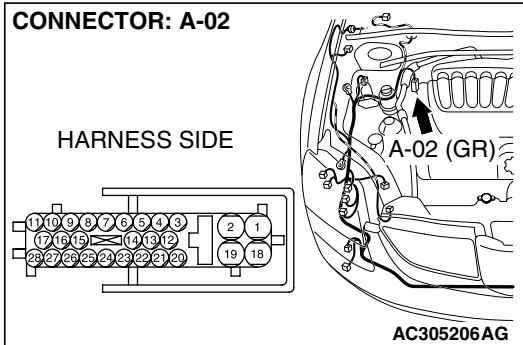
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

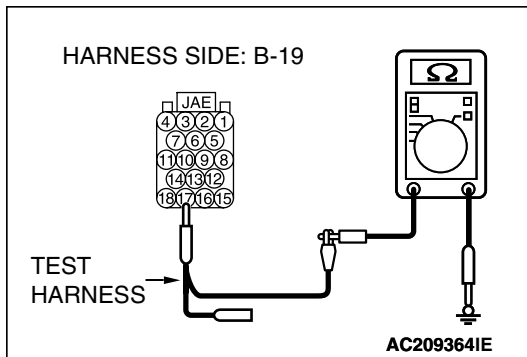
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between powertrain control module connector terminal 17 and body ground.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 26 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 26. Check the CAN_H line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

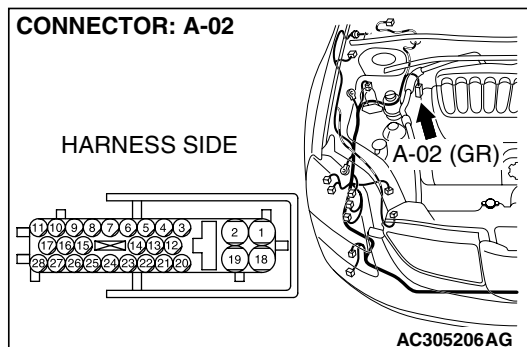
CAUTION

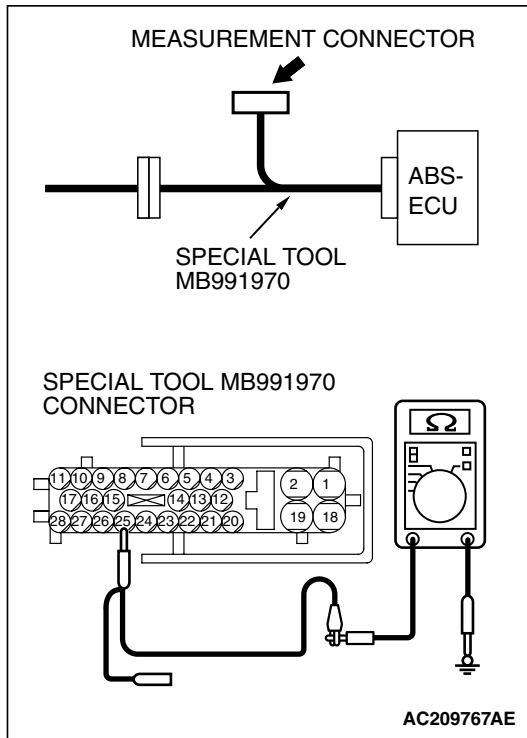
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

(1) Disconnect ABS-ECU connector A-02.





- (2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

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

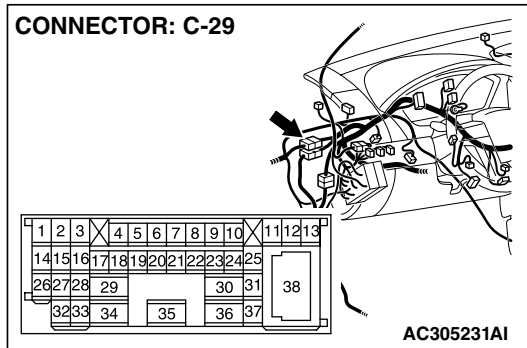
- (4) Disconnect the negative battery terminal.
- (5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to P.54C-486.

NO : If the resistance measures less than 1 k Ω , replace the ABS-ECU.



STEP 27. 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 28.

NO : Repair the damaged parts.

STEP 28. Check the CAN_L-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

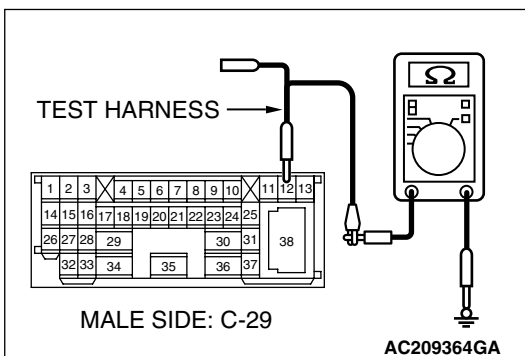
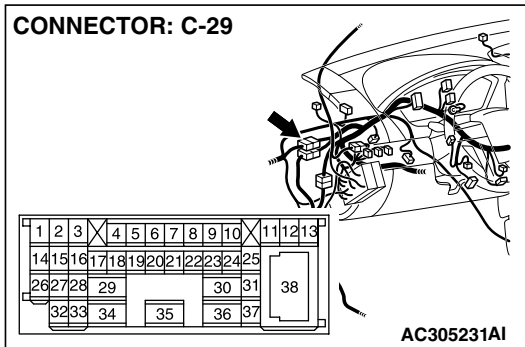
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 terminal 12 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

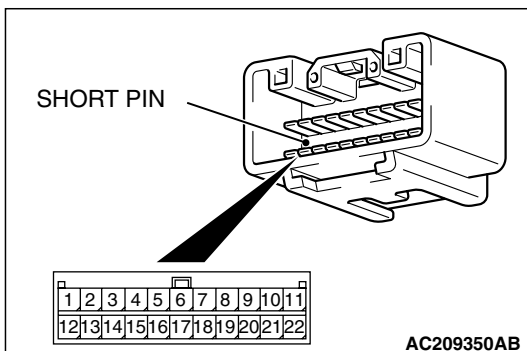
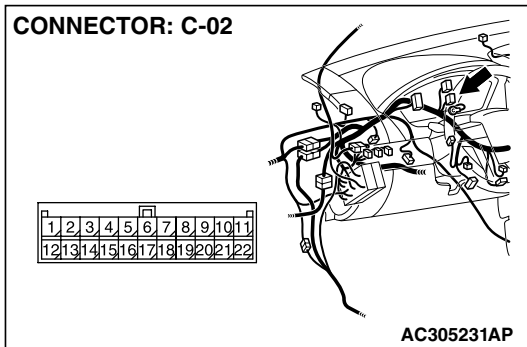
YES : If the resistance measures 1 kΩ or more, go to Step 29 .

NO : If the resistance measures less than 1 kΩ, go to Step 46.

STEP 29. 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 30.

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

STEP 30. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for short to ground. 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.

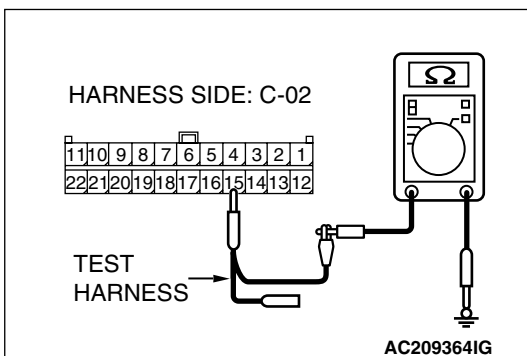
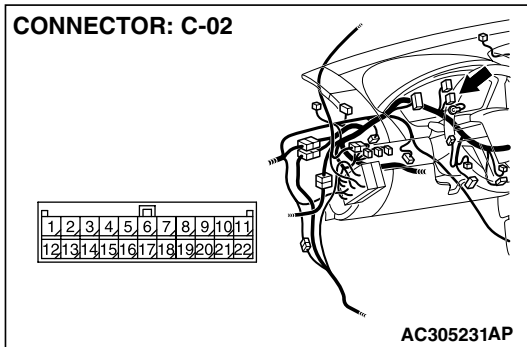
- (4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 32 .

NO : If the resistance measures less than 1 kΩ, go to Step 31.



STEP 31. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

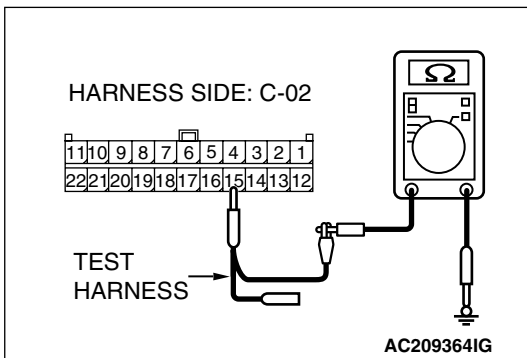
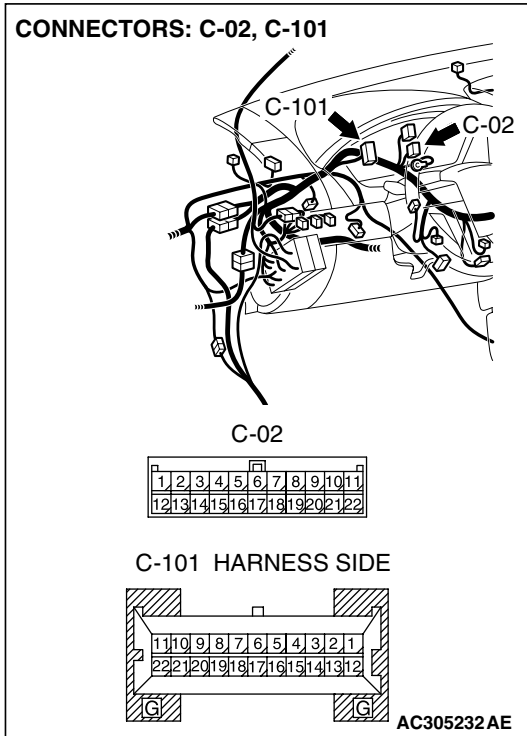
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, 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) terminal 15 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 32. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. 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.

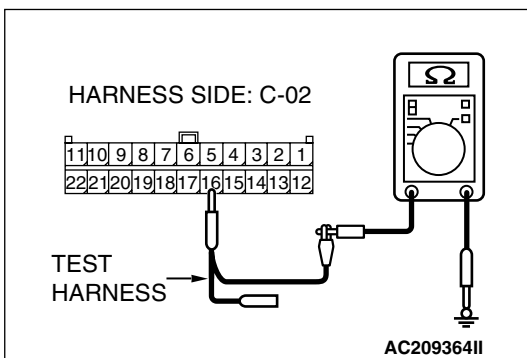
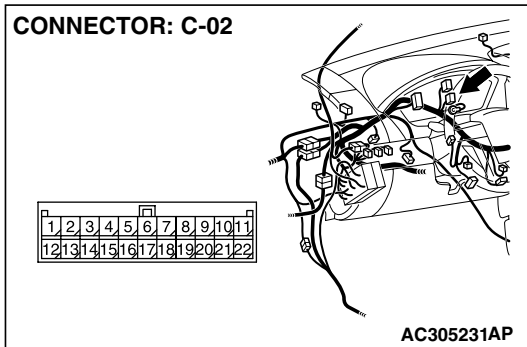
- (4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 35 .

NO : If the resistance measures less than 1 kΩ, go to Step 33.



STEP 33. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

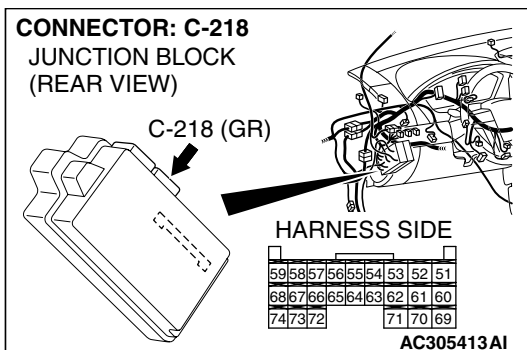
CAUTION

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 34.

NO : Repair the damaged parts.



STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

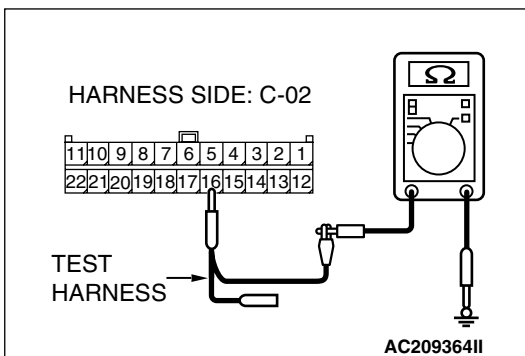
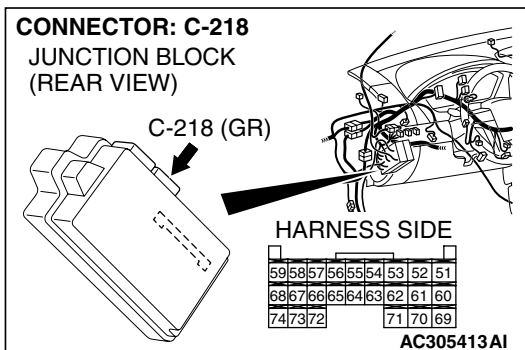
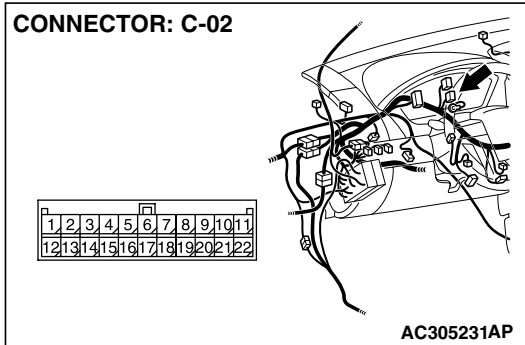
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, 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) terminal 16 and body ground.

OK: 1 k Ω or more

⚠ CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 35. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. 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.

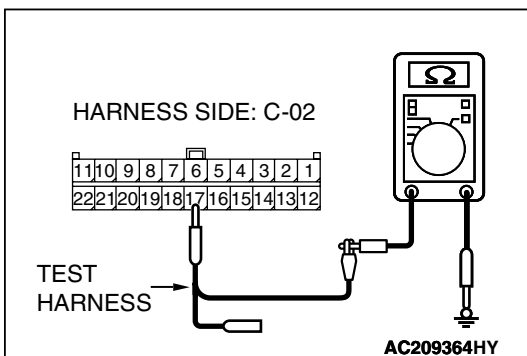
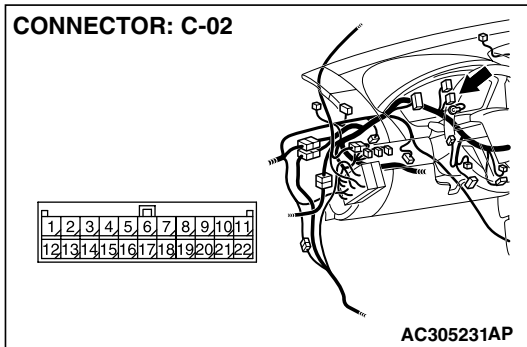
(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 38 .

NO : If the resistance measures less than 1 kΩ, go to Step 36.



STEP 36. 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.

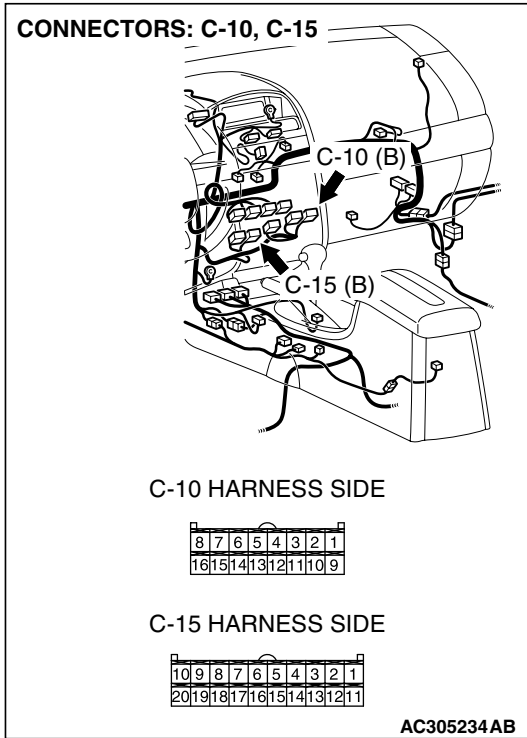
⚠ CAUTION

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 37.

NO : Repair the damaged parts.



STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

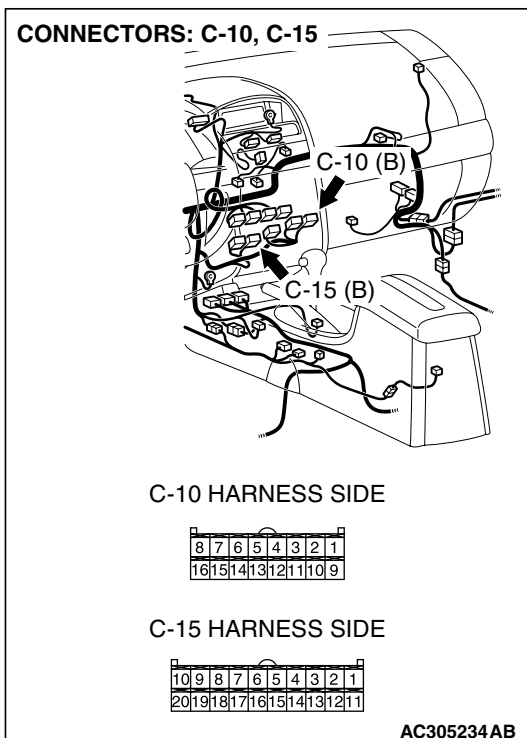
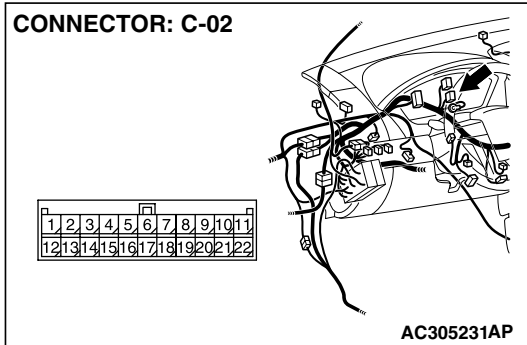
The test wiring harness should be used. For details refer to **P.54C-4**.

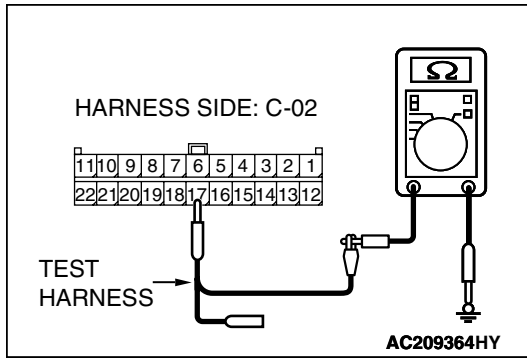
- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition 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) terminal 17 and body ground.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 38. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. 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](#).

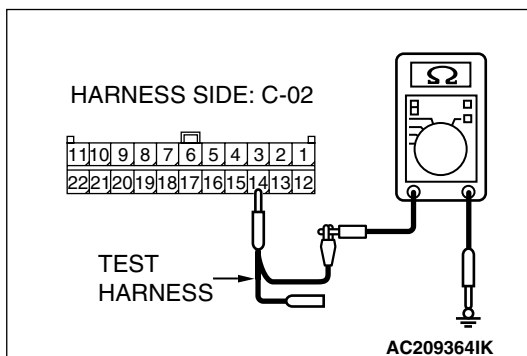
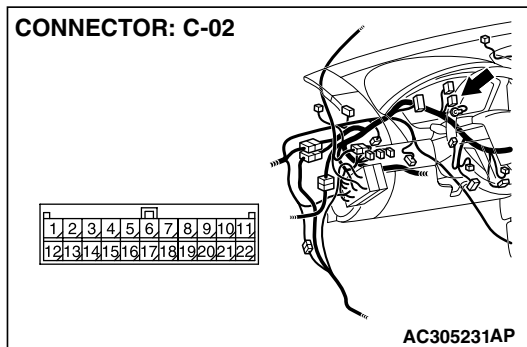
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (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.



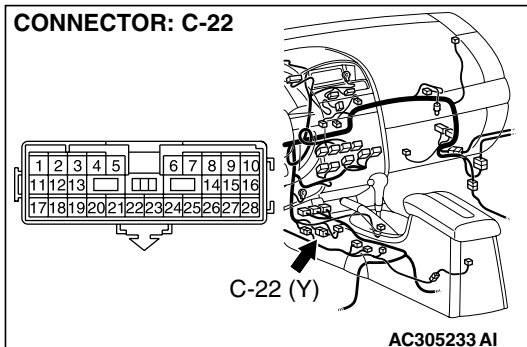
- (4) Measure the resistance between joint connector (3) terminals 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 44 .

NO : If the resistance measures less than 1 kΩ, go to Step 39.



STEP 39. 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 40.

NO : Repair the damaged parts.

STEP 40. Check the CAN_L-side bus line (communication line including ECUs) of the floor wiring harness for short to ground. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

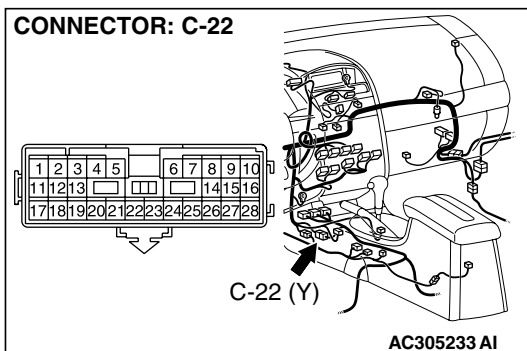
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor 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.



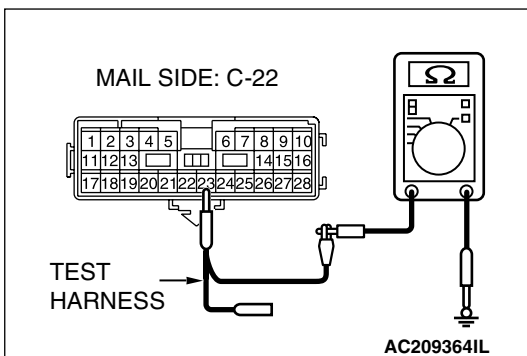
- (4) Measure the resistance between intermediate connector terminal 23 and body ground.

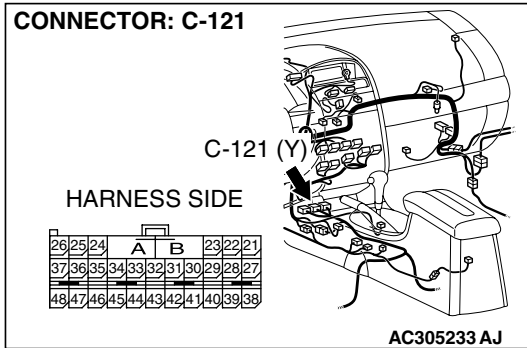
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 43 .

NO : If the resistance does not measure 1 kΩ or more, go to Step 41.





STEP 41. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

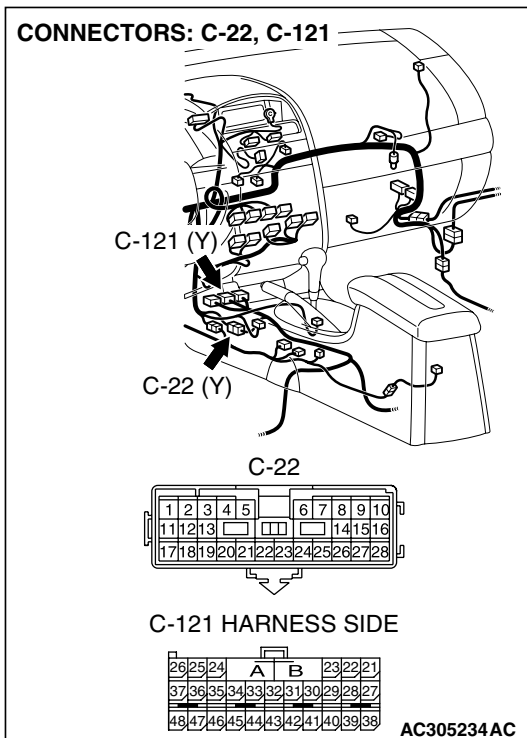
CAUTION

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 42.

NO : Repair the damaged parts.



STEP 42. Check the CAN_L line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at 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](#).

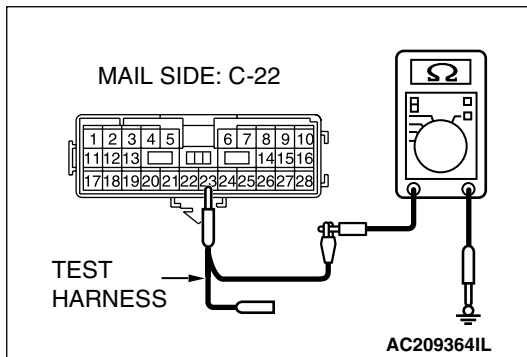
(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor wiring harness side).

(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 23 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and SRS-ECU connector.

STEP 43. Check the CAN_L line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

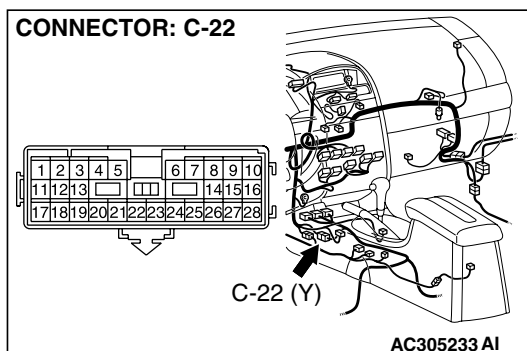
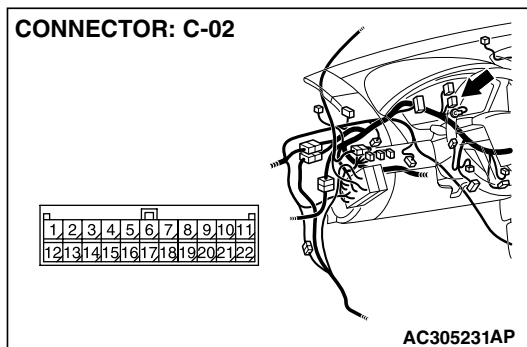
The test wiring harness should be used. For details refer to [P.54C-4](#).

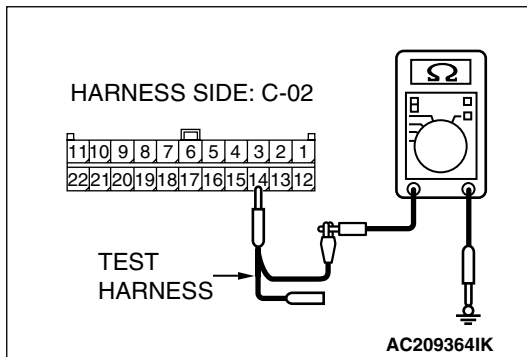
- (1) Disconnect intermediate connector C-22 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 14 and body ground.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

- YES** : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).
- NO** : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and joint connector (3).

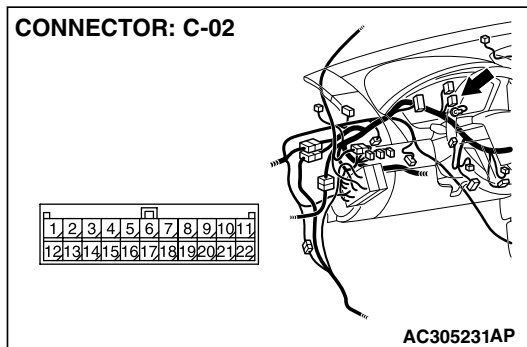
STEP 44. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

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](#).



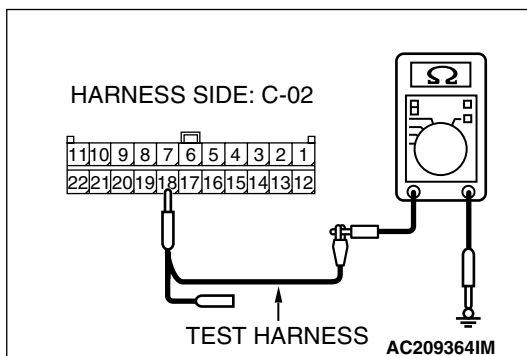
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

- (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) terminal 18 and body ground.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

- YES** : If the resistance measures 1 kΩ or more, go to Step 45 .
- NO** : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 45. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

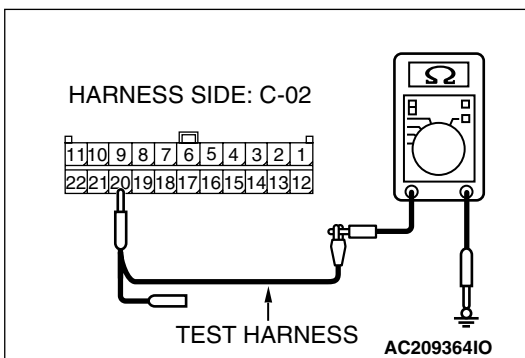
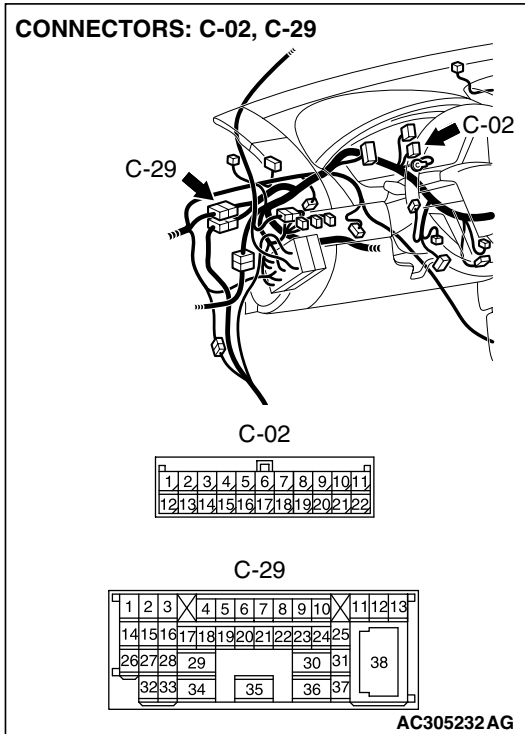
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and 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) terminal 20 and body ground.

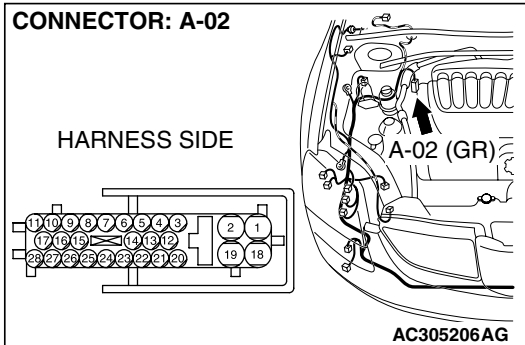
OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 46. Check 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: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 47.

NO : Repair the damaged parts.

STEP 47. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for short to ground. 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](#).

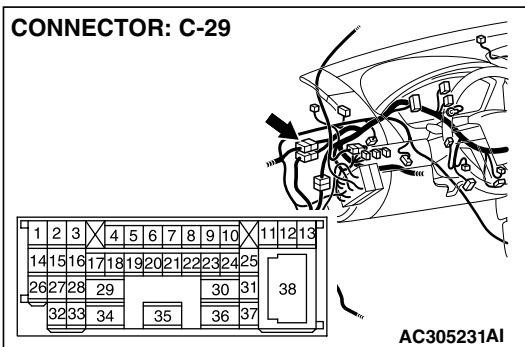
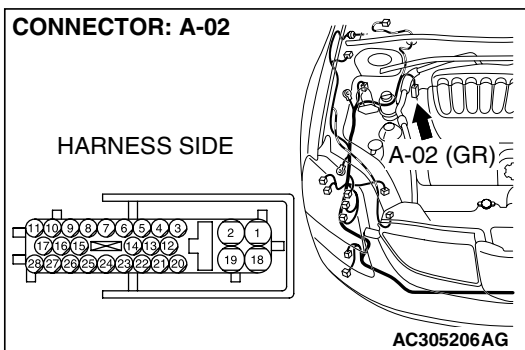
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

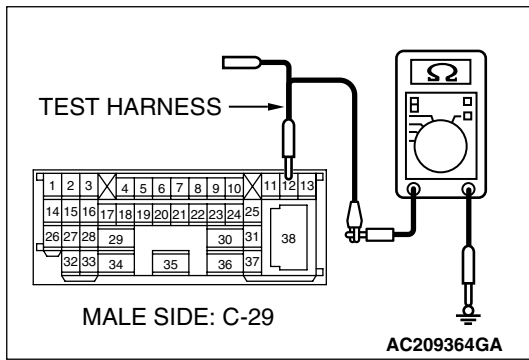
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 12 and body ground.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 48 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 48. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at 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](#).

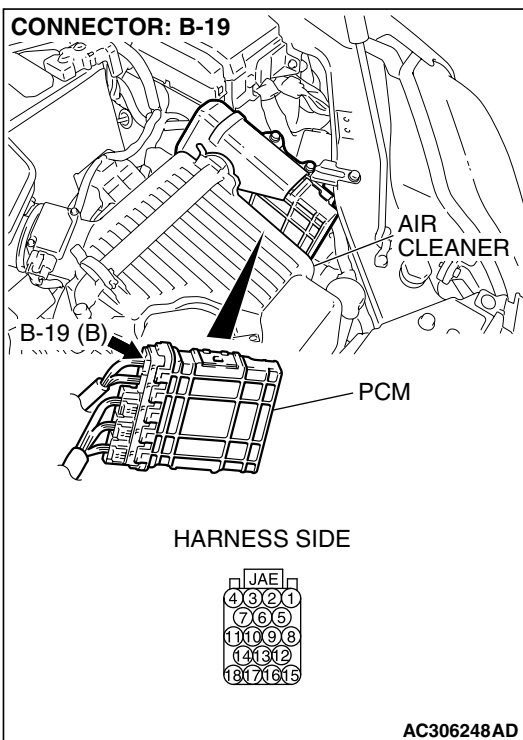
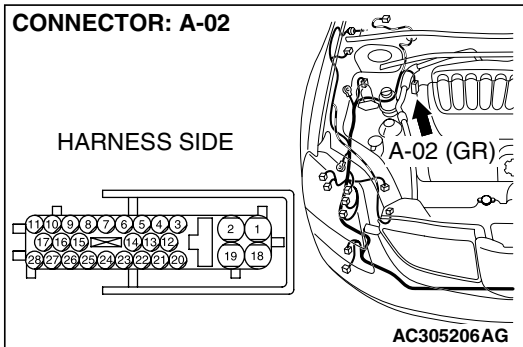
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

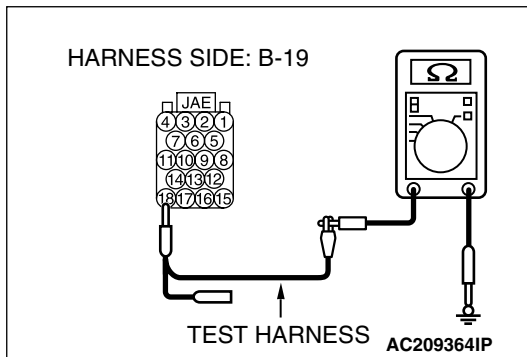
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between powertrain control module connector terminal 18 and body ground.

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 49 .

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 49. Check the CAN_L line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

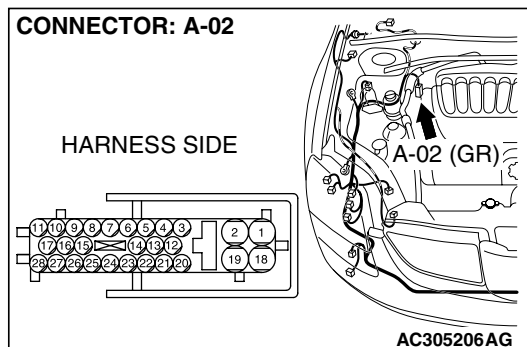
CAUTION

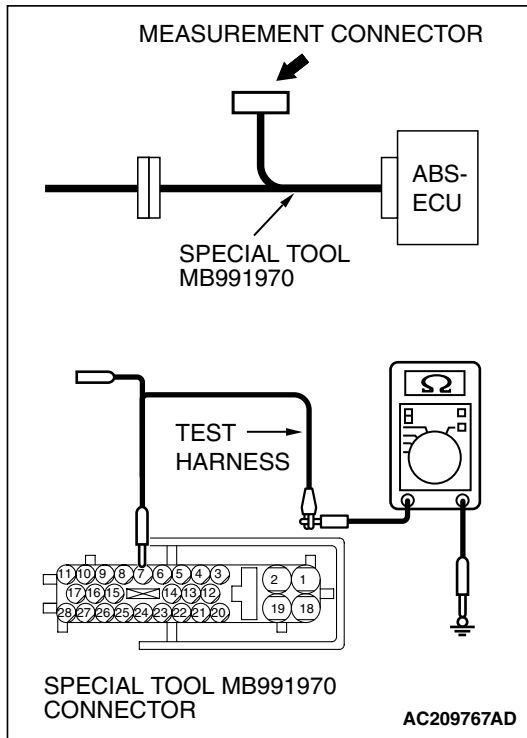
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

(1) Disconnect ABS-ECU connector A-02.





