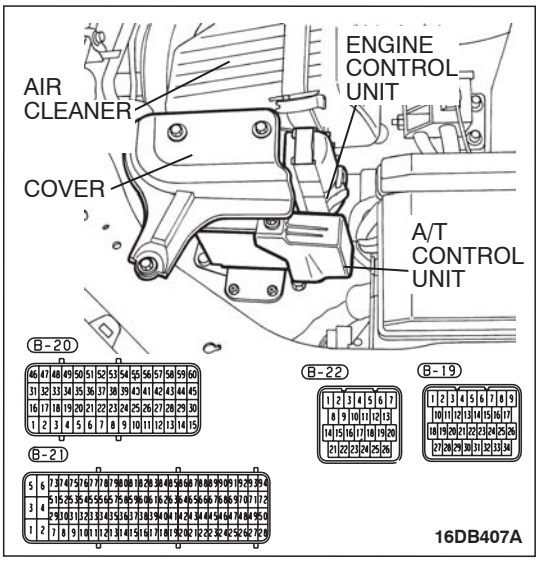
DIAGNOSTIC ITEM 3: Diagnose shorts in the ground to CAN bus line <Vehicles without multi-center display >

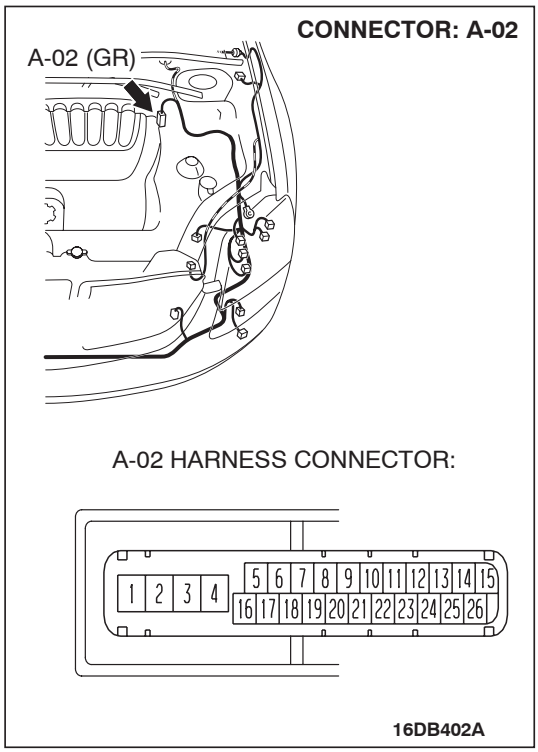
NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits.

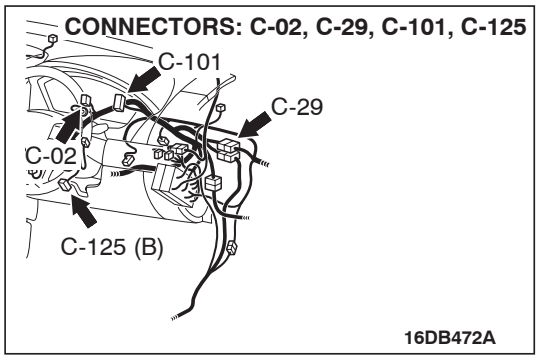
NOTE: When diagnosing CAN-BUS on vehicles that are not equipped with a multi-centre display, disregard the multi-centre display and it's wiring circuits.

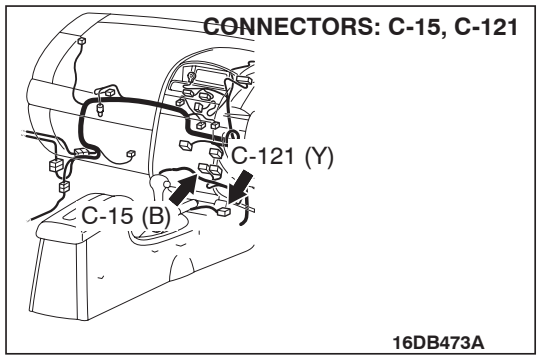
⚠ CAUTION

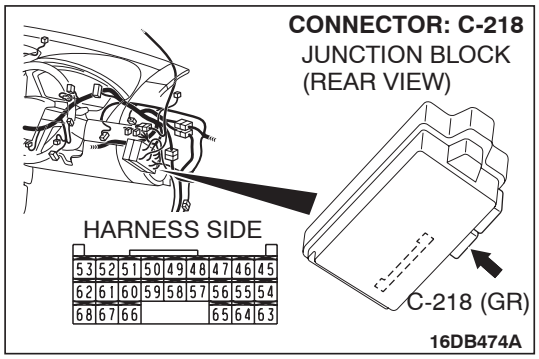
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.











TROUBLE JUDGMENT

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

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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 A/T- ECU may be defective
- The ENGINE- ECU may be defective

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits.

NOTE: When diagnosing CAN-BUS on vehicles that are not equipped with a multi-centre display, disregard the multi-centre display and it's wiring circuits.

DIAGNOSIS

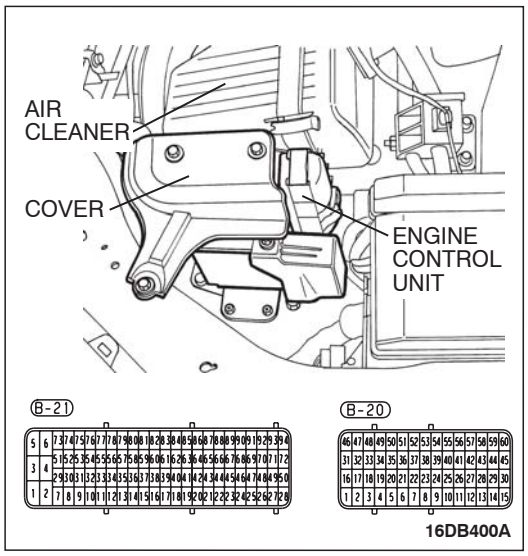
Required Special Tools:

- MB991223: Harness Set
- MB991219: Inspection Test Harness
- MB992045: A/T-ECU Check Harness

STEP 1. Check ENGINE- ECU connector B-21, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

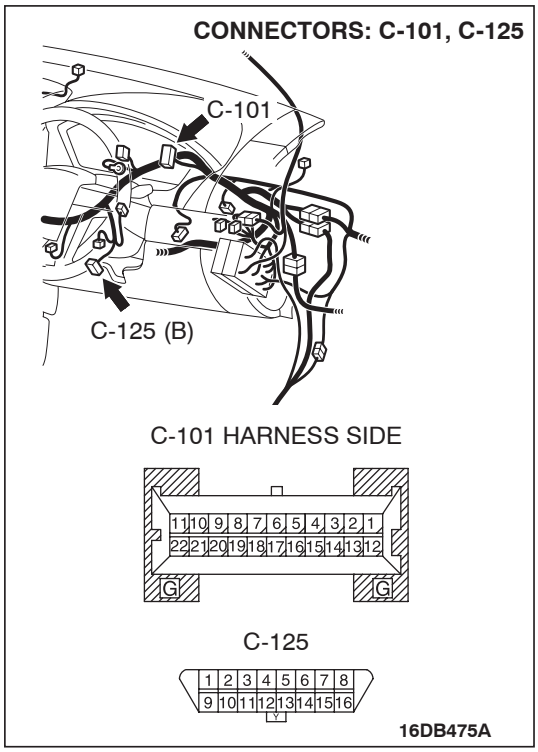
⚠ CAUTION

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 ENGINE- ECU connector B-21, 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.

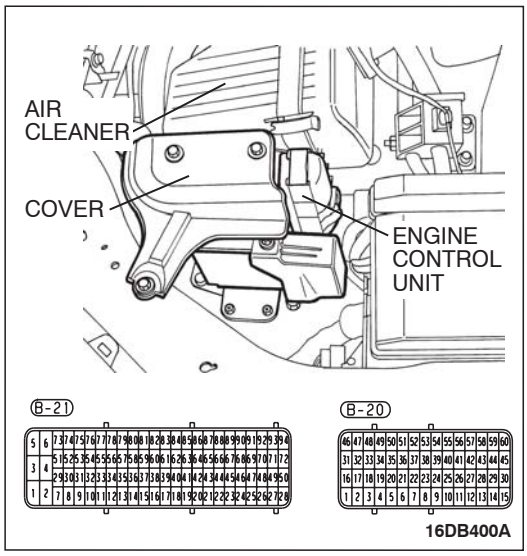
(1) Disconnect ENGINE- ECU connector B-21 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.

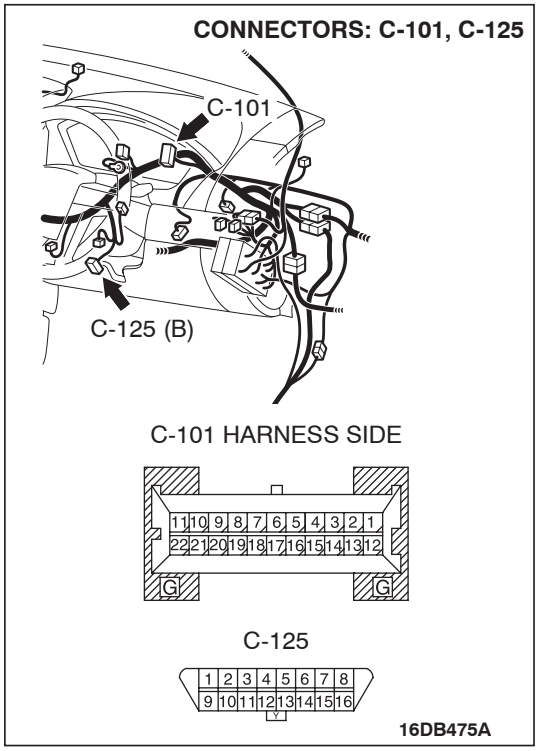
(2) Turn the ignition switch to the "LOCK" (OFF) position.

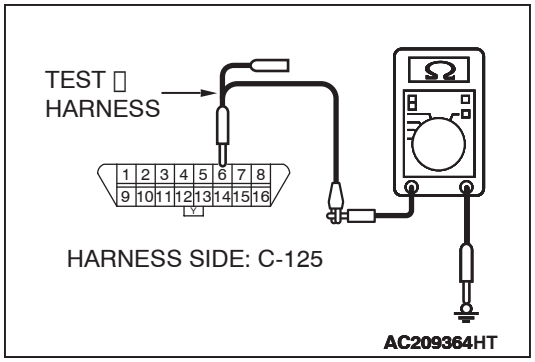
⚠ CAUTION

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

(3) Disconnect the negative battery terminal.







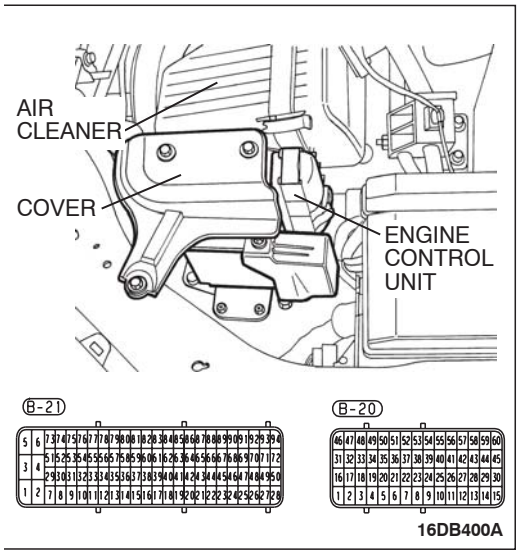
(4) Measure the resistance between data link connector terminal 6 and body ground.

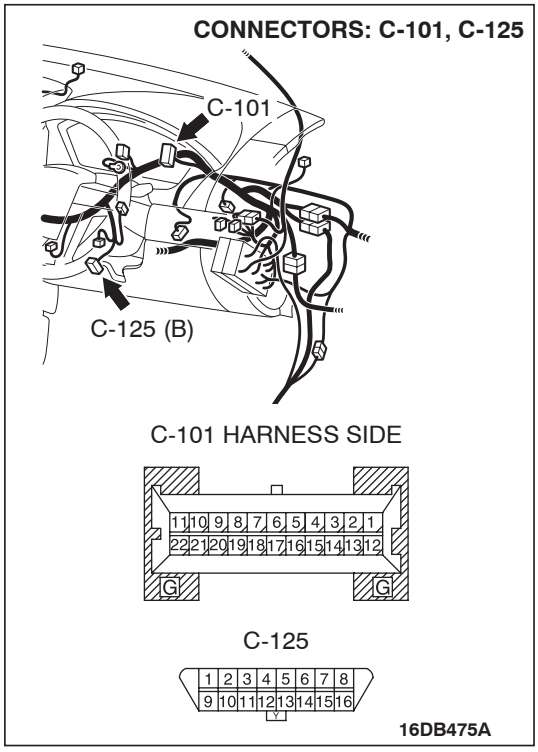
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 3 .

NO : If the resistance measures less than 1 kΩ, 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.

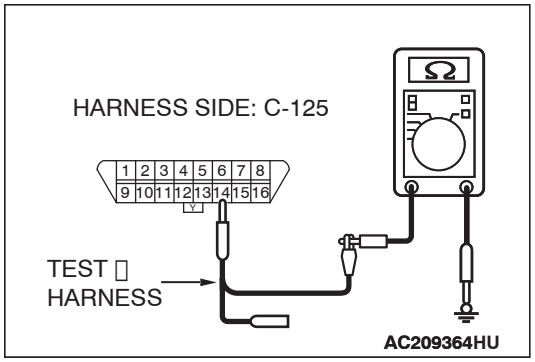
(1) Disconnect ENGINE- ECU connector B-21 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.

(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?

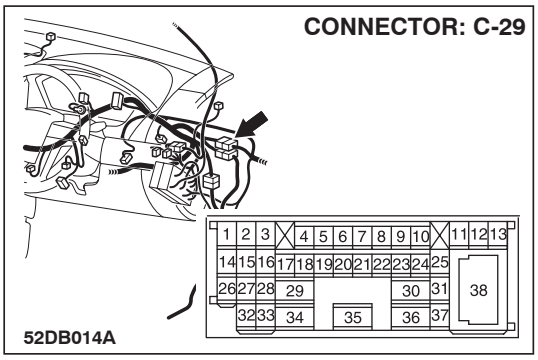
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-323.

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.

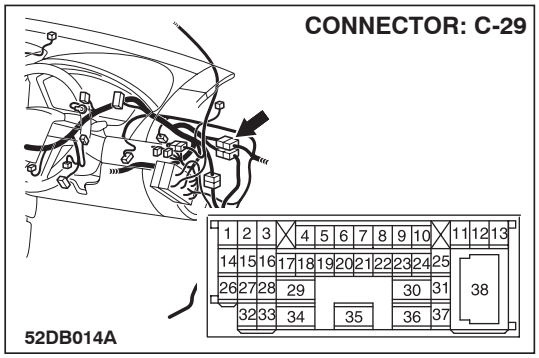
STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ 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.



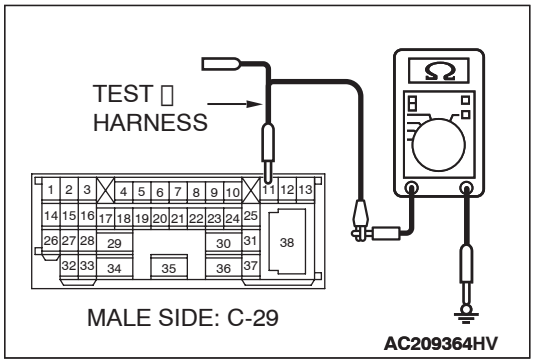
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

(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

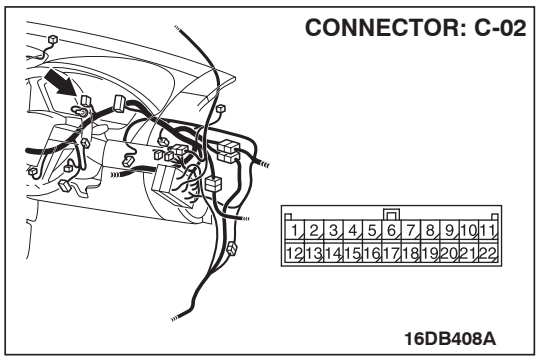
Q: Does the resistance measure 1 kΩ or more?

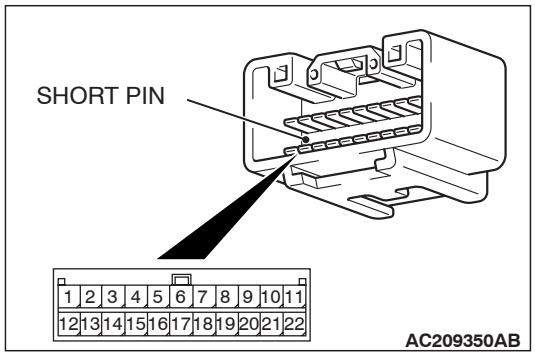
YES : If the resistance measures 1 kΩ or more, go to Step 6 .

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.