- (2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

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

- (4) Disconnect the negative battery terminal.
- (5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 7 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

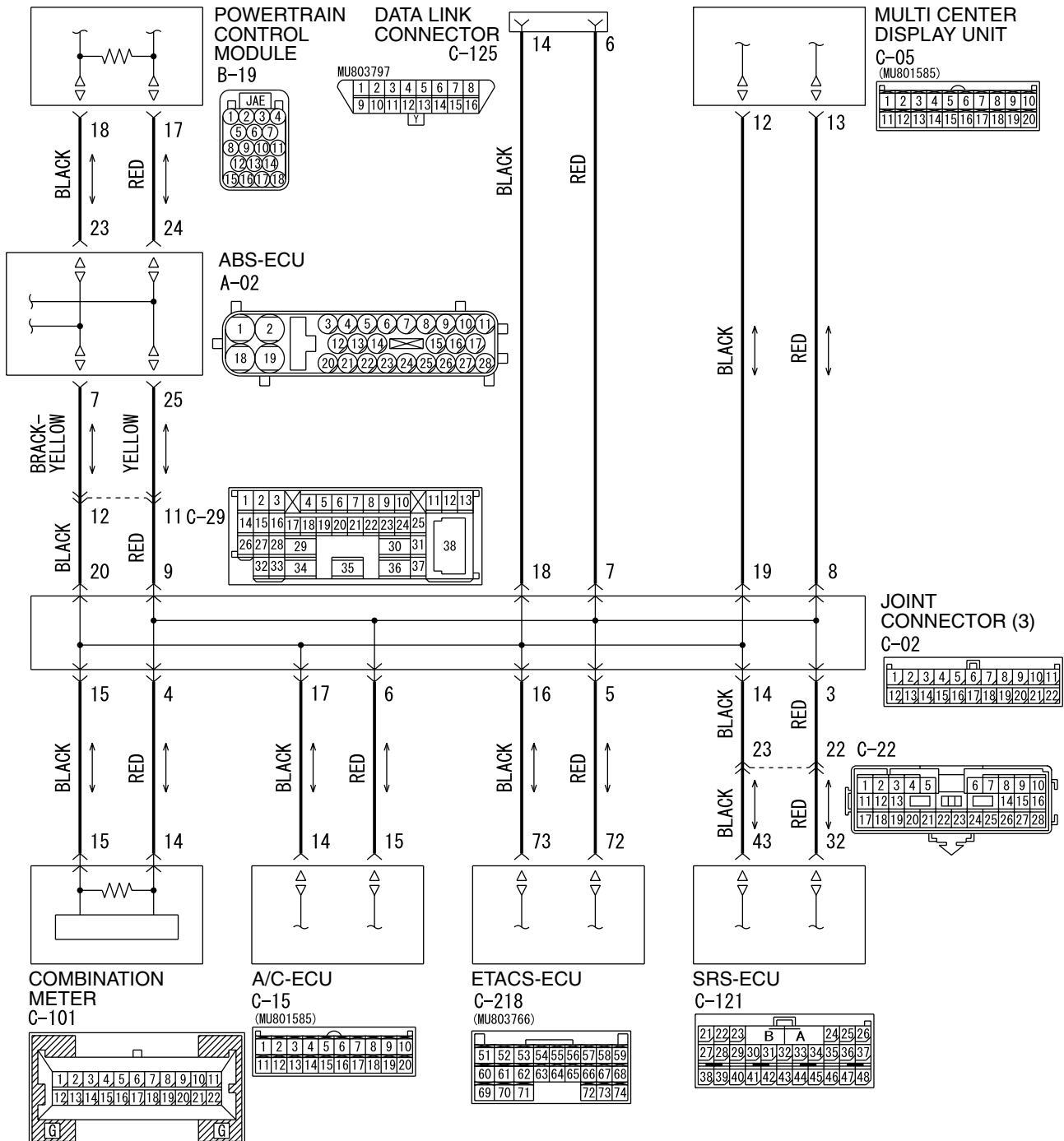
YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to P.54C-486.

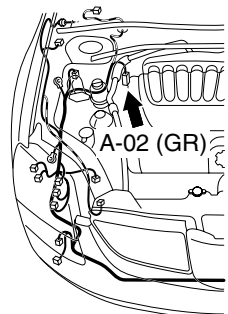
NO : If the resistance measures less than 1 k Ω , replace the ABS-ECU.

DIAGNOSTIC ITEM 6: Diagnose shorts in the ground to CAN bus line <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>

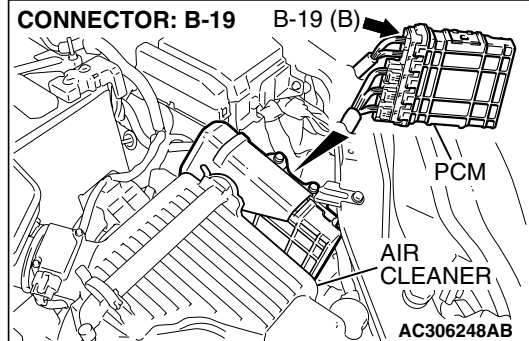
CAUTION

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.

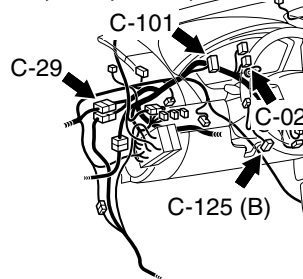


CONNECTOR: A-02

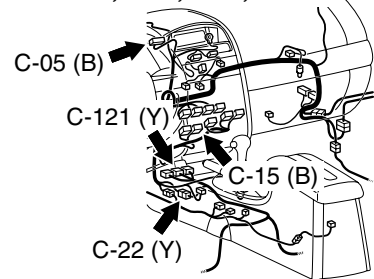
AC305206AR

CONNECTOR: B-19

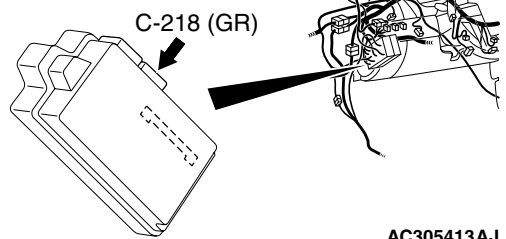
AC306248AB

CONNECTORS: C-02, C-29, C-101, C-125

AC305231BZ

CONNECTORS: C-05, C-15, C-22, C-121

AC305233AV

CONNECTOR: C-218
JUNCTION BLOCK
(REAR VIEW)

AC305413AJ

TROUBLE JUDGMENT

A short to ground may be present when the voltage between the CAN bus line (CAN_L or CAN_H) and body ground is less than 1.0 V. In this condition, an abnormal voltage may be measured at CAN_L and CAN_H lines.

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 damaged 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 multi-center display unit (middle-grade type) 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
- MB991970: ABS Check Harness

STEP 1. Check powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

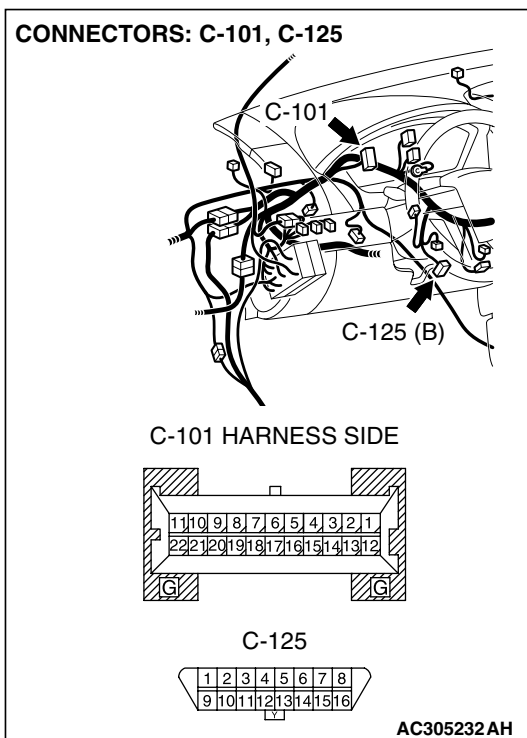
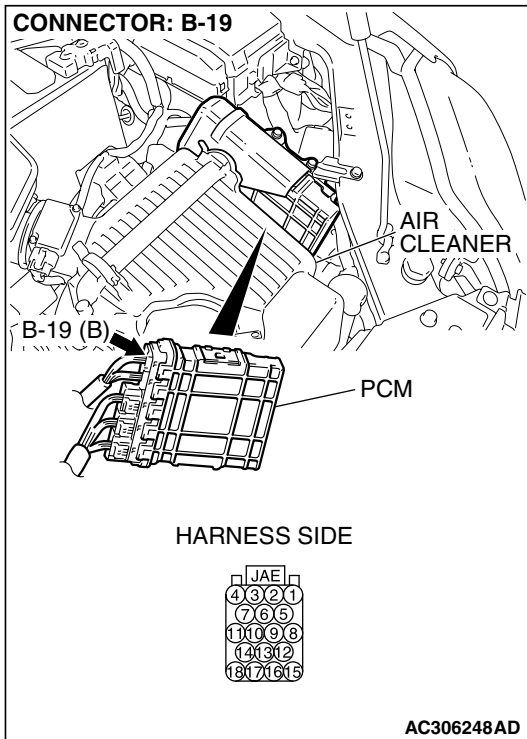
⚠ CAUTION

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: Are powertrain control module connector B-19, combination meter connector C-101 and data link connector C-125 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.



STEP 2. Check the CAN_H-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

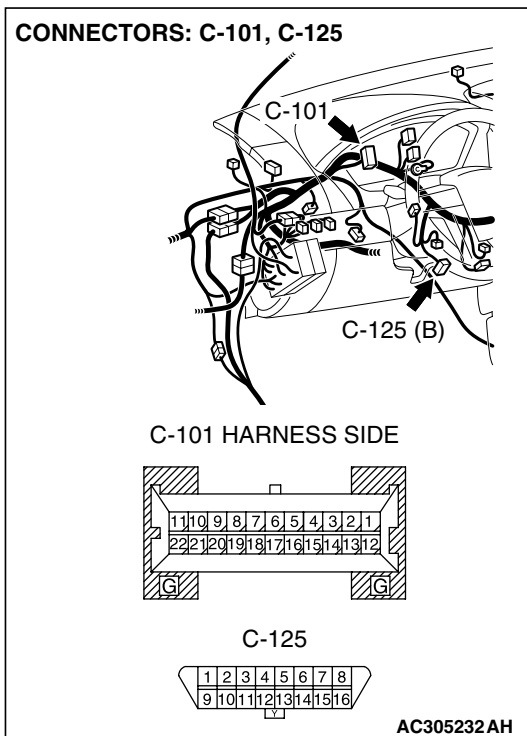
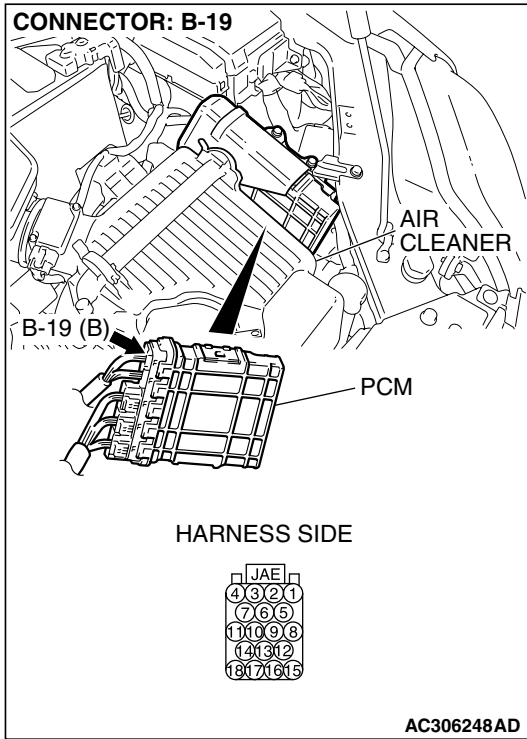
The test wiring harness should be used. For details refer to [P.54C-4](#).

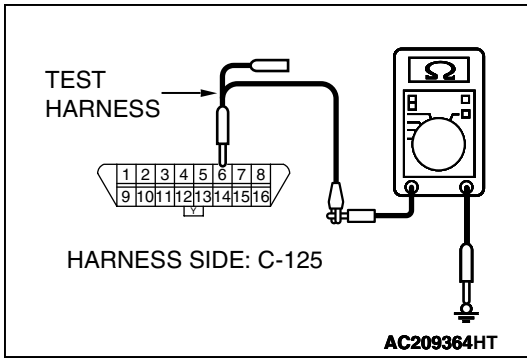
- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





(4) Measure the resistance between data link connector terminal 6 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 3

NO : If the resistance measures less than 1 k Ω , go to Step 4.

STEP 3. Check the CAN_L-side bus line (communication line including ECUs) for short to ground. Measure the resistance at data link connector C-125.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

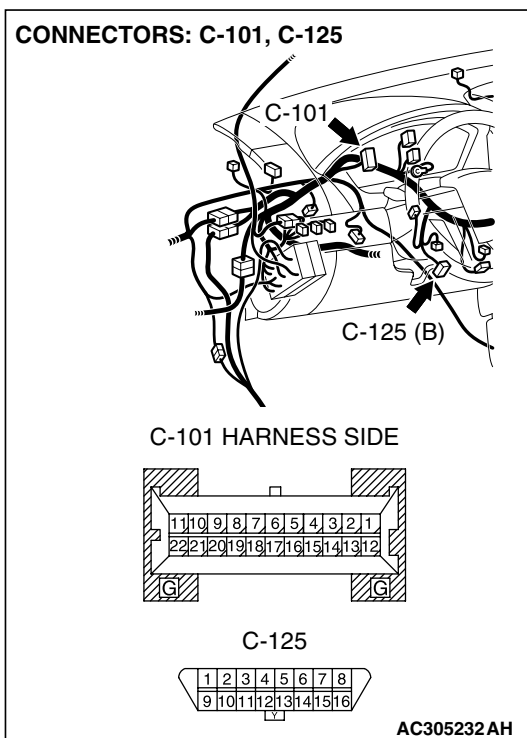
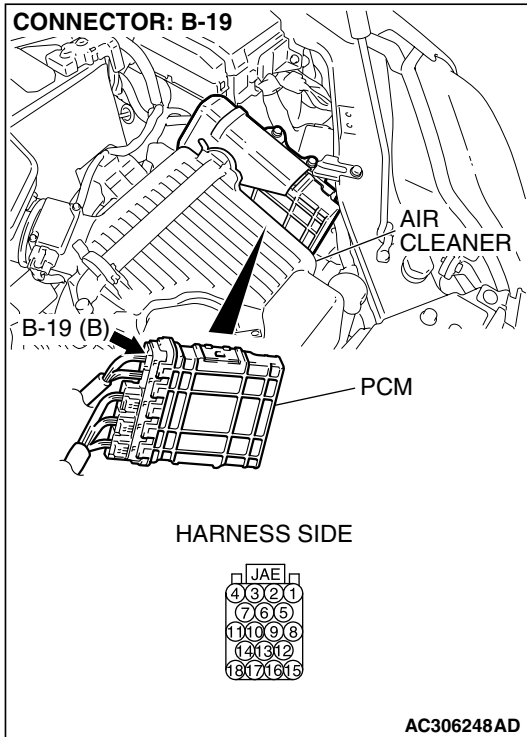
The test wiring harness should be used. For details refer to [P.54C-4](#).

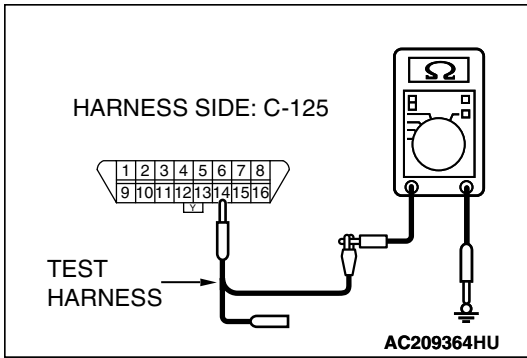
- (1) Disconnect powertrain control module connector B-19 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





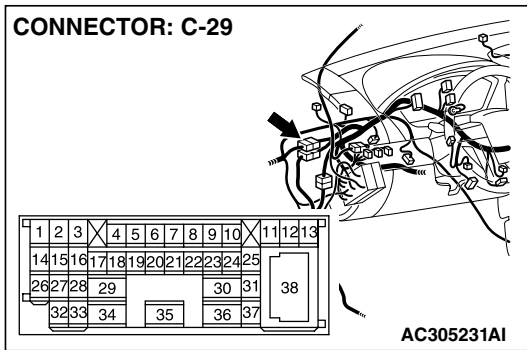
(4) Measure the resistance between data link connector terminal 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, go to Step 30.



STEP 4. 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 5.

NO : Repair the damaged parts.

STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

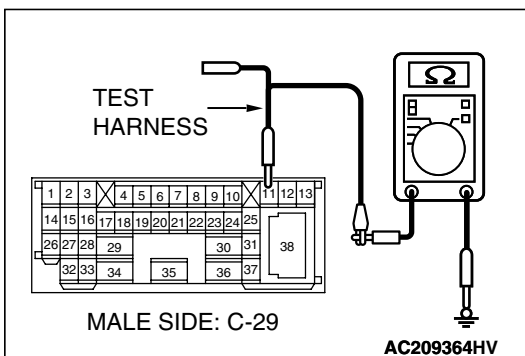
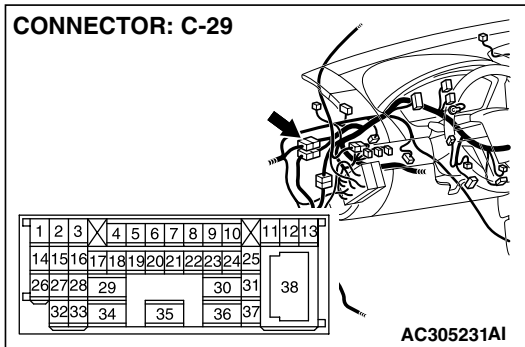
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 terminal 11 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

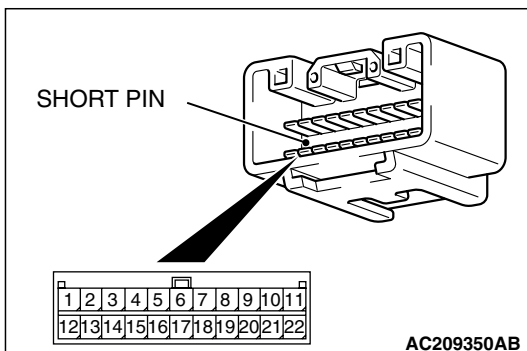
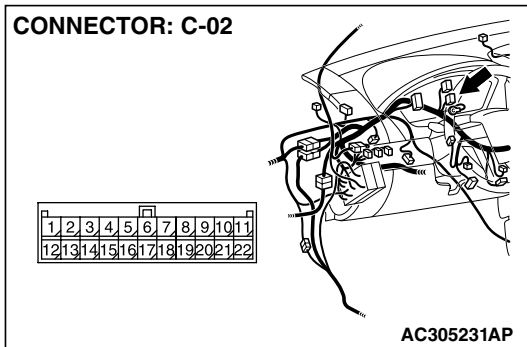
YES : If the resistance measures 1 kΩ or more, go to Step 6

NO : If the resistance measures less than 1 kΩ, go to Step 26.

STEP 6. 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 7.

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

STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

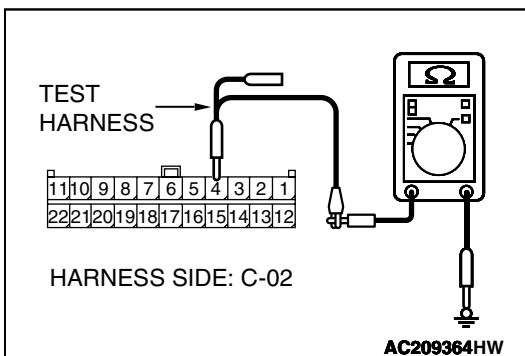
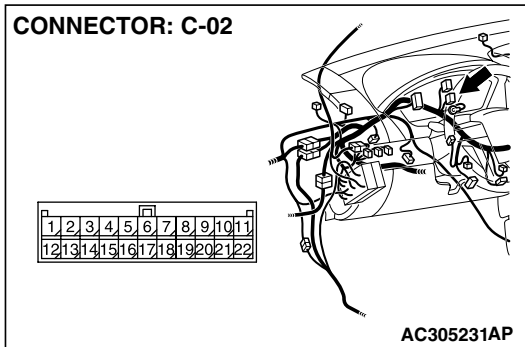
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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) terminal 4 and body ground.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 9

NO : If the resistance measures less than 1 k Ω , go to Step 8.

STEP 8. Check the CAN_H line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

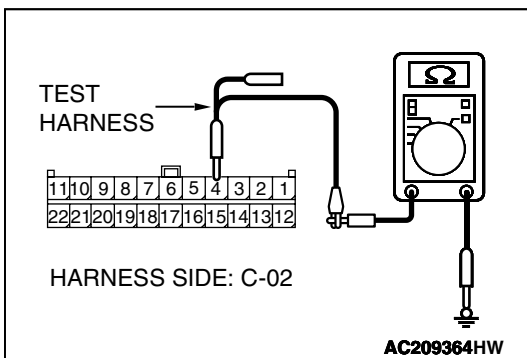
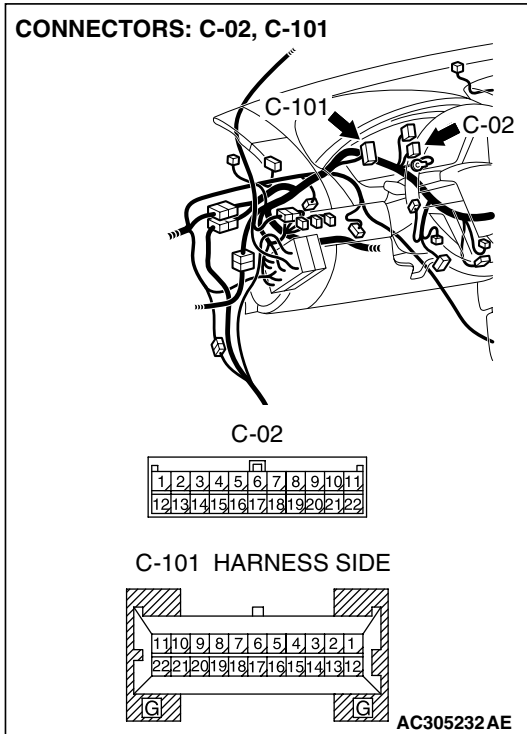
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, 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) terminal 4 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 9. Check the CAN_H line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. 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.

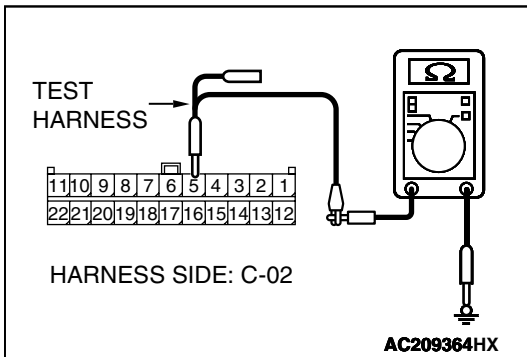
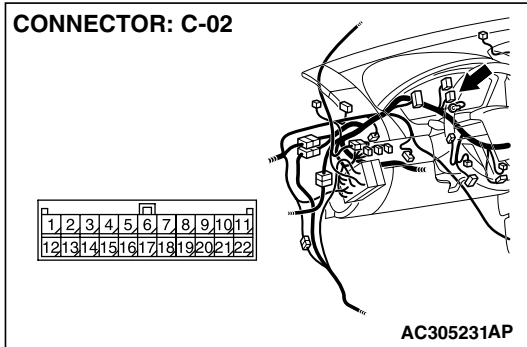
- (4) Measure the resistance between joint connector (3) terminal 5 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .

NO : If the resistance measures less than 1 kΩ, go to Step 10.



STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

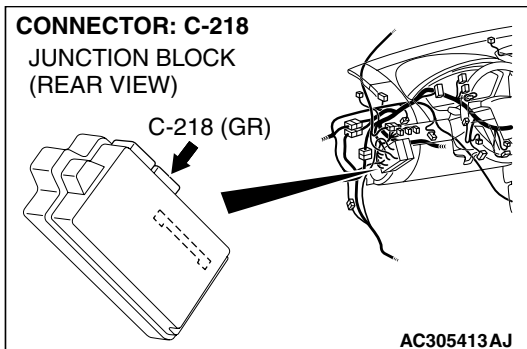
⚠ CAUTION

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 11.

NO : Repair the damaged parts.



STEP 11. Check the CAN_H line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

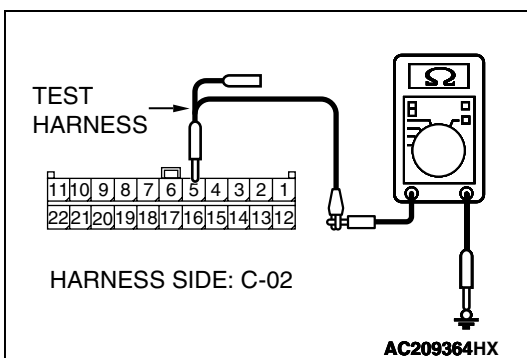
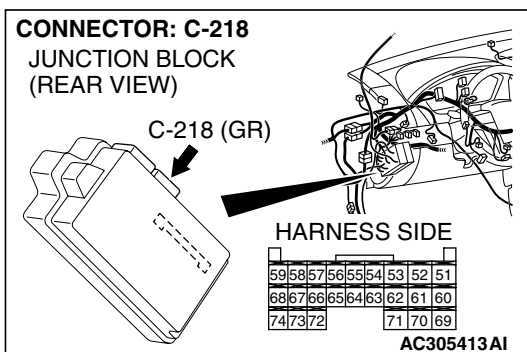
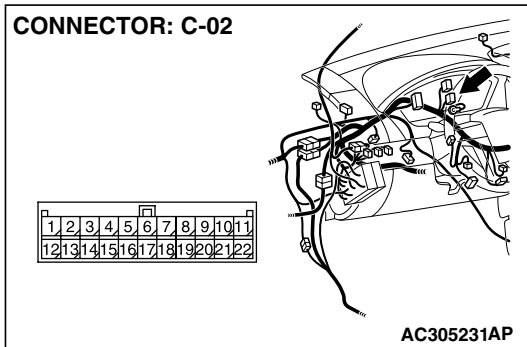
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, 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) terminal 5 and body ground.

OK: 1 kΩ or more

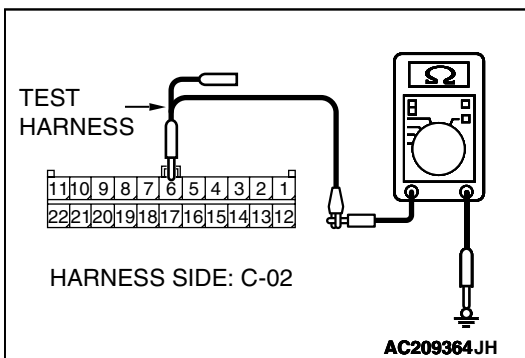
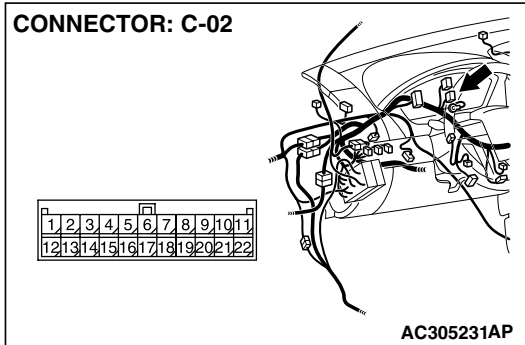
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.



STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. 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.

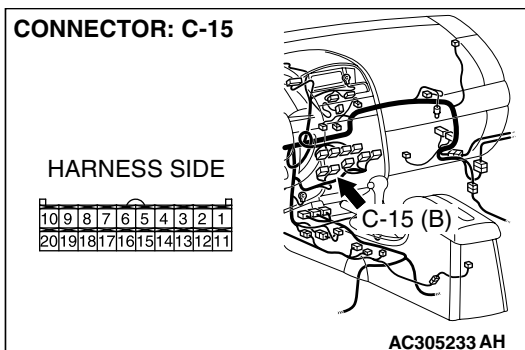
(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.



STEP 13. 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 14.

NO : Repair the damaged parts.

STEP 14. Check the CAN_H line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

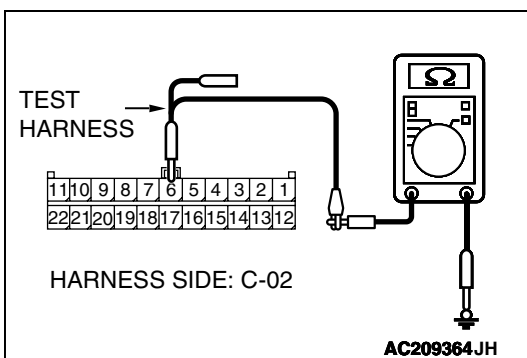
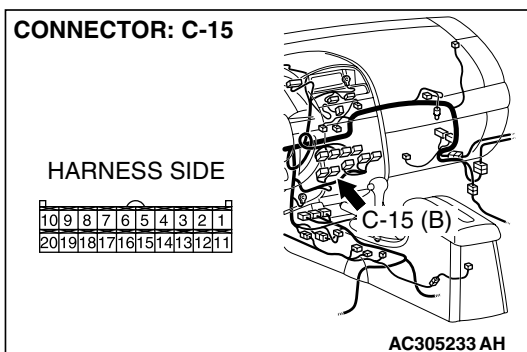
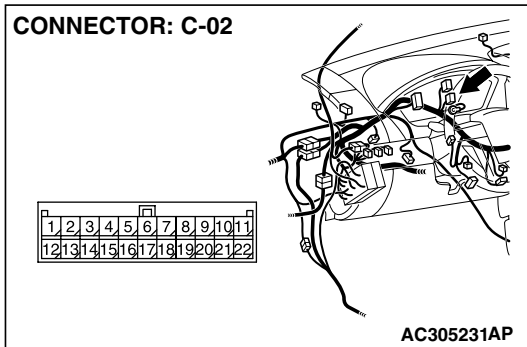
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, 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) terminal 6 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

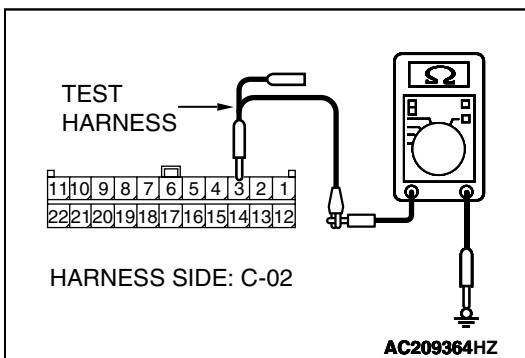
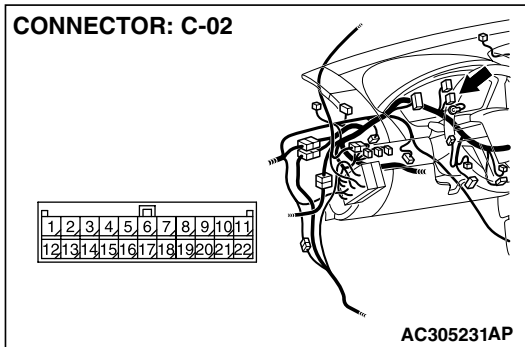
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 3 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 21 .

NO : If the resistance measures less than 1 kΩ, go to Step 16.

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

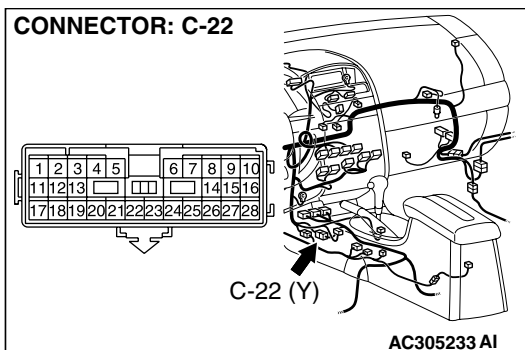
⚠ CAUTION

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_H-side bus line (communication line including ECUs) of the floor wiring harness for short to ground. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

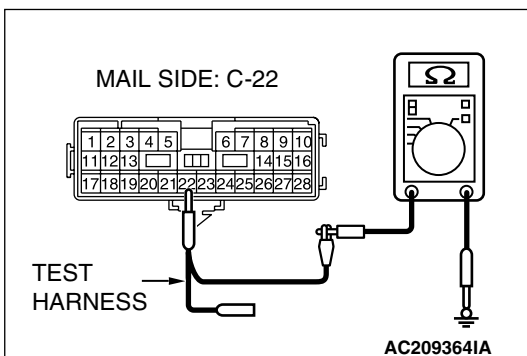
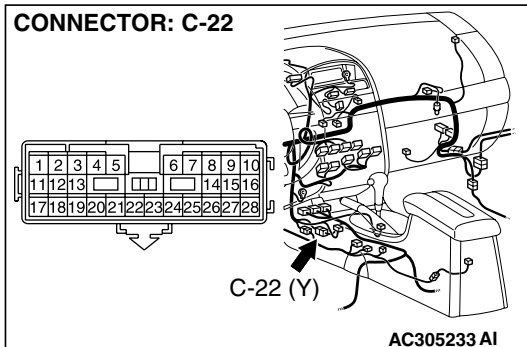
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor 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 22 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 20 .

NO : If the resistance does not measure 1 kΩ or more, go to Step 18.

STEP 18. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

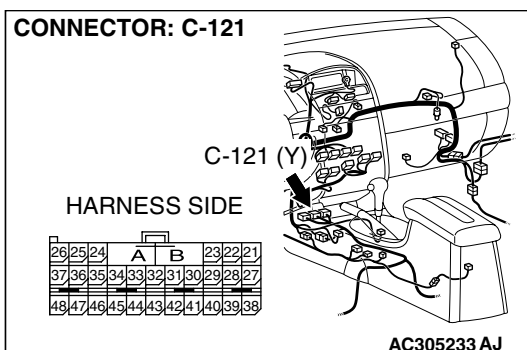
⚠ CAUTION

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 19.

NO : Repair the damaged parts.



STEP 19. Check the CAN_ H line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at 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](#).

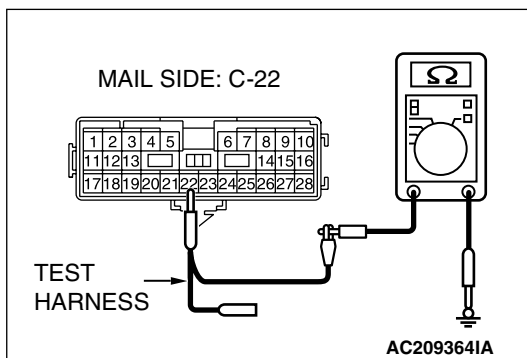
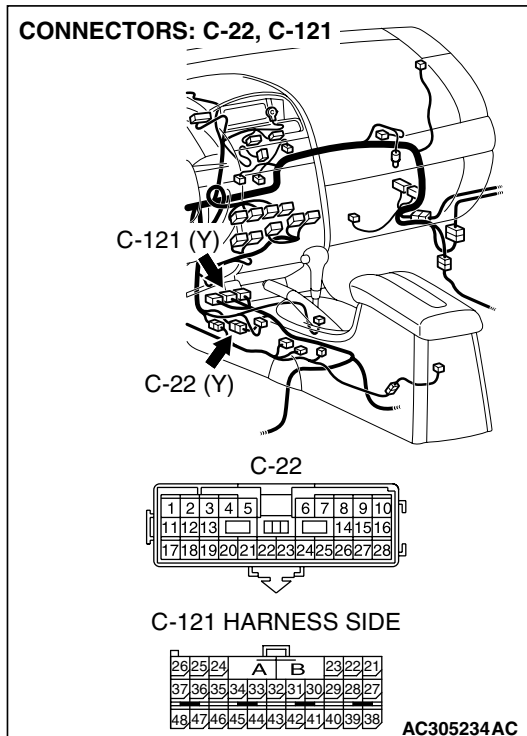
(1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor wiring harness side).

(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 22 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and SRS-ECU connector.

STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

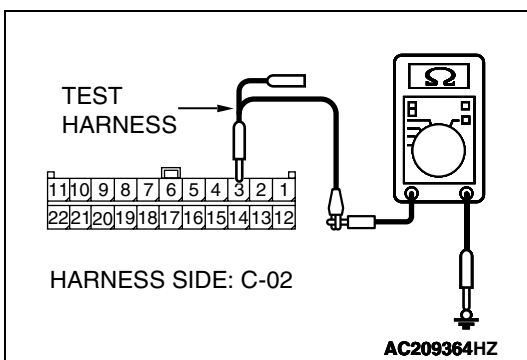
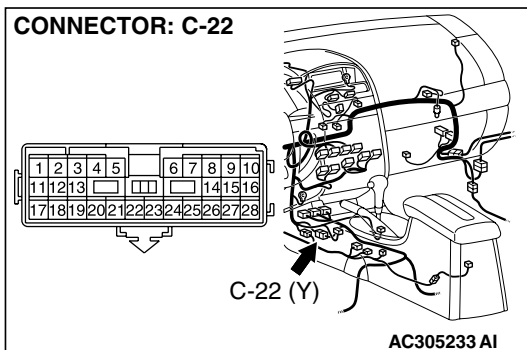
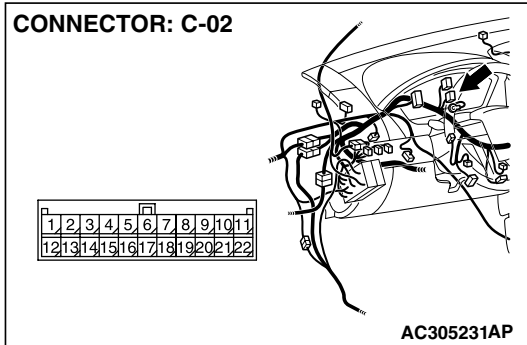
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and 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 3 and body ground.

OK: 1 kΩ or more

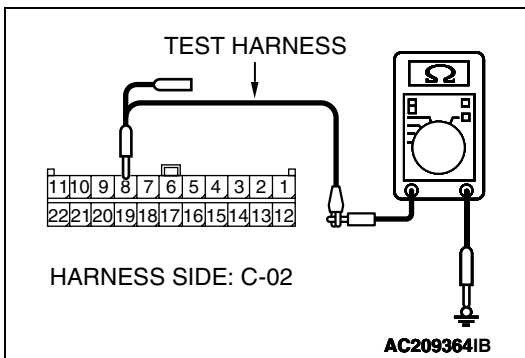
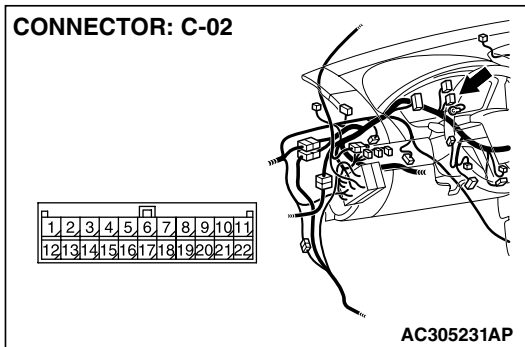
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and joint connector (3).



STEP 21. Check the CAN_H line (communication line including the multi-center display unit (middle-grade type)) between joint connector (3) and middle-grade multi-center display connector for short to ground. 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.

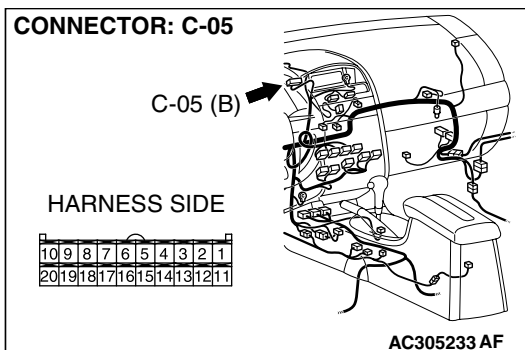
- (4) Measure the resistance between joint connector (3) terminal 8 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 24 .

NO : If the resistance measures less than 1 kΩ, go to Step 22 .



STEP 22. Check multi-center display unit (middle-grade type) connector C-05.

⚠ 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 23.

NO : Repair the damaged parts.

STEP 23. Check the CAN_H line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type) connector for short to ground. 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 multi-center display unit (middle-grade type) connector C-05, 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) terminal 8 and body ground.

OK: 1 kΩ or more

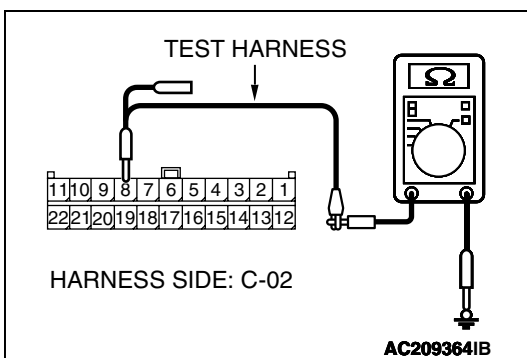
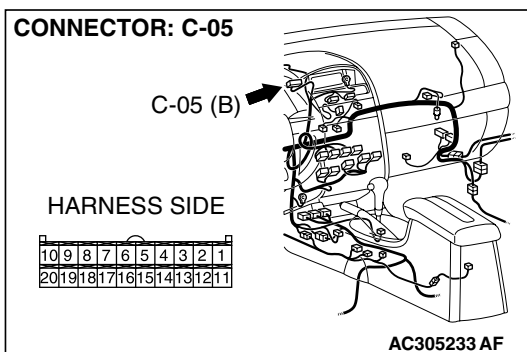
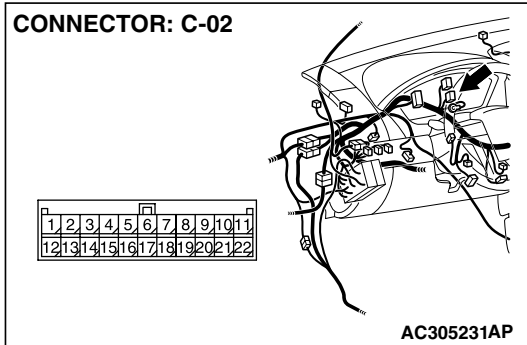
⚠ CAUTION

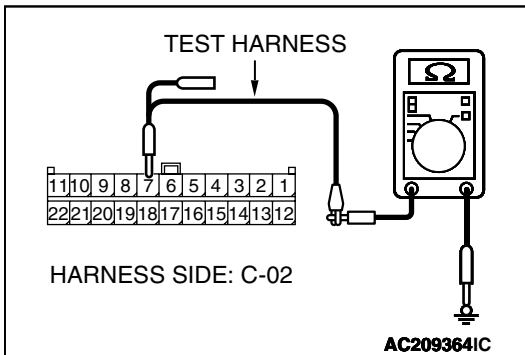
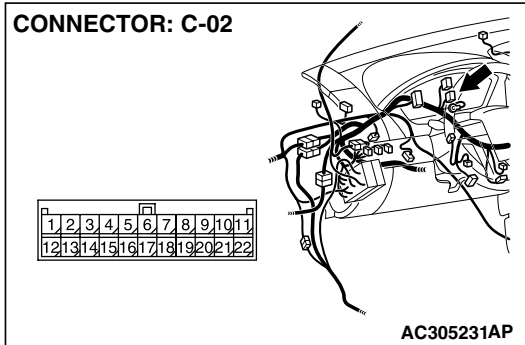
Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and multi-center display unit (middle-grade type) connector.





STEP 24. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for short to ground. 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) terminal 7 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 25 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.

STEP 25. Check the CAN_H line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

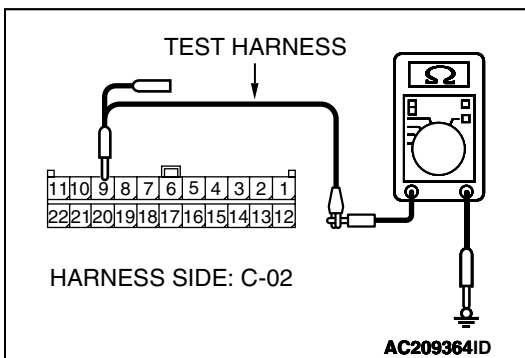
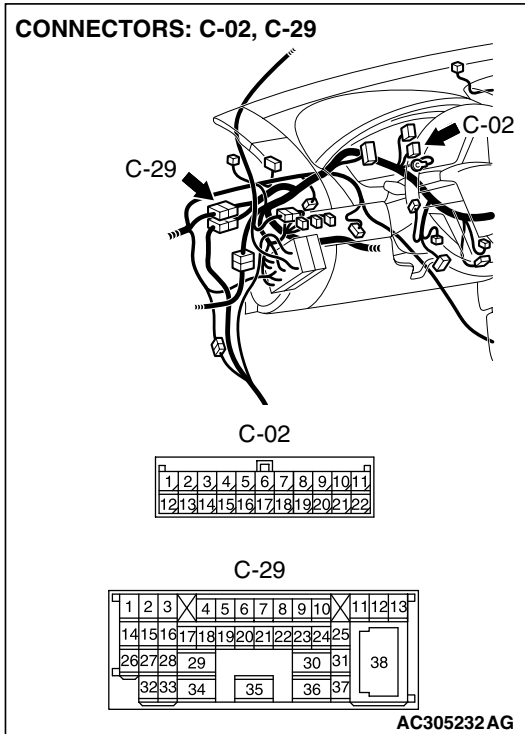
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and 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) terminal 9 and body ground.

OK: 1 kΩ or more

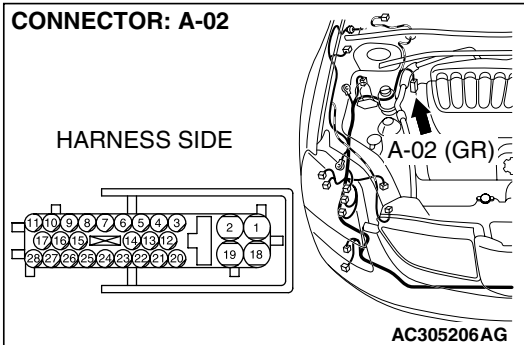
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 26. Check 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: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 27.

NO : Repair the damaged parts.

STEP 27. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for short to ground. 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](#).

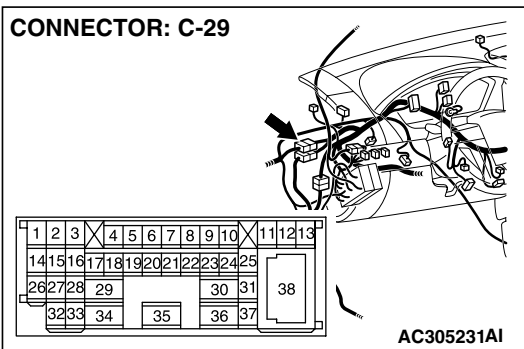
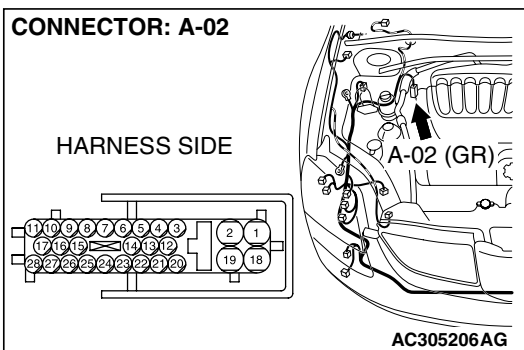
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

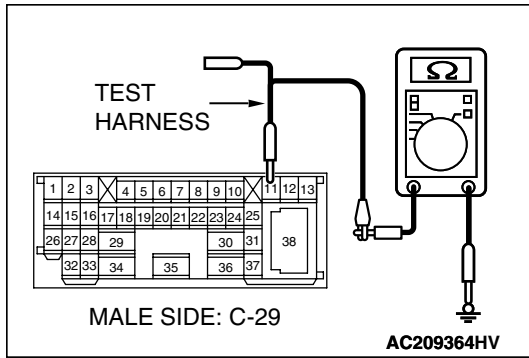
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 body ground.

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 28 .

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 28. Check the CAN_H line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at 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](#).

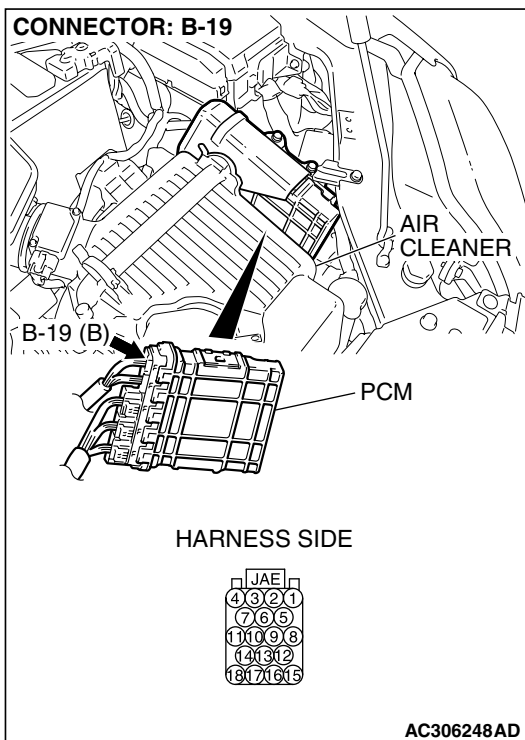
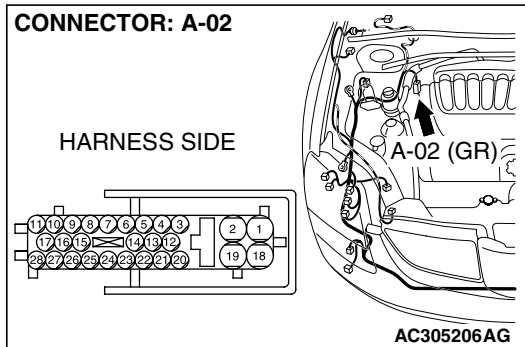
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

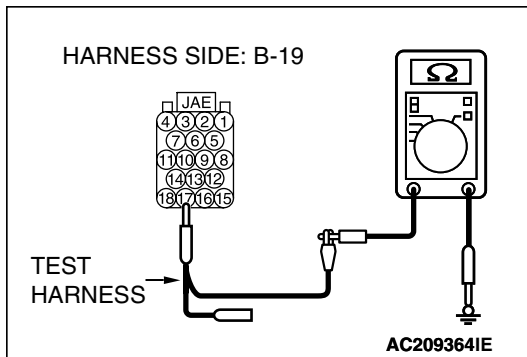
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between powertrain control module connector terminal 17 and body ground.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 29 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 29. Check the CAN_H line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

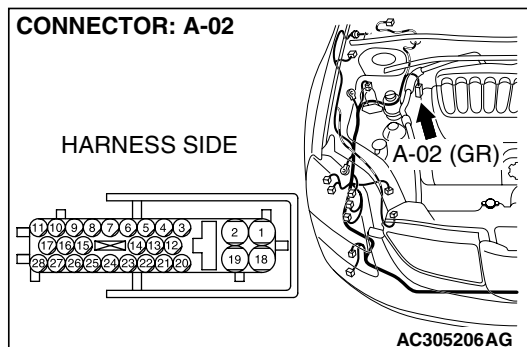
CAUTION

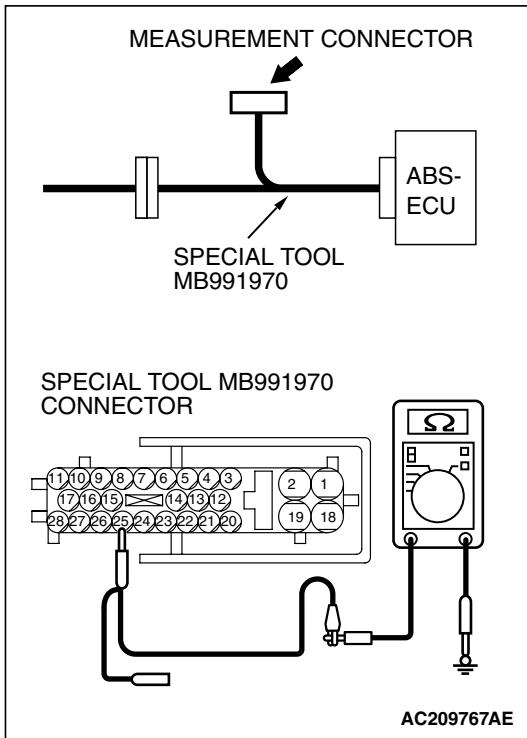
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

(1) Disconnect ABS-ECU connector A-02.





- (2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

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

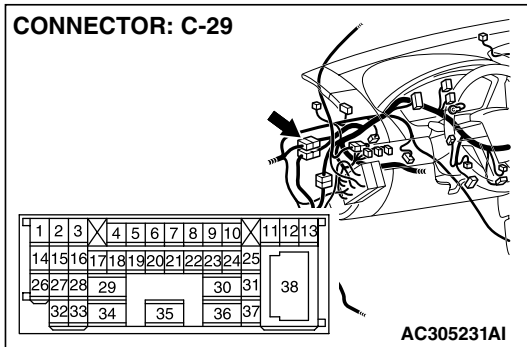
- (4) Disconnect the negative battery terminal.
- (5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 25 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-520.

NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.



STEP 30. 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 31.

NO : Repair the damaged parts.

STEP 31. Check the CAN_L-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ CAUTION

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

⚠ CAUTION

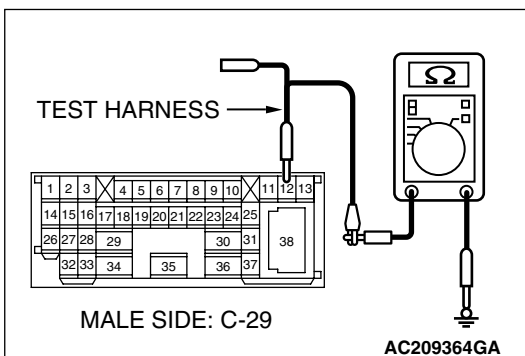
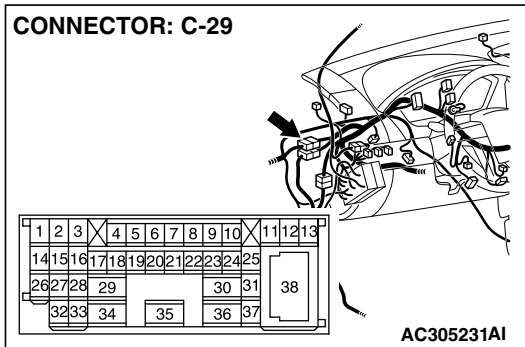
The test wiring harness should be used. For details refer to **P.54C-4.**

- (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 terminal 12 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

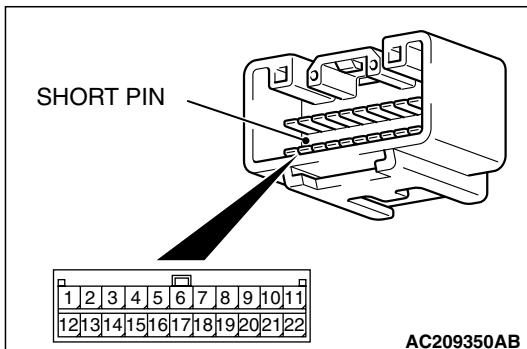
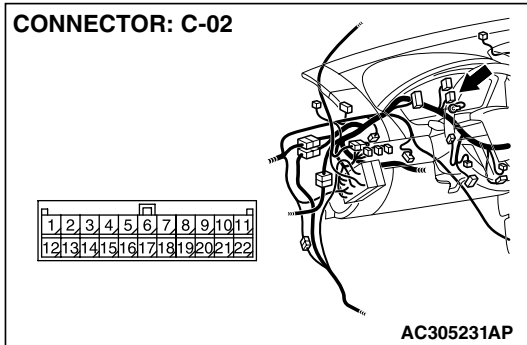
YES : If the resistance measures 1 kΩ or more, go to Step 32 .

NO : If the resistance measures less than 1 kΩ, go to Step 52 .

STEP 32. 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 33.

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

STEP 33. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for short to ground. 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.

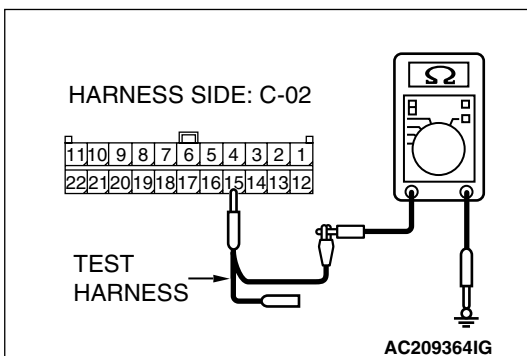
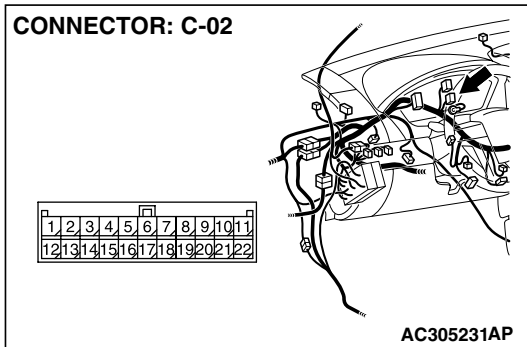
- (4) Measure the resistance between joint connector (3) terminal 15 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 35 .

NO : If the resistance measures less than 1 kΩ, go to Step 34 .



STEP 34. Check the CAN_L line (communication line only) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

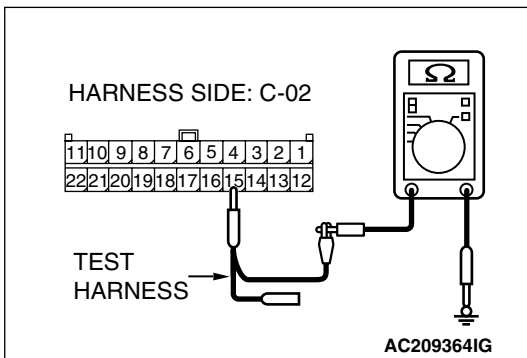
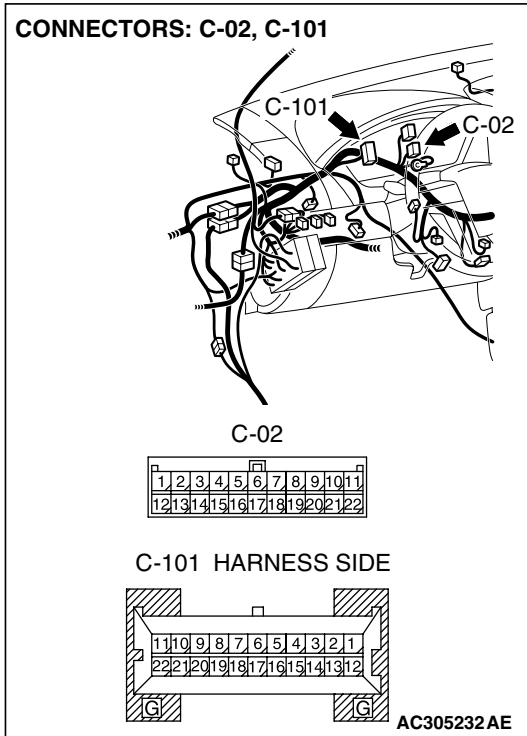
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, 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) terminal 15 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 35. Check the CAN_L line (communication line including the ETACS-ECU) between joint connector (3) and the ETACS-ECU connector for short to ground. 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.

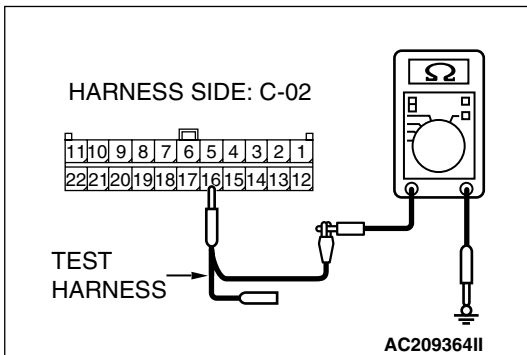
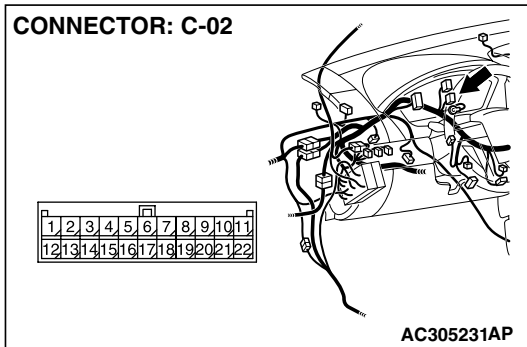
- (4) Measure the resistance between joint connector (3) terminal 16 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 38 .

NO : If the resistance measures less than 1 kΩ, go to Step 36 .



STEP 36. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

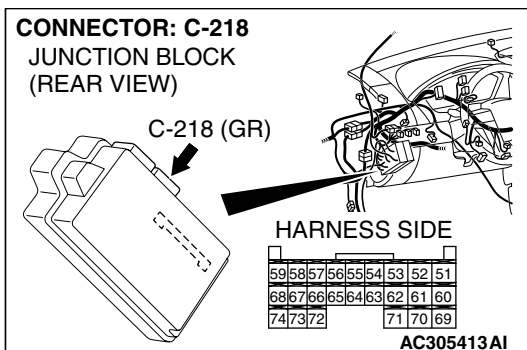
⚠ CAUTION

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 37.

NO : Repair the damaged parts.



STEP 37. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

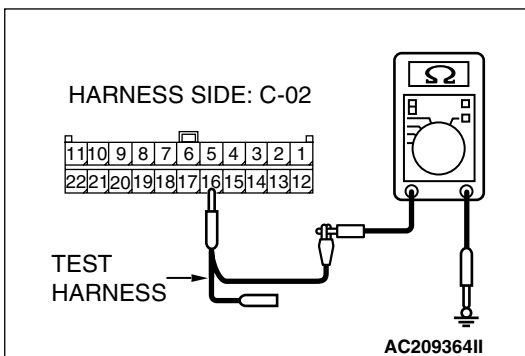
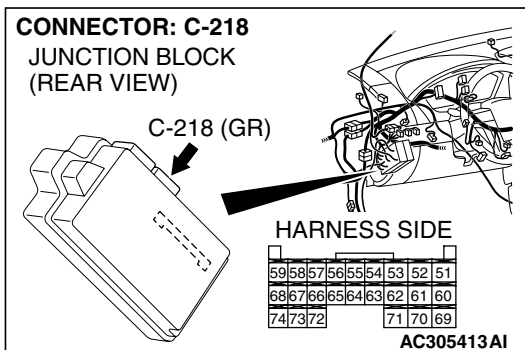
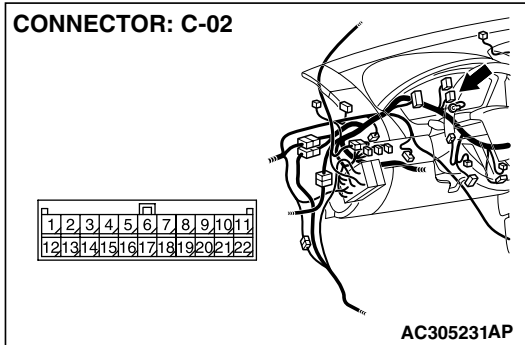
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, 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) terminal 16 and body ground.

OK: 1 k Ω or more

⚠ CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

STEP 38. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

CAUTION

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

CAUTION

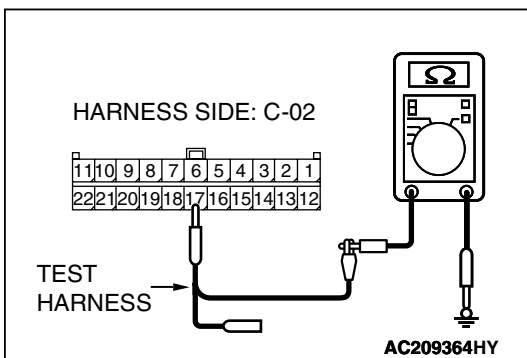
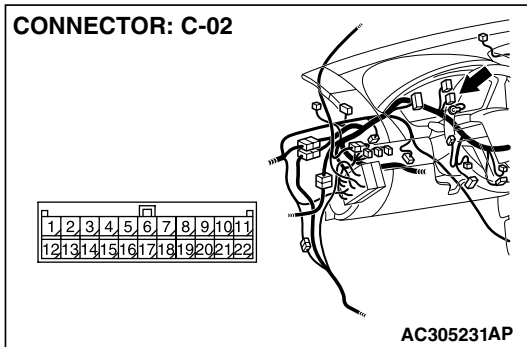
The test wiring harness should be used. For details refer to P.54C-4.

- (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) terminal 17 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 41 .

NO : If the resistance measures less than 1 kΩ, go to Step 39 .

STEP 39. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

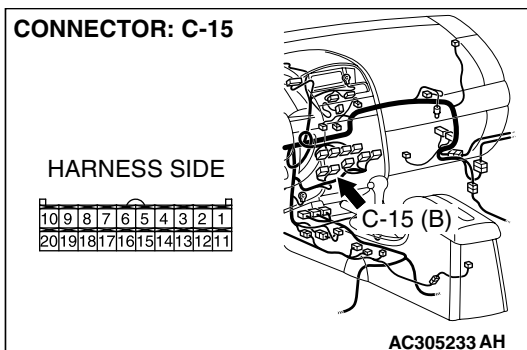
CAUTION

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 40.

NO : Repair the damaged parts.



STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

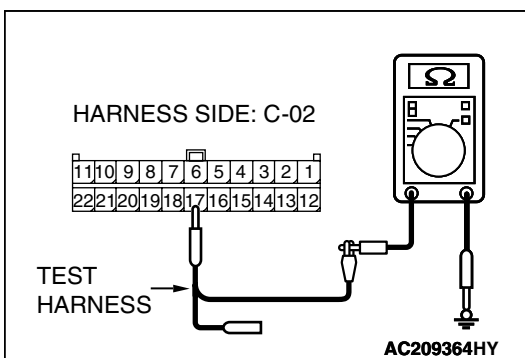
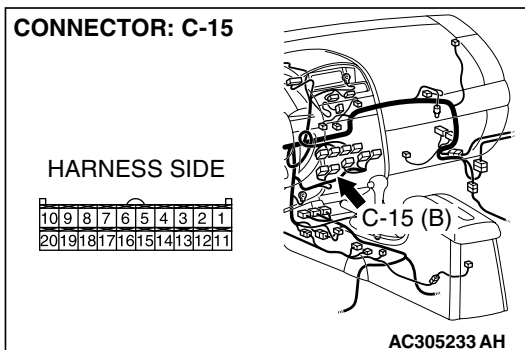
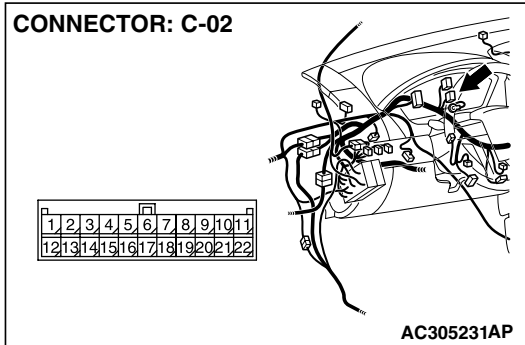
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, 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) terminal 17 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 41. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. 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.

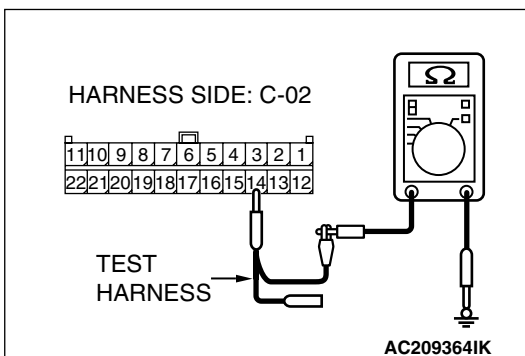
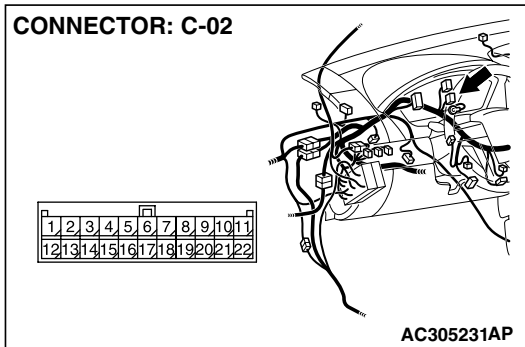
- (4) Measure the resistance between joint connector (3) terminals 14 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 47 .

NO : If the resistance measures less than 1 kΩ, go to Step 42.



STEP 42. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

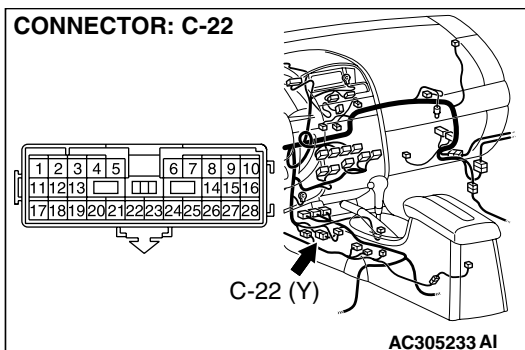
⚠ CAUTION

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 43.

NO : Repair the damaged parts.



STEP 43. Check the CAN_L-side bus line (communication line including ECUs) of the floor wiring harness for short to ground. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

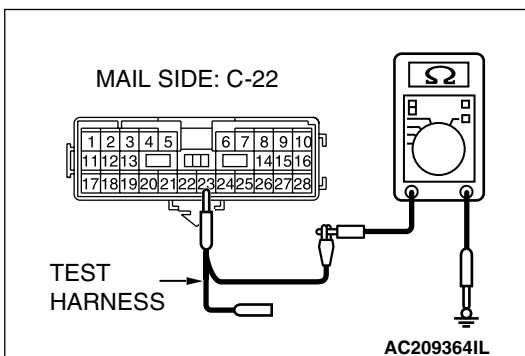
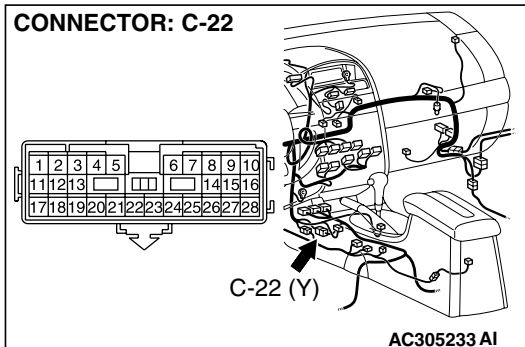
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor 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 23 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 46 .

NO : If the resistance does not measure 1 kΩ or more, go to Step 44.

STEP 44. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

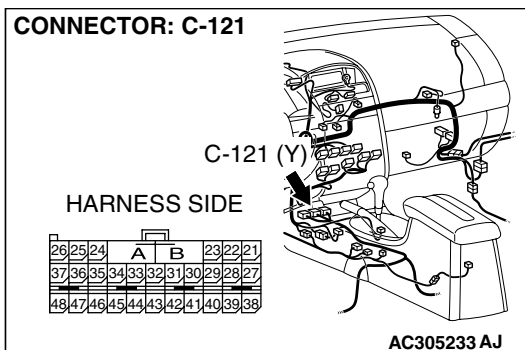
⚠ CAUTION

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 45.

NO : Repair the damaged parts.



STEP 45. Check the CAN_L line (communication line only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at 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 intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor 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](#).

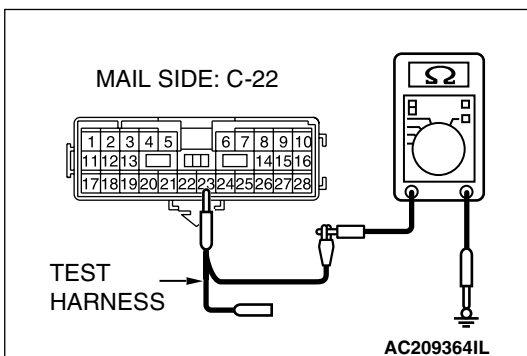
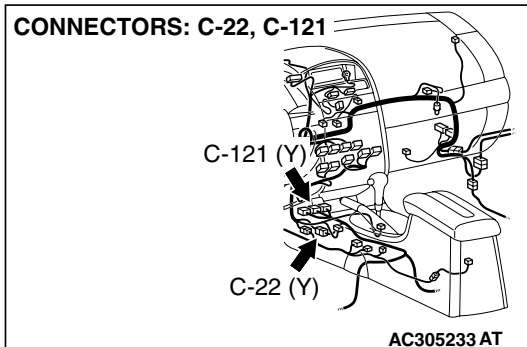
- (3) Disconnect the negative battery terminal.

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

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and SRS-ECU connector.



STEP 46. Check the CAN_L line (communication line only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

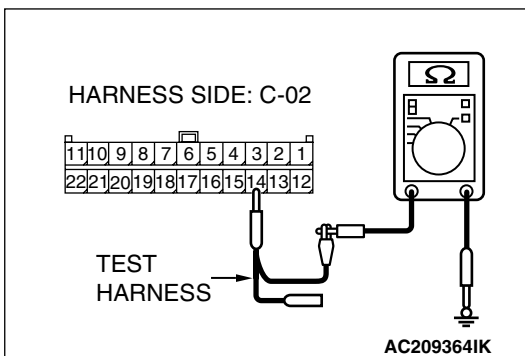
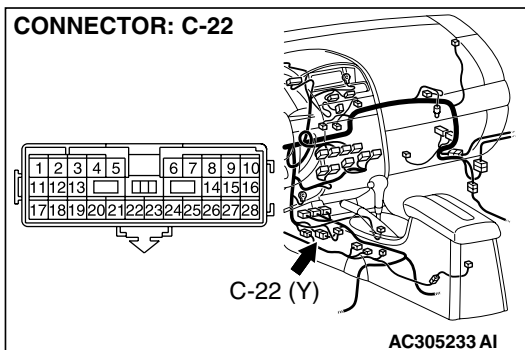
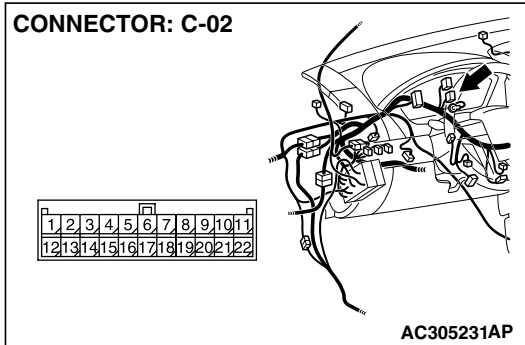
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and 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 14 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and joint connector (3).