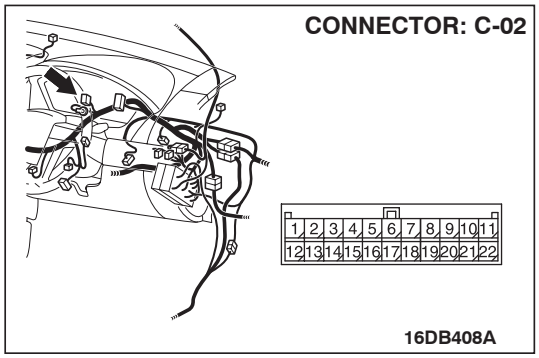
STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



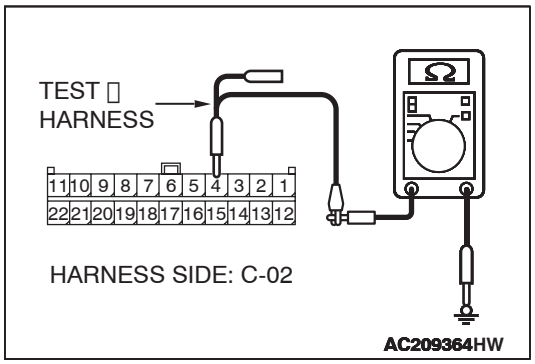
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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.

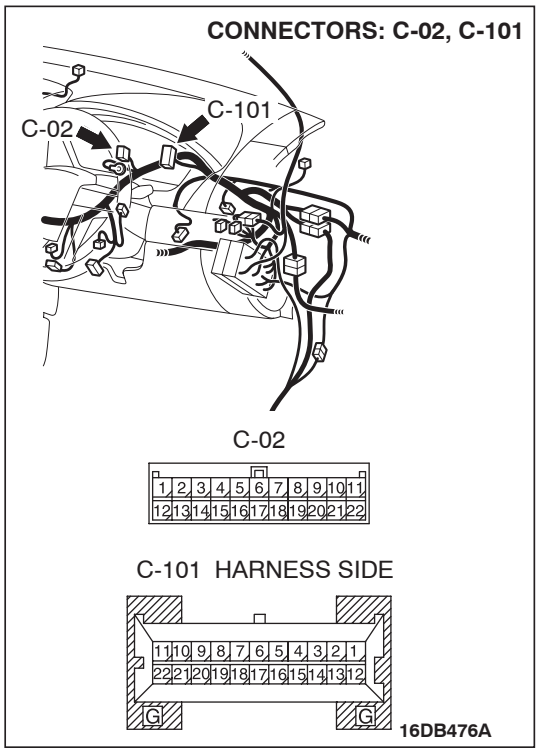
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

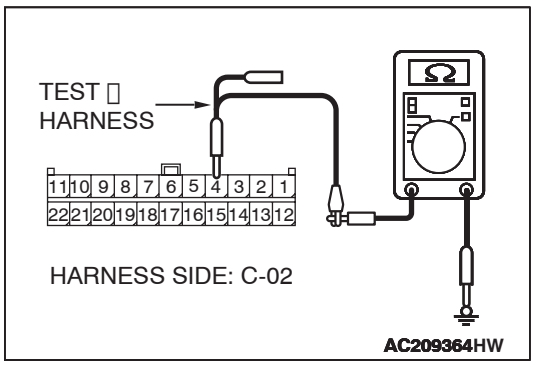
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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-323.

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.

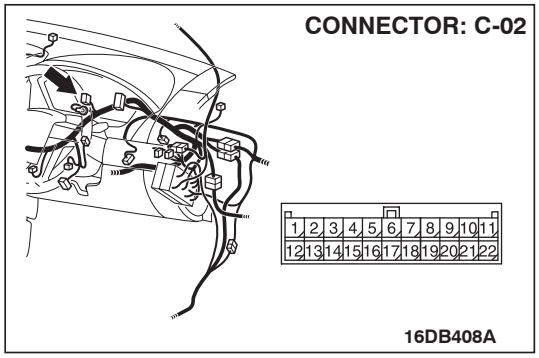
- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.



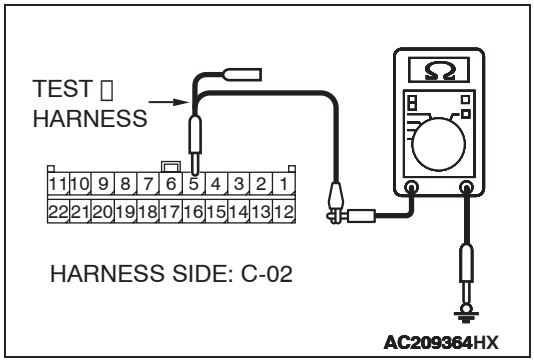
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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?

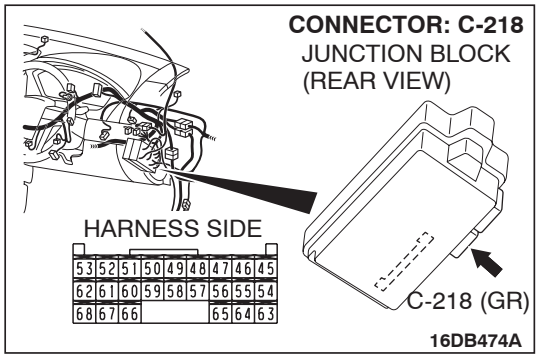
YES : If the resistance measures 1 kΩ or more, go to Step 12 .

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.

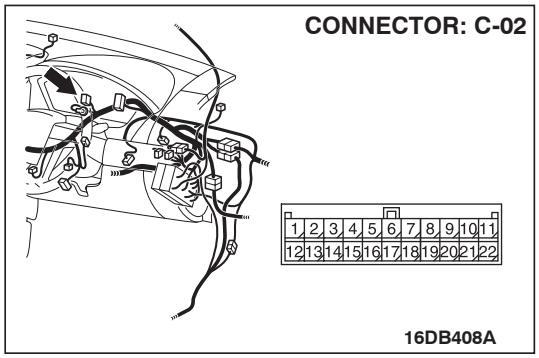
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

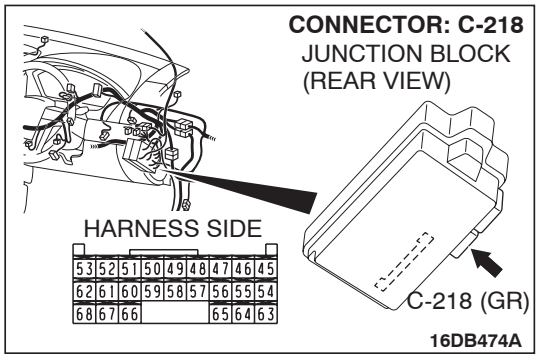
(2) Turn the ignition switch to the "LOCK" (OFF) position.

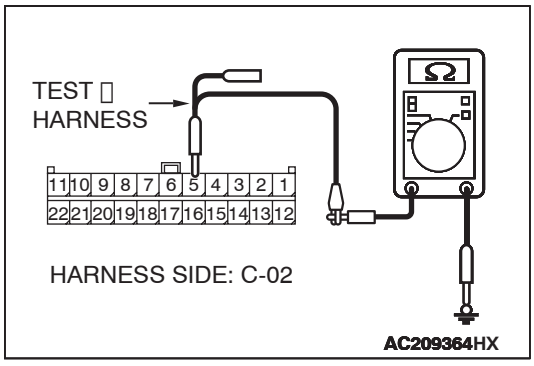
⚠ CAUTION

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-323.

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

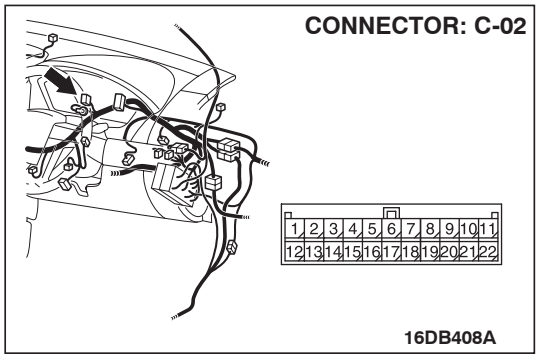
STEP 12. Check the CAN_H line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



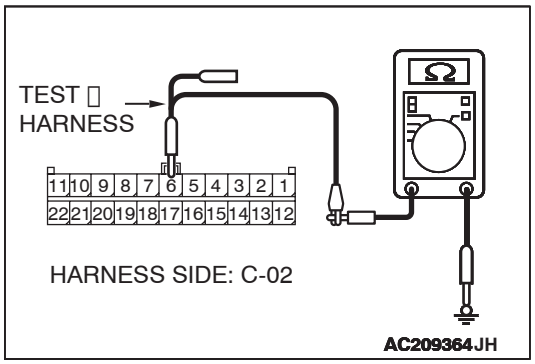
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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.



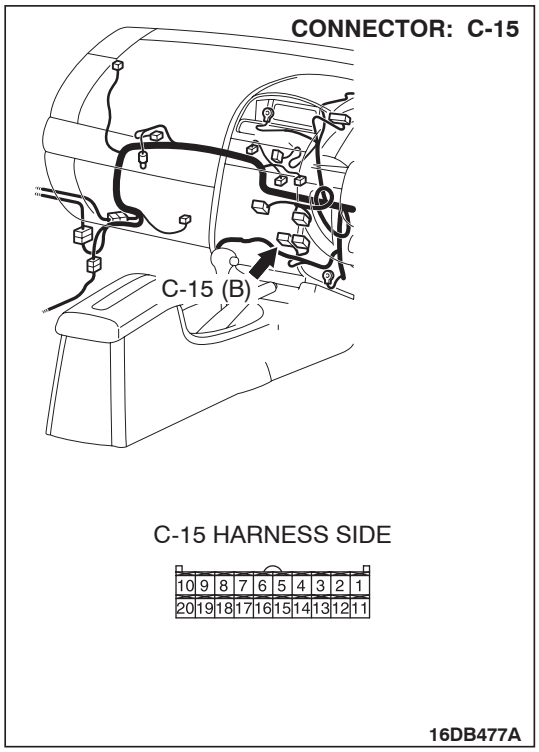
(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

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 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-15 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.

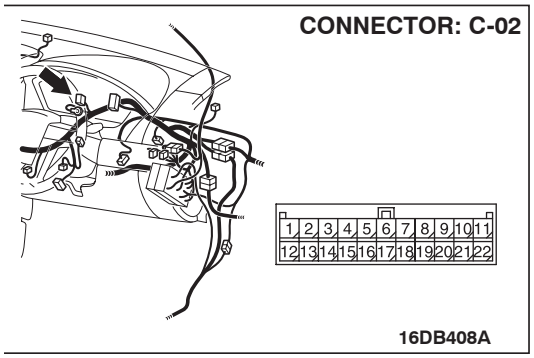
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15 automatic air conditioning system, and measure the resistance at the wiring harness side of joint connector (3) C-02.

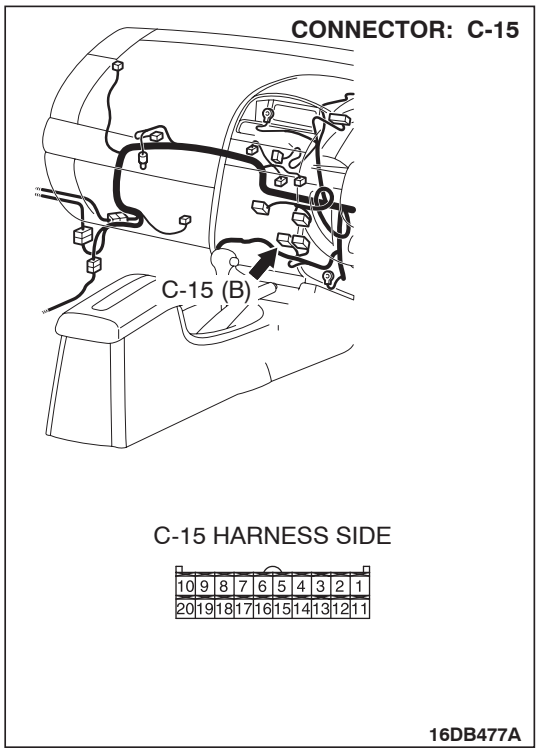
(2) Turn the ignition switch to the "LOCK" (OFF) position.

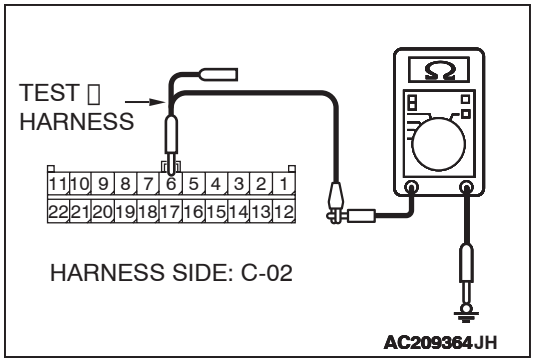
⚠ CAUTION

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 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-323.

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

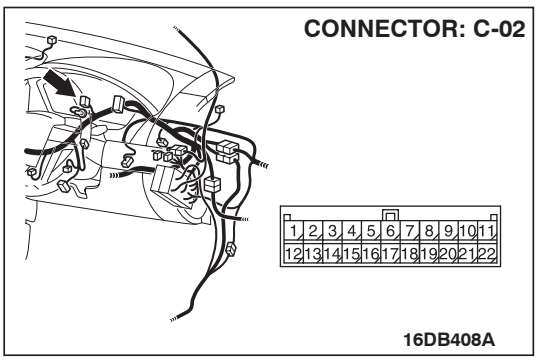
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



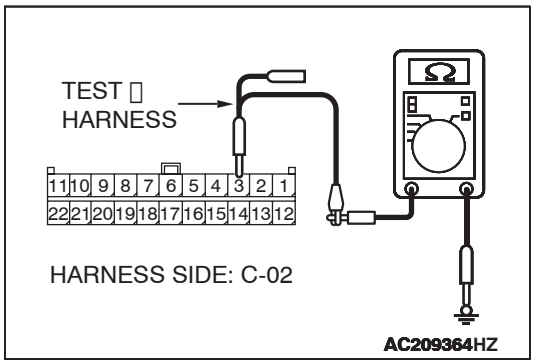
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 18 .

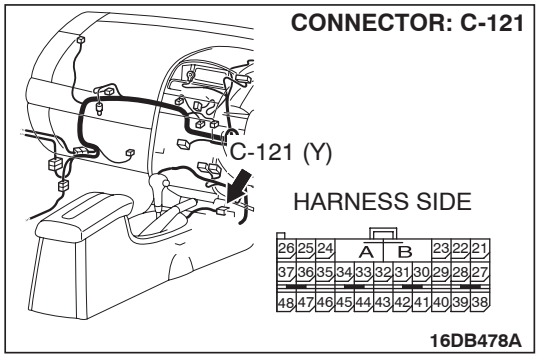
NO : If the resistance measures less than 1 kΩ, go to Step 16.

STEP 16. 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 17.
NO : Repair the damaged parts.



STEP 17. Check the CAN_ H line (communication line only) between the SRS-ECU connector and joint connector for a short circuit. Measure the resistance at joint connector C-02.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

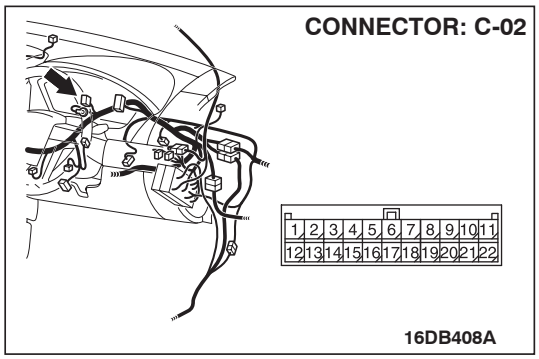
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

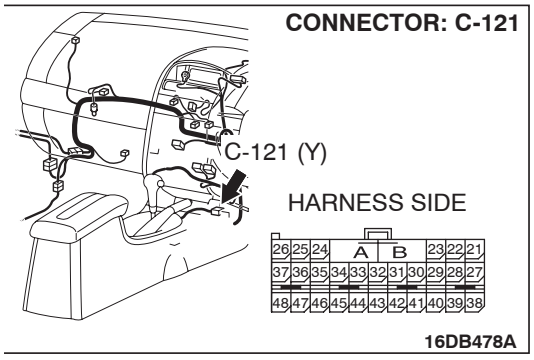
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

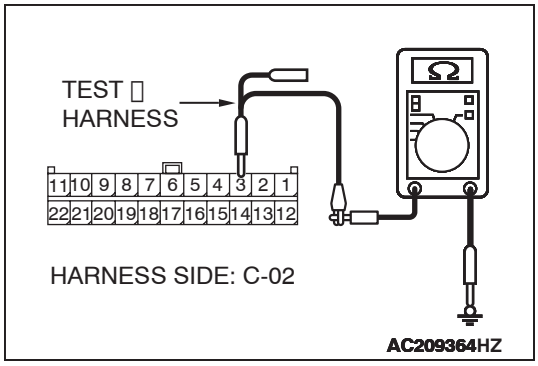
(1) Disconnect joint connector C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 terminal 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, diagnose CAN bus lines thoroughly by referring to P.54C-323.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector C-02 and SRS-ECU connector C-121.

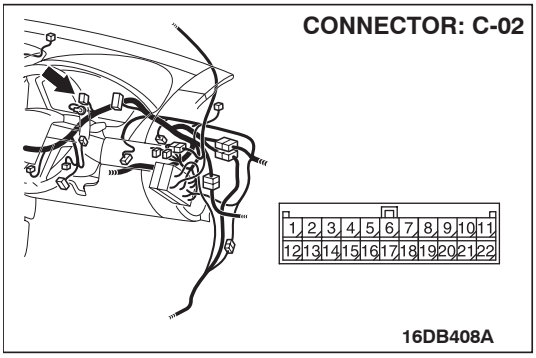
STEP 18. Check the CAN_H line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



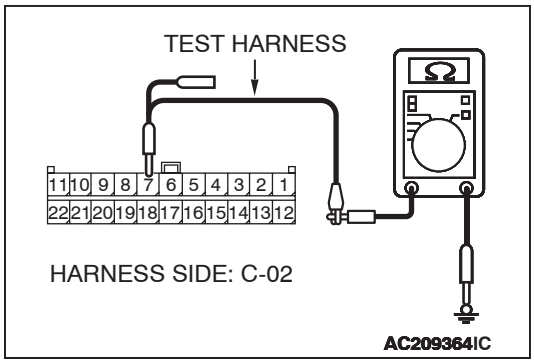
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 19 .

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

STEP 19. 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.

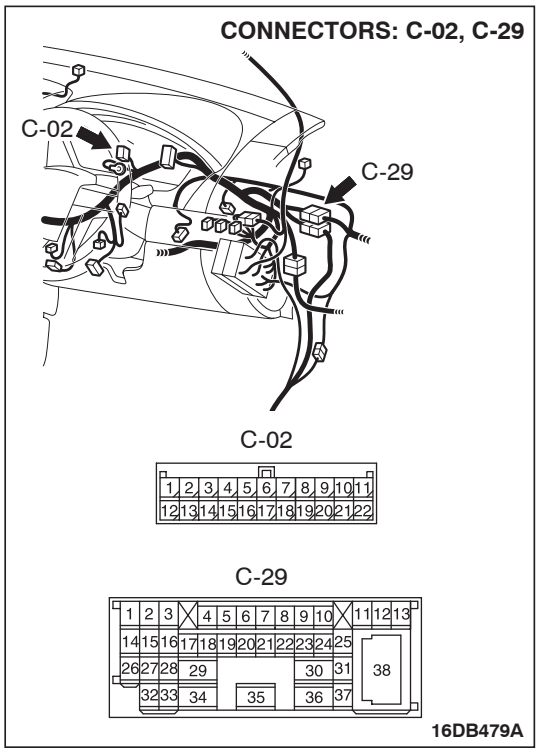
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

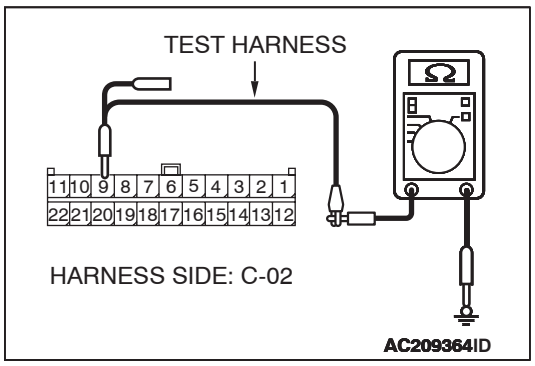
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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

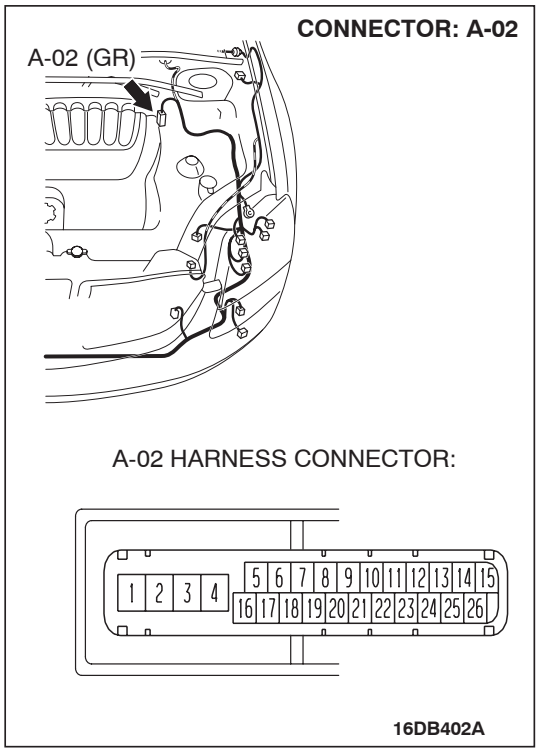
⚠ CAUTION

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-323.

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



STEP 20. 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.

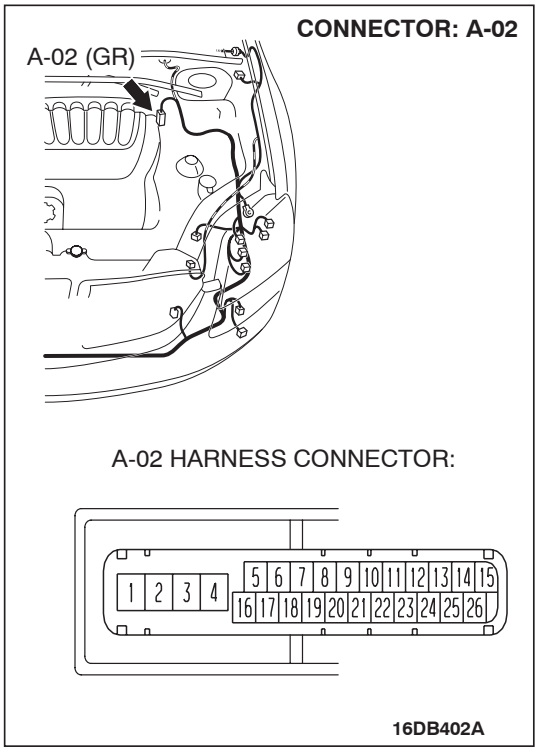
Q: Is ABS-ECU connector A-02 in good condition?

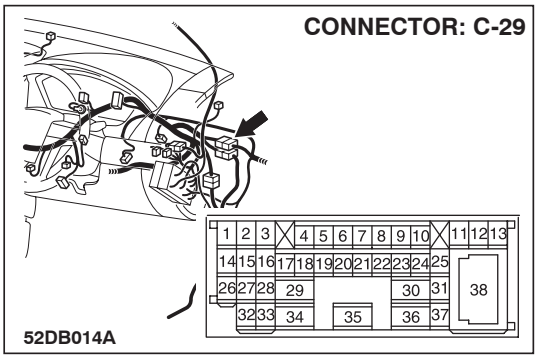
YES : Go to Step 21.
NO : Repair the damaged parts.

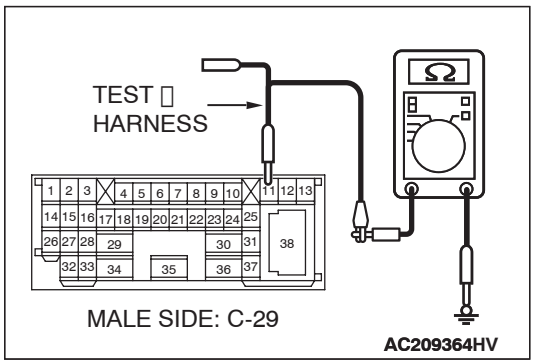
STEP 21. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ 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 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 22 .

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

STEP 22. Check the CAN_H line (communication line only) between the A/T- ECU connector and ABS-ECU connector for short to ground. Measure the resistance at A/T- ECU 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 A/T- ECU connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of A/T- ECU connector B-19.

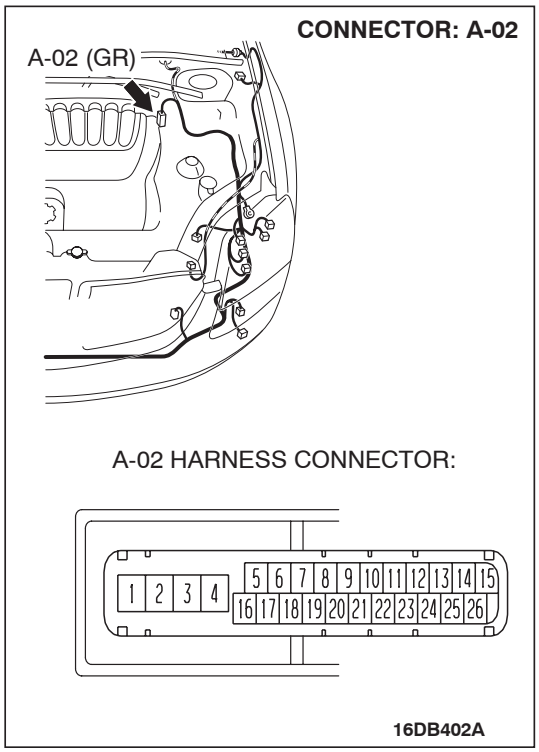
(2) Turn the ignition switch to the "LOCK" (OFF) position.

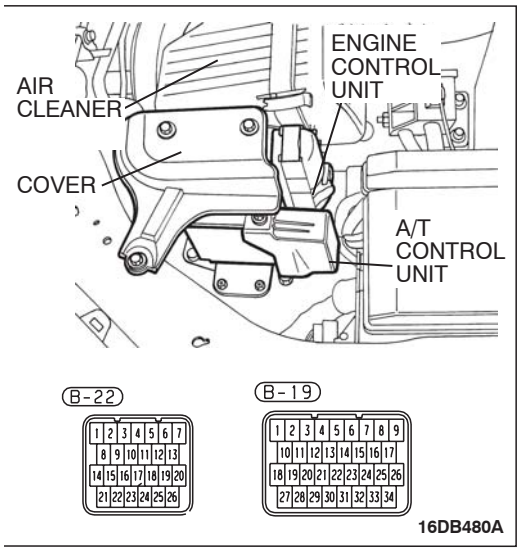
⚠ CAUTION

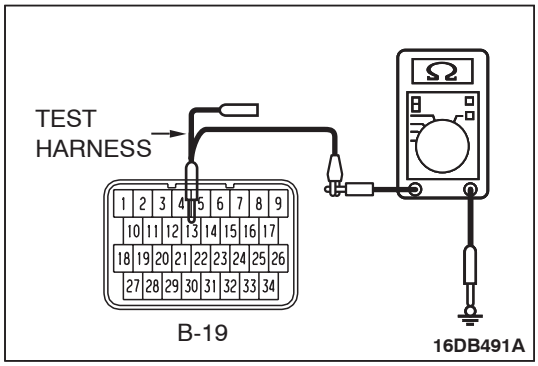
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.







(4) Measure the resistance between A/T- ECU connector terminal 13 and body ground.

OK: 1 kΩ or more

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 23 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between A/T- ECU connector and ABS-ECU connector.

STEP 23. Check the CAN_H line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

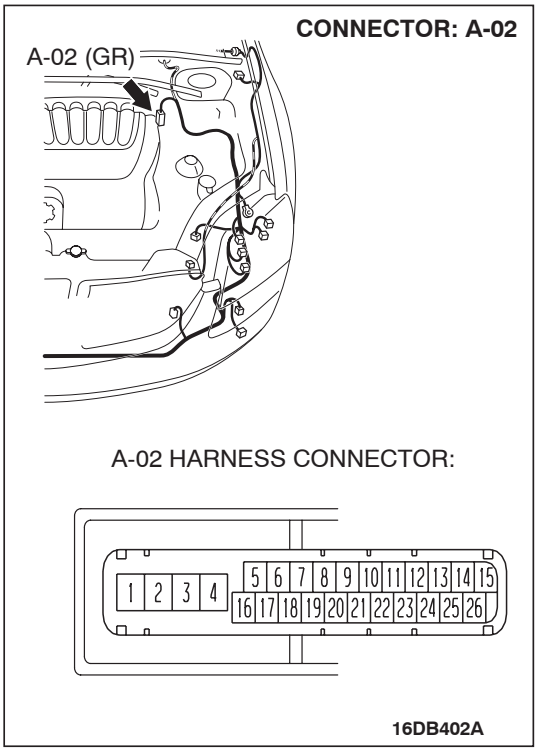
⚠ CAUTION

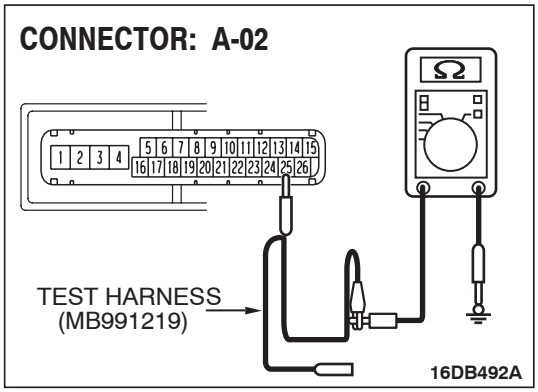
A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

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

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





(2) Measure the resistance at connector A-02, and use special tool Inspection Check Harness (MB991219) to probe the wiring harness-side connector.

NOTE: The special tool (Inspection test harness) MB991219 for connector pin contact pressure should be used. The test probe should never be forcibly inserted, as it may cause a defective contact.

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

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ CAUTION

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

(4) Disconnect the negative battery terminal.

(5) Measure the resistance between connector A-02 terminal 25 (using inspection test harness MB991219) 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-323.

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

STEP 24. Check the CAN_H line (communication line only) between the ENGINE- ECU connector and A/T-ECU connector for short to ground. Measure the resistance at ENGINE- ECU connector B-21.

⚠ 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 ENGINE- ECU connector B-21 and A/T-ECU connector B-19, and measure the resistance at the harness side of ENGINE- ECU connector B-21.

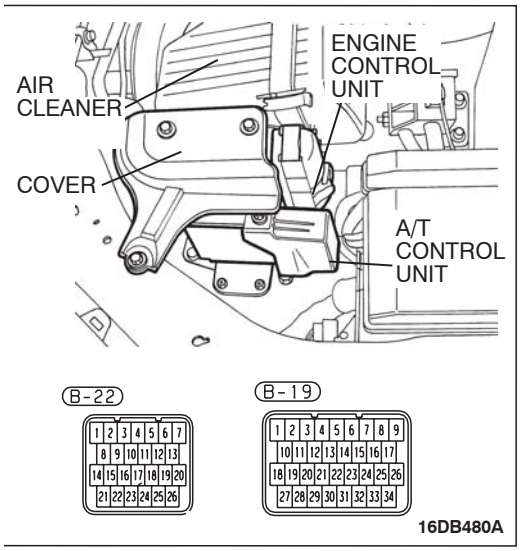
(2) Turn the ignition switch to the "LOCK" (OFF) position.

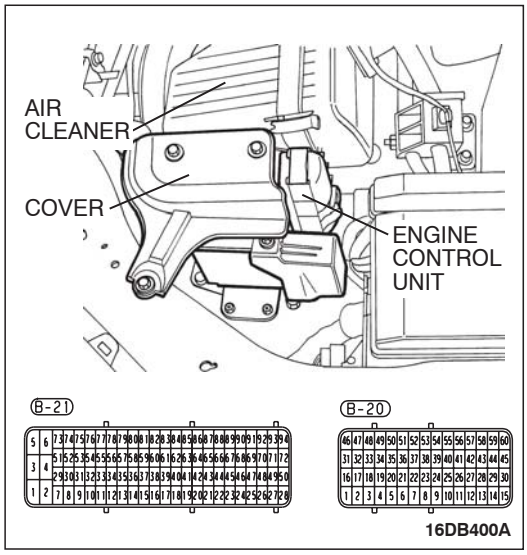
⚠ CAUTION

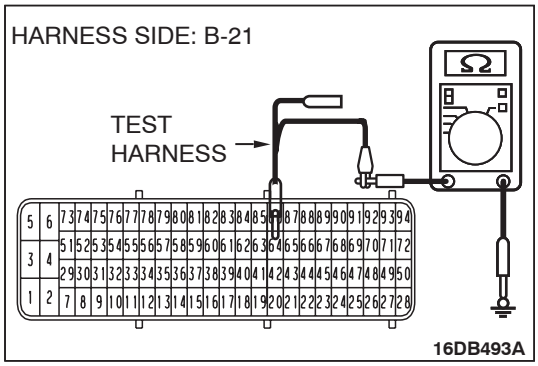
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.







(4) Measure the resistance between ENGINE- ECU connector terminal 64 and body ground.

OK: 1 kΩ or more

⚠ CAUTION

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

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

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 ENGINE- ECU B-21 connector and A/T-ECU B-19 connector.

STEP 25. Check the CAN_H line inside the A/T-ECU for short to ground. Measure the resistance at A/T-ECU connector B-19.

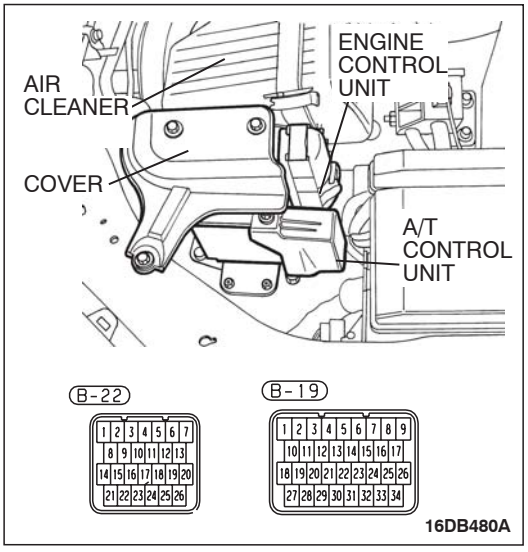
⚠ CAUTION

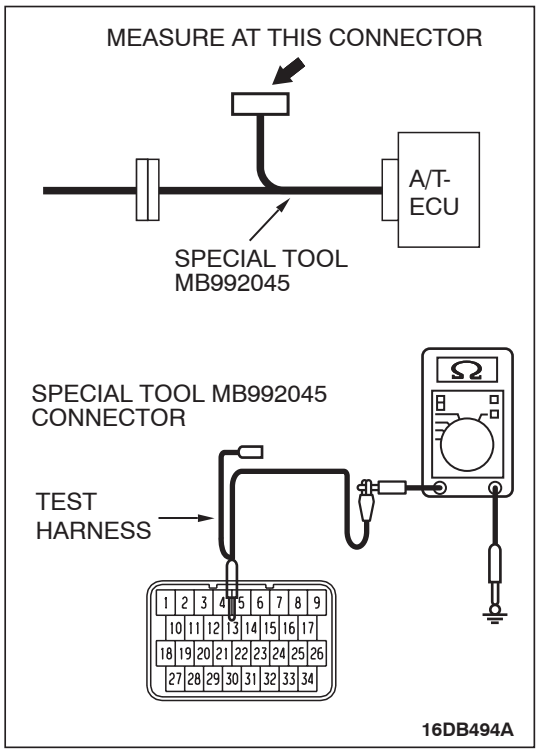
A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

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

(1) Disconnect A/T-ECU connector B-19.