STEP 47. Check the CAN_L line (communication line including the multi-center display unit (middle-grade type)) between joint connector (3) and middle-grade multi-center display connector for short to ground. 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.

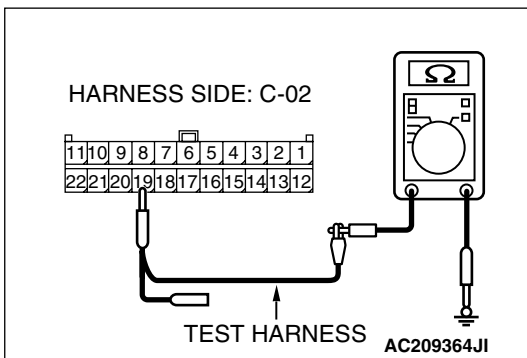
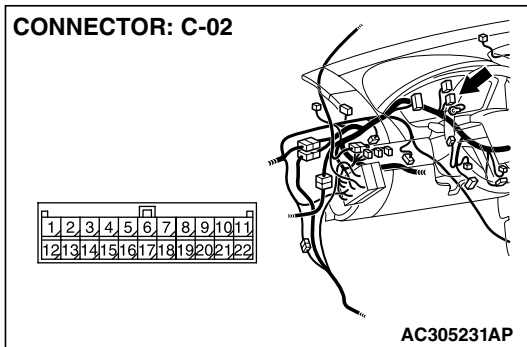
- (4) Measure the resistance between joint connector (3) terminal 19 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 50 .

NO : If the resistance measures less than 1 kΩ, go to Step 48 .



STEP 48. Check multi-center display unit (middle-grade type) connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

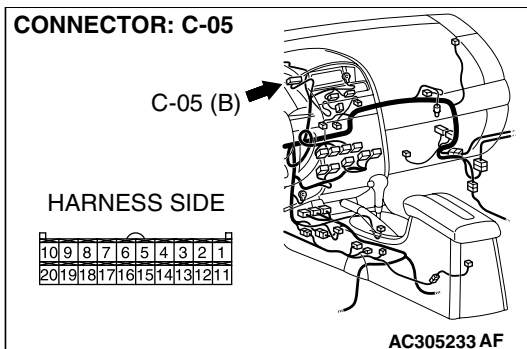
⚠ CAUTION

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 49.

NO : Repair the damaged parts.



STEP 49. Check the CAN_L line (communication line only) between joint connector (3) and multi-center display unit (middle-grade type) connector for short to ground. 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](#).

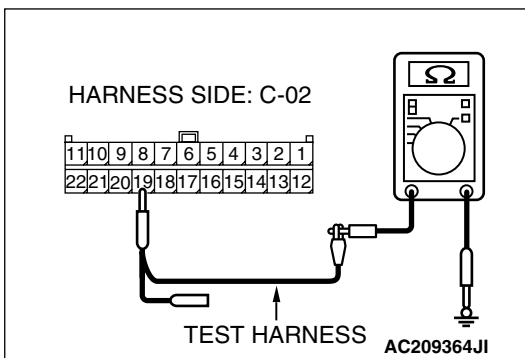
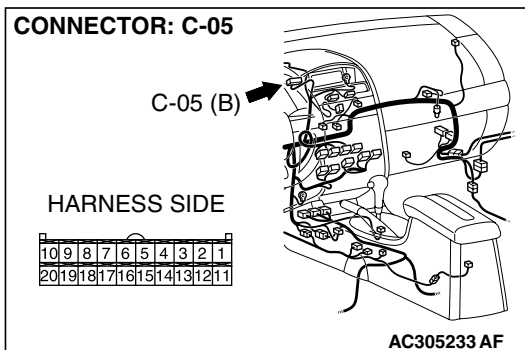
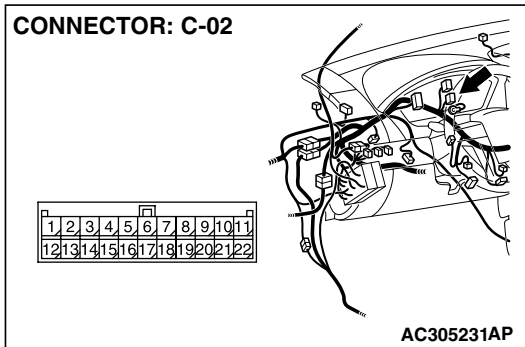
(1) Disconnect joint connector (3) C-02 and multi-center display unit (middle-grade type) connector C-05, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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) terminal 19 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and multi-center display unit (middle-grade type) connector.

STEP 50. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. 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) terminal 18 and body ground.

OK: 1 kΩ or more

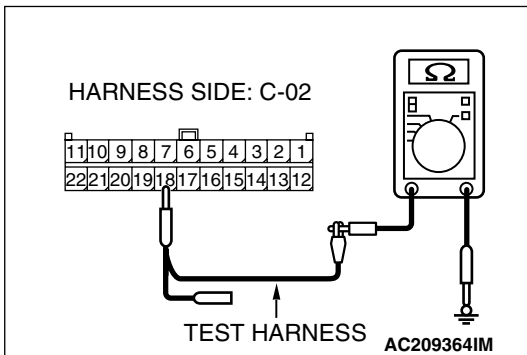
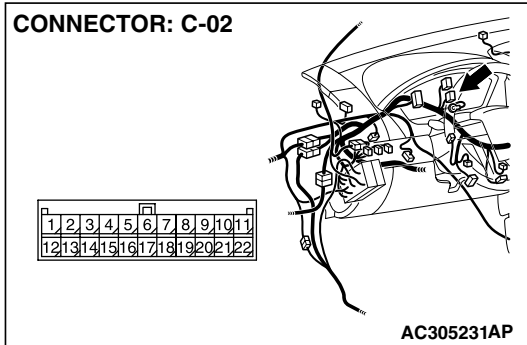
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 51 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.



STEP 51. Check the CAN_L line (communication line only) between intermediate connector C-29 and joint connector (3) for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

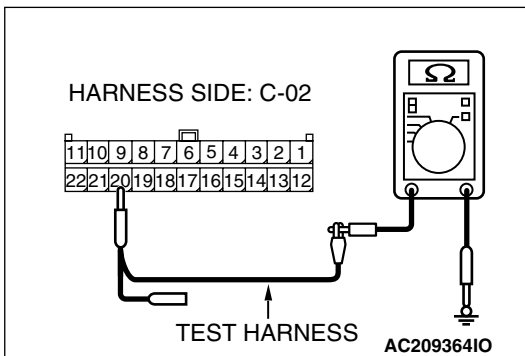
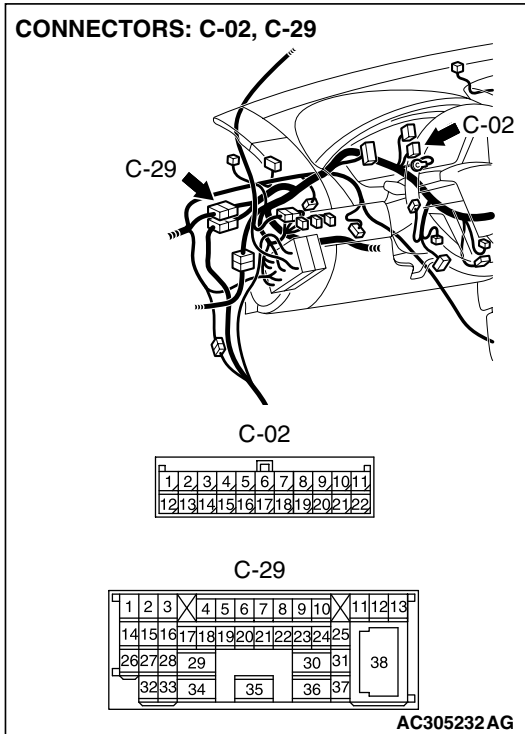
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and 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) terminal 20 and body ground.

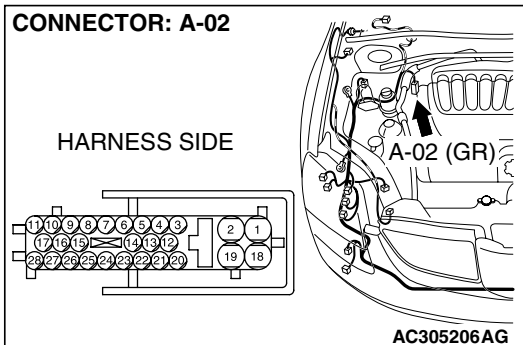
OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 52. Check ABS-ECU connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

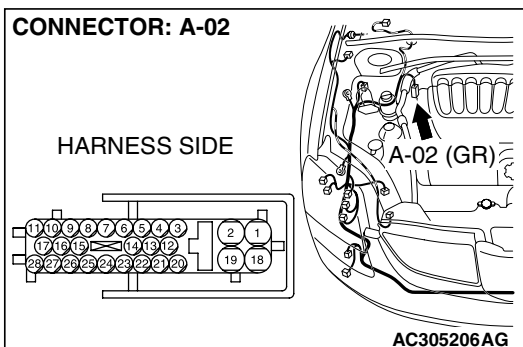
⚠ CAUTION

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: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 53.

NO : Repair the damaged parts.



STEP 53. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector A-02 for short to ground. 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](#).

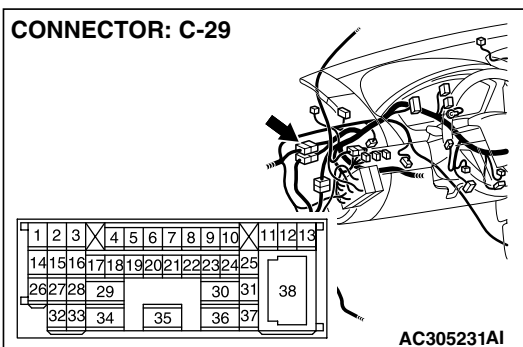
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

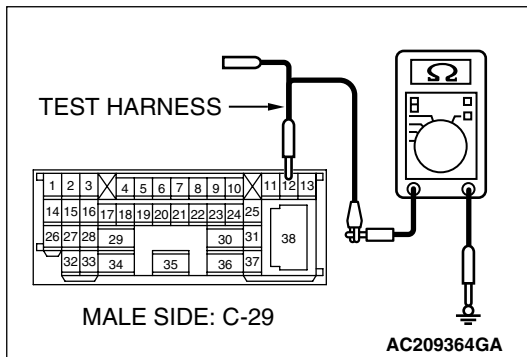
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 12 and body ground.

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 54 .

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 54. Check the CAN_L line (communication line only) between the powertrain control module connector and ABS-ECU connector for short to ground. Measure the resistance at 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](#).

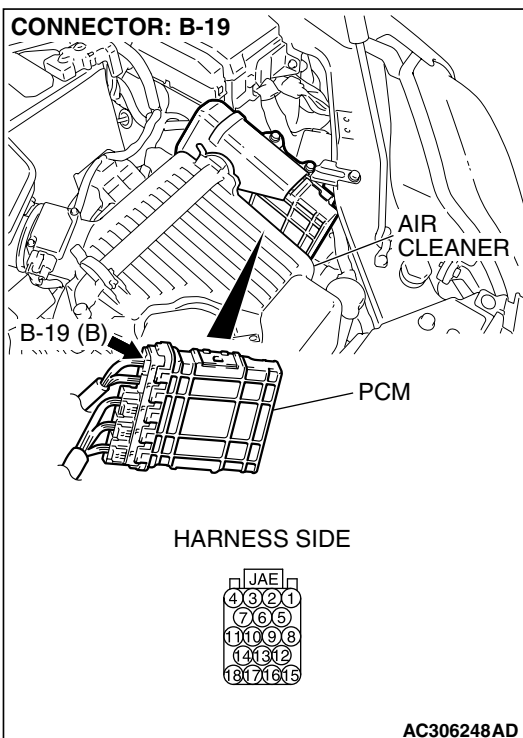
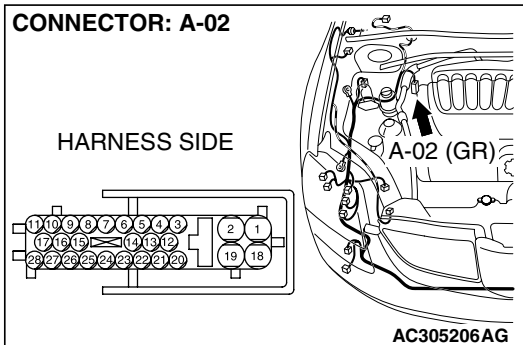
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

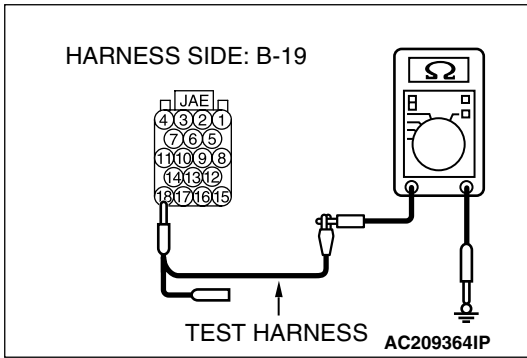
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between powertrain control module connector terminal 18 and body ground.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 55 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 55. Check the CAN_L line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

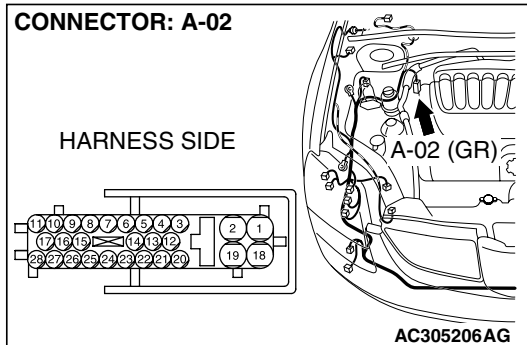
CAUTION

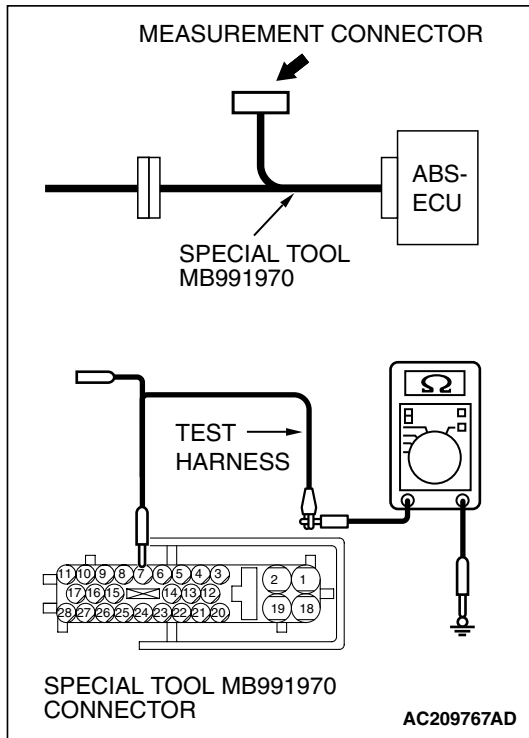
A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

The test wiring harness should be used. For details refer to [P.54C-4](#).

(1) Disconnect ABS-ECU connector A-02.





- (2) Connect special tool MB991970 (ABS check harness) to the ABS-ECU and the wiring harness, and measure the resistance at special tool MB991970 (ABS check harness).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

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

- (4) Disconnect the negative battery terminal.
- (5) Measure the resistance between special tool MB991970 (ABS check harness) connector terminal 7 and body ground.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

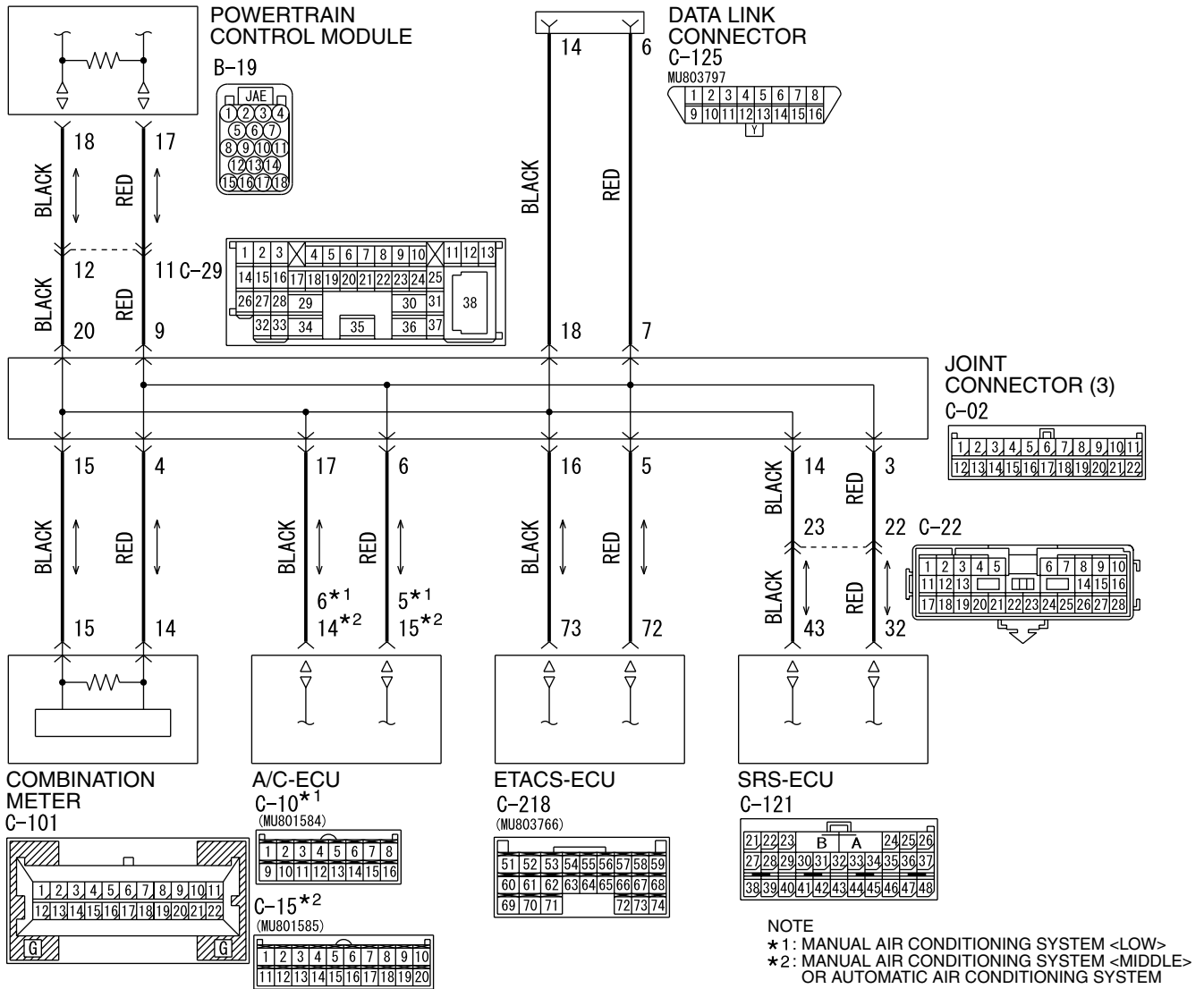
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-520.

NO : If the resistance measures less than 1 kΩ, replace the ABS-ECU.

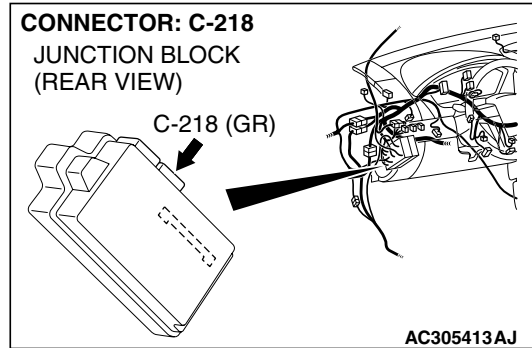
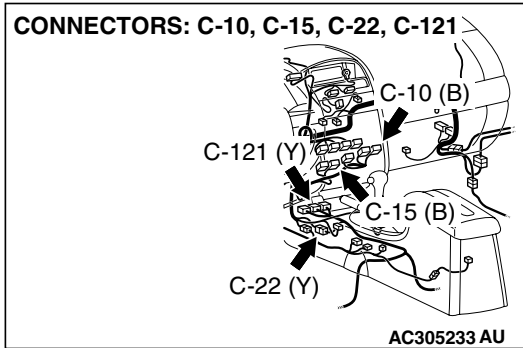
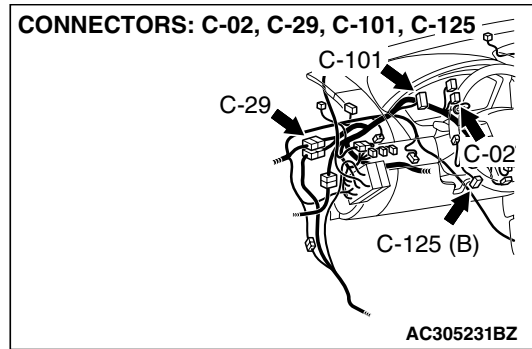
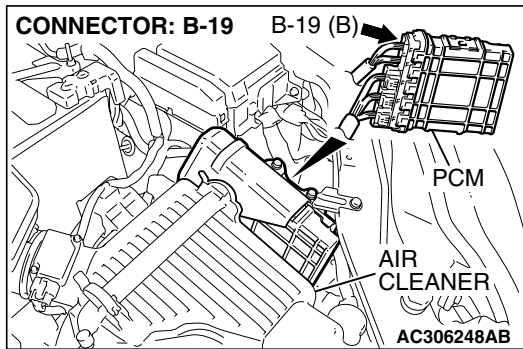
DIAGNOSTIC ITEM 7: Diagnose shorts between CAN_L and H lines <Vehicles without ABS and vehicles without multi-center display (middle-grade type)>

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.



W4P54M96AA



TROUBLE JUDGMENT

A short circuit may be present between the CAN_L and H lines when the resistance between the CAN bus lines (CAN_L and H lines) is less than 2 ohms.

COMMENTS ON TROUBLE SYMPTOM

The wiring harness wire or connectors may have loose, corroded, or damaged 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 damaged 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 Tool:

- MB991223: Harness Set

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

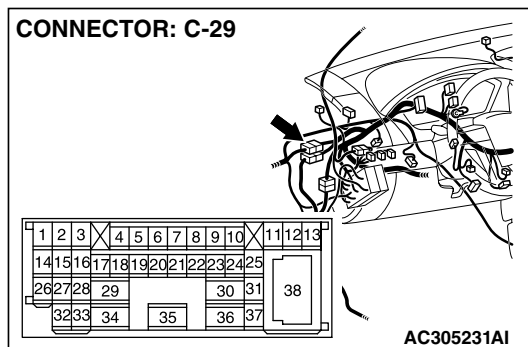
CAUTION

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 lines between the CAN_L and H lines (communication line including ECUs) of the front wiring harness for a short circuit. 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.

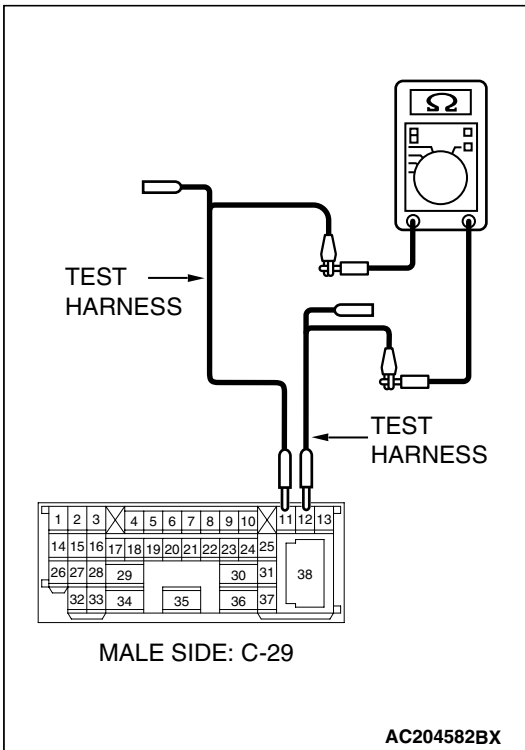
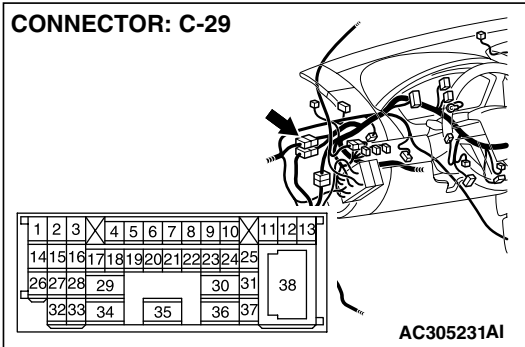
- (3) Disconnect the negative battery terminal.

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

OK: $120 \pm 20 \Omega$

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

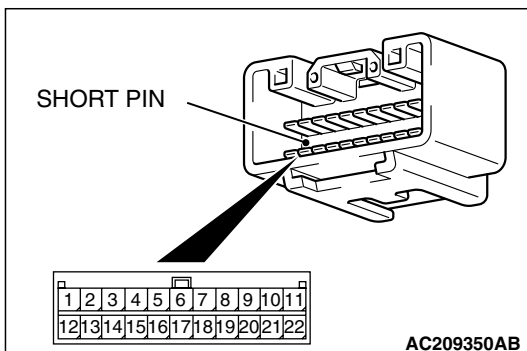
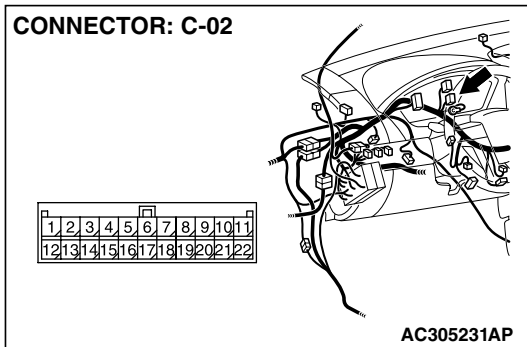
- YES :** If the resistance measures $120 \pm 20 \Omega$, go to Step 3.
- NO :** If the resistance does not measure $120 \pm 20 \Omega$ Go to Step 26.



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_L and H lines (communication lines including the combination meter) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

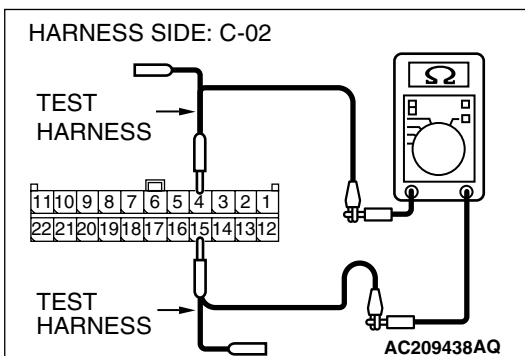
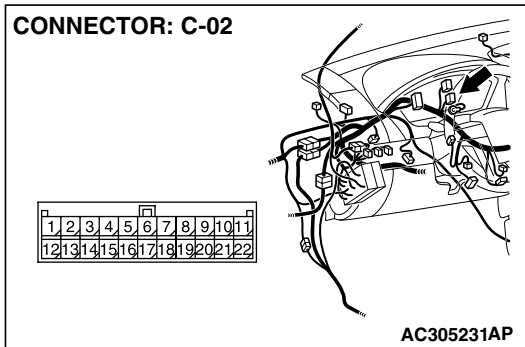
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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: $120 \pm 20 \Omega$

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

- YES :** If the resistance measures $120 \pm 20 \Omega$, go to Step 8.
NO : If the resistance does not measure $120 \pm 20 \Omega$ Go to Step 5.

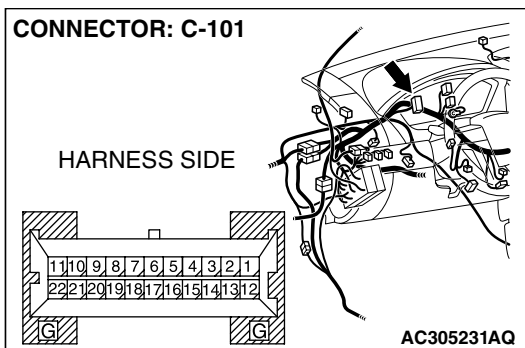
STEP 5. Check combination meter connector C-101 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ 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](#).

Q: Is combination meter connector C-101 in good condition?

- YES :** Go to Step 6.
NO : Repair the damaged parts.



STEP 6. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

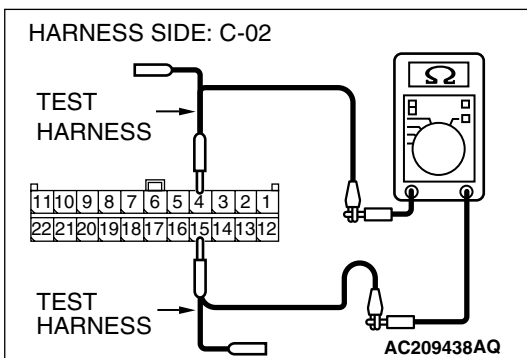
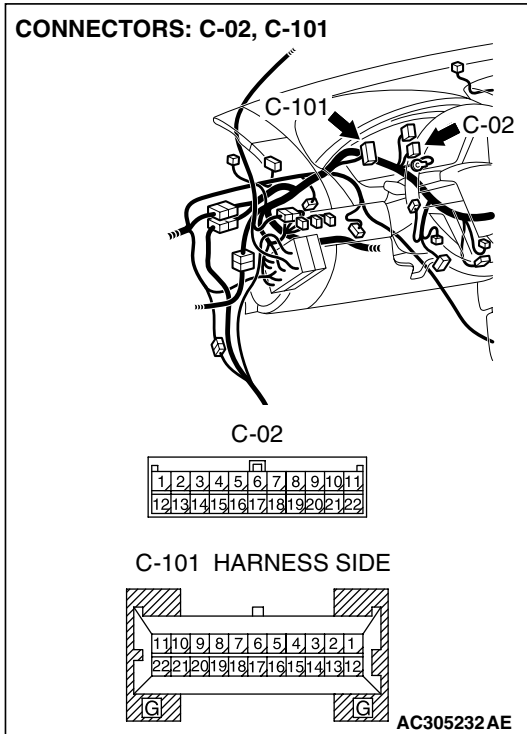
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, 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: 1 kΩ or more

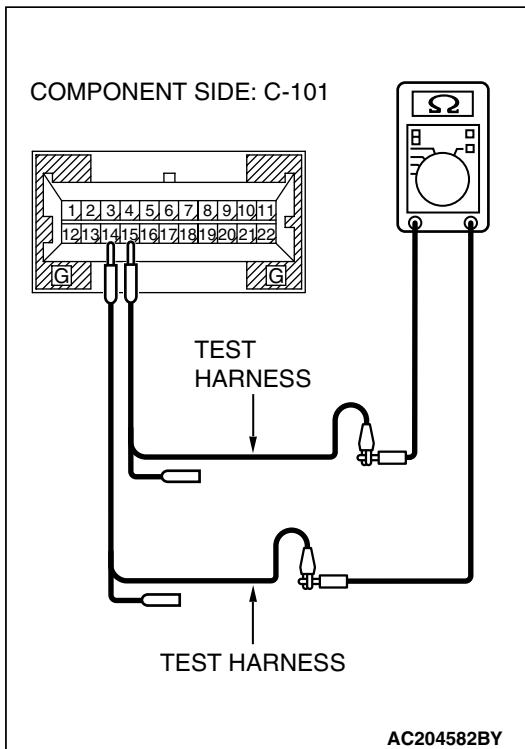
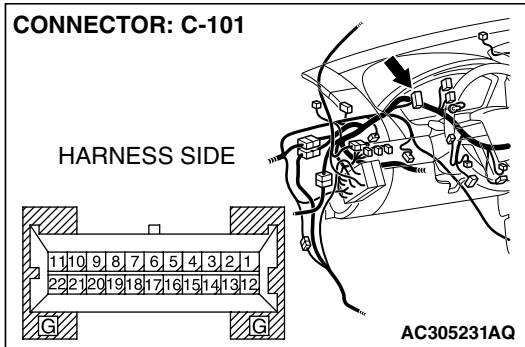
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 7

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.



STEP 7. Check the combination meter for a short circuit. 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: $120 \pm 20 \Omega$

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

YES : If the resistance measures $120 \pm 20 \Omega$, diagnose CAN bus lines thoroughly by referring to P.54C-456.

NO : If the resistance does not measure $120 \pm 20 \Omega$, replace the combination meter.

STEP 8. Check the CAN_L and H lines (communication lines including the ETACS-ECU) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

CAUTION

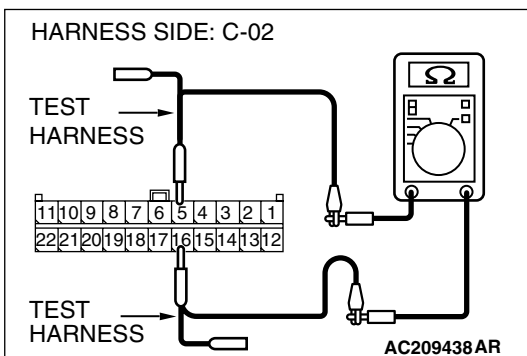
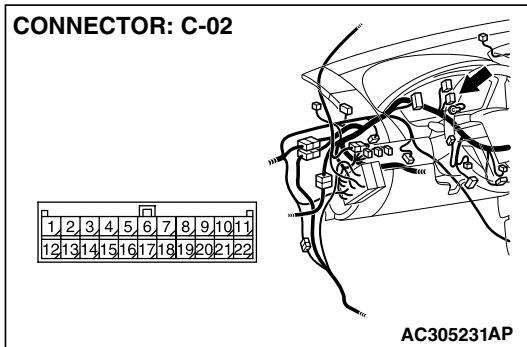
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 5 and 16.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .

NO : If the resistance measures less than 1 kΩ, go to Step 9.

STEP 9. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

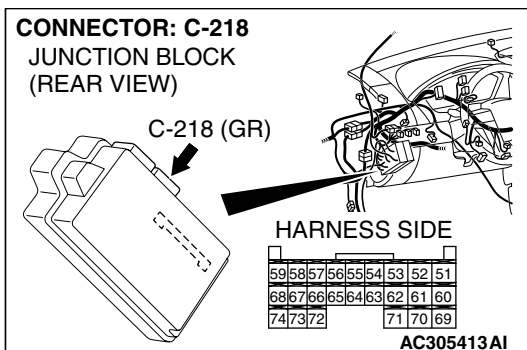
CAUTION

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 10.

NO : Repair the damaged parts.



STEP 10. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

CAUTION

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

CAUTION

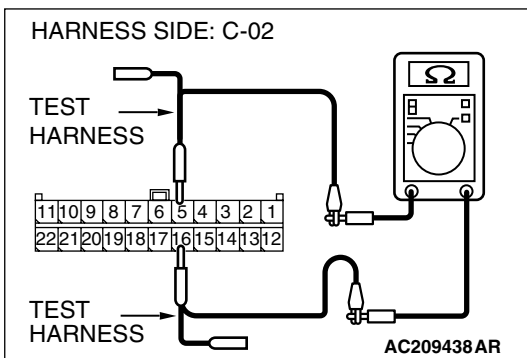
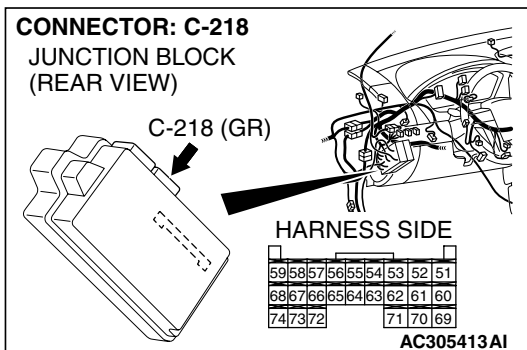
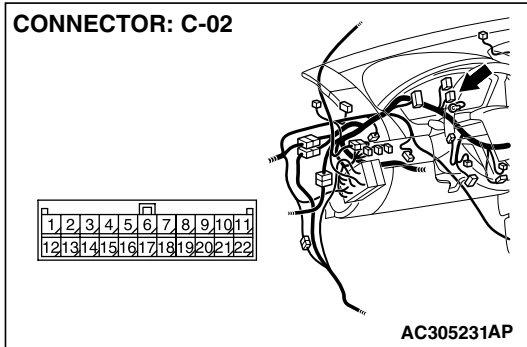
The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, 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 5 and 16.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 11 .

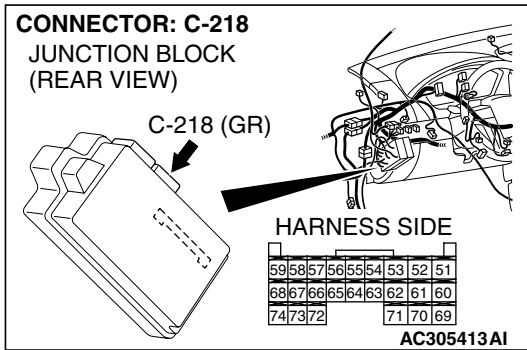
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

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

⚠ CAUTION

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

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

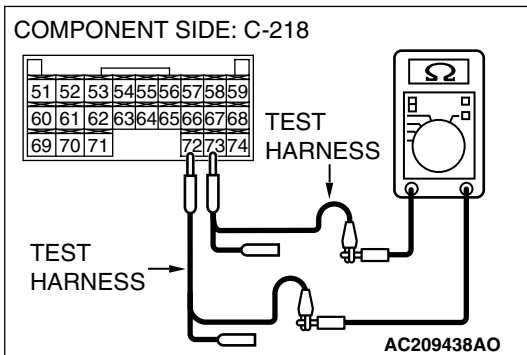


- (2) Measure the resistance between ETACS-ECU connector terminals 72 and 73.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-456.
- NO :** If the resistance measures less than 1 kΩ, replace the ETACS-ECU.