(2) Connect special tool MB992045 (A/T check harness) to the A/T-ECU and the wiring harness, and measure the resistance at special tool MB992045 (A/T check harness).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

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

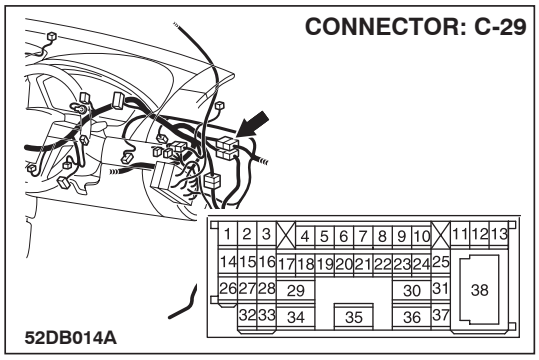
(4) Disconnect the negative battery terminal.
(5) Measure the resistance between special tool MB992045 (A/T check harness) connector terminal 13 and body ground.

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-323.
NO : If the resistance measures less than 1 kΩ, replace the A/T-ECU.

STEP 26. 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 27.
NO : Repair the damaged parts.

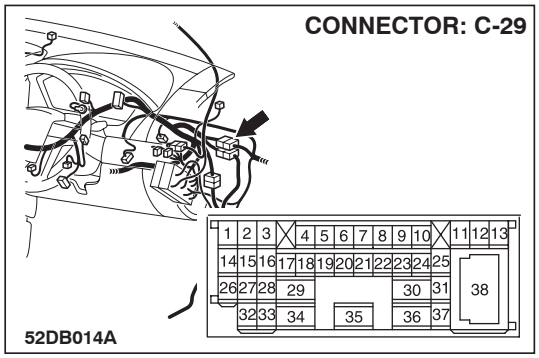
STEP 27. Check the CAN_L-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ 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.



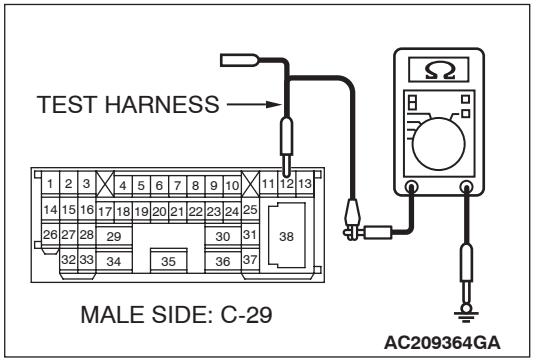
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

(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

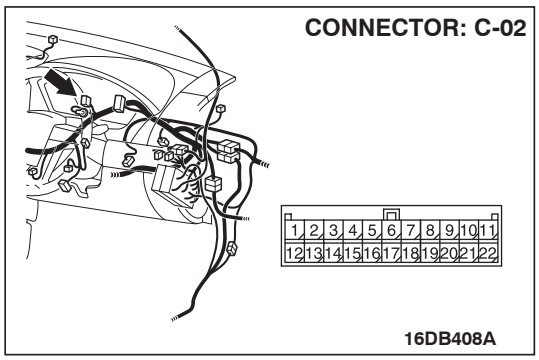
Q: Does the resistance measure 1 kΩ or more?

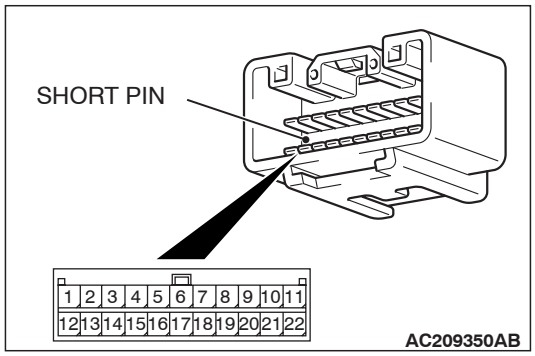
YES : If the resistance measures 1 kΩ or more, go to Step 28 .

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

STEP 28. 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 29.

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

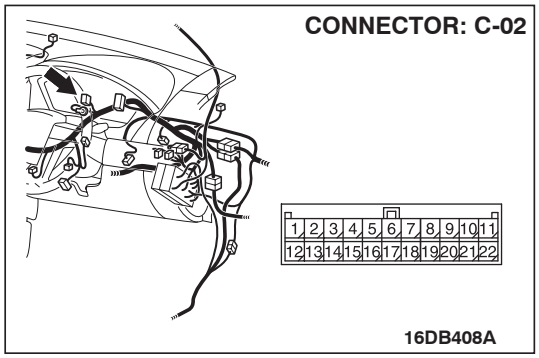
STEP 29. Check the CAN_L line (communication line including the combination meter) between joint connector (3) and the combination meter connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



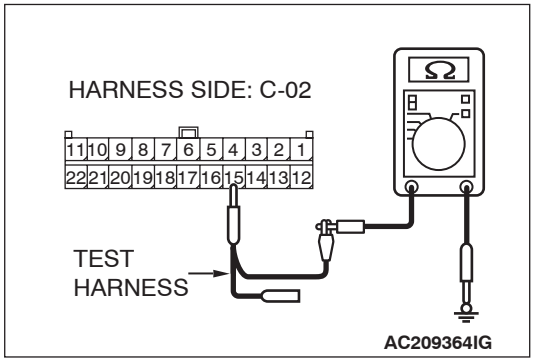
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 31 .

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

STEP 30. 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.

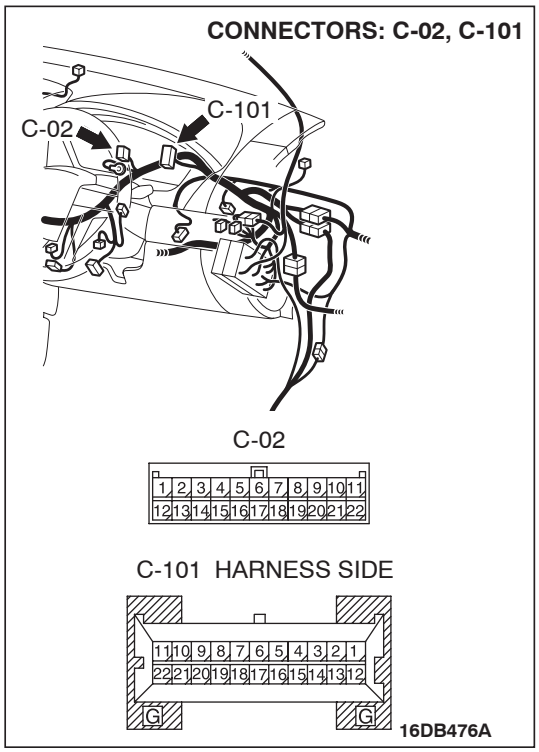
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

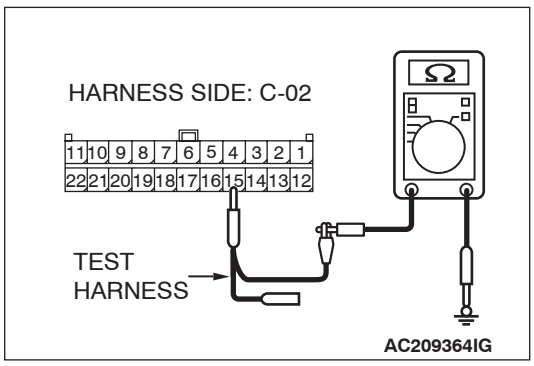
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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?

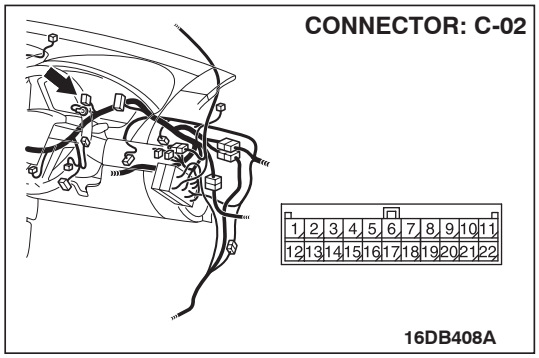
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-323.

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

STEP 31. 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.

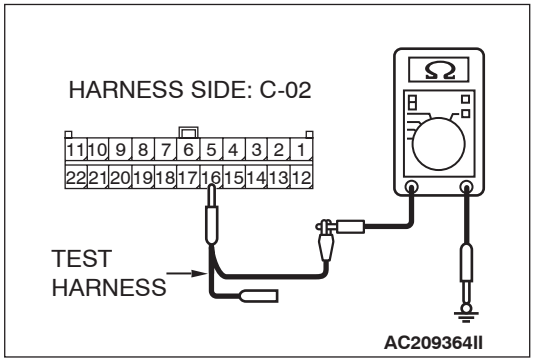
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



(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.

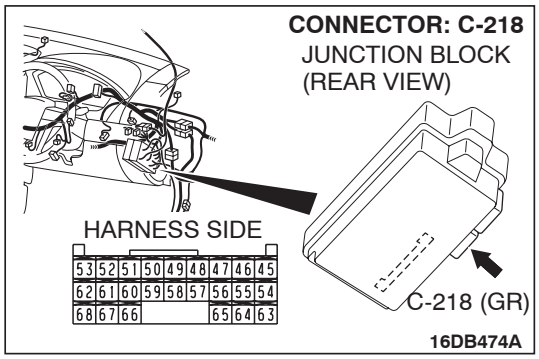
OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 34 .
NO : If the resistance measures less than 1 kΩ, go to Step 32.

STEP 32. 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 33.
NO : Repair the damaged parts.

STEP 33. 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.

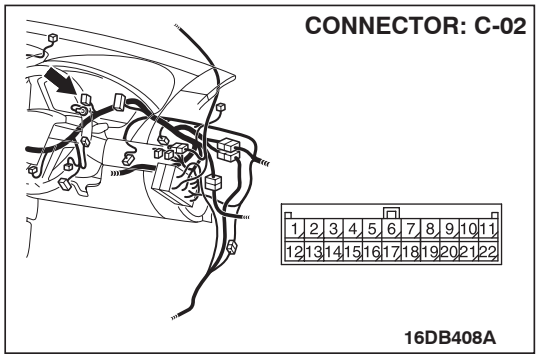
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

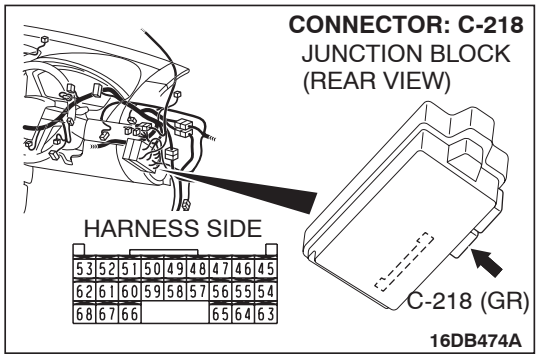
(2) Turn the ignition switch to the "LOCK" (OFF) position.

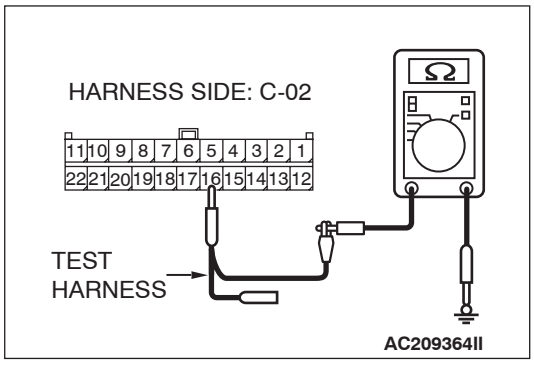
⚠ CAUTION

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 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-323.

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

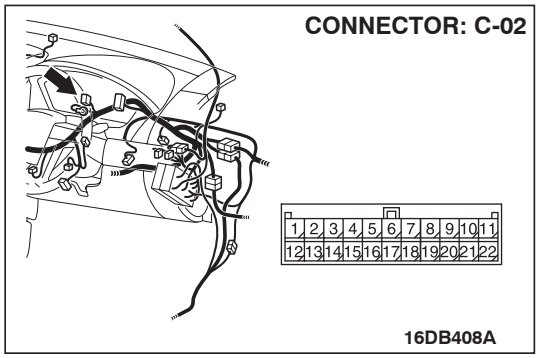
STEP 34. Check the CAN_L line (communication line including the A/C-ECU) between joint connector (3) and the A/C-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



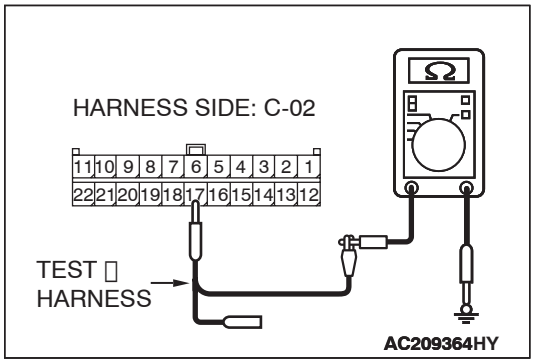
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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.



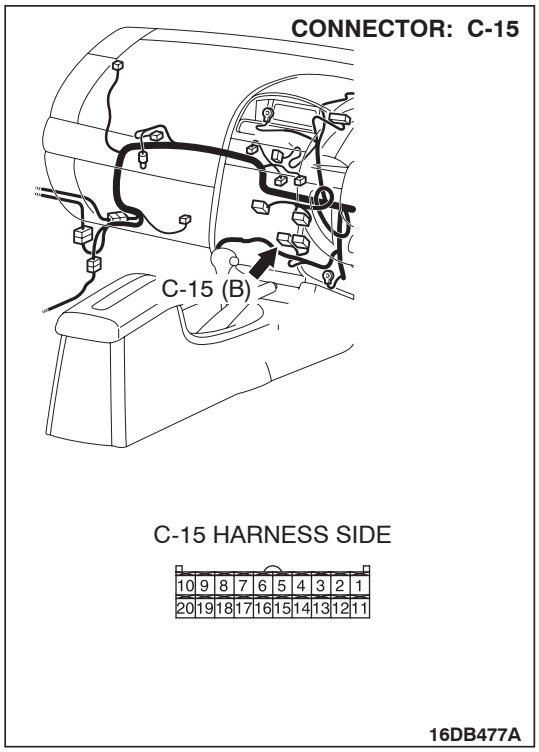
(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

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 37 .

NO : If the resistance measures less than 1 kΩ, go to Step 35.



STEP 35. Check A/C-ECU connector C-15 automatic air conditioning system for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ CAUTION

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

Q: Is A/C-ECU connector C-15 automatic air conditioning system in good condition?

YES : Go to Step 36.

NO : Repair the damaged parts.

STEP 36. 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.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.

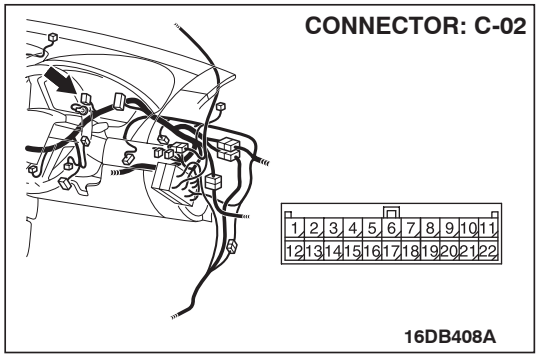
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15 automatic air conditioning system, and measure the resistance at the wiring harness side of joint connector (3) C-02.

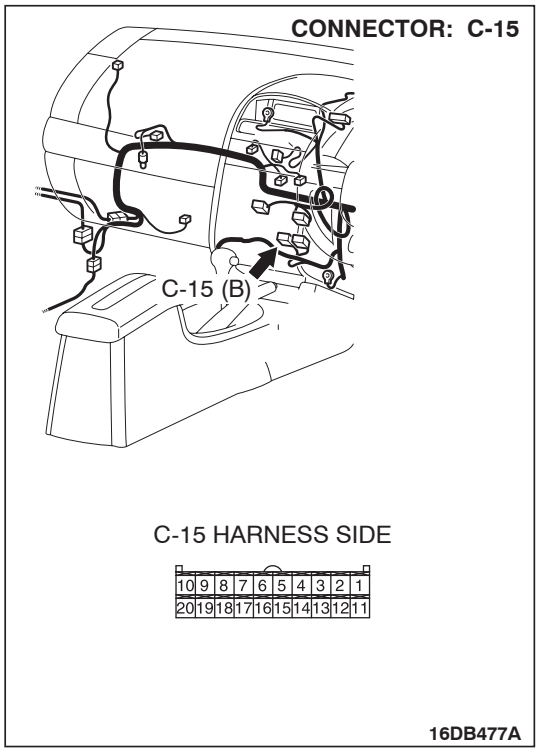
(2) Turn the ignition switch to the "LOCK" (OFF) position.