STEP 12. Check the CAN_L and H lines (communication lines including the A/C-ECU) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

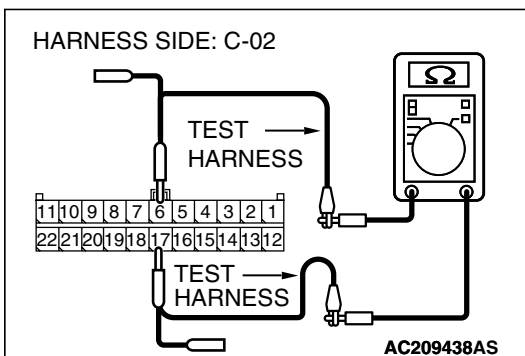
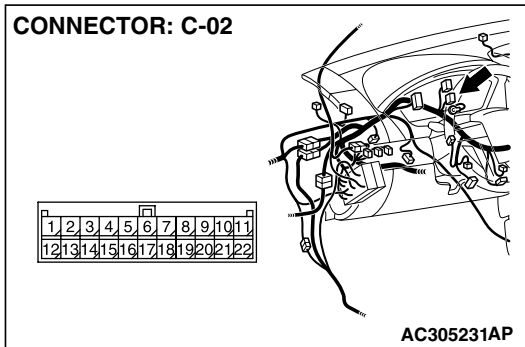
The test wiring harness should be used. For details refer to **P.54C-4**.

- (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 6 and 17.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 16 .

NO : If the resistance measures less than 1 k Ω , go to Step 13.

STEP 13. 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.

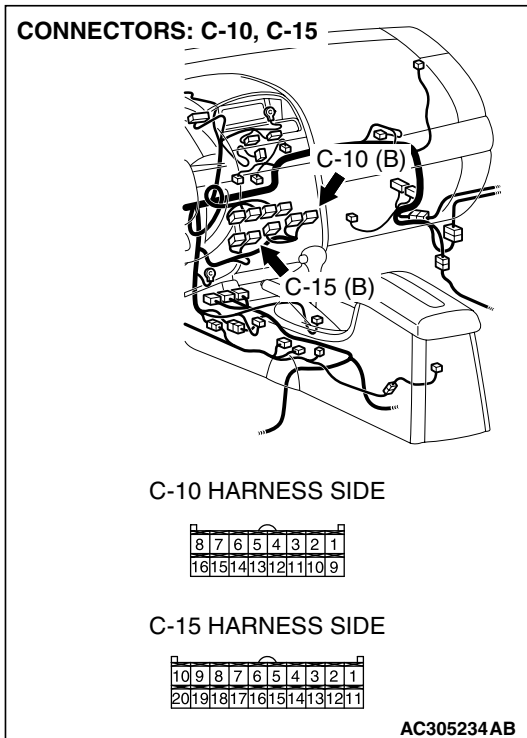
⚠ CAUTION

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 14.

NO : Repair the damaged parts.



STEP 14. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

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

⚠ CAUTION

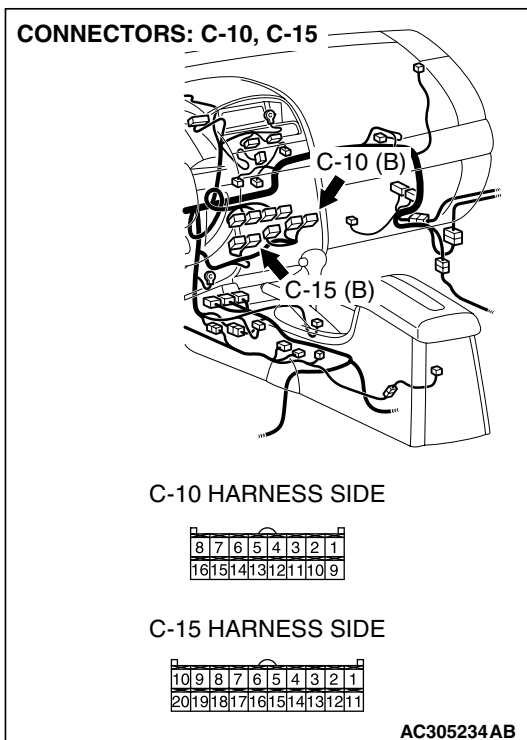
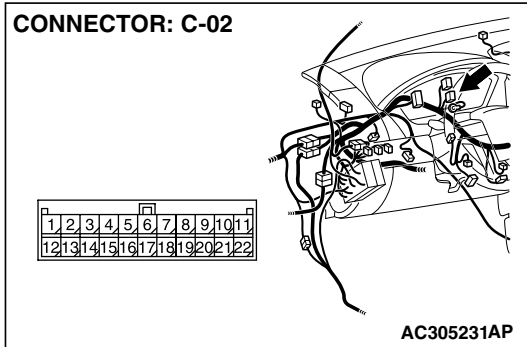
The test wiring harness should be used. For details refer to **P.54C-4.**

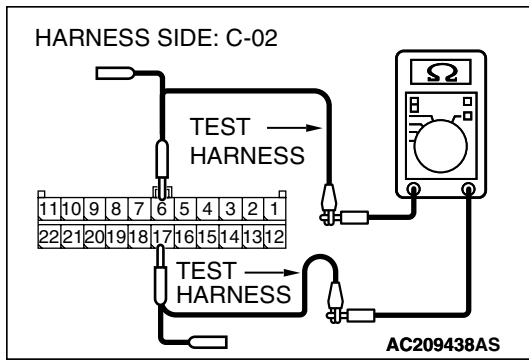
- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition 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 6 and 17.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

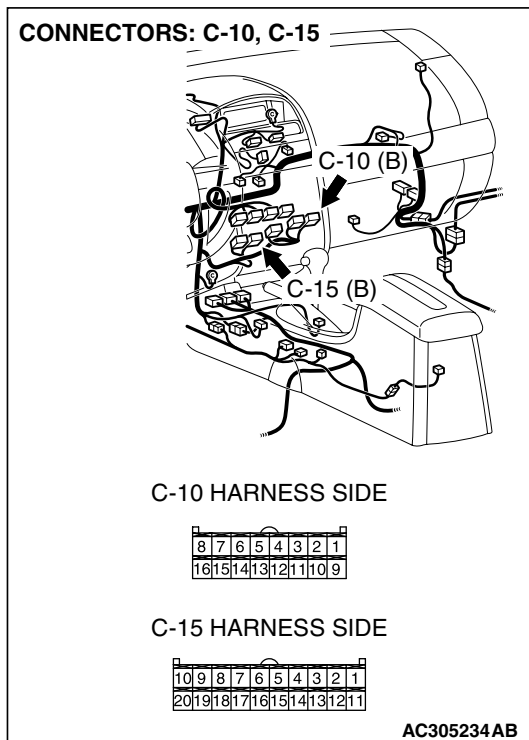
YES : If the resistance measures 1 kΩ or more, go to Step 15 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

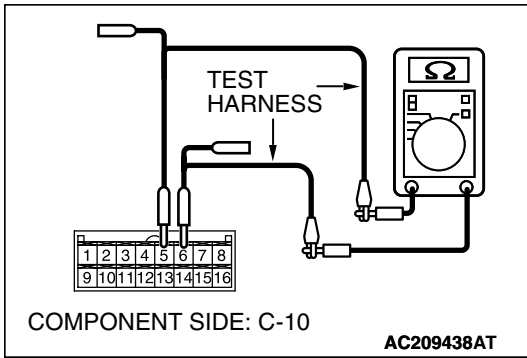
STEP 15. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

CAUTION

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



- (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>, and measure the resistance at the component side of A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.



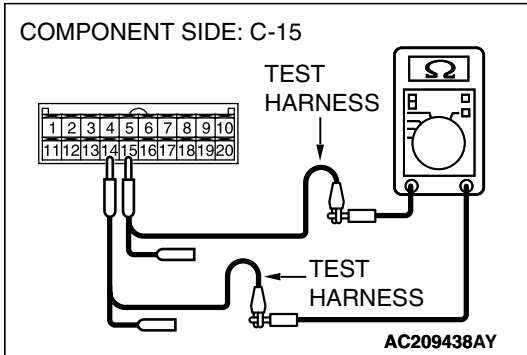
- (2) Measure the resistance between A/C-ECU connector terminals 5 and 6 <manual air conditioning system (low)> or terminals 14 and 15 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 kΩ, replace the A/C-ECU.



STEP 16. Check the CAN_L and H lines (communication lines including the SRS-ECU) between joint connector (3) and the SRS-ECU for a short circuit. 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](#).

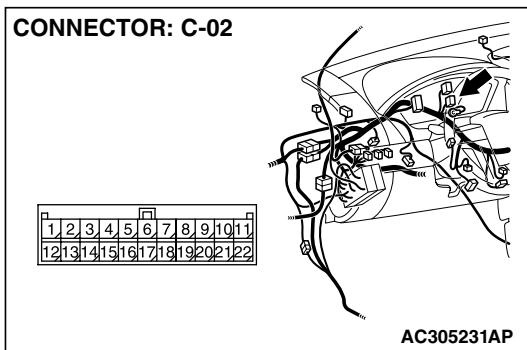
- (1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

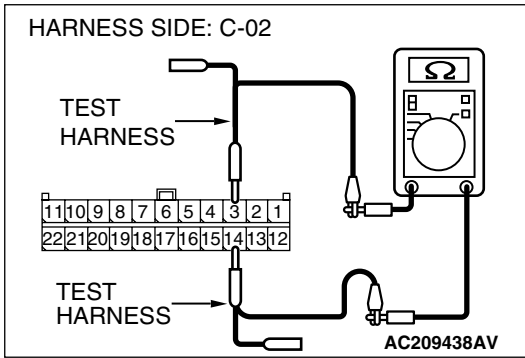
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





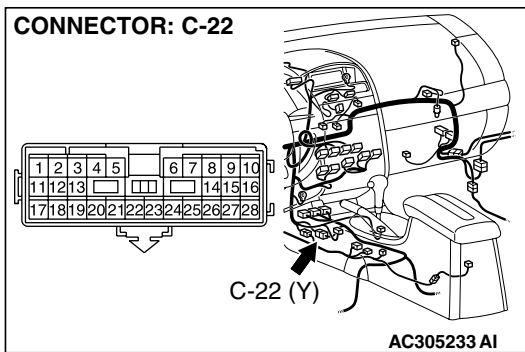
(4) Measure the resistance between joint connector (3) terminals 3 and 14.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 23 .

NO : If the resistance measures less than 1 k Ω , go to Step 17.



STEP 17. 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 18.

NO : Repair the damaged parts.

STEP 18. Check the lines between the CAN_L and H lines (communication line including ECUs) of the floor wiring harness for a short circuit. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

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

⚠ CAUTION

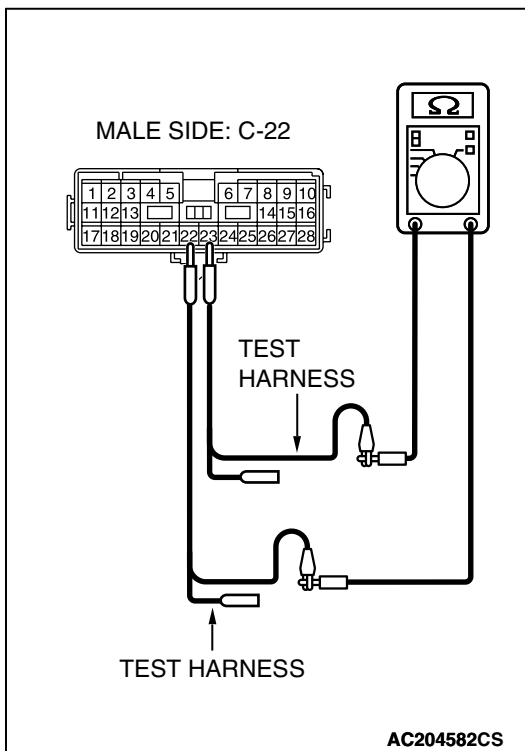
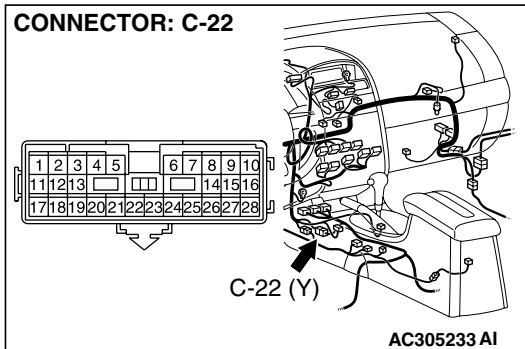
The test wiring harness should be used. For details refer to **P.54C-4**.

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor 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 22 and 23.

OK: $120 \pm 20 \Omega$

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

YES : If the resistance measures $120 \pm 20 \Omega$, go to Step 22.

NO : If the resistance does not measure $120 \pm 20 \Omega$, Go to Step 19.

STEP 19. Check the CAN_L and H lines (communication lines only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

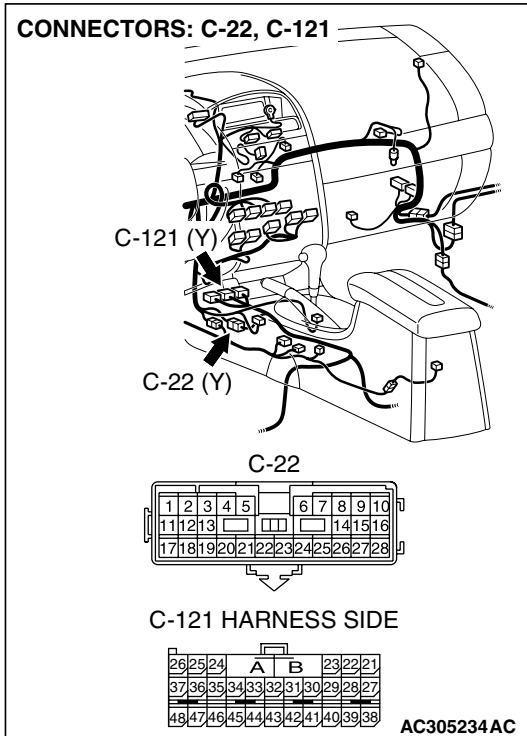
The test wiring harness should be used. For details refer to [P.54C-4](#).

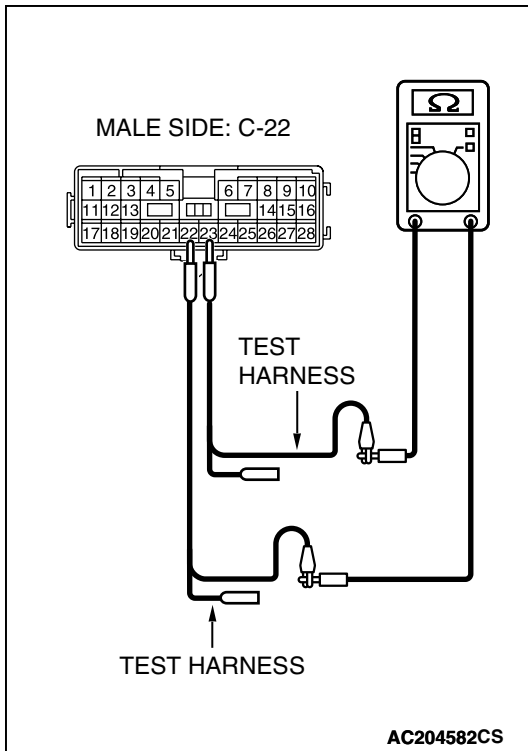
- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





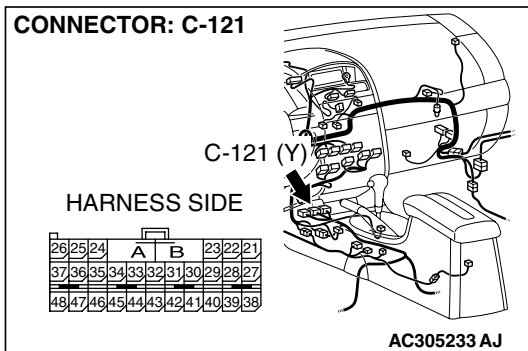
(4) Measure the resistance between intermediate connector terminals 22 and 23.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 20 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and SRS-ECU connector.



STEP 20. 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 21.

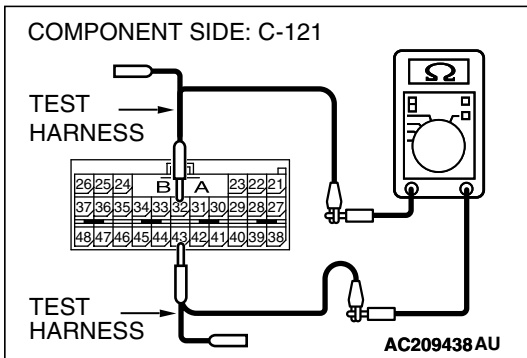
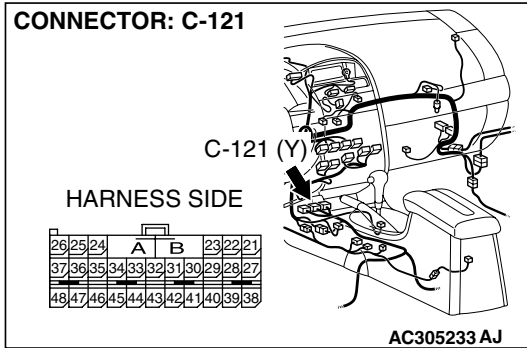
NO : Repair the damaged parts.

STEP 21. Check the SRS-ECU for short circuit. Measure the resistance at SRS-ECU connector C-121.

⚠ CAUTION

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

- (1) Disconnect SRS-ECU connector C-121, and measure the resistance at the component side of SRS-ECU connector C-121.



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

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-456.
- NO :** If the resistance measures less than 1 kΩ, replace the SRS-ECU.

STEP 22. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

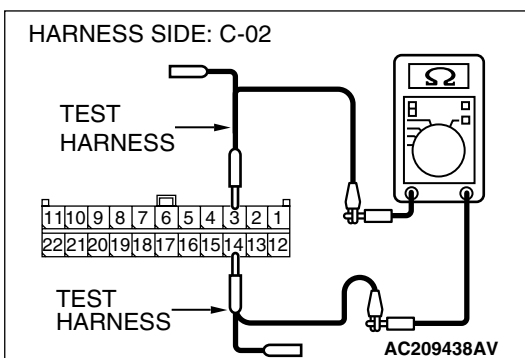
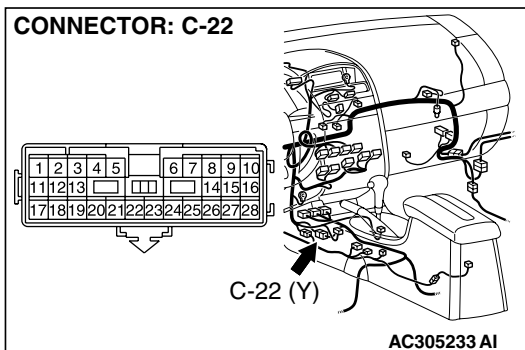
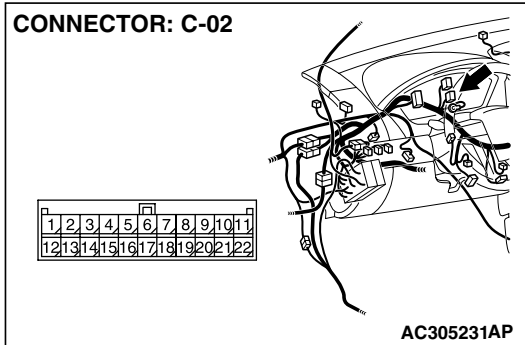
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and 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 3 and 14.

OK: 1 k Ω or more

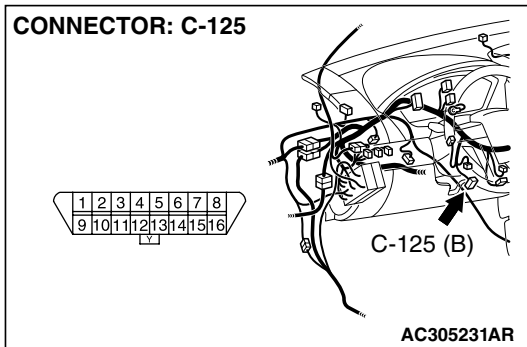
⚠ CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).

NO : If the resistance measures less than 1 k Ω , repair the wiring harness between intermediate connector C-22 and joint connector (3).



STEP 23. 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 24.

NO : Repair the damaged parts.

STEP 24. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the data link connector for a short circuit. 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](#).

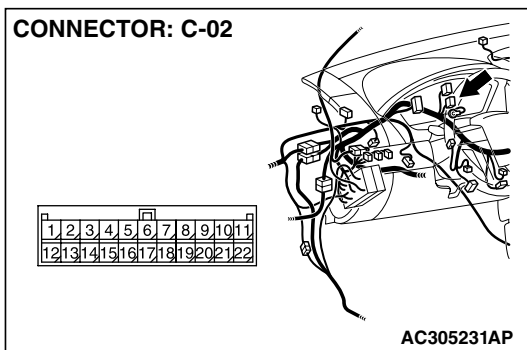
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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.



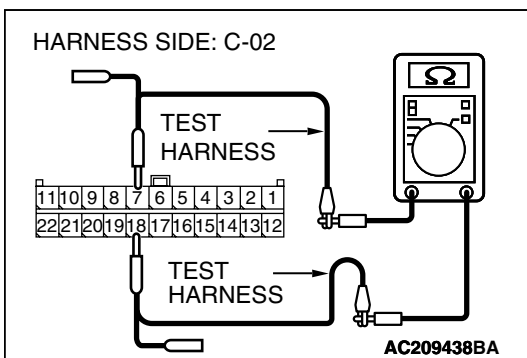
(4) Measure the resistance between joint connector (3) terminals 7 and 18.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 25 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.



STEP 25. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

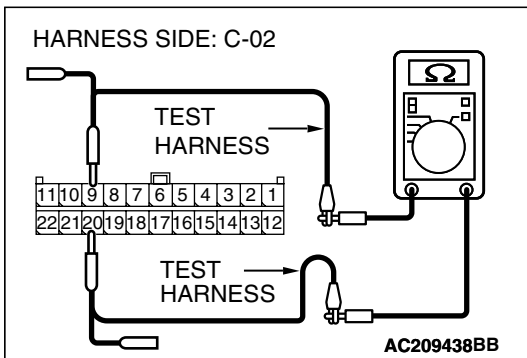
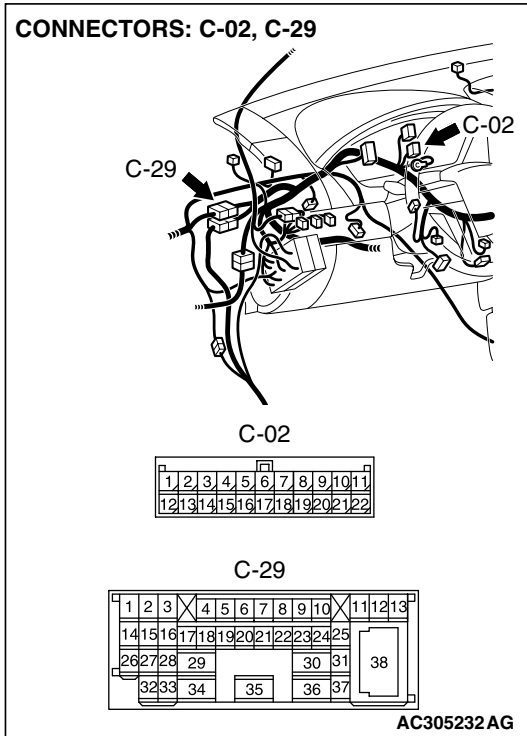
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and 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 9 and 20.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-456](#).
- NO :** If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).

STEP 26. Check powertrain control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

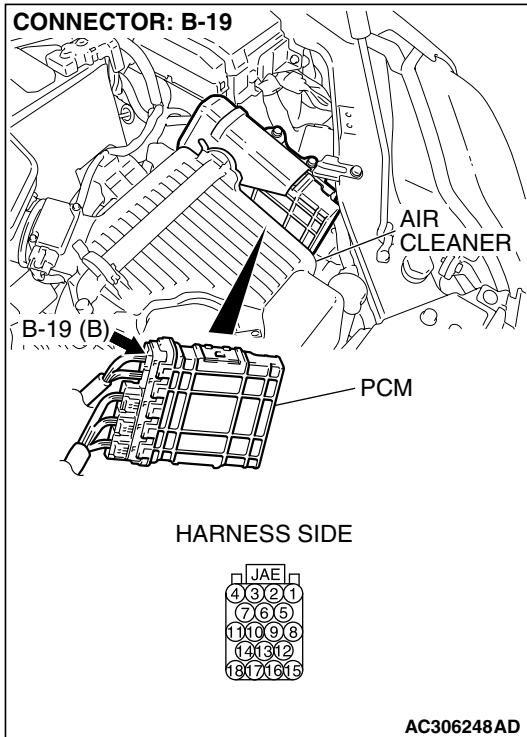
CAUTION

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 27.

NO : Repair the damaged parts.



STEP 27. Check the CAN_L and H lines (communication lines only) between the powertrain control module connector for a short circuit. Measure the resistance at powertrain control module connector B-19.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

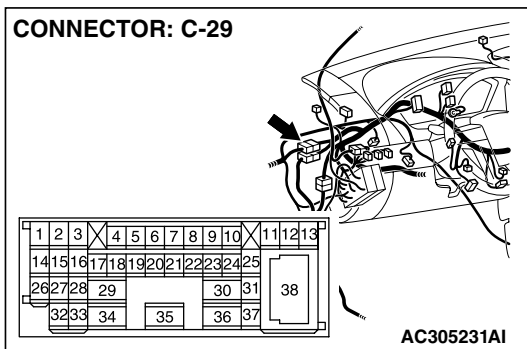
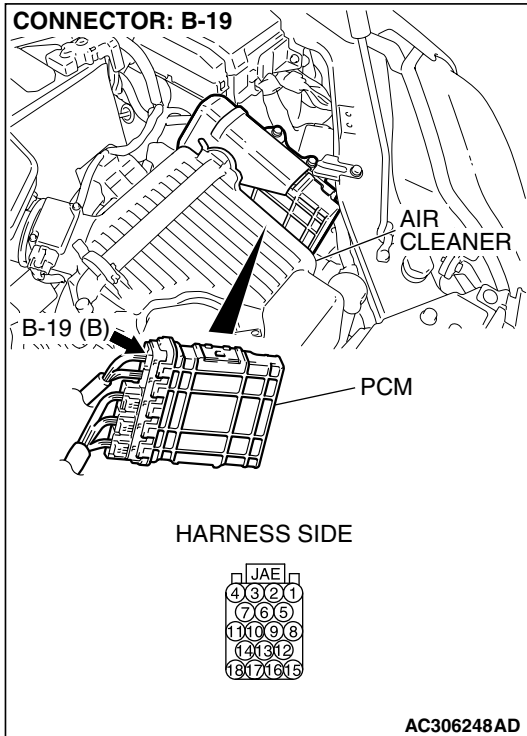
The test wiring harness should be used. For details refer to [P.54C-4](#).

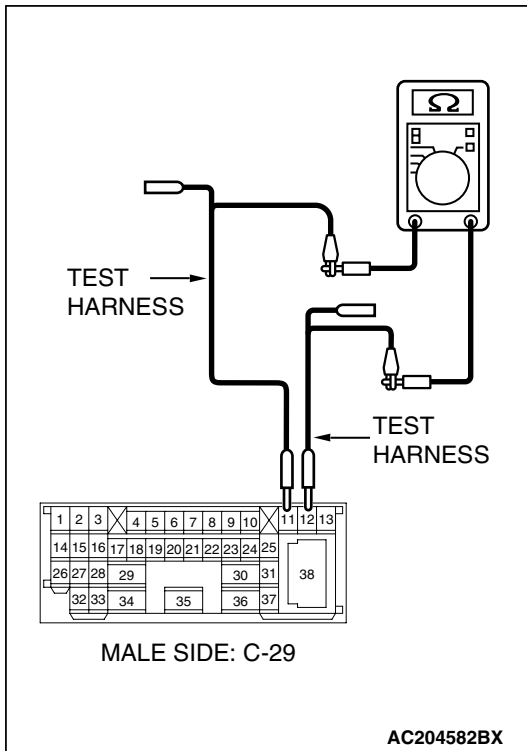
- (1) Disconnect powertrain control module connector B-19 and intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side) of intermediate connector C-29.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 28 .

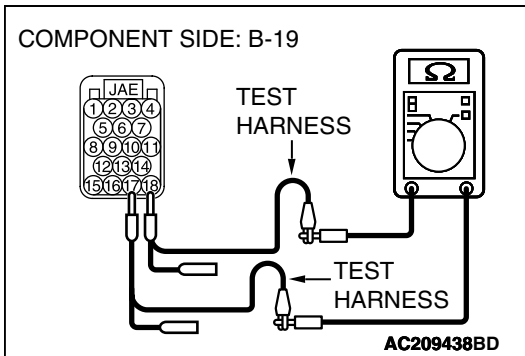
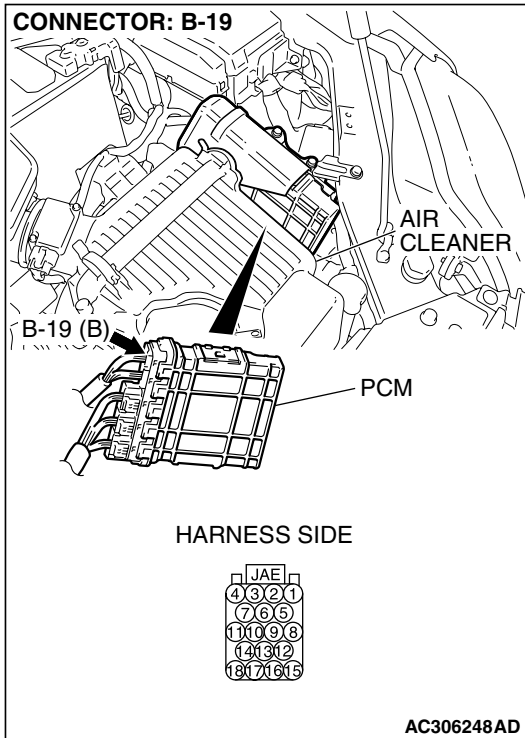
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and the powertrain control module connector.

STEP 28. Check the powertrain control module for short circuit. 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: $120 \pm 20 \Omega$

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

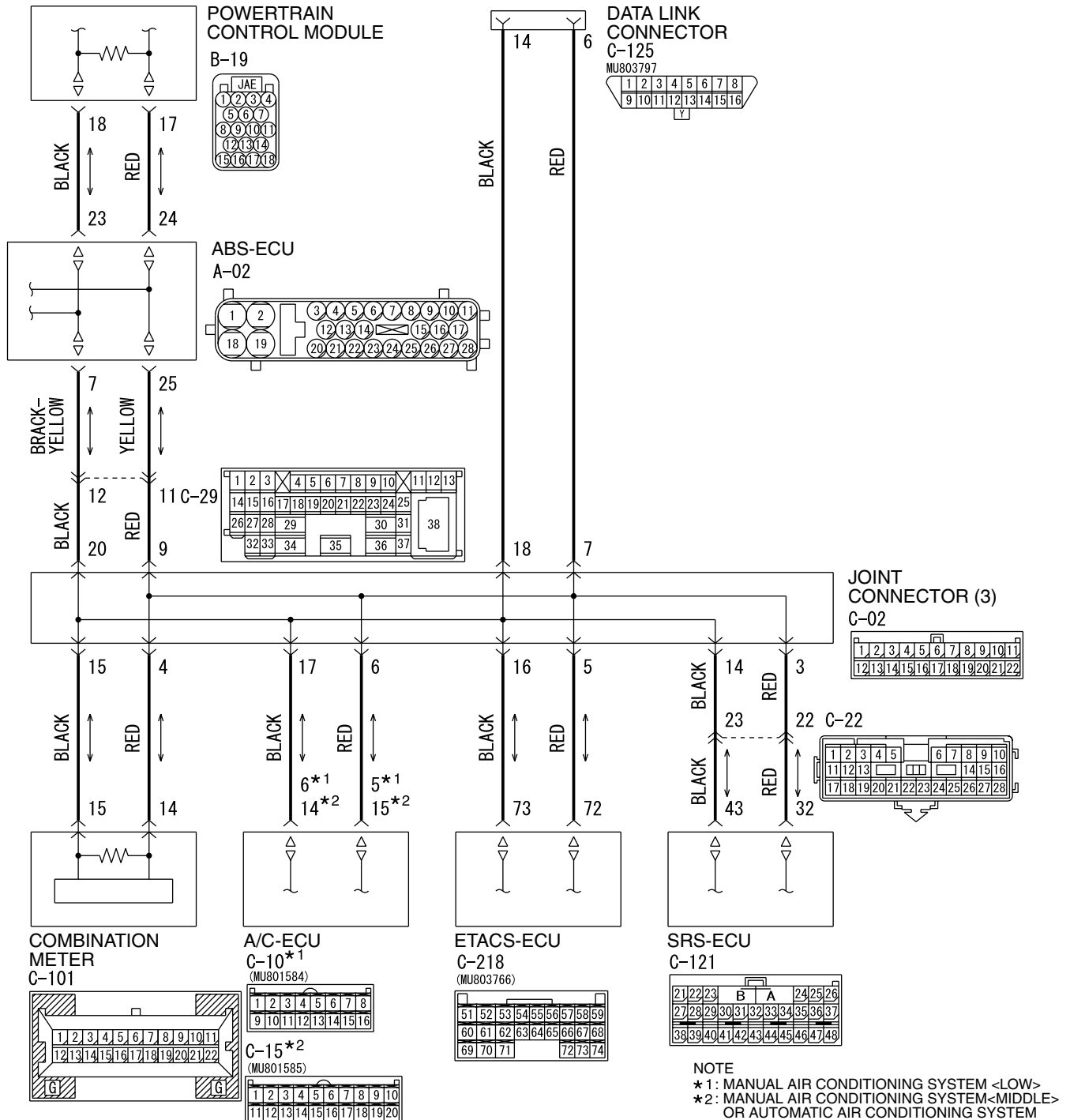
YES : If the resistance measures $120 \pm 20 \Omega$, diagnose CAN bus lines thoroughly by referring to P.54C-456.

NO : If the resistance does not measure $120 \pm 20 \Omega$, replace the powertrain control module.

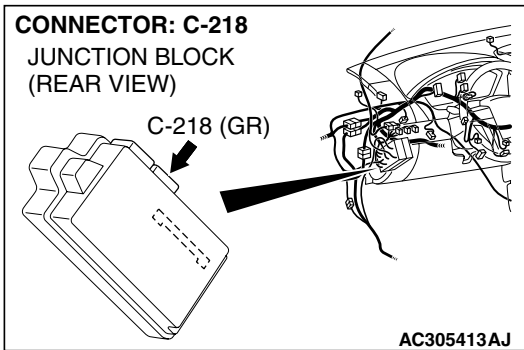
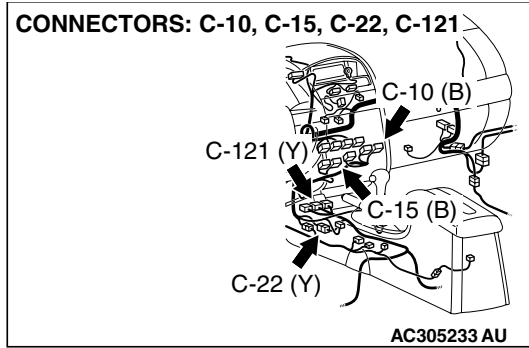
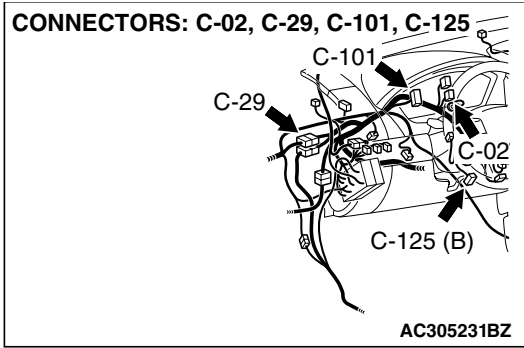
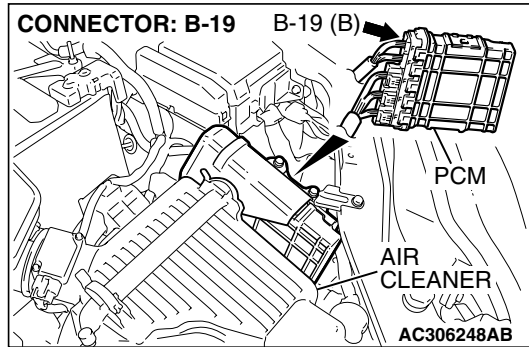
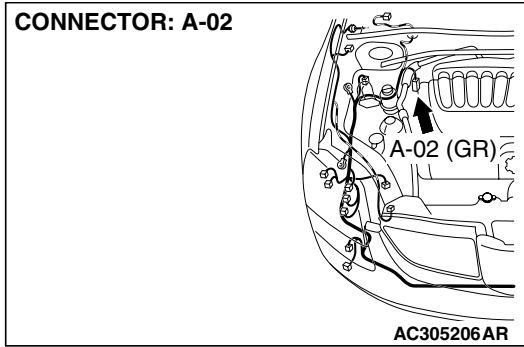
DIAGNOSTIC ITEM 8: Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles without multi-center display (middle-grade type)>

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



TROUBLE JUDGMENT

Short circuit may be present between the CAN_L and H lines when the resistance between the CAN bus lines (CAN_L and H lines) is less than 2 ohms.

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 damaged 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
- MB991970: ABS Check Harness

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

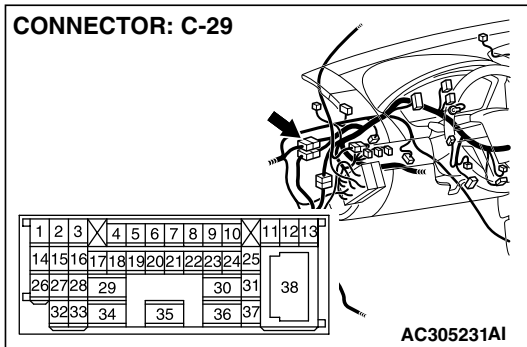
⚠ CAUTION

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 lines between the CAN_L and H lines (communication line including ECUs) of the front wiring harness for a short circuit. 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.

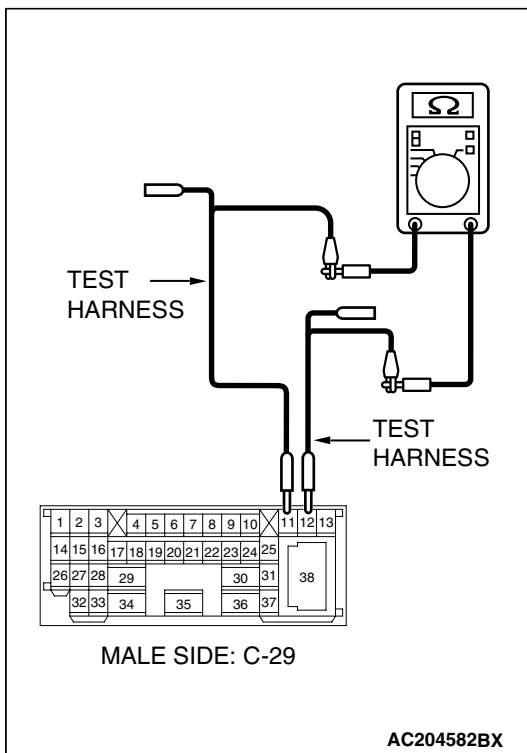
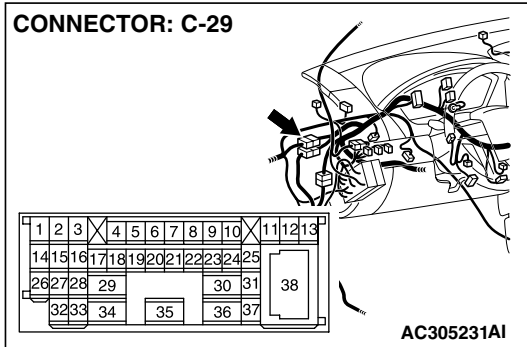
- (3) Disconnect the negative battery terminal.

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

OK: $120 \pm 20 \Omega$

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

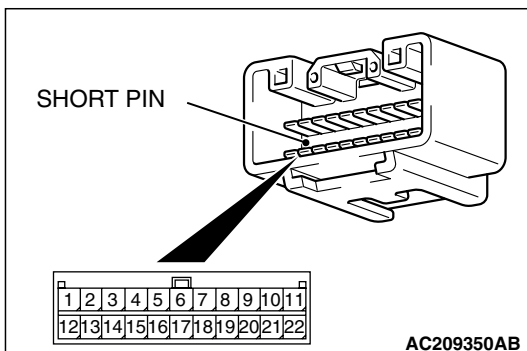
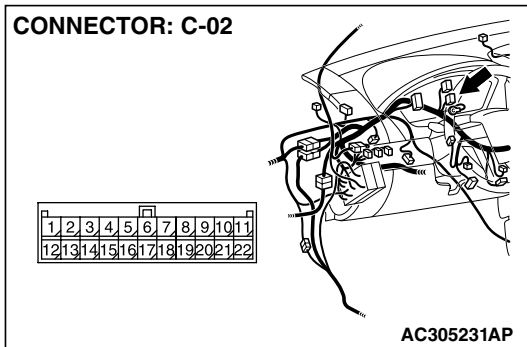
- YES :** If the resistance measures $120 \pm 20 \Omega$, go to Step 3.
- NO :** If the resistance does not measure $120 \pm 20 \Omega$, go to Step 26.



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_L and H lines (communication lines including the combination meter) between joint connector (3) and the combination meter for a short circuit. 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](#).

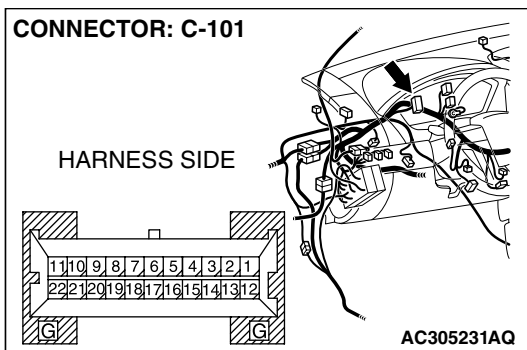
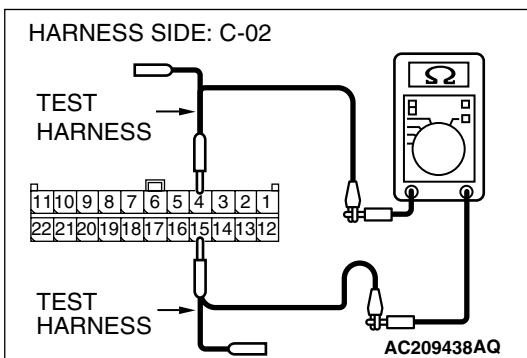
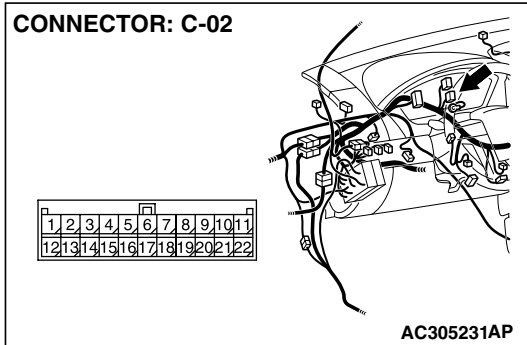
- (3) Disconnect the negative battery terminal.

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

OK: $120 \pm 20 \Omega$

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

- YES :** If the resistance measures $120 \pm 20 \Omega$, go to Step 8.
- NO :** If the resistance does not measure $120 \pm 20 \Omega$, go to Step 5.



STEP 5. Check 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](#).

Q: Is combination meter connector C-101 in good condition?

- YES :** Go to Step 6.
- NO :** Repair the damaged parts.

STEP 6. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

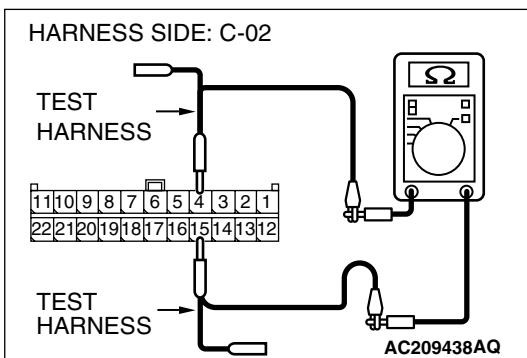
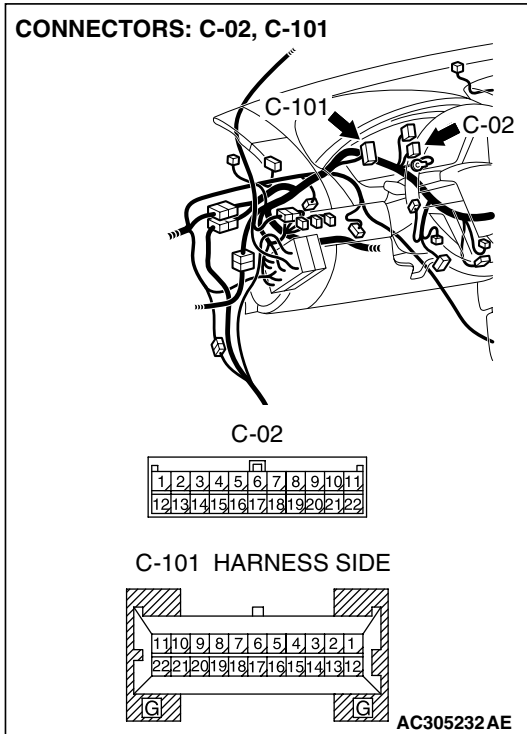
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, 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: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 7

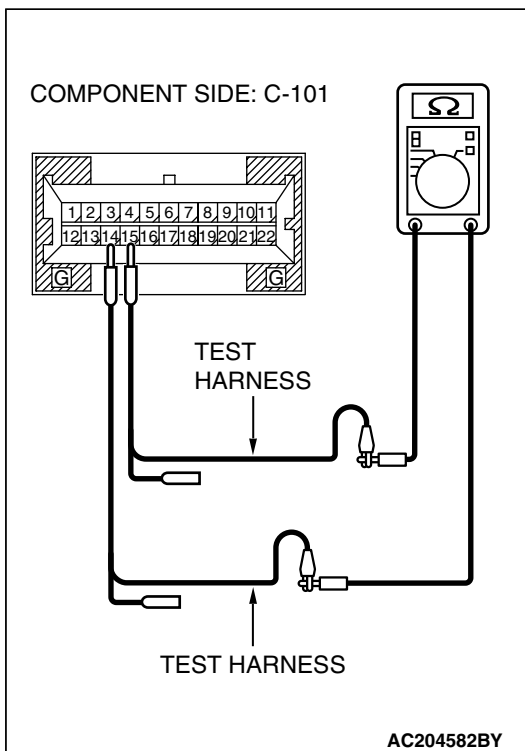
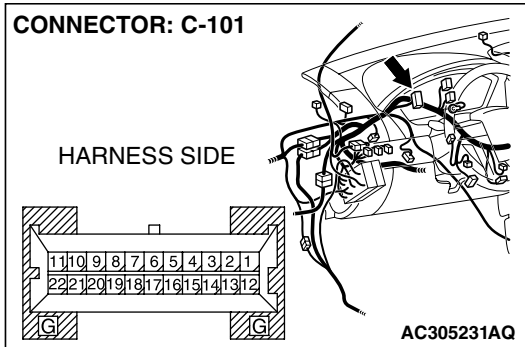
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 7. Check the combination meter for short circuit. 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: $120 \pm 20 \Omega$

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

YES : If the resistance measures $120 \pm 20 \Omega$, diagnose CAN bus lines thoroughly by referring to P.54C-486.

NO : If the resistance does not measure $120 \pm 20 \Omega$, replace the combination meter.

STEP 8. Check the CAN_L and H lines (communication lines including the ETACS-ECU) between joint connector (3) and the ETACS-ECU for a short circuit. 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.

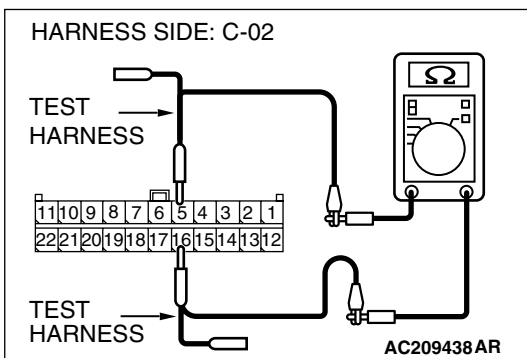
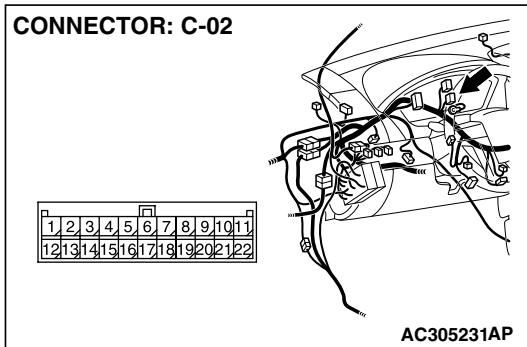
- (4) Measure the resistance between joint connector (3) terminals 5 and 16.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .

NO : If the resistance measures less than 1 kΩ, go to Step 9.



STEP 9. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

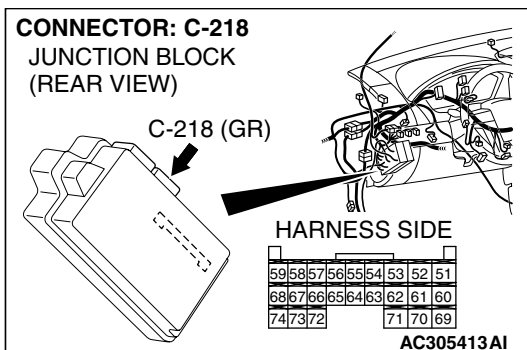
CAUTION

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 10.

NO : Repair the damaged parts.



STEP 10. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

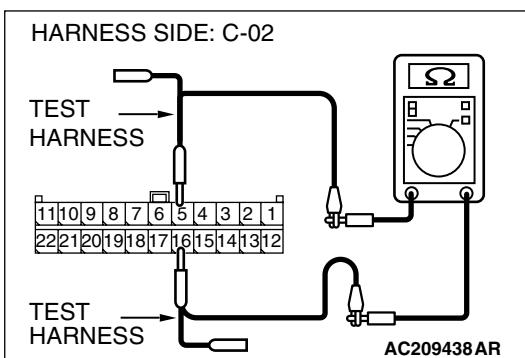
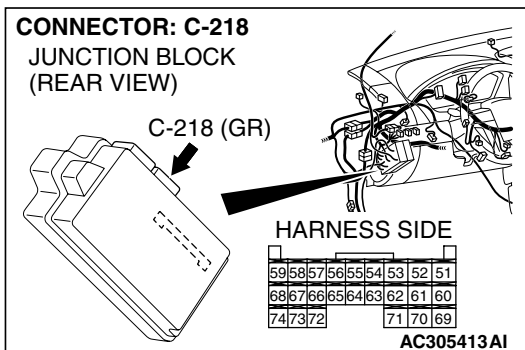
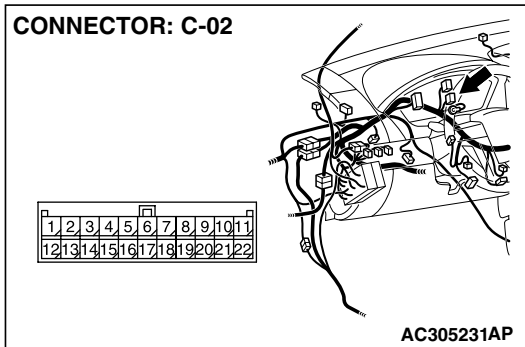
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, 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 5 and 16.

OK: 1 k Ω or more

⚠ CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 11 .

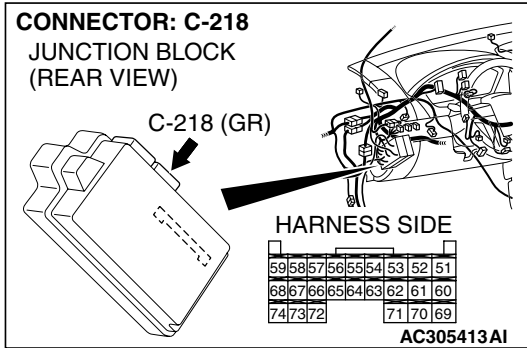
NO : If the resistance measures less than 1 k Ω , repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

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

⚠ CAUTION

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

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

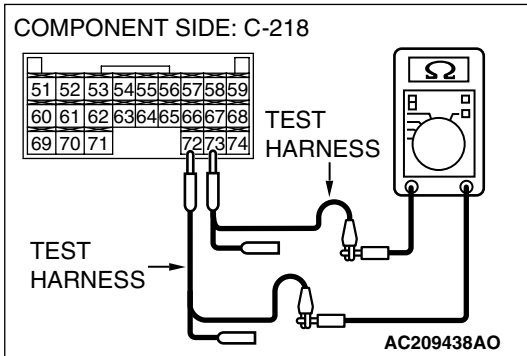


- (2) Measure the resistance between ETACS-ECU connector terminals 72 and 73.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

- YES :** If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-486.
- NO :** If the resistance measures less than 1 kΩ, replace the ETACS-ECU.



STEP 12. Check the CAN_L and H lines (communication lines including the A/C-ECU) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

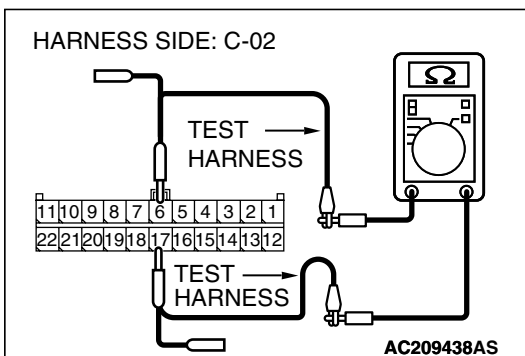
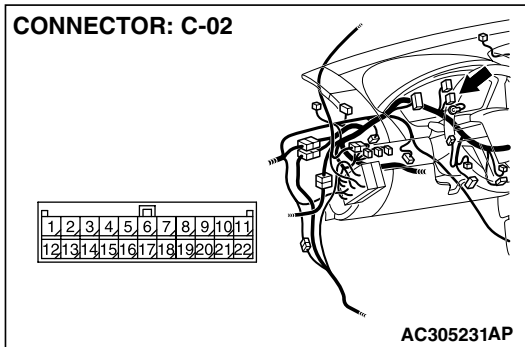
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 6 and 17.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 16 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.

STEP 13. 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.

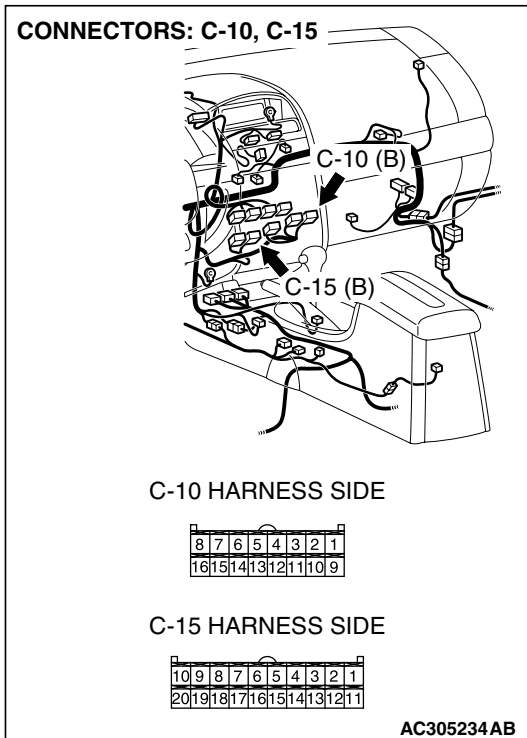
⚠ CAUTION

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 14.

NO : Repair the damaged parts.



STEP 14. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

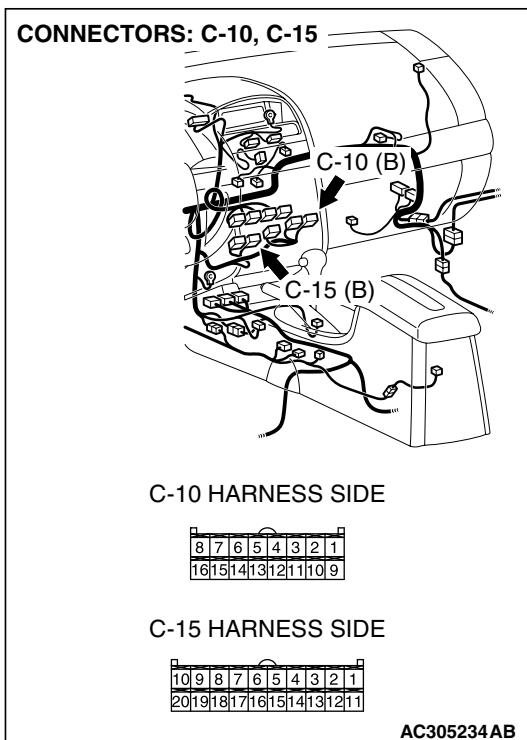
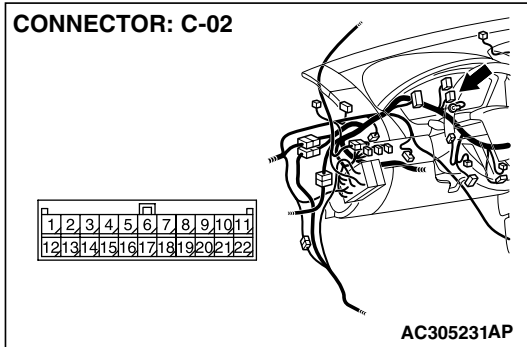
The test wiring harness should be used. For details refer to [P.54C-4](#).

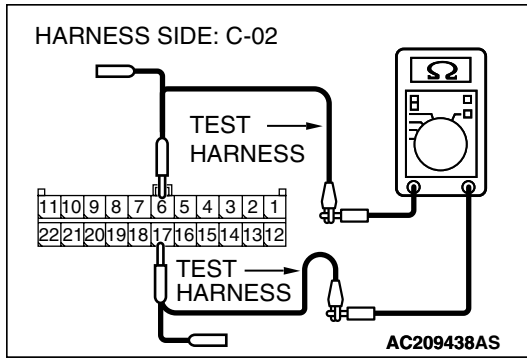
- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>, and measure the resistance at the wiring harness side of joint connector (3) C-02.
- (2) Turn the ignition 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 6 and 17.

OK: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

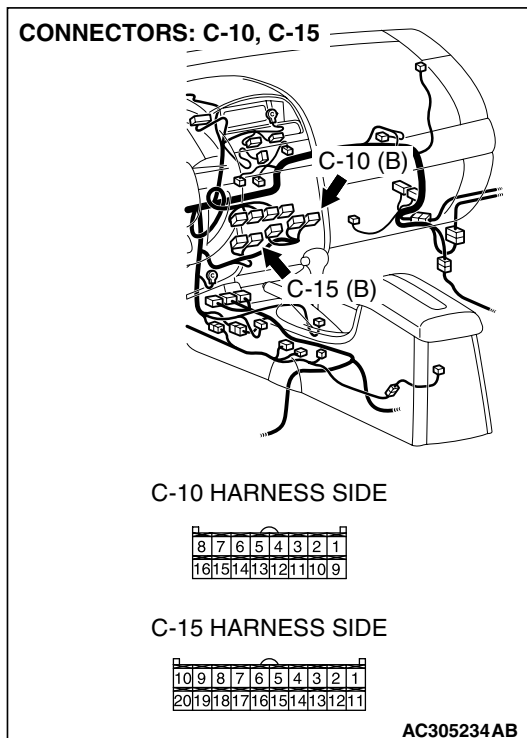
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

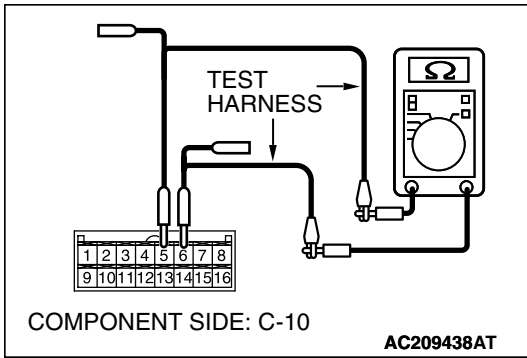
STEP 15. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.

CAUTION

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

- (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>, and measure the resistance at the component side of A/C-ECU connector C-10 <manual air conditioning system (low)> or C-15 <manual air conditioning system (middle) or automatic air conditioning system>.





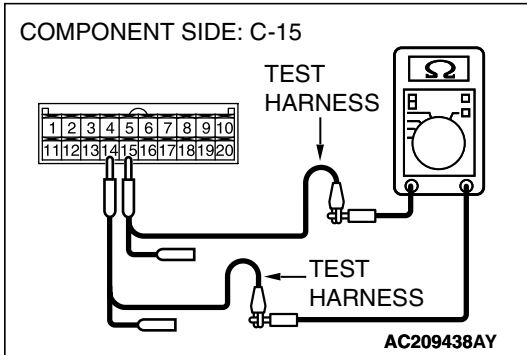
(2) Measure the resistance between A/C-ECU connector terminals 5 and 6 <manual air conditioning system (low)> or terminals 14 and 15 <manual air conditioning system (middle) or automatic air conditioning system>.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 kΩ, replace the A/C-ECU.



STEP 16. Check the CAN_L and H lines (communication lines including the SRS-ECU) between joint connector (3) and the SRS-ECU for a short circuit. 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.

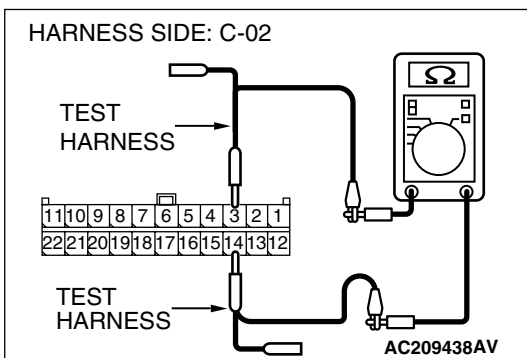
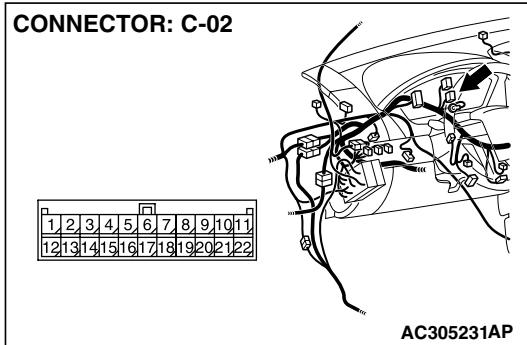
- (4) Measure the resistance between joint connector (3) terminals 3 and 14.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 23 .

NO : If the resistance measures less than 1 kΩ, go to Step 17.



STEP 17. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

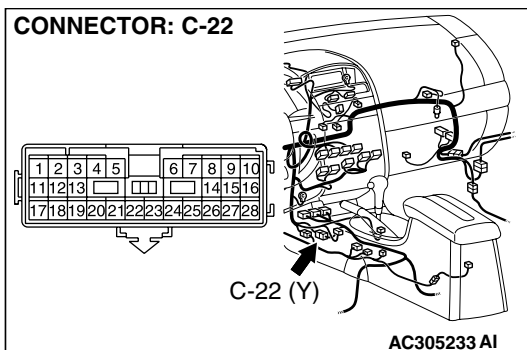
⚠ CAUTION

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 18.

NO : Repair the damaged parts.



STEP 18. Check the lines between the CAN_L and H lines (communication line including ECUs) of the floor wiring harness for a short circuit. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

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

⚠ CAUTION

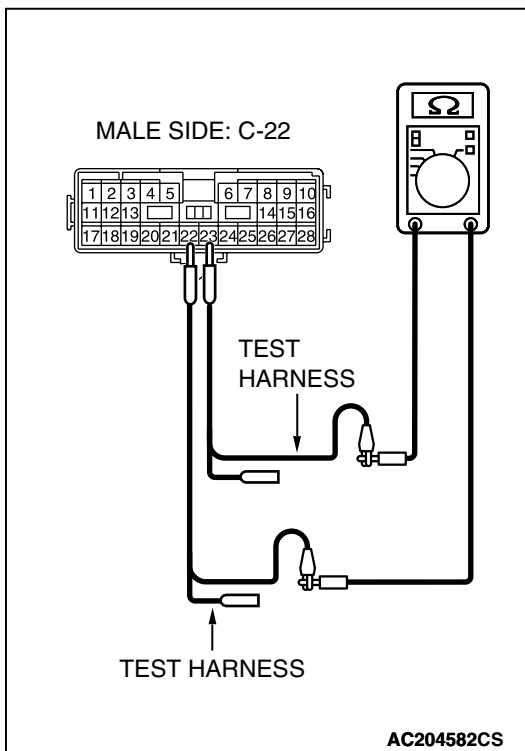
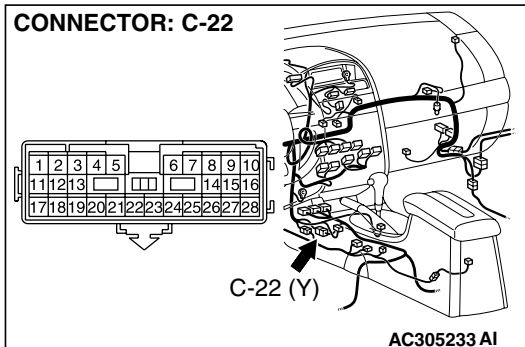
The test wiring harness should be used. For details refer to **P.54C-4**.

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor 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 22 and 23.

OK: $120 \pm 20 \Omega$

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

YES : If the resistance measures $120 \pm 20 \Omega$, go to Step 22.

NO : If the resistance does not measure $120 \pm 20 \Omega$, go to Step 19.

STEP 19. Check the CAN_L and H lines (communication lines only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

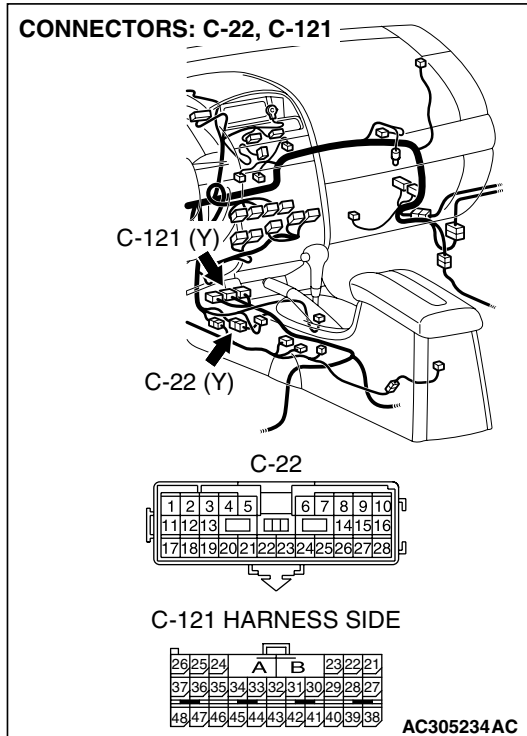
The test wiring harness should be used. For details refer to [P.54C-4](#).

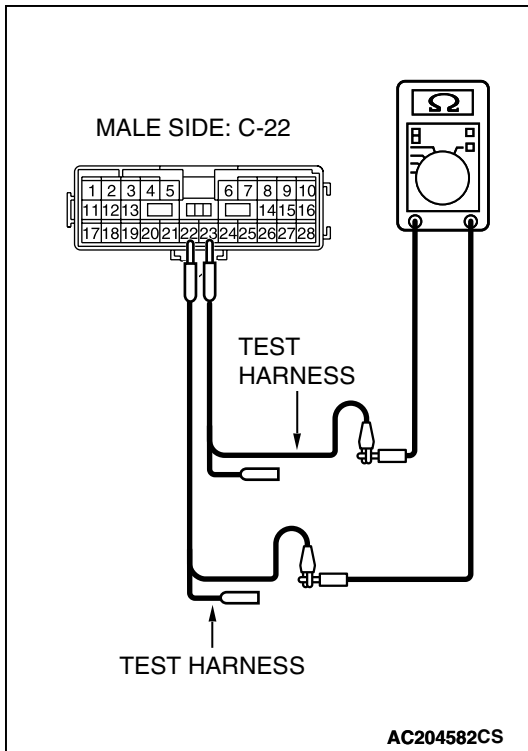
- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

- (3) Disconnect the negative battery terminal.





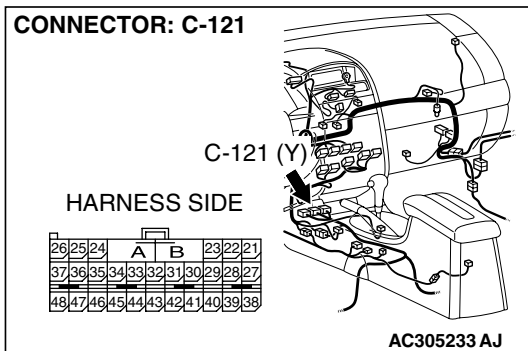
(4) Measure the resistance between intermediate connector terminals 22 and 23.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 20 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and SRS-ECU connector.



STEP 20. 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 21.

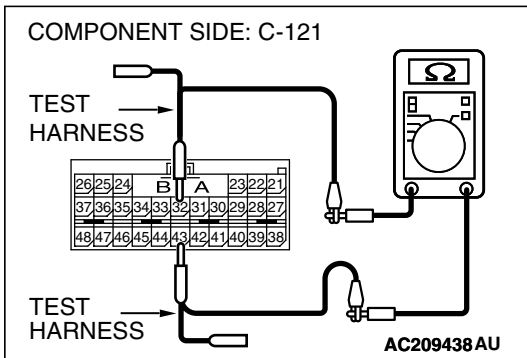
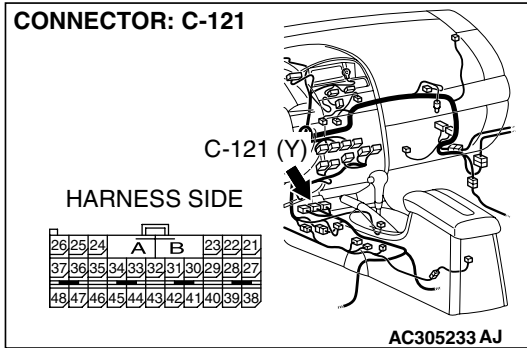
NO : Repair the damaged parts.

STEP 21. Check the SRS-ECU for short circuit. Measure the resistance at SRS-ECU connector C-121.

⚠ CAUTION

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

- (1) Disconnect SRS-ECU connector C-121, and measure the resistance at the component side of SRS-ECU connector C-121.



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

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-486.

NO : If the resistance measures less than 1 kΩ, replace the SRS-ECU.

STEP 22. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

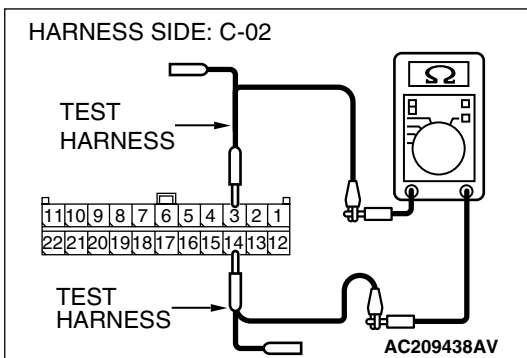
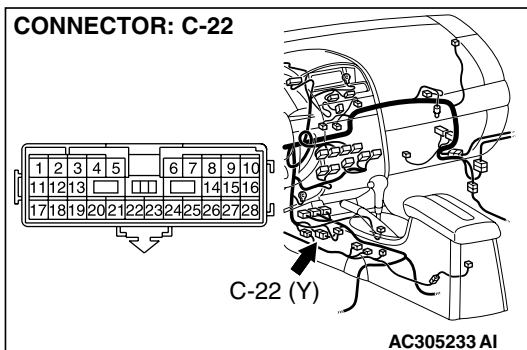
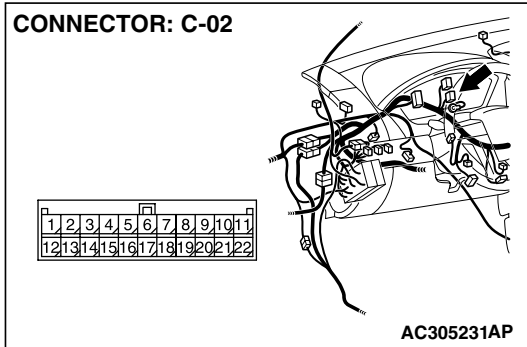
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and 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 3 and 14.

OK: 1 kΩ or more

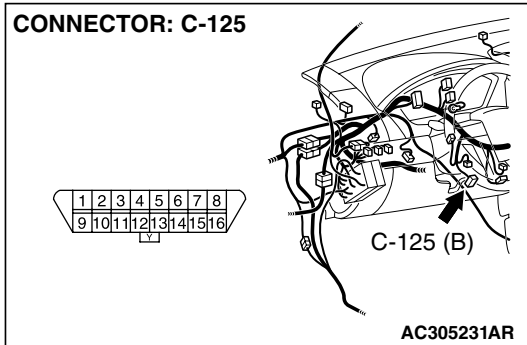
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and joint connector (3).



STEP 23. 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 24.

NO : Repair the damaged parts.

STEP 24. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the data link connector for a short circuit. 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](#).

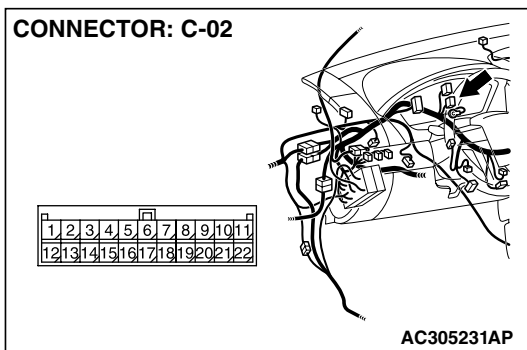
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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.