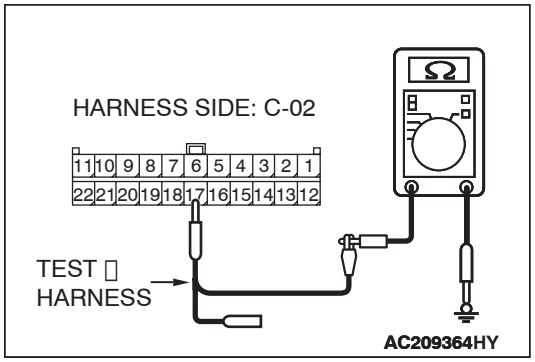
⚠ CAUTION

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-323.

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

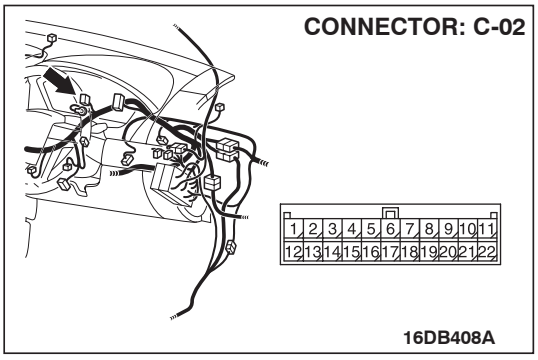
STEP 37. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



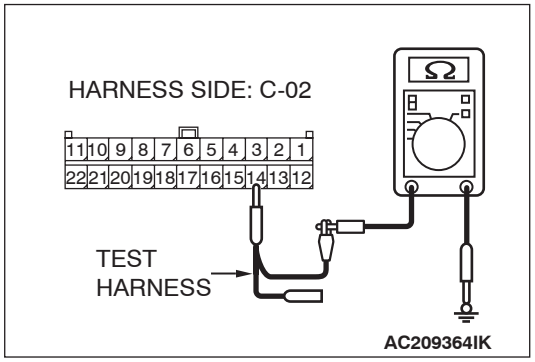
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 40 .

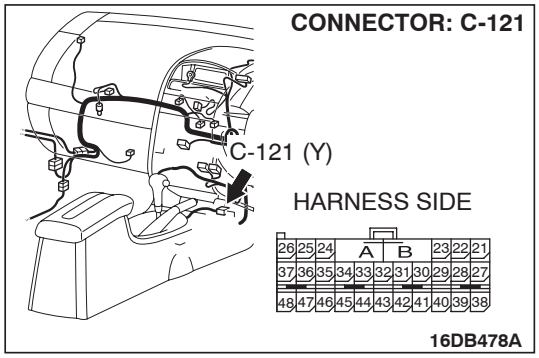
NO : If the resistance measures less than 1 kΩ, go to Step 38.

STEP 38. 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 39.
NO : Repair the damaged parts.



STEP 39. Check the CAN_L line (communication line only) between the SRS-ECU connector and joint connector for a short circuit. Measure the resistance at joint connector C-02.

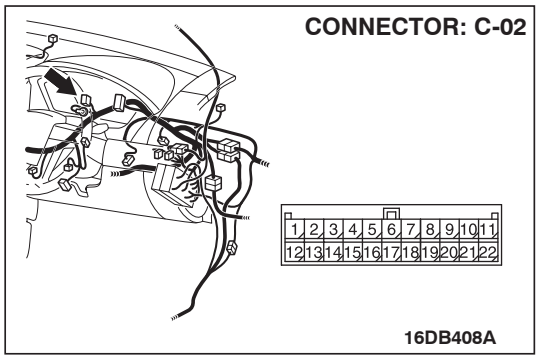
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

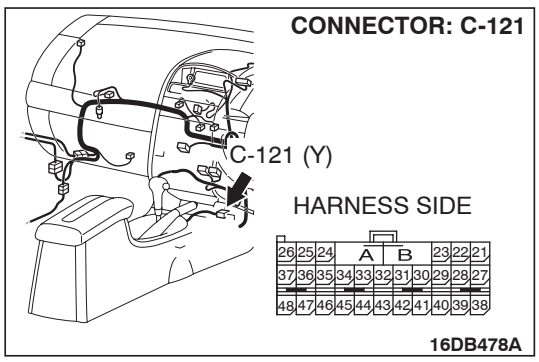
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

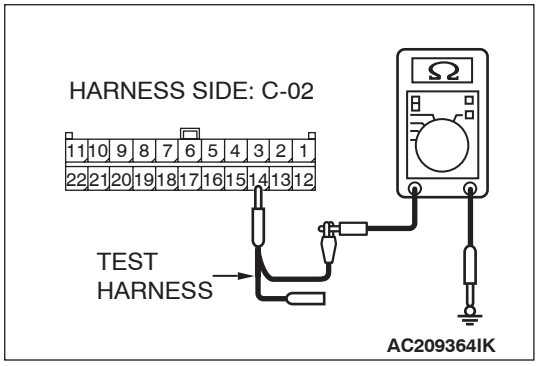
(1) Disconnect joint connector C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

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

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate 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-323.

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

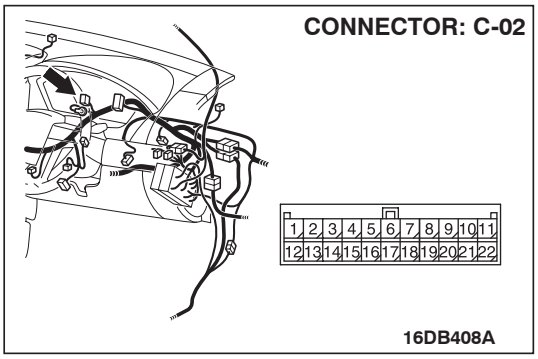
STEP 40. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



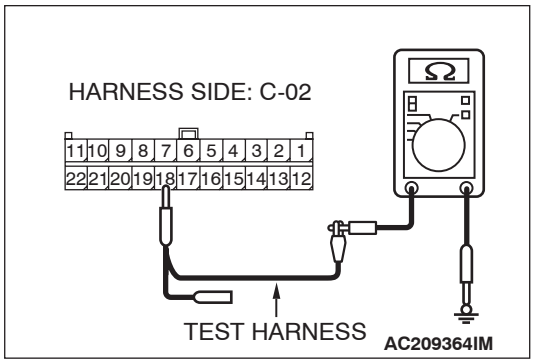
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 41 .

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

STEP 41. 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.

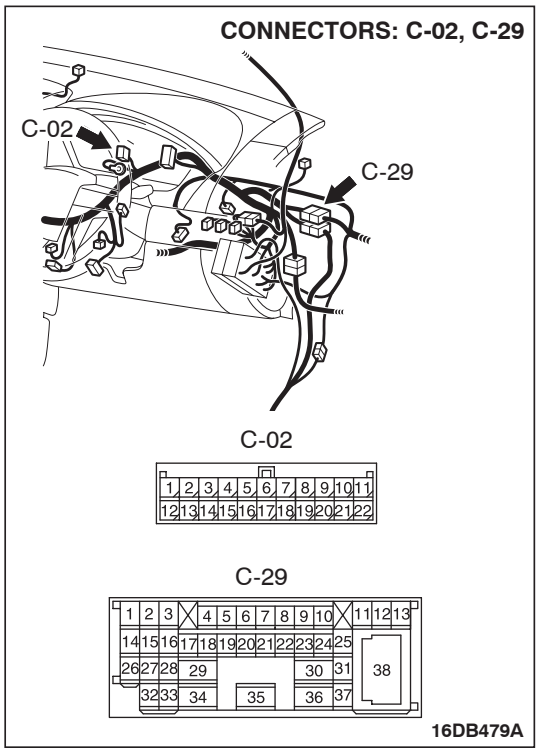
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

⚠ 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.

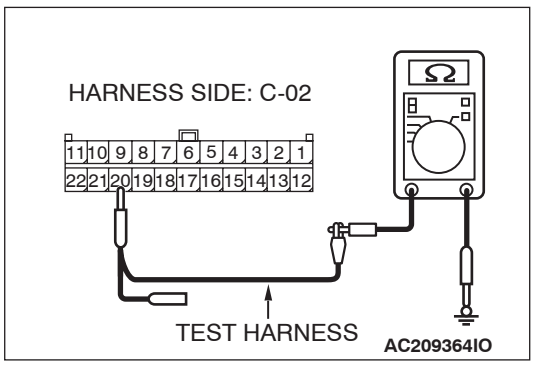
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



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

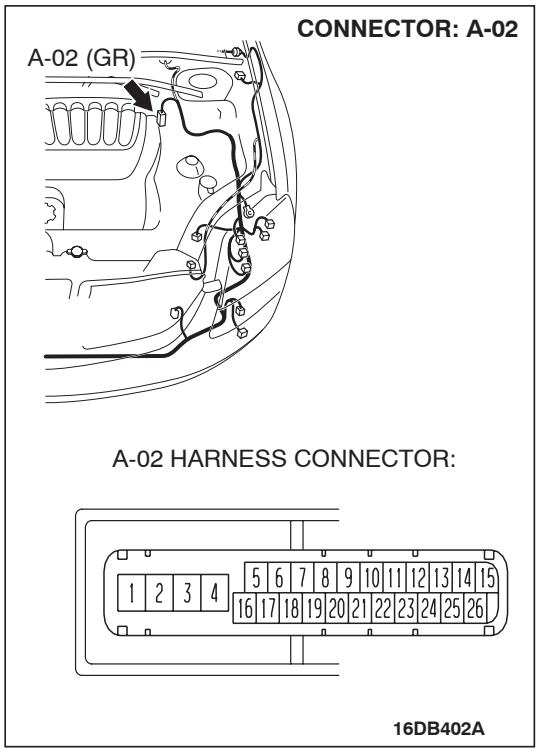
OK: 1 kΩ or more



⚠ 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-323.
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 42. 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.

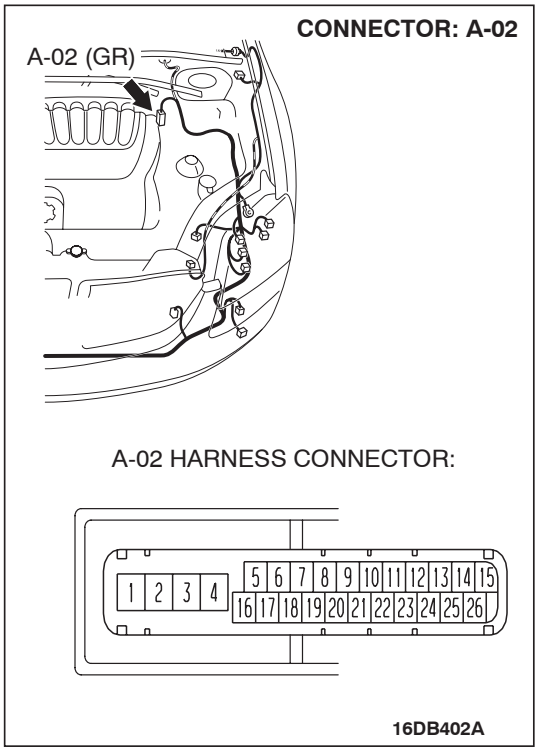
Q: Is ABS-ECU connector A-02 in good condition?

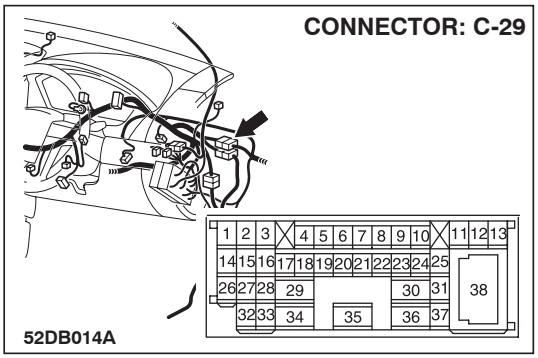
YES : Go to Step 43.
NO : Repair the damaged parts.

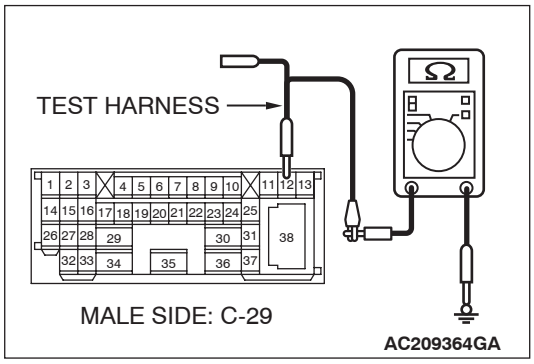
STEP 43. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ 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 44 .

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

STEP 44. Check the CAN_L line (communication line only) between the A/T- ECU connector and ABS-ECU connector for short to ground. Measure the resistance at A/T- ECU connector B-19.

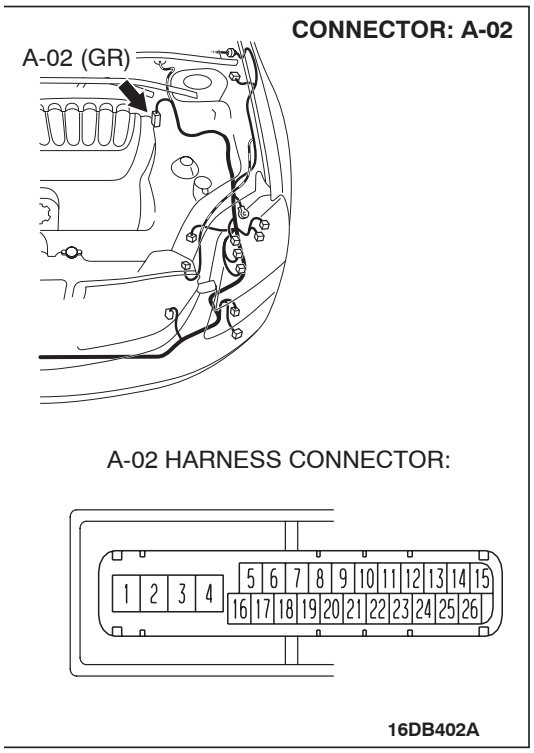
NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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.

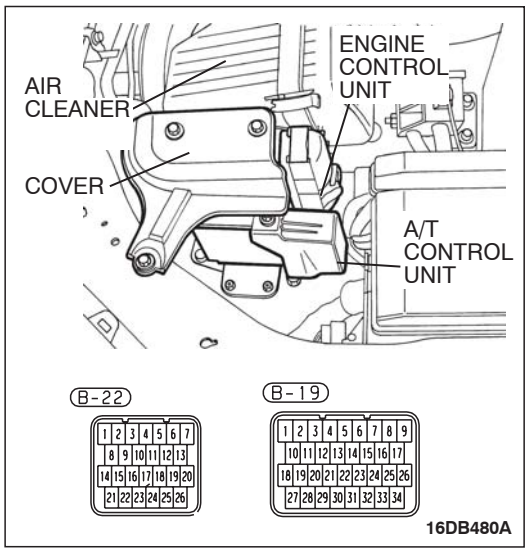


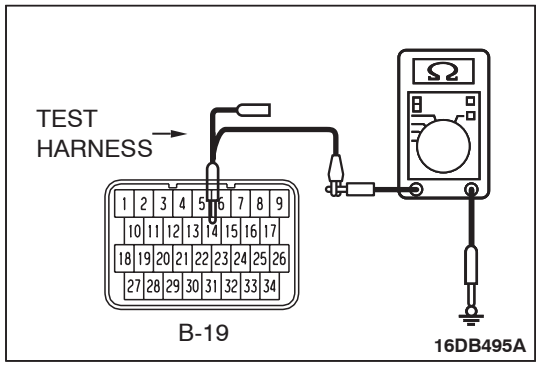
(1) Disconnect A/T- ECU connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of A/T- ECU connector B-19.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

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

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between A/T- ECU connector terminal 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, go to Step 45 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between A/T- ECU connector and ABS-ECU connector.

STEP 45. Check the CAN_L line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

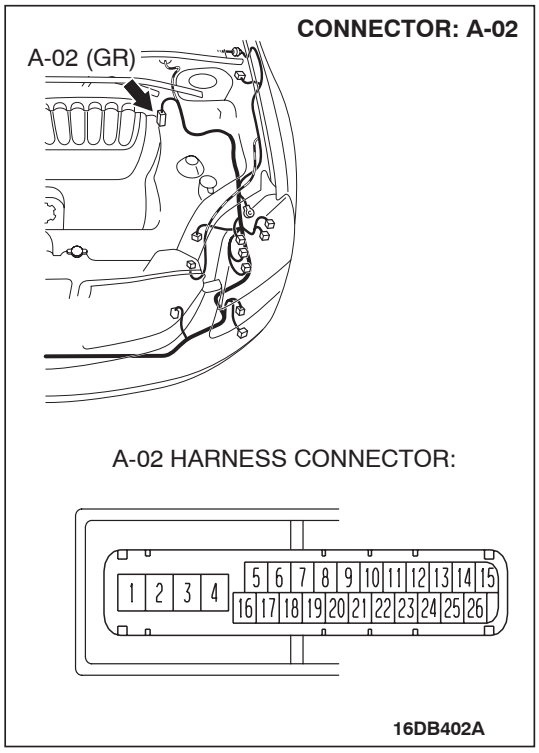
⚠ CAUTION

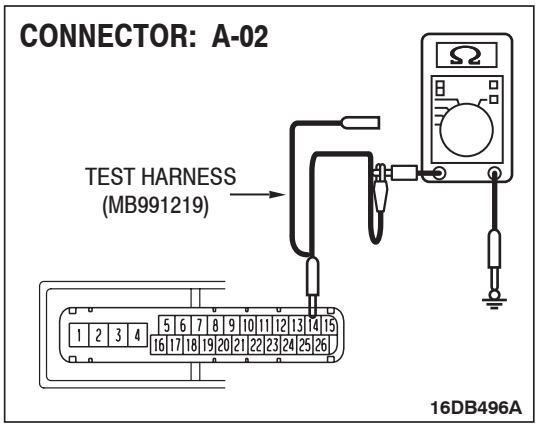
A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

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

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





(2) Measure the resistance at connector A-02, and use special tool Inspection Check Harness (MB991219) to probe the wiring harness-side connector.

NOTE: The special tool (Inspection test harness) MB991219 for connector pin contact pressure should be used. The test probe should never be forcibly inserted, as it may cause a defective contact.

(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 connector A-02 terminal 14 (using inspection test harness MB991219) 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-323.

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

STEP 46. Check the CAN_L line (communication line only) between the ENGINE- ECU connector and A/T-ECU connector for short to ground. Measure the resistance at ENGINE- ECU connector B-21.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.

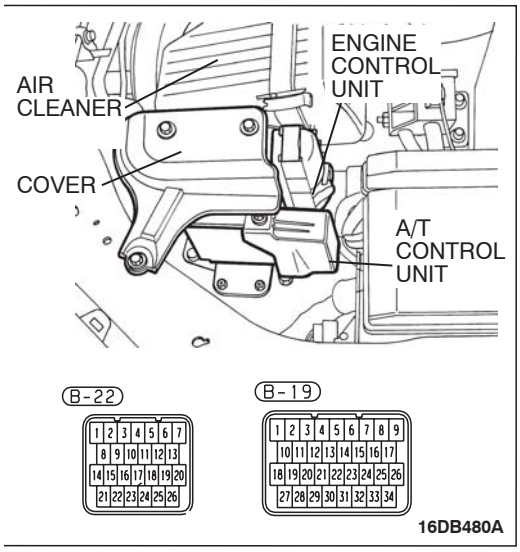
(1) Disconnect ENGINE- ECU connector B-21 and A/T-ECU connector B-19, and measure the resistance at the harness side of ENGINE- ECU connector B-21.

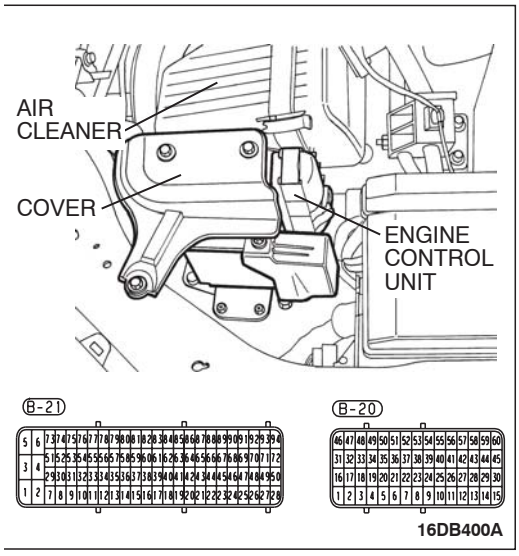
(2) Turn the ignition switch to the "LOCK" (OFF) position.

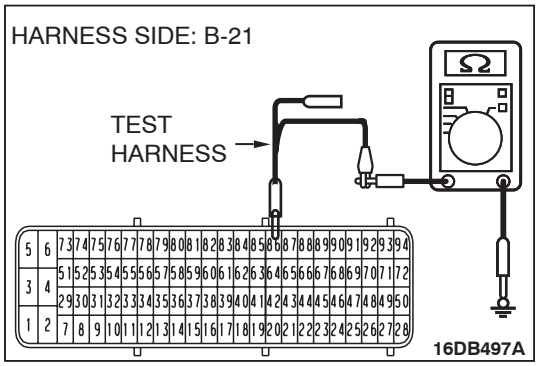
⚠ CAUTION

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

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between ENGINE- ECU connector terminal 86 and body ground.

OK: 1 kΩ or more

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 47 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between ENGINE- ECU connector and A/T-ECU connector.

STEP 47. Check the CAN_L line inside the A/T-ECU for short to ground. Measure the resistance at A/T-ECU connector B-19.

⚠ CAUTION

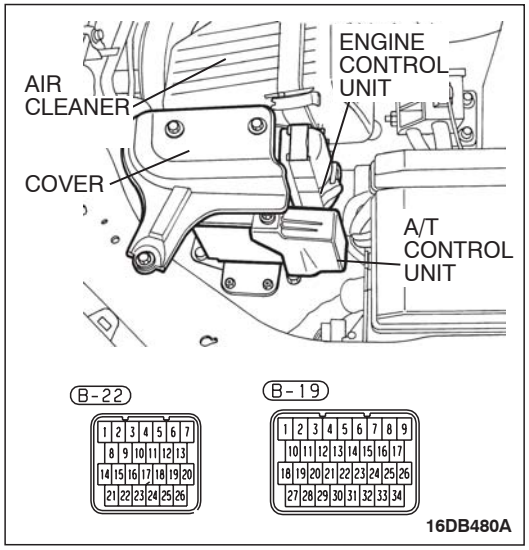
A digital multimeter should be used. For details refer to P.54C-4.

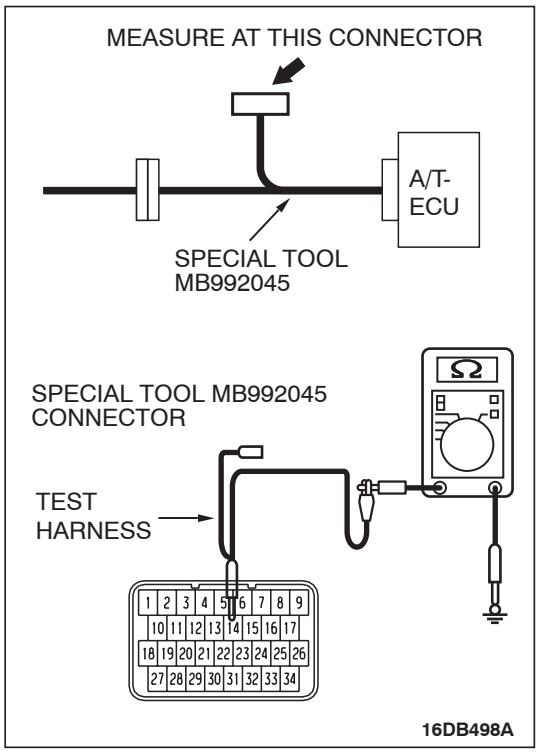
⚠ CAUTION

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

(1) Disconnect A/T-ECU connector B-19.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.





(2) Connect special tool MB992045 (A/T check harness) to the A/T-ECU and the wiring harness, and measure the resistance at special tool MB992045 (A/T check harness).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 MB992045 (A/T check harness) 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-323.
NO : If the resistance measures less than 1 kΩ, replace the A/T-ECU.

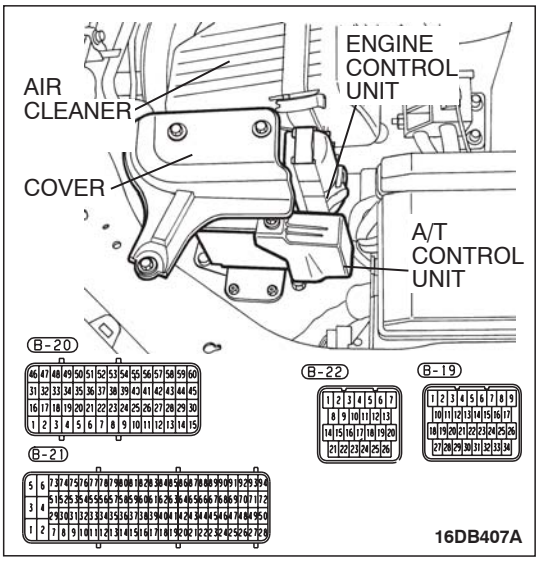
DIAGNOSTIC ITEM 4: Diagnose shorts in the ground to CAN bus line <Vehicles with multi-center display >

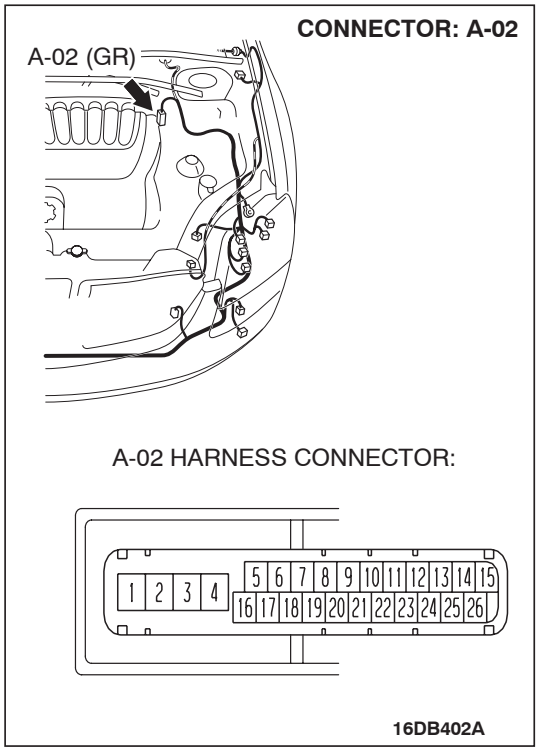
NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits.

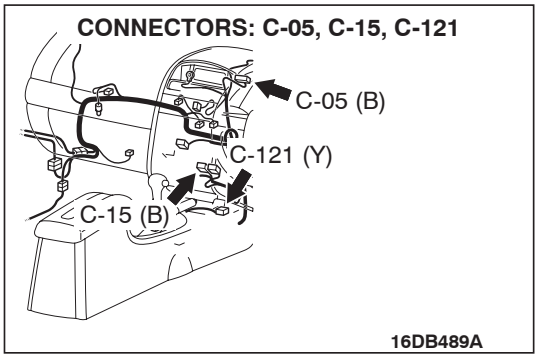
NOTE: When diagnosing CAN-BUS on vehicles that are not equipped with a multi-centre display, disregard the multi-centre display and it's wiring circuits.

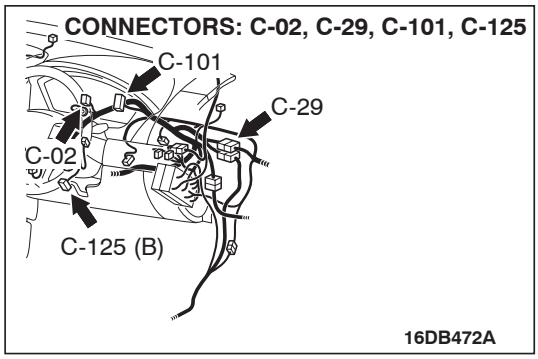
⚠ CAUTION

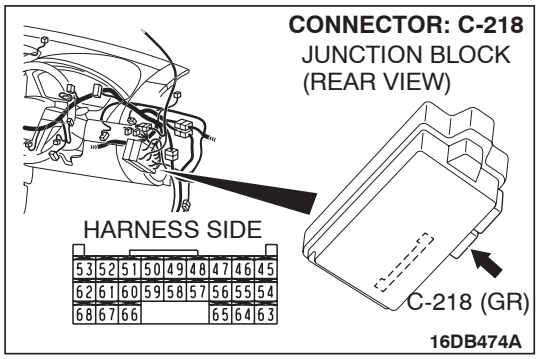
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.











TROUBLE JUDGMENT

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

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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-centre display unit may be defective
- The SRS-ECU may be defective
- The ABS-ECU may be defective
- The A/T- ECU may be defective
- The ENGINE- ECU may be defective

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits.

NOTE: When diagnosing CAN-BUS on vehicles that are not equipped with a multi-centre display, disregard the multi-centre display and it's wiring circuits.

DIAGNOSIS

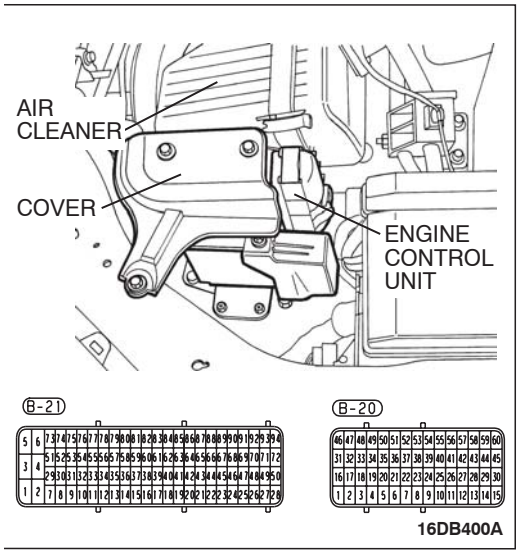
Required Special Tools:

- MB991223: Harness Set
- MB991219: Inspection Test Harness
- MB992045: A/T-ECU Check Harness

STEP 1. Check ENGINE- ECU connector B-21, combination meter connector C-101 and data link connector C-125 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

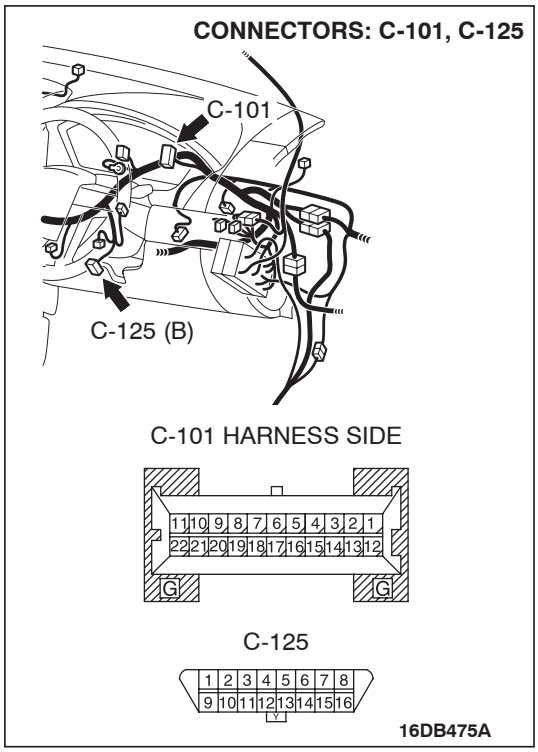
⚠ CAUTION

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 ENGINE- ECU connector B-21, 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.

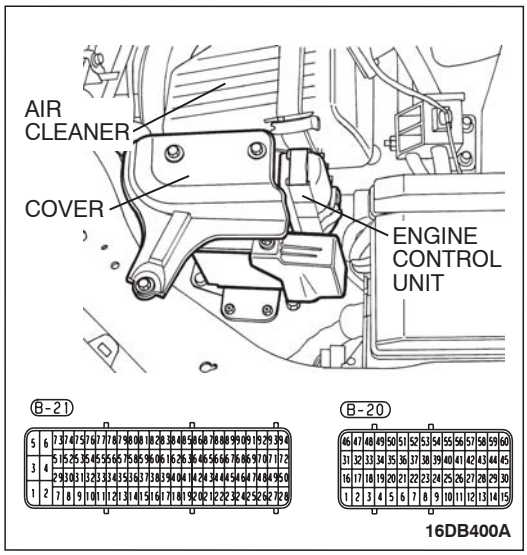
(1) Disconnect ENGINE- ECU connector B-21 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.

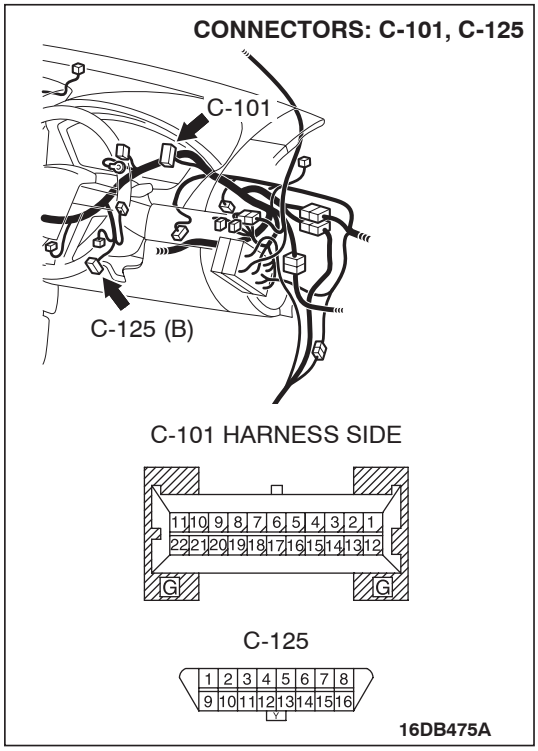
(2) Turn the ignition switch to the "LOCK" (OFF) position.

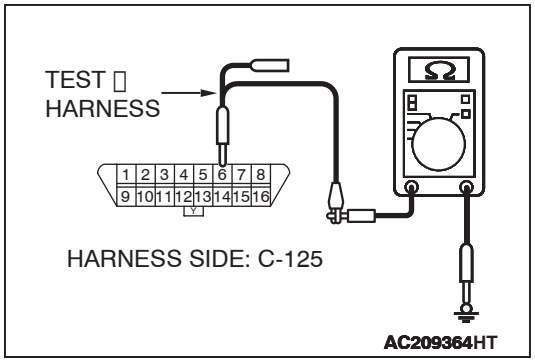
⚠ CAUTION

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 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

YES : If the resistance measures 1 kΩ or more, go to Step 3 .