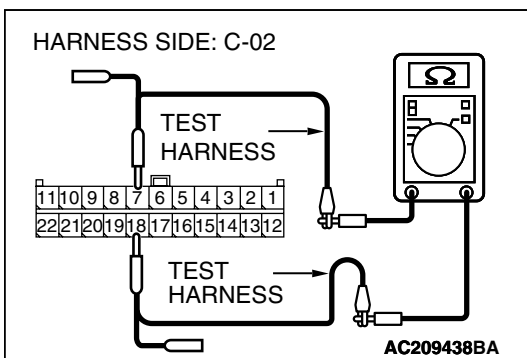
(4) Measure the resistance between joint connector (3) terminals 7 and 18.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 25 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.



STEP 25. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

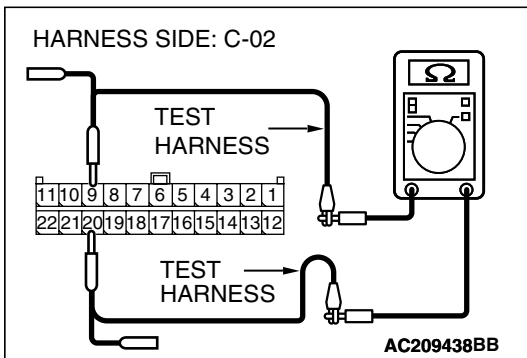
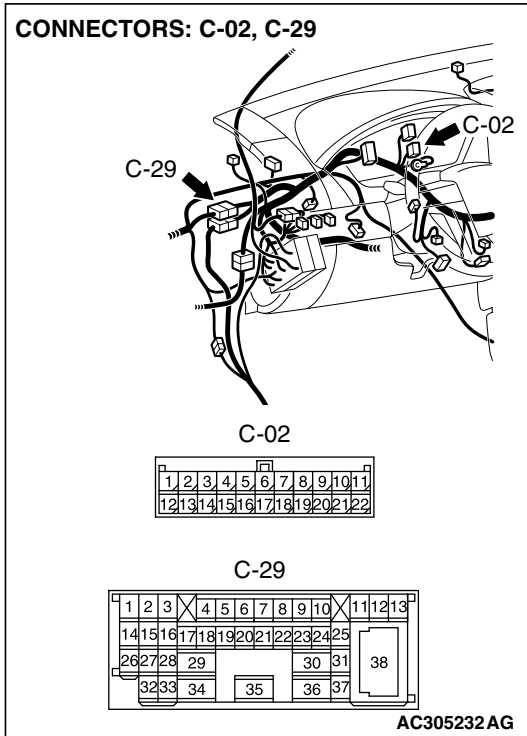
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and 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 9 and 20.

OK: 1 kΩ or more

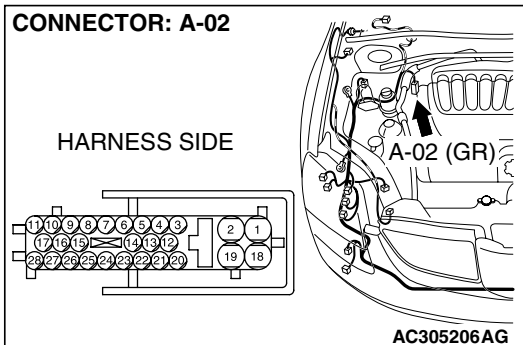
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-486](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 26. Check 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: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 27.

NO : Repair the damaged parts.

STEP 27. Check the CAN_L and H lines (communication lines only) between the ABS-ECU connector and the intermediate connector for a short circuit. 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](#).

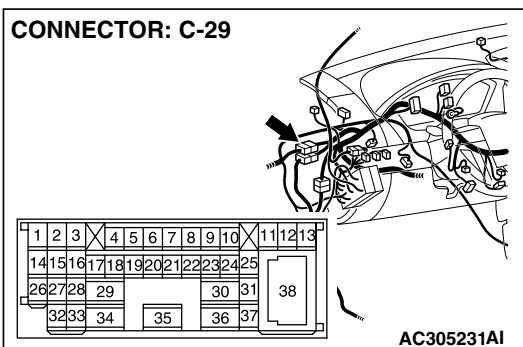
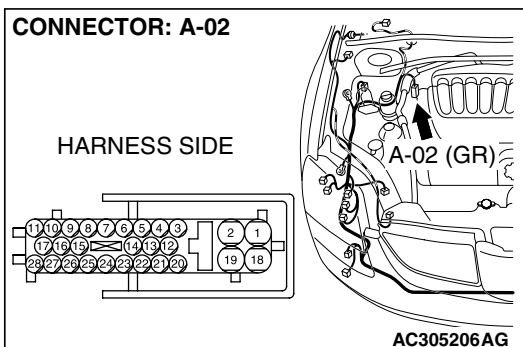
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

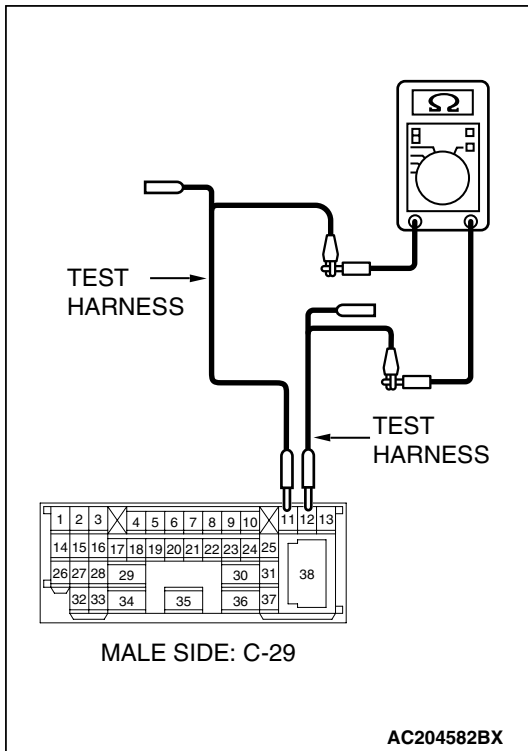
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





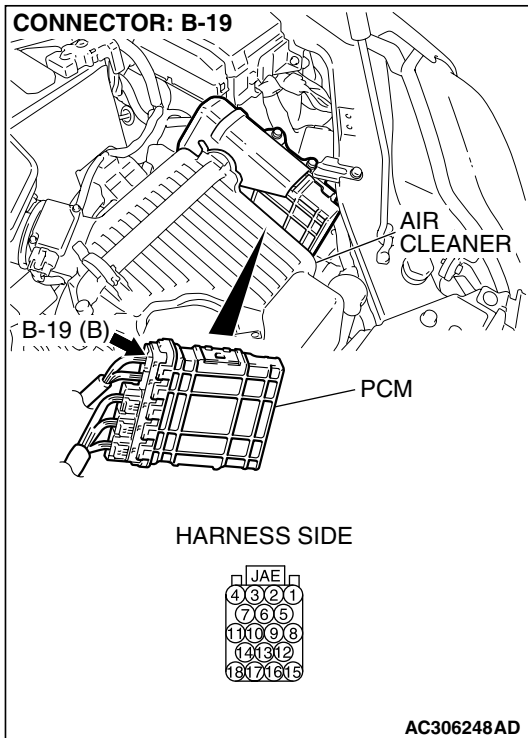
(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 28 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.



STEP 28. 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 29.

NO : Repair the damaged parts.

STEP 29. Check the CAN_L and H lines (communication lines only) between the powertrain control module connector and the ABS-ECU connector for a short circuit. Measure the resistance at 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](#).

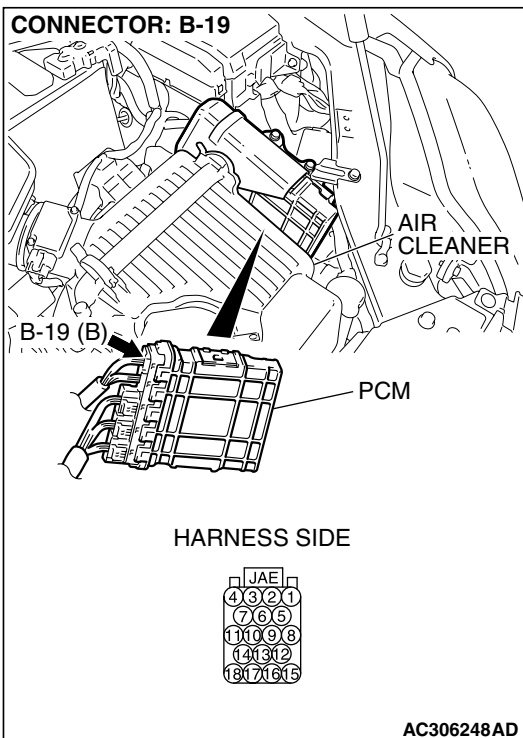
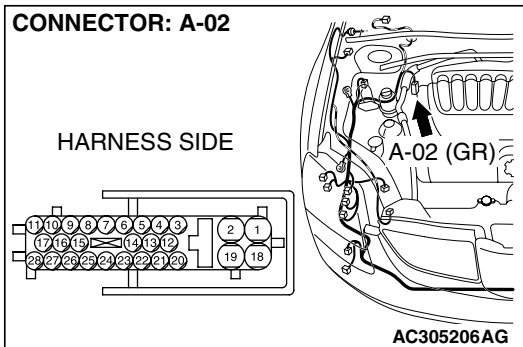
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

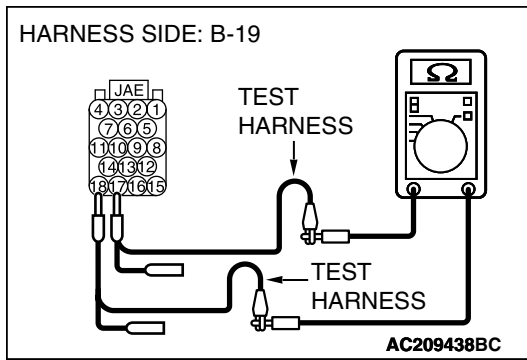
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





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

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 30 .

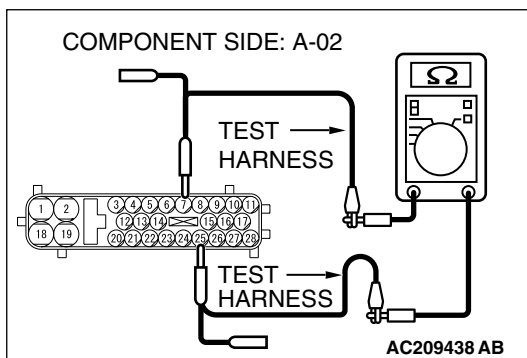
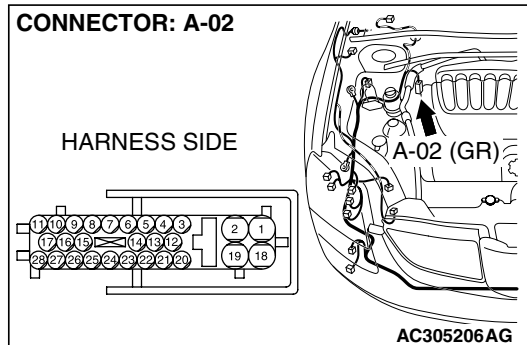
NO : If the resistance measures less than 1 k Ω , repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 30. Check the ABS-ECU for short 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 25.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 31 .

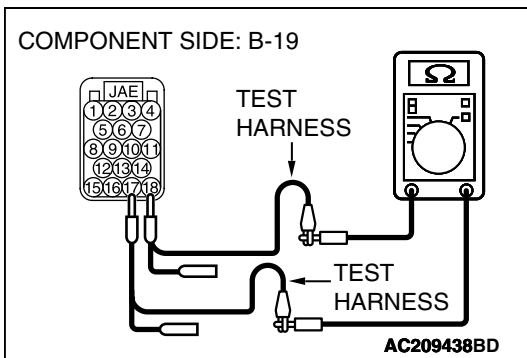
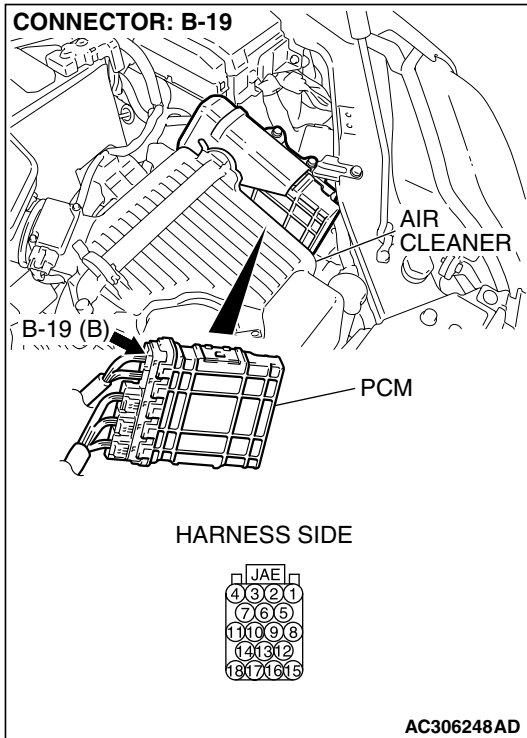
NO : If the resistance measures less than 1 k Ω , replace the ABS-ECU.

STEP 31. Check the powertrain control module for short circuit. 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: $120 \pm 20 \Omega$

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

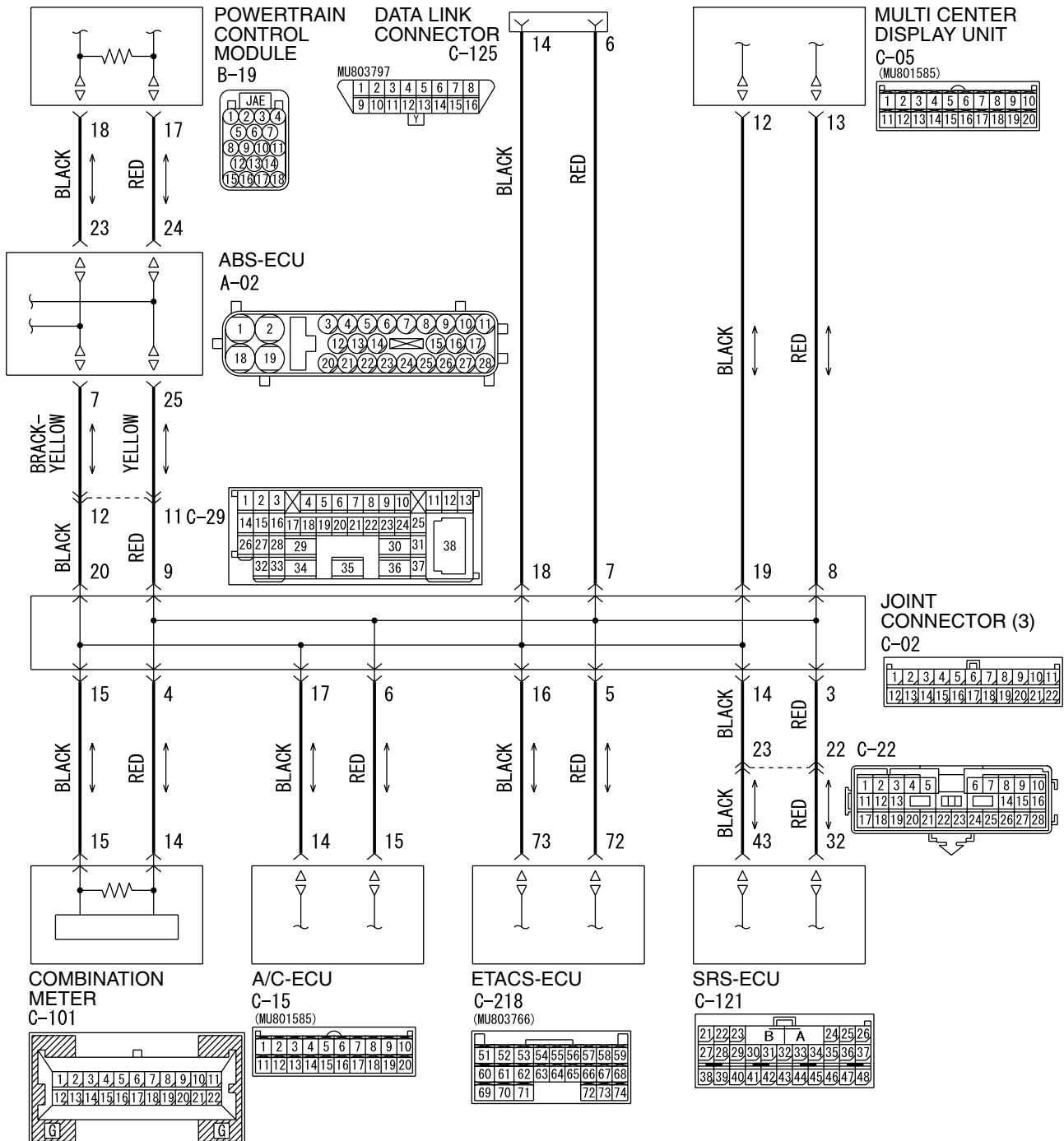
YES : If the resistance measures $120 \pm 20 \Omega$, diagnose CAN bus lines thoroughly by referring to P.54C-486.

NO : If the resistance does not measure $120 \pm 20 \Omega$, replace the powertrain control module.

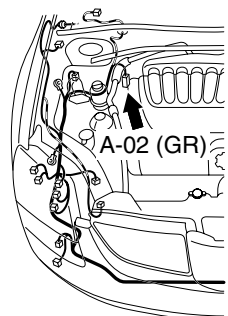
DIAGNOSTIC ITEM 9: Diagnose shorts between CAN_L and H lines <Vehicles with ABS and vehicles with multi-center display (middle-grade type)>

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.



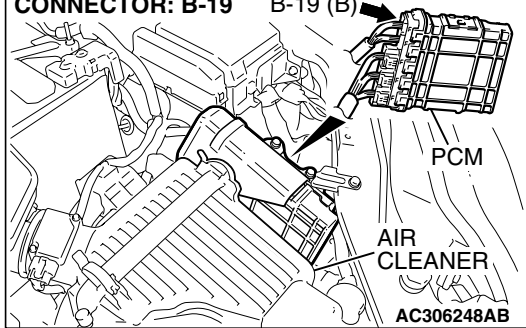
CONNECTOR: A-02



AC305206AR

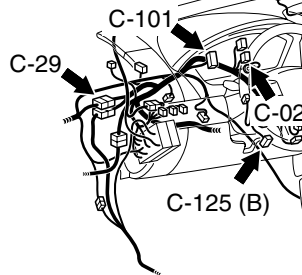
CONNECTOR: B-19

B-19 (B)



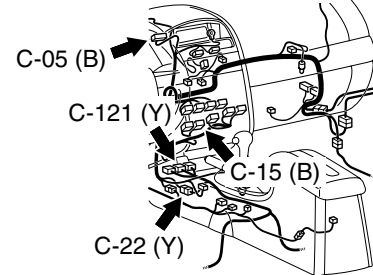
AC306248AB

CONNECTORS: C-02, C-29, C-101, C-125



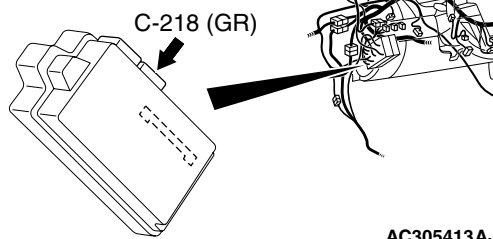
AC305231BZ

CONNECTORS: C-05, C-15, C-22, C-121



AC305233AV

CONNECTOR: C-218
JUNCTION BLOCK
(REAR VIEW)



AC305413AJ

TROUBLE JUDGMENT

Short circuit may be present between the CAN_L and H lines when the resistance between the CAN bus lines (CAN_L and H lines) is less than 2 ohms.

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 damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU
- 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
- MB991970: ABS Check Harness

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

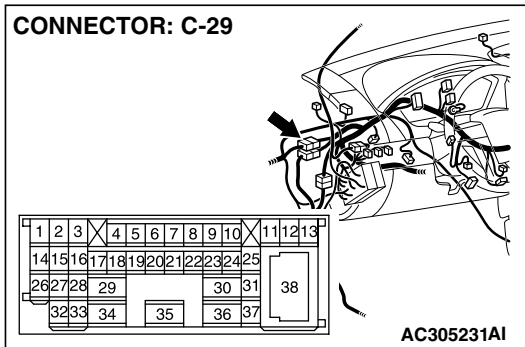
⚠ CAUTION

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 lines between the CAN_L and H lines (communication line including ECUs) of the front wiring harness for a short circuit. 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.

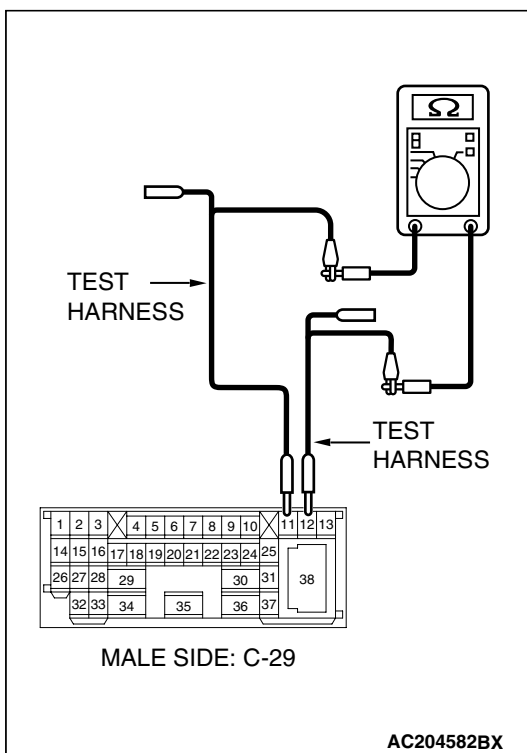
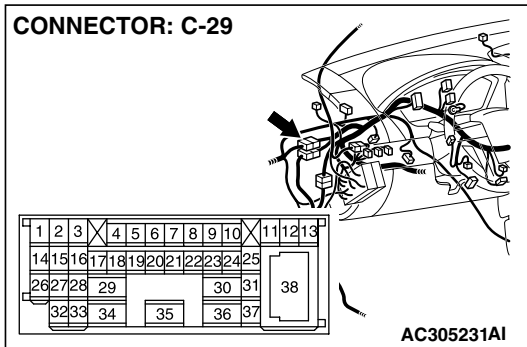
- (3) Disconnect the negative battery terminal.

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

OK: $120 \pm 20 \Omega$

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

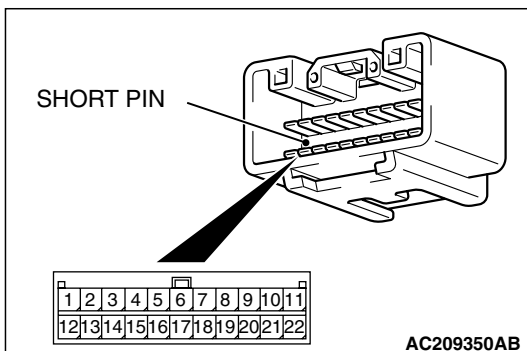
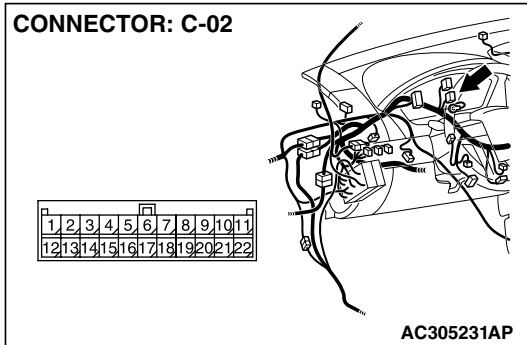
- YES :** If the resistance measures $120 \pm 20 \Omega$, go to Step 3.
NO : If the resistance does not measure $120 \pm 20 \Omega$, go to Step 30 .



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_L and H lines (communication lines including the combination meter) between joint connector (3) and the combination meter for a short circuit. 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](#).

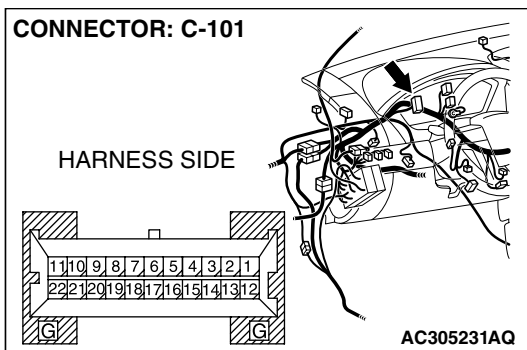
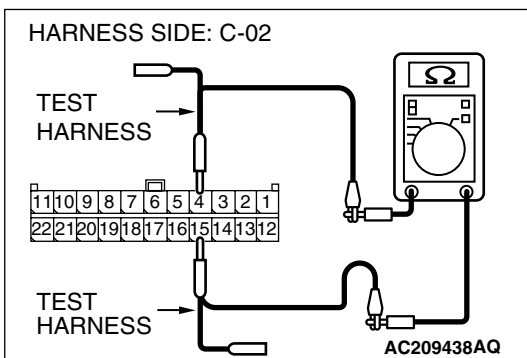
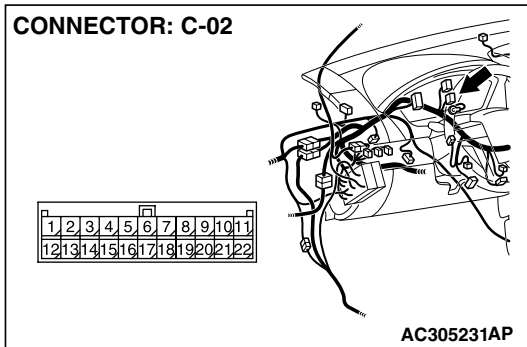
- (3) Disconnect the negative battery terminal.

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

OK: $120 \pm 20 \Omega$

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

- YES :** If the resistance measures $120 \pm 20 \Omega$, go to Step 8.
NO : If the resistance does not measure $120 \pm 20 \Omega$, go to Step 5 .



STEP 5. Check 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](#).

Q: Is combination meter connector C-101 in good condition?

- YES :** Go to Step 6.
NO : Repair the damaged parts.

STEP 6. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the combination meter for a short circuit. Measure the resistance at joint connector (3) C-02.

CAUTION

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

CAUTION

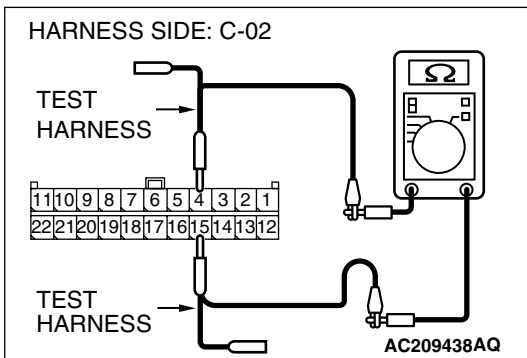
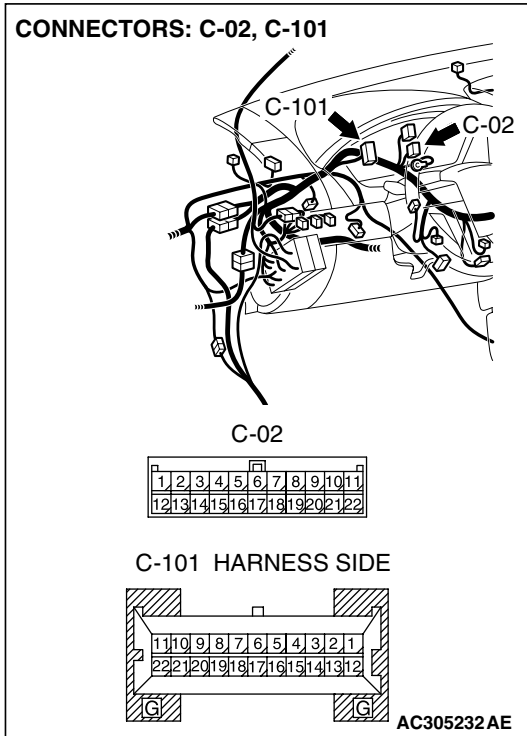
The test wiring harness should be used. For details refer to P.54C-4.

- (1) Disconnect joint connector (3) C-02 and combination meter connector C-101, 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: 1 kΩ or more

CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 7

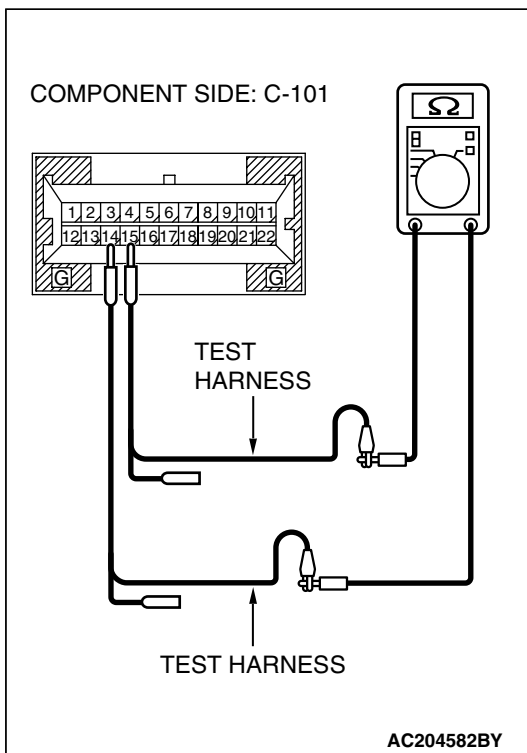
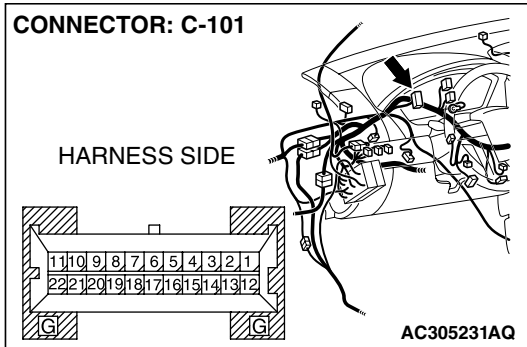
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 7. Check the combination meter for short circuit. 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: $120 \pm 20 \Omega$

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

YES : If the resistance measures $120 \pm 20 \Omega$, diagnose CAN bus lines thoroughly by referring to P.54C-520.

NO : If the resistance does not measure $120 \pm 20 \Omega$, replace the combination meter.

STEP 8. Check the CAN_L and H lines (communication lines including the ETACS-ECU) between joint connector (3) and the ETACS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

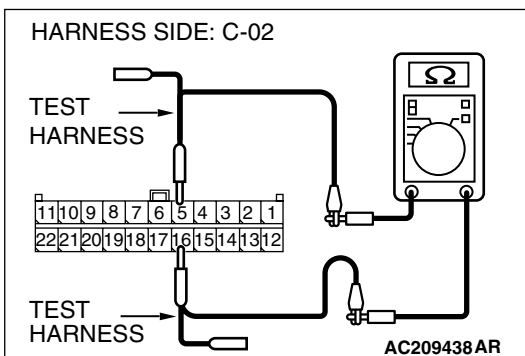
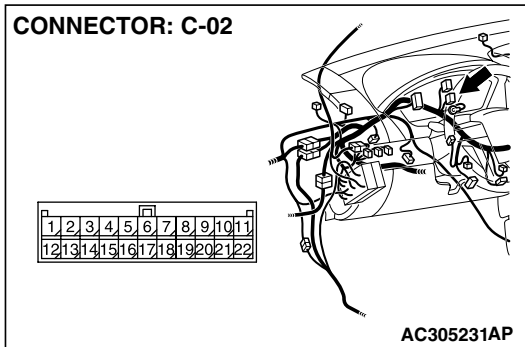
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 5 and 16.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 12 .

NO : If the resistance measures less than 1 kΩ, go to Step 9.

STEP 9. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

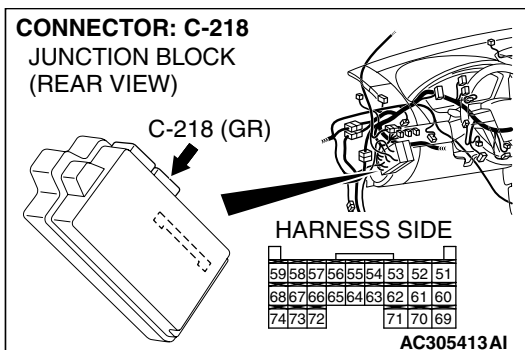
⚠ CAUTION

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 10.

NO : Repair the damaged parts.



STEP 10. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the ETACS-ECU for short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

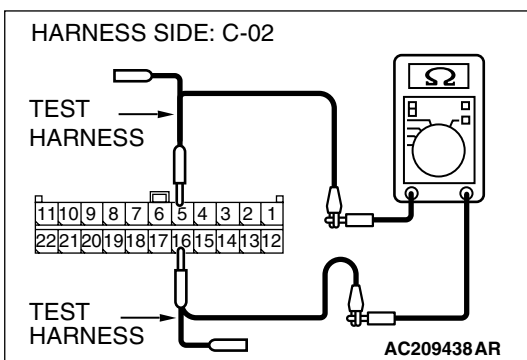
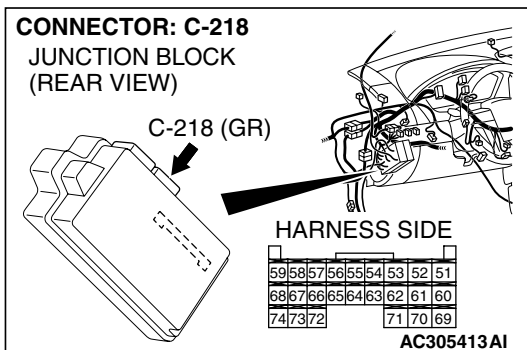
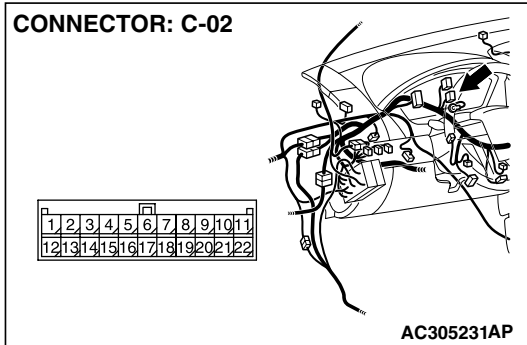
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, 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 5 and 16.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 11 .

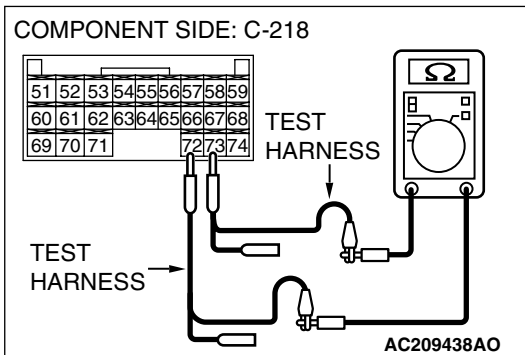
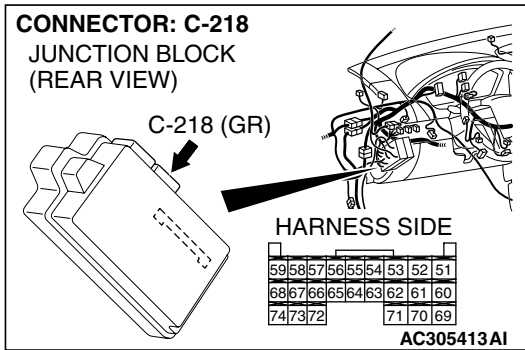
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

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

⚠ CAUTION

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

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



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

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to P.54C-520.

NO : If the resistance measures less than 1 k Ω , replace the ETACS-ECU.

STEP 12. Check the CAN_L and H lines (communication lines including the A/C-ECU) between joint connector (3) and the A/C-ECU for a short circuit. 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.

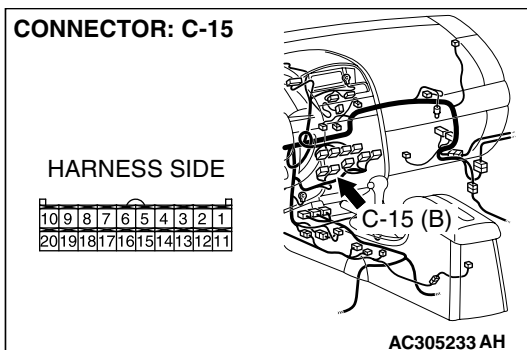
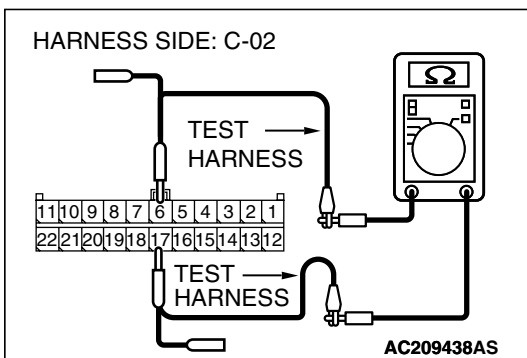
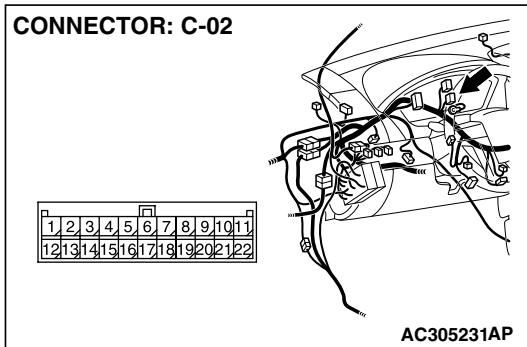
- (4) Measure the resistance between joint connector (3) terminals 6 and 17.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 16 .

NO : If the resistance measures less than 1 kΩ, go to Step 13.



STEP 13. 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 14.

NO : Repair the damaged parts.

STEP 14. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the A/C-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

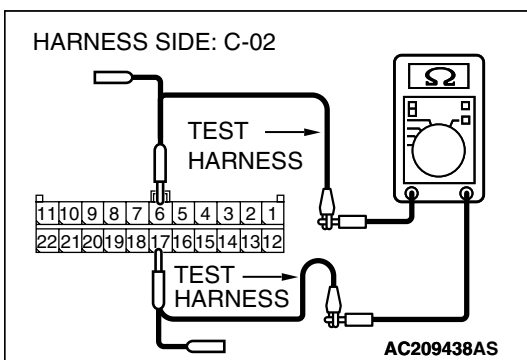
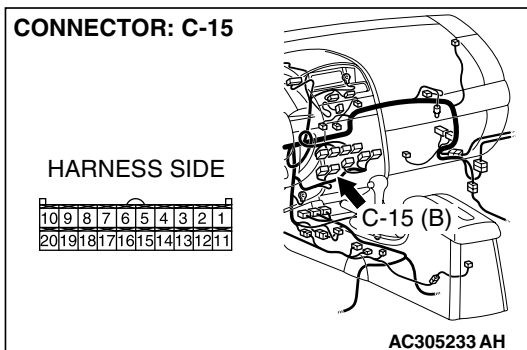
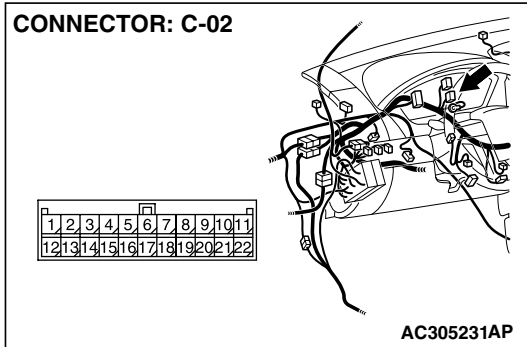
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, 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 6 and 17.

OK: 1 kΩ or more

⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 15 .

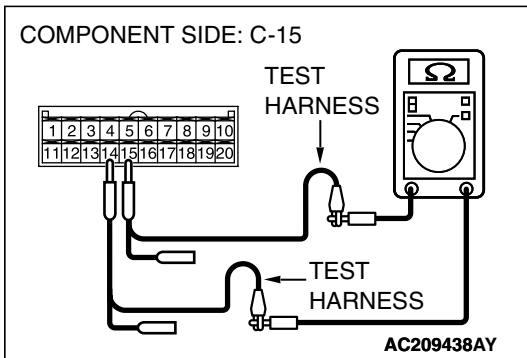
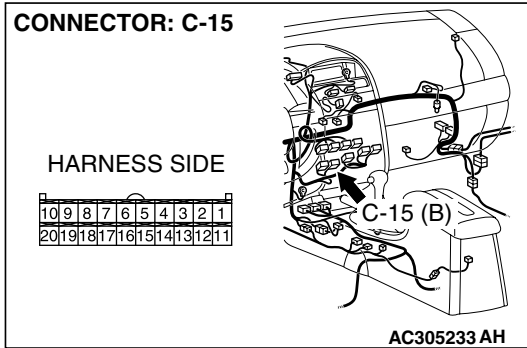
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

STEP 15. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-15.

⚠ CAUTION

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

- (1) Disconnect A/C-ECU connector C-15, and measure the resistance at the component side of A/C-ECU connector C-15.



- (2) Measure the resistance between A/C-ECU connector terminals 14 and 15.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-520.

NO : If the resistance measures less than 1 kΩ, replace the A/C-ECU.

STEP 16. Check the CAN_L and H lines (communication lines including the SRS-ECU) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

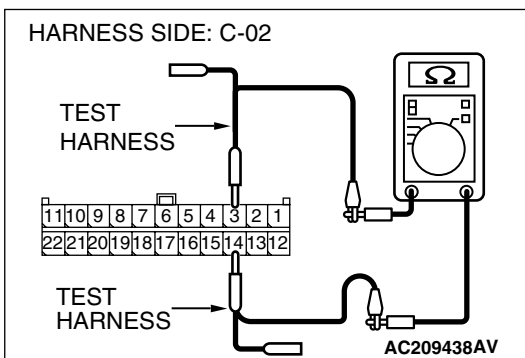
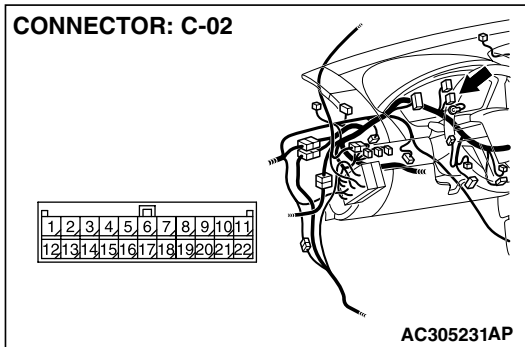
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (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 3 and 14.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 23 .

NO : If the resistance measures less than 1 kΩ, go to Step 17.

STEP 17. Check intermediate connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

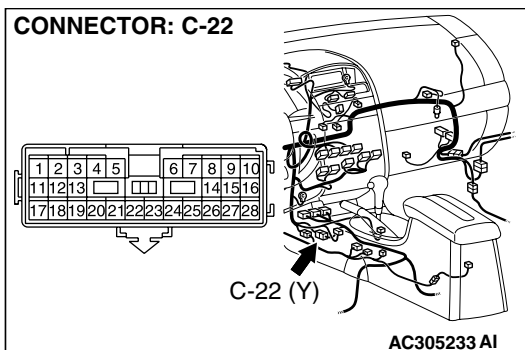
⚠ CAUTION

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 18.

NO : Repair the damaged parts.



STEP 18. Check the lines between the CAN_L and H lines (communication line including ECUs) of the floor wiring harness for a short circuit. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

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

⚠ CAUTION

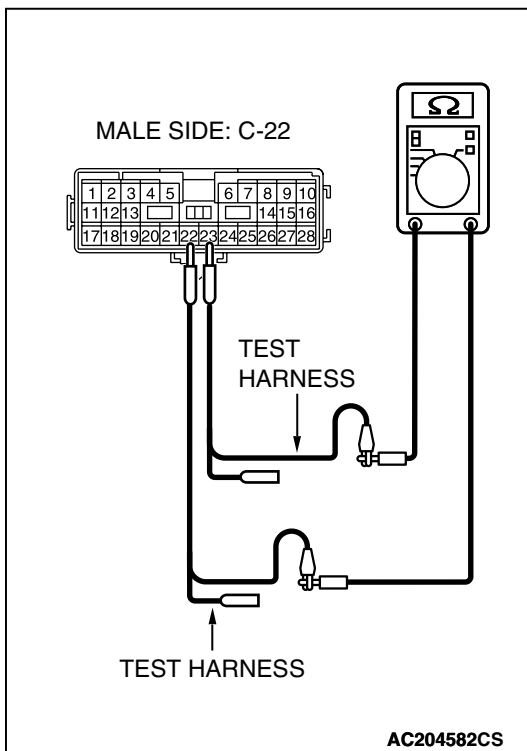
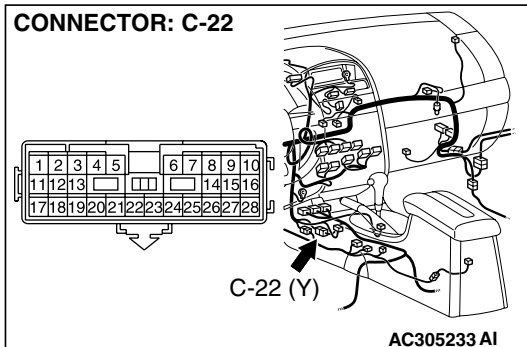
The test wiring harness should be used. For details refer to **P.54C-4**.

- (1) Disconnect intermediate connector C-22, and measure the resistance at the male side (at floor 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 22 and 23.

OK: $120 \pm 20 \Omega$

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

YES : If the resistance measures $120 \pm 20 \Omega$, go to Step 22.

NO : If the resistance does not measure $120 \pm 20 \Omega$, go to Step 19 .

STEP 19. Check the CAN_L and H lines (communication lines only) between the SRS-ECU connector and the intermediate connector for a short circuit. Measure the resistance at intermediate connector C-22.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

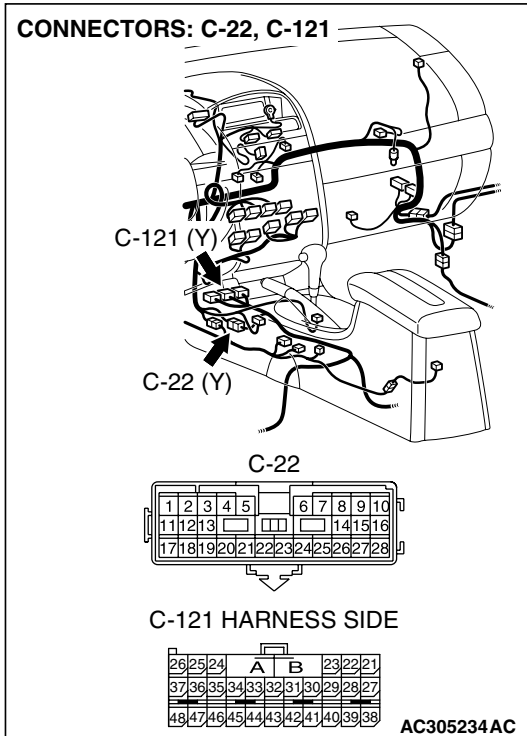
The test wiring harness should be used. For details refer to [P.54C-4](#).

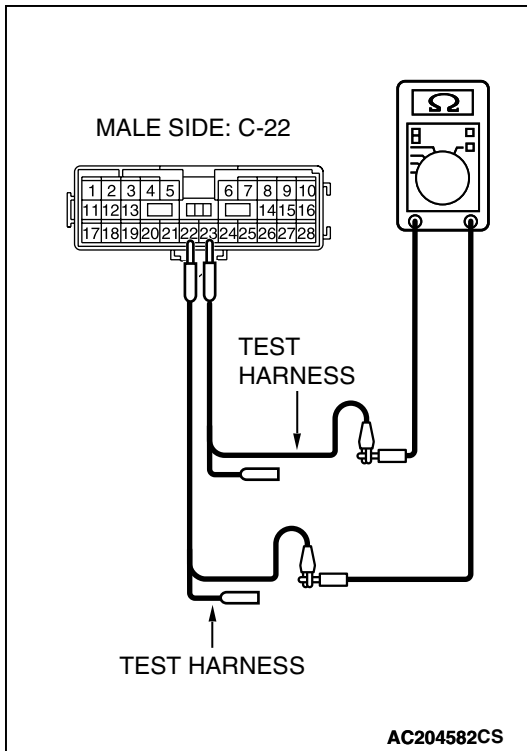
- (1) Disconnect intermediate connector C-22 and SRS-ECU connector C-121, and measure the resistance at the male side of intermediate connector C-22 (at floor wiring harness side).
- (2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 22 and 23.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 20 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and SRS-ECU connector.

STEP 20. Check SRS-ECU connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

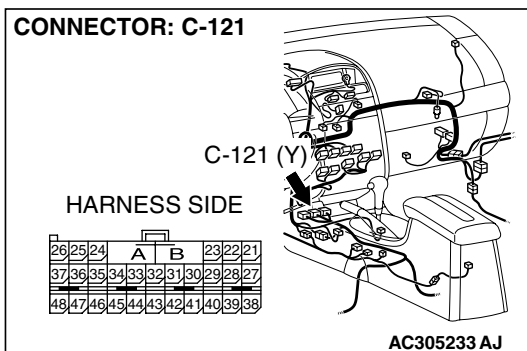
⚠ CAUTION

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 21.

NO : Repair the damaged parts.

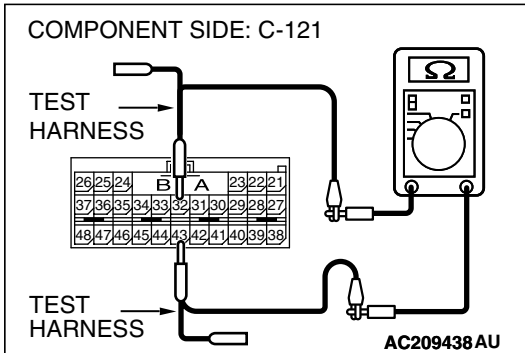
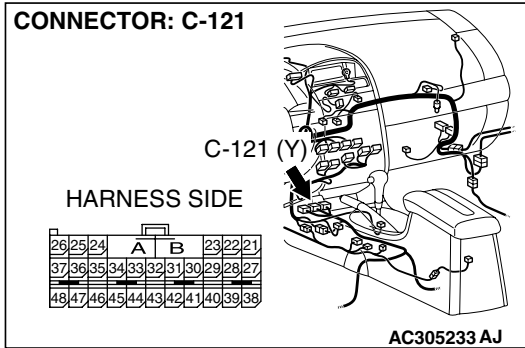


STEP 21. Check the SRS-ECU for short circuit. Measure the resistance at SRS-ECU connector C-121.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

- (1) Disconnect SRS-ECU connector C-121, and measure the resistance at the component side of SRS-ECU connector C-121.



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

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 k Ω , replace the SRS-ECU.

STEP 22. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

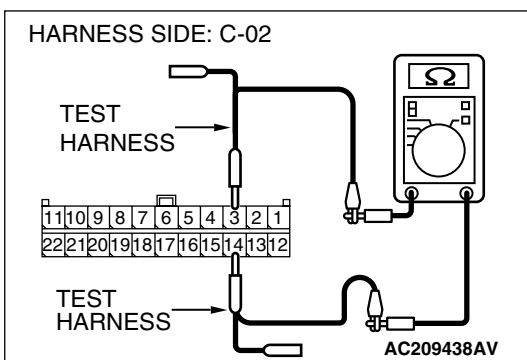
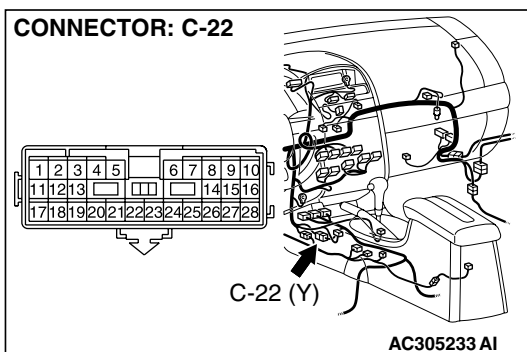
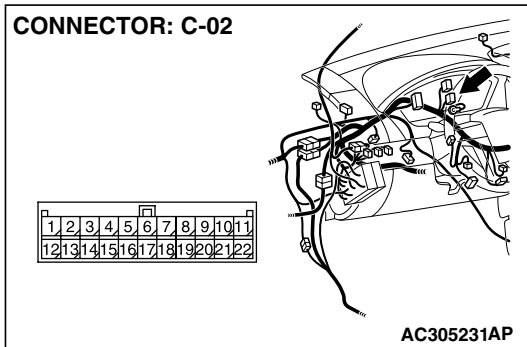
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-22 and 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 3 and 14.

OK: 1 kΩ or more

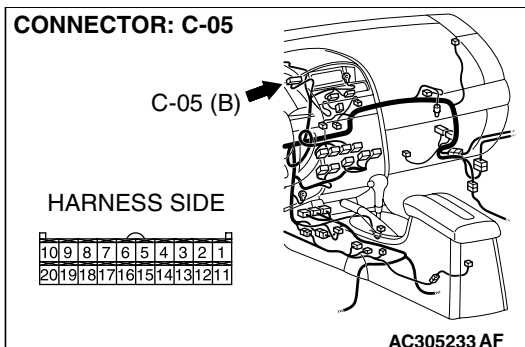
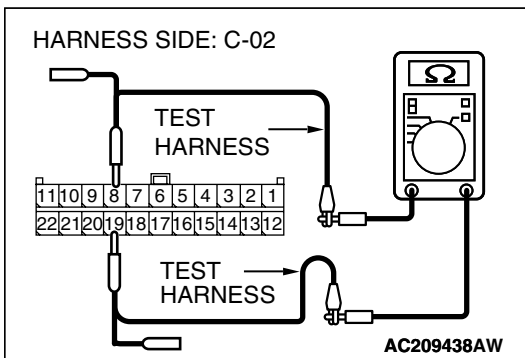
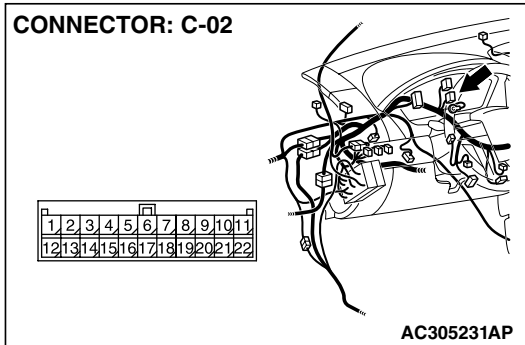
⚠ CAUTION

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

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-22 and joint connector (3).



STEP 23. Check the CAN_L and H lines (communication lines including the multi-center display unit (middle-grade type)) between joint connector (3) and the middle-grade multi-center display for a short circuit. 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 8 and 19.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 27 .

NO : If the resistance measures less than 1 kΩ, go to Step 24.

STEP 24. 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 25.

NO : Repair the damaged parts.

STEP 25. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the multi-center display unit (middle-grade type) for a short circuit. 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 multi-center display unit (middle-grade type) connector C-05, 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 8 and 19.

OK: 1 kΩ or more

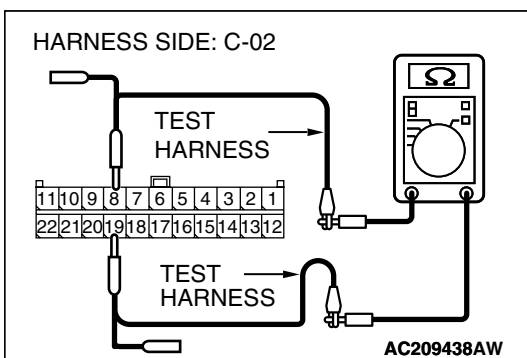
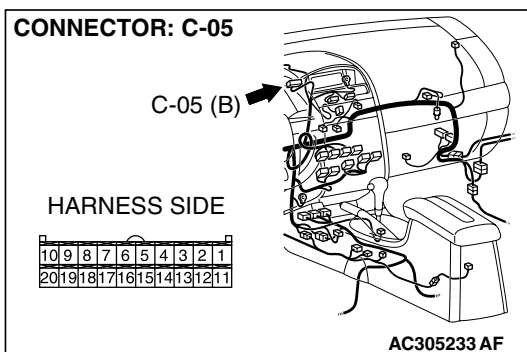
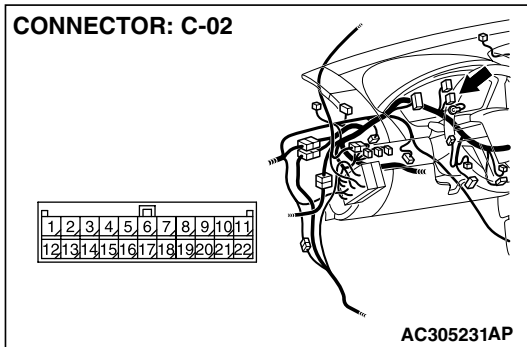
⚠ CAUTION

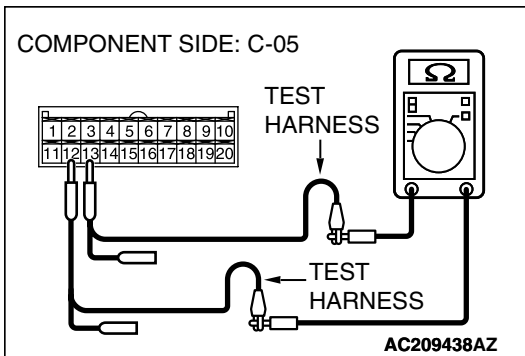
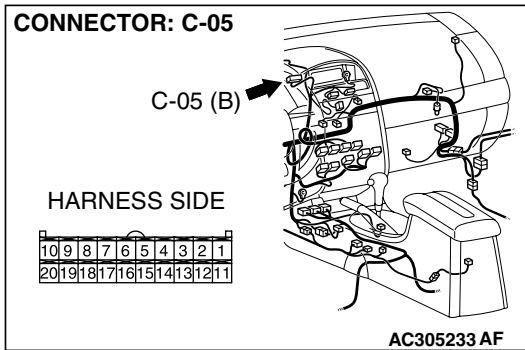
Strictly observe the specified wiring harness repair procedure. For details refer to [P.54C-5](#).

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 26 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and multi-center display unit (middle-grade type) connector.





STEP 26. Check the multi-center display unit (middle-grade type) for short circuit. Measure the resistance at multi-center display unit (middle-grade type) connector C-05.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

(1) Disconnect multi-center display unit (middle-grade type) connector C-05, and measure the resistance at the component side of multi-center display unit (middle-grade type) connector C-05.

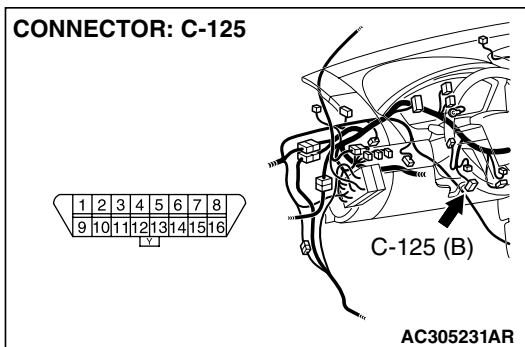
(2) Measure the resistance between the multi-center display unit (middle-grade type) connector terminals 12 and 13.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).

NO : If the resistance measures lower than 1 k Ω , replace the multi-center display unit (middle-grade type).



STEP 27. 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 28.

NO : Repair the damaged parts.

STEP 28. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the data link connector for a short circuit. 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.

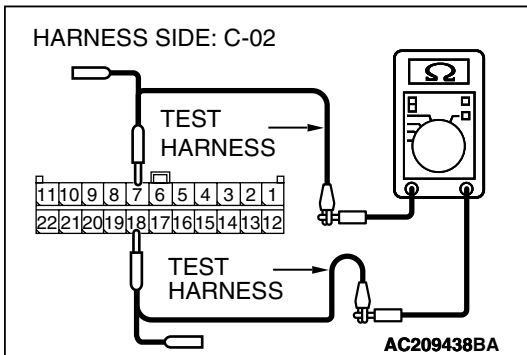
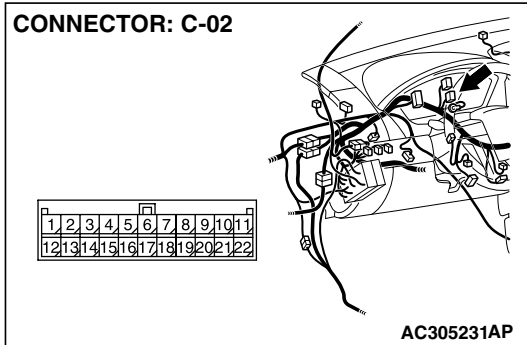
- (4) Measure the resistance between joint connector (3) terminals 7 and 18.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 29 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the data link connector.



STEP 29. Check the CAN_L and H lines (communication lines only) between joint connector (3) and the intermediate connector for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ CAUTION

A digital multimeter should be used. For details refer to [P.54C-4](#).

⚠ CAUTION

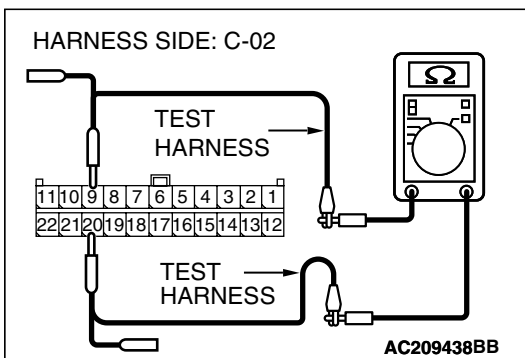
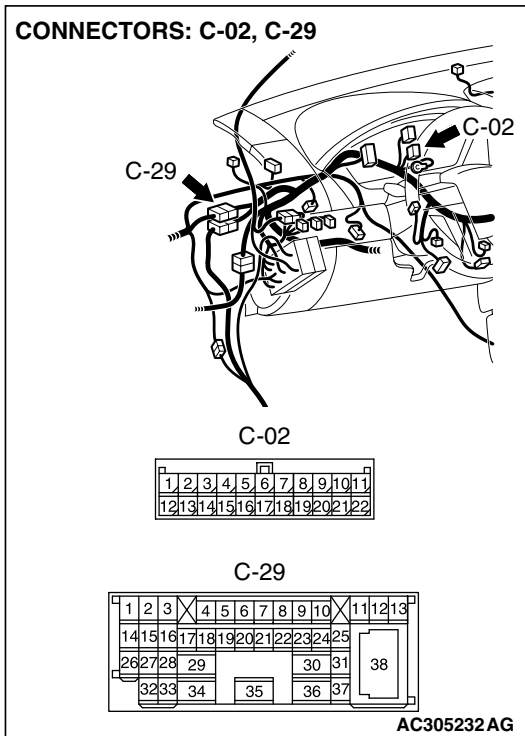
The test wiring harness should be used. For details refer to [P.54C-4](#).

- (1) Disconnect intermediate connector C-29 and 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 9 and 20.

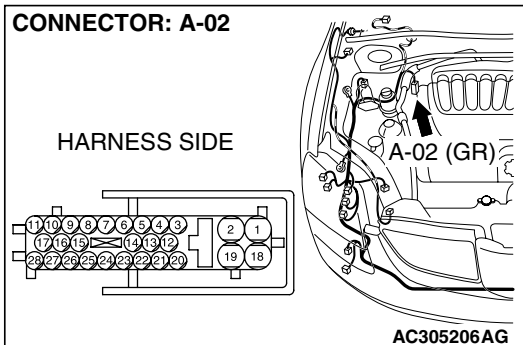
OK: 1 k Ω or more

⚠ CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

- YES :** If the resistance measures 1 k Ω or more, diagnose CAN bus lines thoroughly by referring to [P.54C-520](#).
- NO :** If the resistance measures less than 1 k Ω , repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 30. Check 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: Is ABS-ECU connector A-02 in good condition?

YES : Go to Step 31.

NO : Repair the damaged parts.

STEP 31. Check the CAN_L and H lines (communication lines only) between the ABS-ECU connector and the intermediate connector for a short circuit. 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](#).

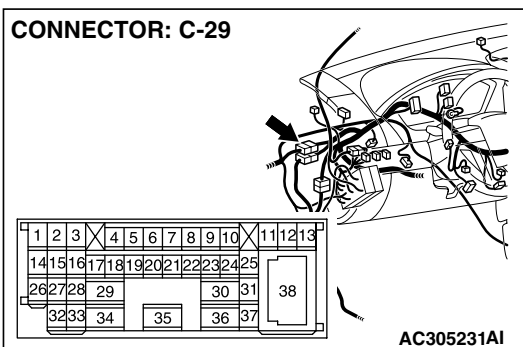
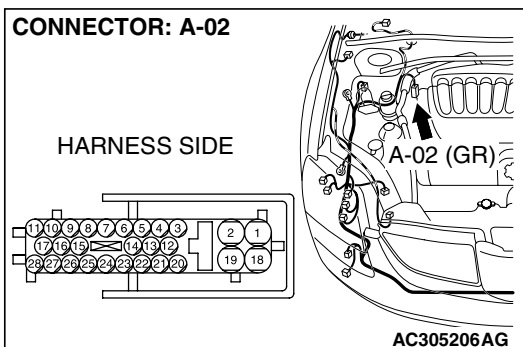
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

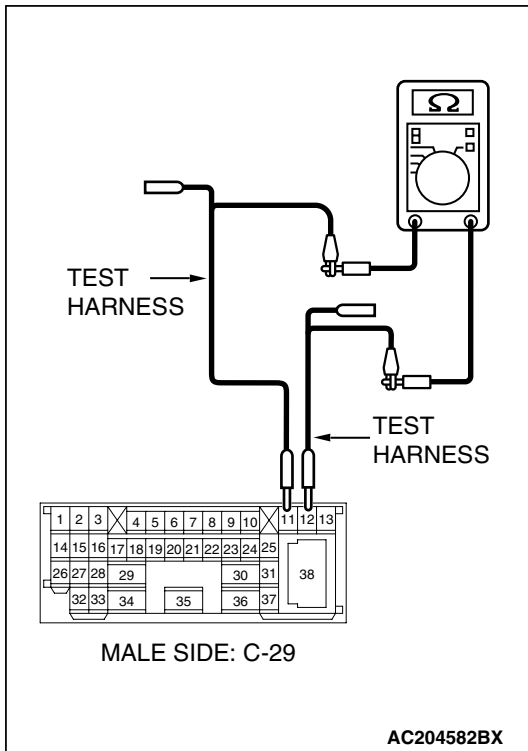
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





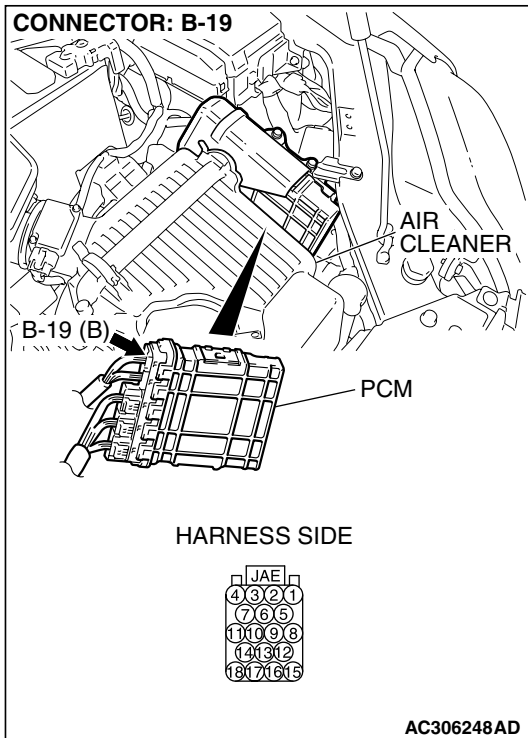
(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 32 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.



STEP 32. 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 33.

NO : Repair the damaged parts.

STEP 33. Check the CAN_L and H lines (communication lines only) between the powertrain control module connector and the ABS-ECU connector for a short circuit. Measure the resistance at 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](#).

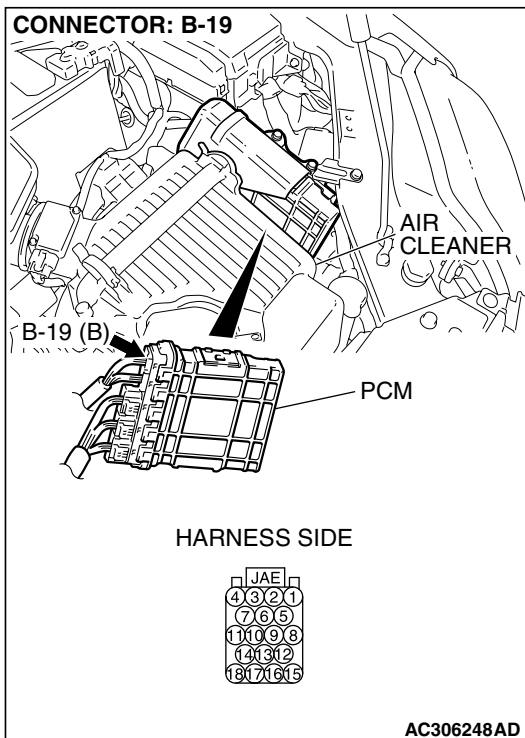
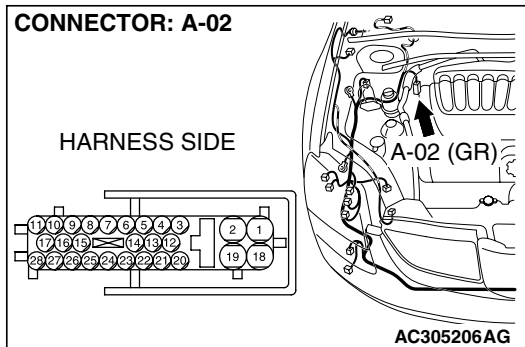
(1) Disconnect powertrain control module connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of powertrain control module connector B-19.

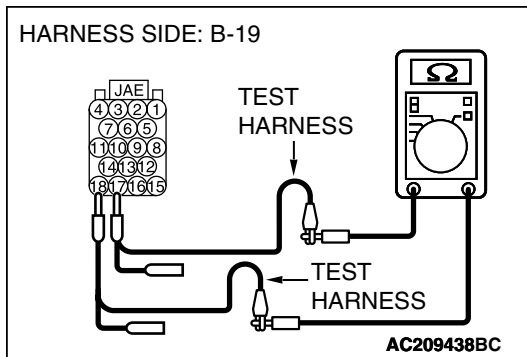
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

Disconnect the negative battery terminal. For details refer to [P.54C-4](#).

(3) Disconnect the negative battery terminal.





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

OK: 1 k Ω or more

CAUTION

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

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 34 .

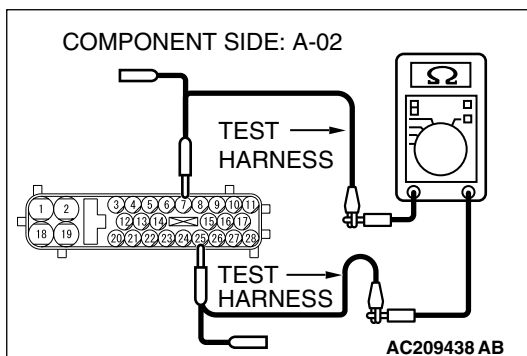
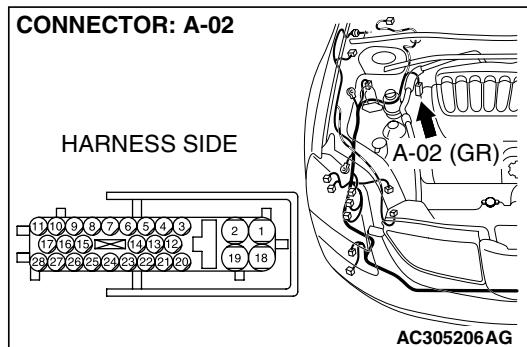
NO : If the resistance measures less than 1 k Ω , repair the wiring harness between powertrain control module connector and ABS-ECU connector.

STEP 34. Check the ABS-ECU for short 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 25.

OK: 1 k Ω or more

Q: Does the resistance measure 1 k Ω or more?

YES : If the resistance measures 1 k Ω or more, go to Step 35 .

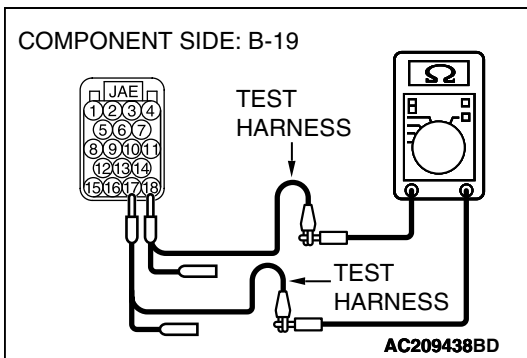
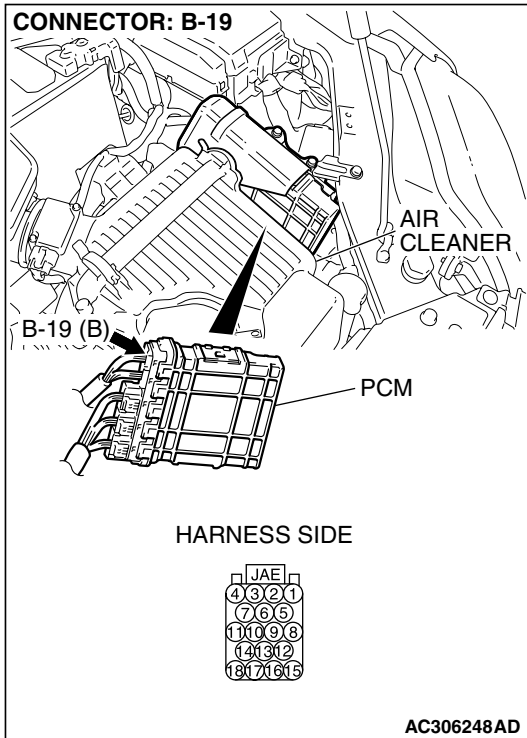
NO : If the resistance measures less than 1 k Ω , replace the ABS-ECU.

STEP 35. Check the powertrain control module for short circuit. 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: $120 \pm 20 \Omega$

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

YES : If the resistance measures $120 \pm 20 \Omega$, diagnose CAN bus lines thoroughly by referring to P.54C-520.

NO : If the resistance does not measure $120 \pm 20 \Omega$, replace the powertrain control module.

NEXT>>