NO : If the resistance measures less than 1 kΩ, 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.

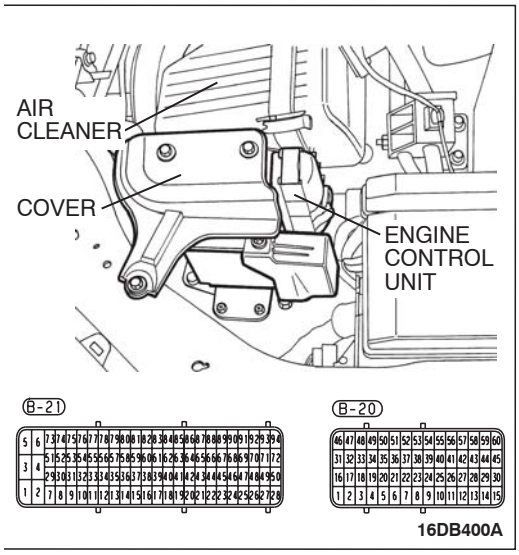
(1) Disconnect ENGINE- ECU connector B-21 and combination meter connector C-101, and measure the resistance at the harness side of data link connector C-125.

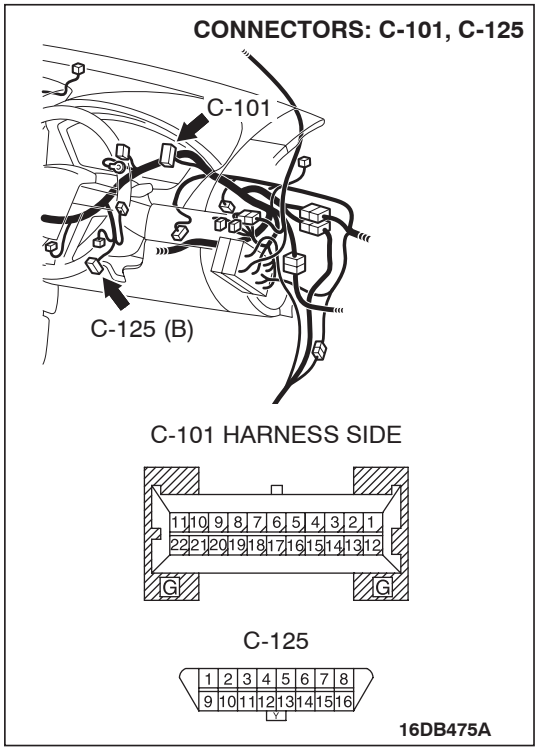
(2) Turn the ignition switch to the "LOCK" (OFF) position.

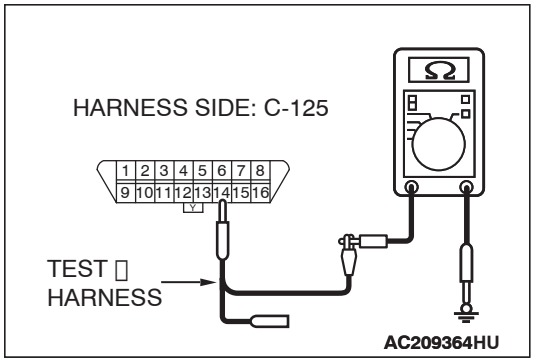
⚠ CAUTION

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.

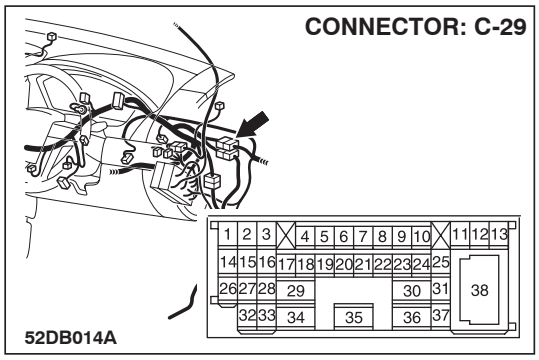
OK: 1 kΩ or more

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-323.

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.

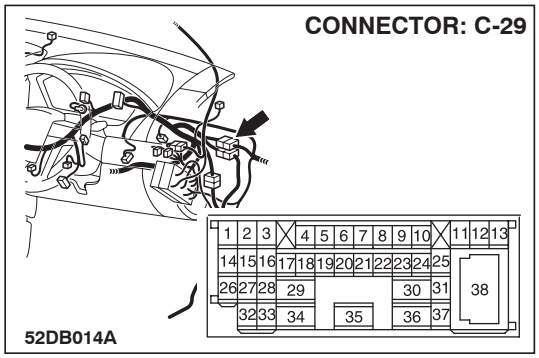
STEP 5. Check the CAN_H-side bus line (communication line including ECUs) of the front wiring harness for short to ground. Measure the resistance at intermediate connector C-29.

⚠ 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.



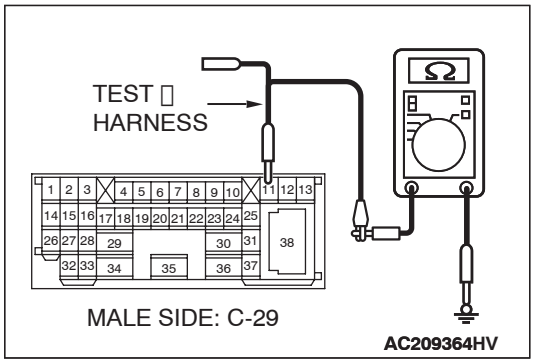
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

(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

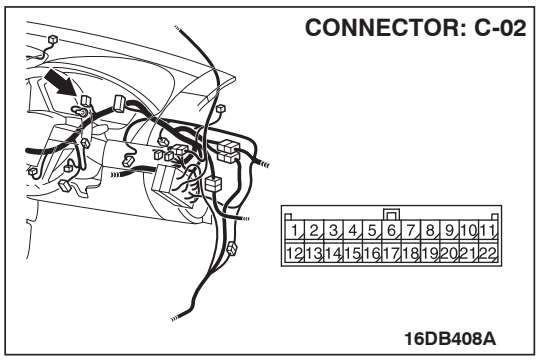
Q: Does the resistance measure 1 kΩ or more?

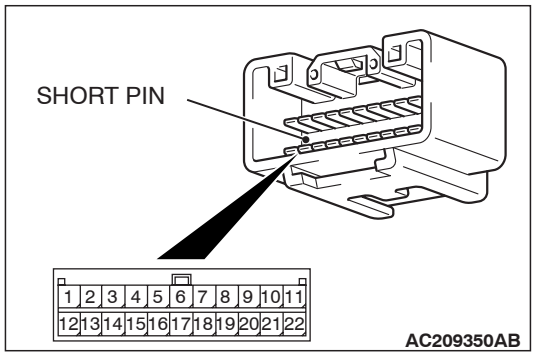
YES : If the resistance measures 1 kΩ or more, go to Step 6 .

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.

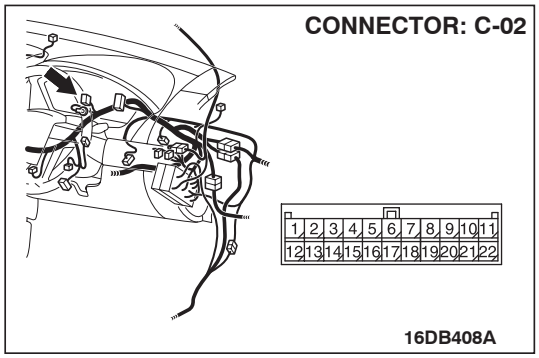
STEP 7. Check the CAN_H line (communication line including the combination meter) between joint connector (3) and the combination meter for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



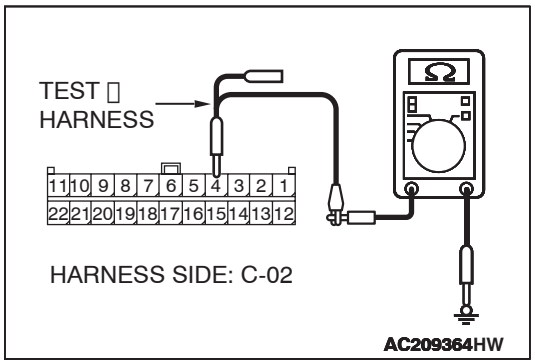
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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.

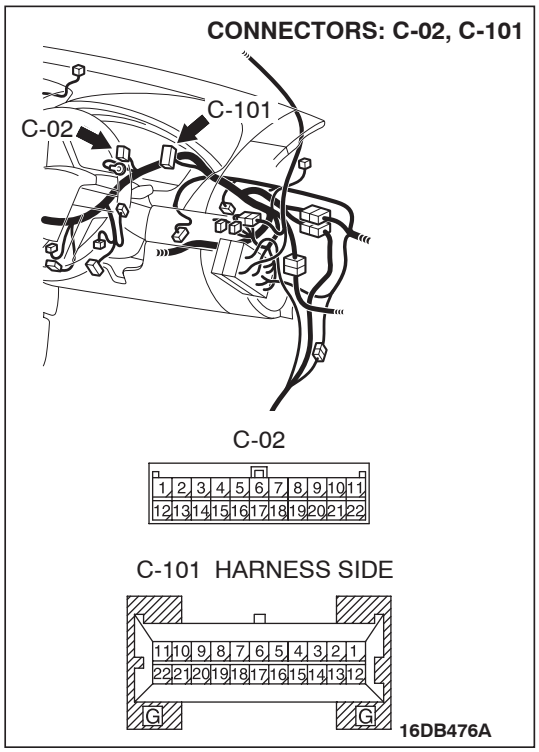
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

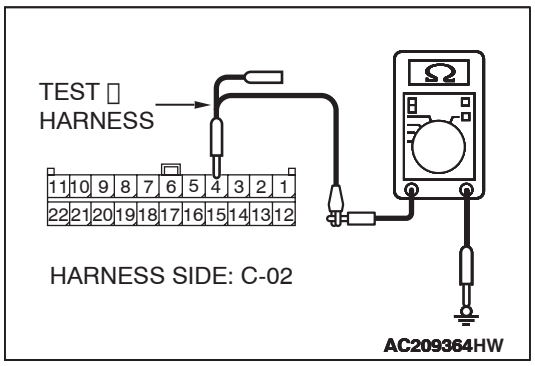
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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-323.

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.

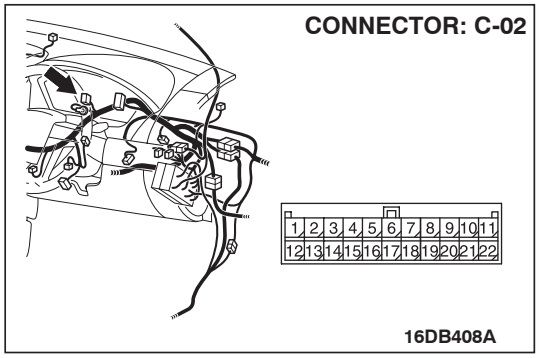
- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.



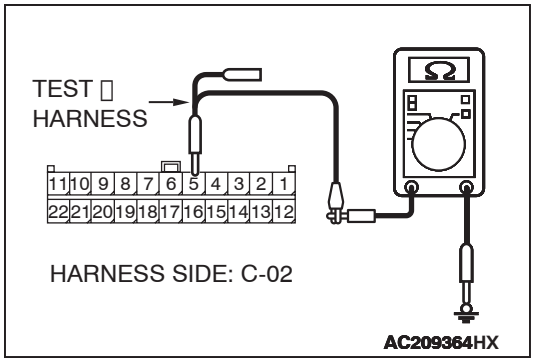
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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?

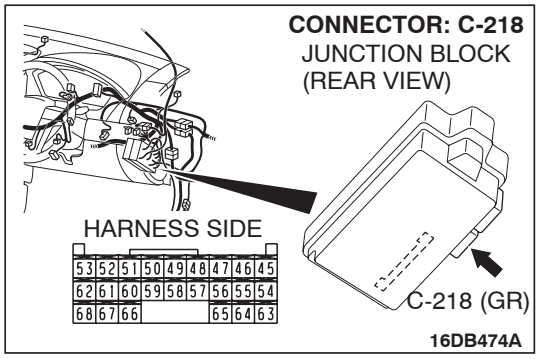
YES : If the resistance measures 1 kΩ or more, go to Step 12 .

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.

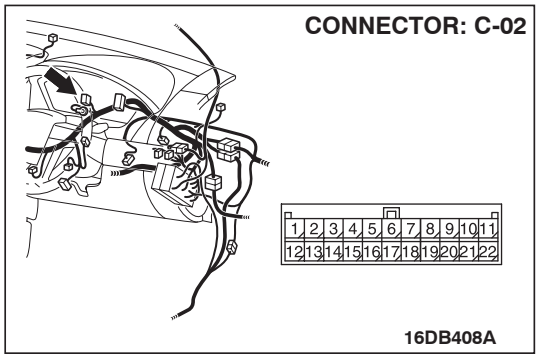
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

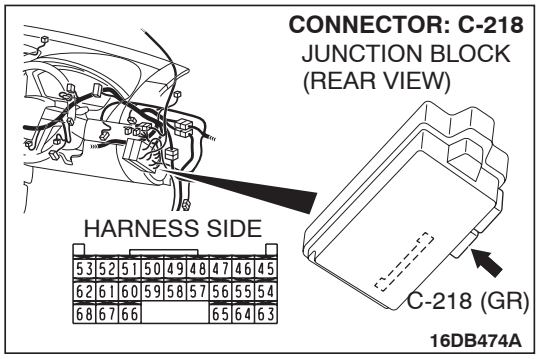
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

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

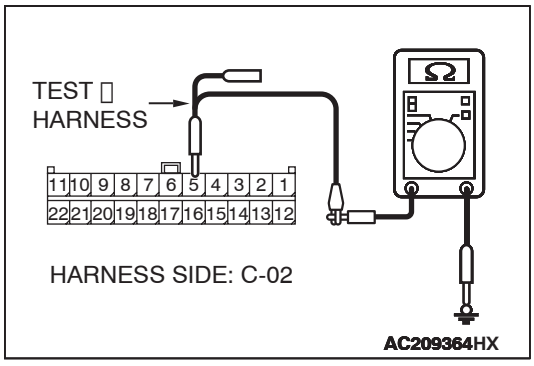
(3) Disconnect the negative battery terminal.





(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-323.

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.

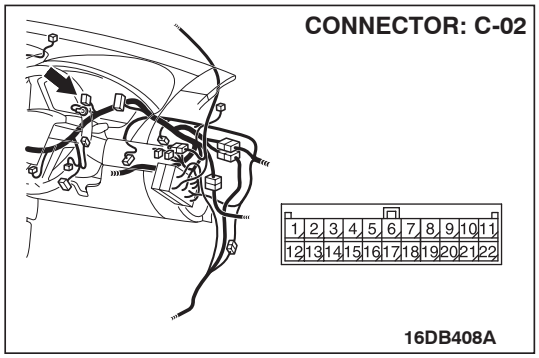
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

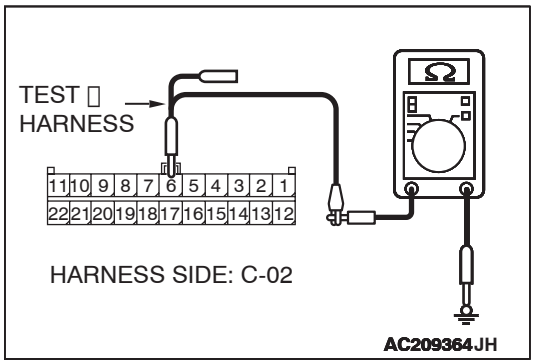
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

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

(3) Disconnect the negative battery terminal.





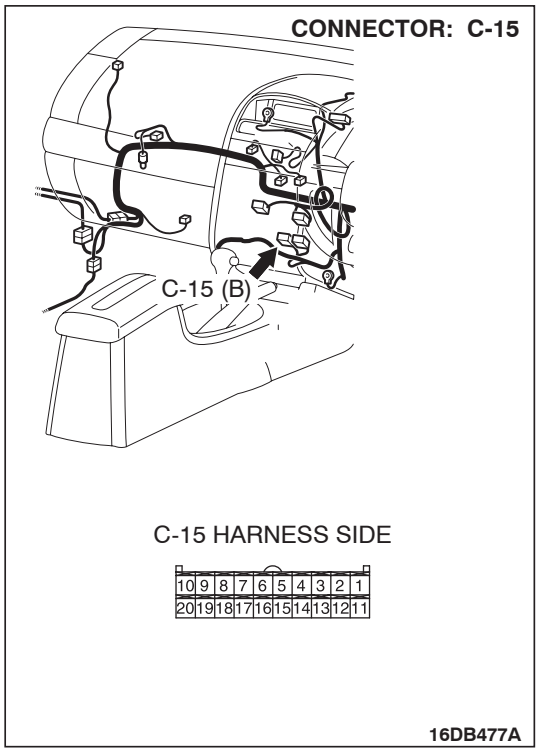
(4) Measure the resistance between joint connector (3) terminal 6 and body ground.

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 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-15 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.

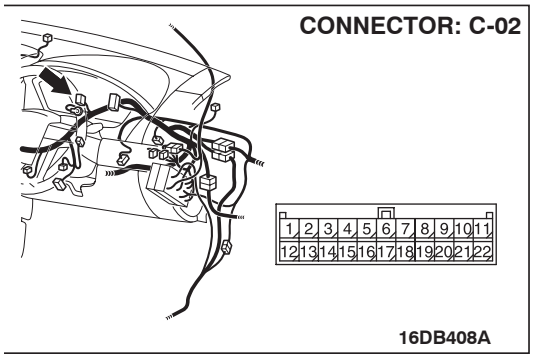
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15 automatic air conditioning system, and measure the resistance at the wiring harness side of joint connector (3) C-02.

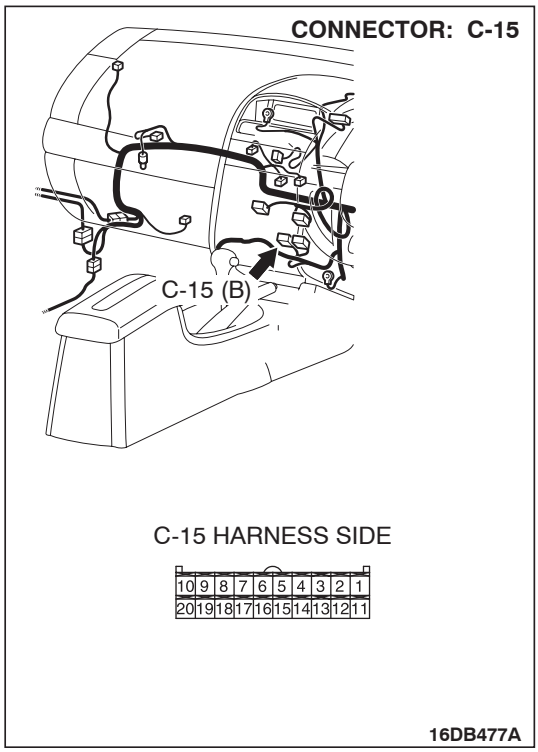
(2) Turn the ignition switch to the "LOCK" (OFF) position.

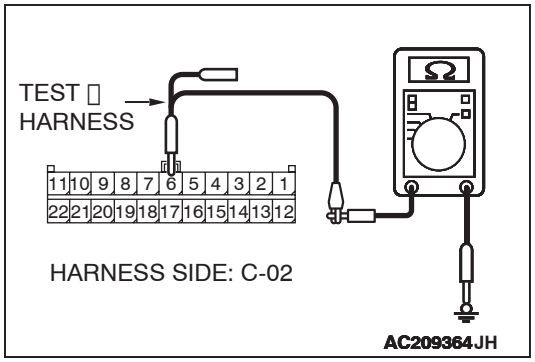
⚠ CAUTION

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 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-323.

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

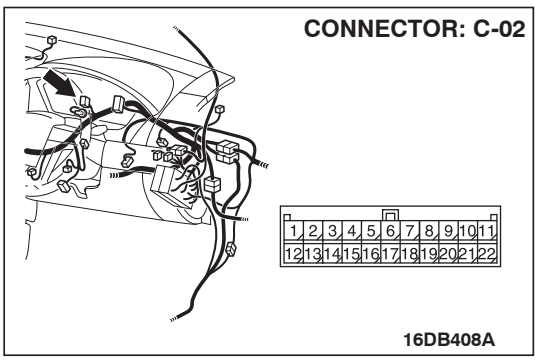
STEP 15. Check the CAN_H line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



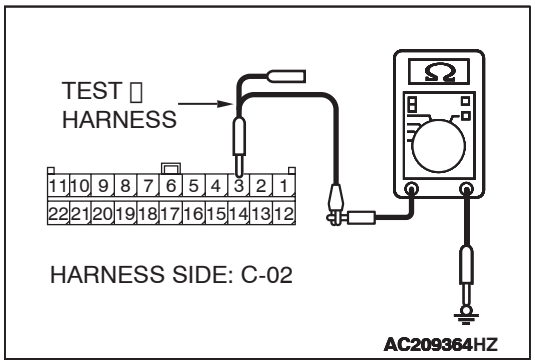
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 18 .

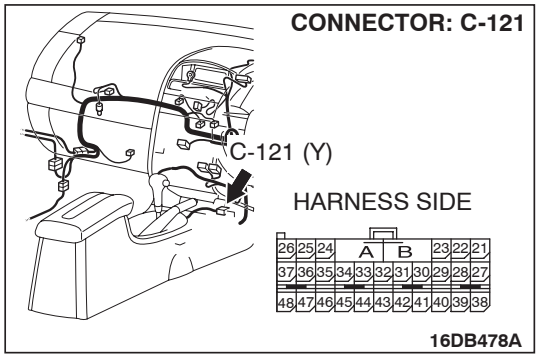
NO : If the resistance measures less than 1 kΩ, go to Step 16.

STEP 16. 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 17.
NO : Repair the damaged parts.



STEP 17. Check the CAN_ H line (communication line only) between the SRS-ECU connector and joint connector for a short circuit. Measure the resistance at joint connector C-02.

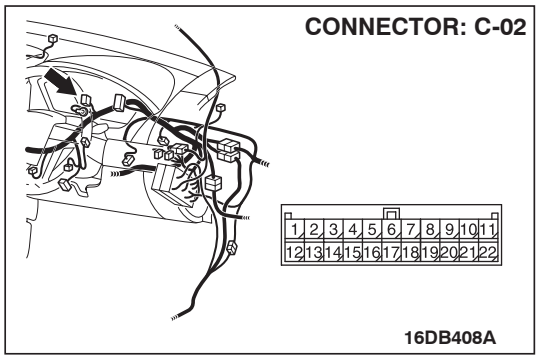
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

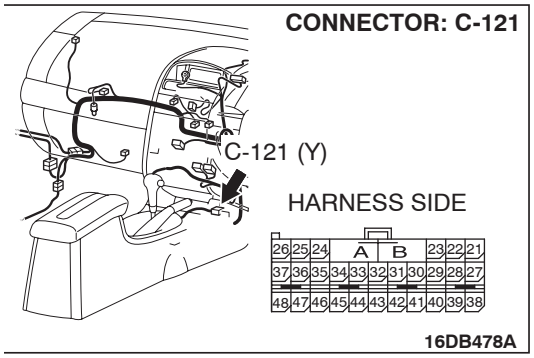
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

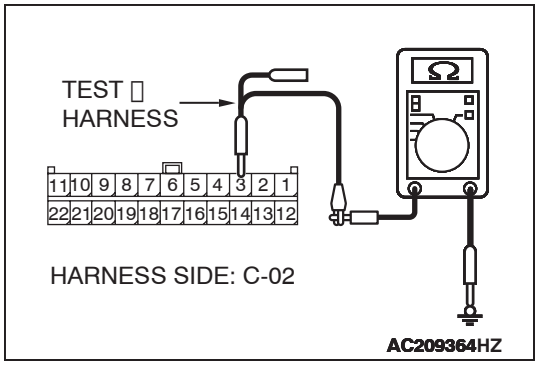
(1) Disconnect joint connector C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 terminal 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, diagnose CAN bus lines thoroughly by referring to P.54C-323.

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector C-02 and SRS-ECU connector C-121.

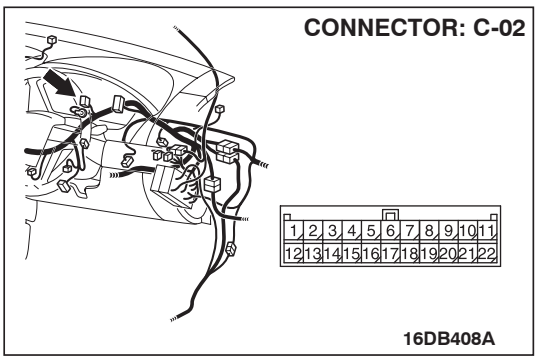
STEP 18. Check the CAN_H line (communication line including the multi-center display unit) between joint connector (3) and middle-grade multi-center display connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



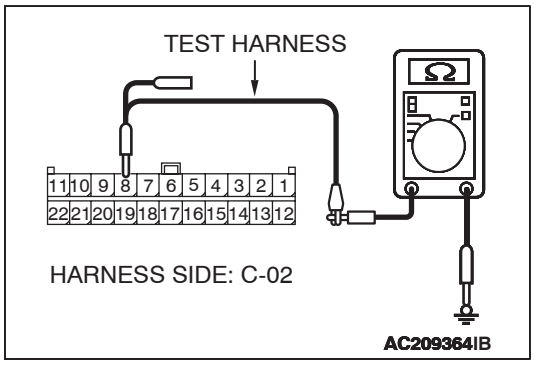
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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.



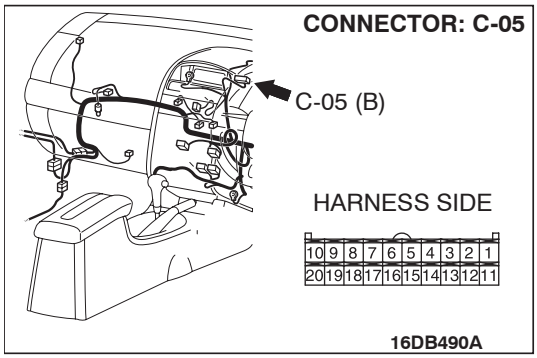
(4) Measure the resistance between joint connector (3) terminal 8 and body ground.

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 21 .

NO : If the resistance measures less than 1 kΩ, go to Step 19 .

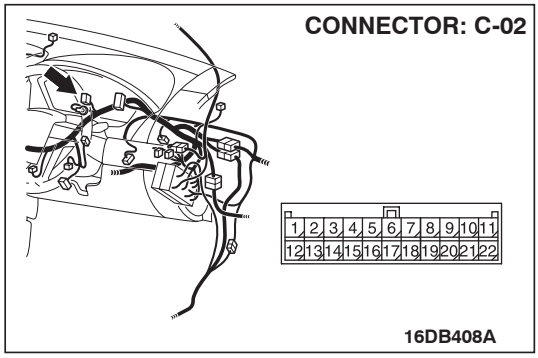


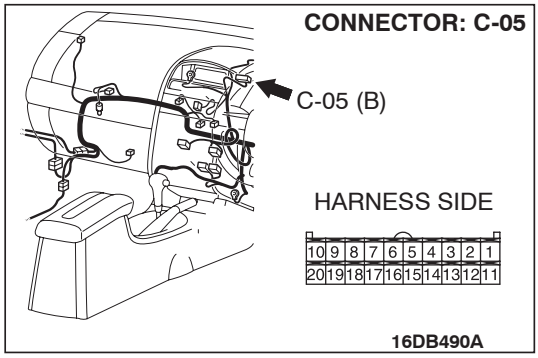
STEP 19. Check multi-center display unit connector C-05.

⚠ 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 connector C-05 in good condition?

YES : Go to Step 20.
NO : Repair the damaged parts.





STEP 20. Check the CAN_H line (communication line only) between joint connector (3) and multi-center display unit connector for short to ground. Measure the resistance at joint connector (3) C-02.

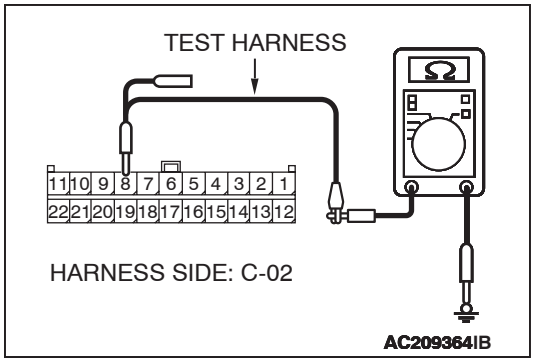
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

⚠ 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 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?

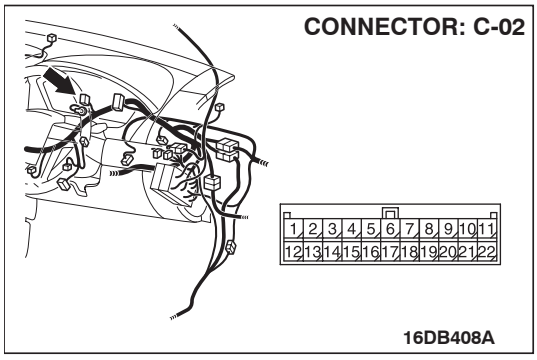
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-323.

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

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.

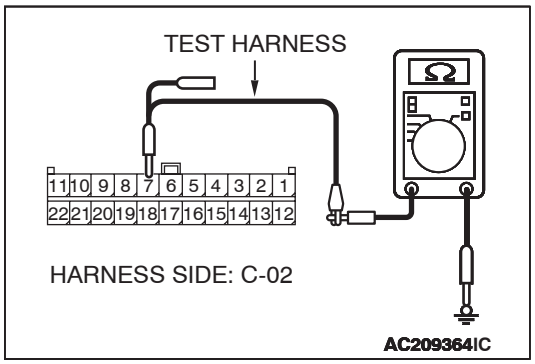


(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 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 22 .

NO : If the resistance measures less than 1 kΩ, 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.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.

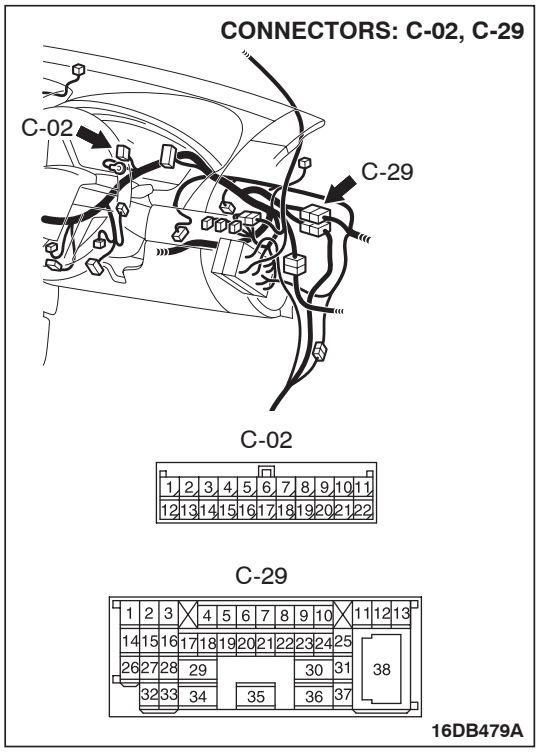
(1) Disconnect intermediate connector C-29 and joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

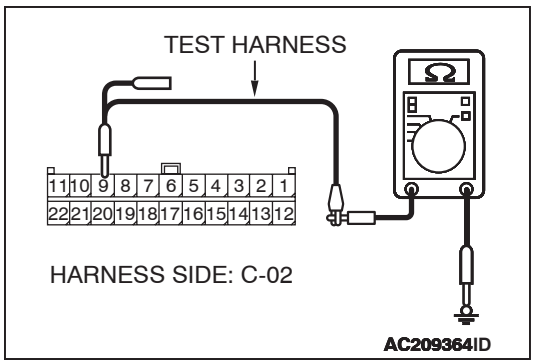
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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

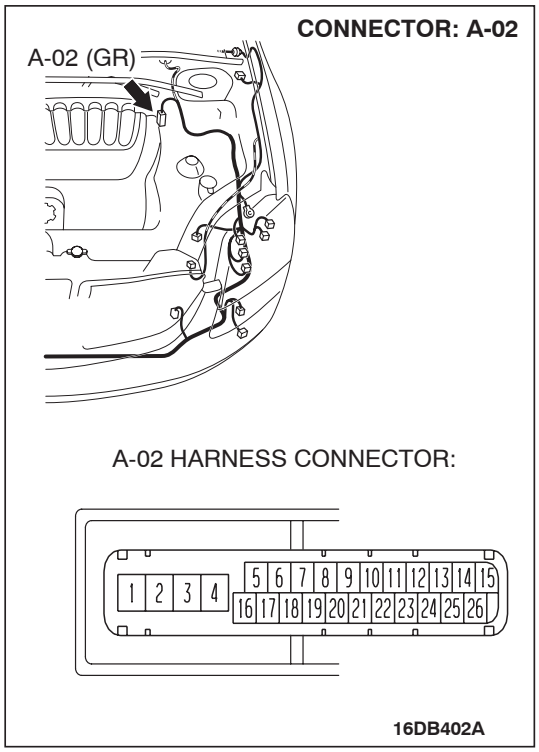
⚠ CAUTION

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-323.

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.

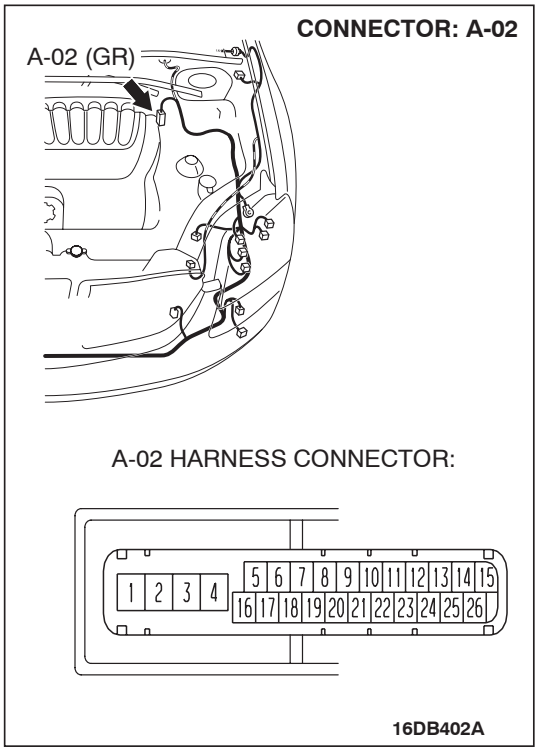
Q: Is ABS-ECU connector A-02 in good condition?

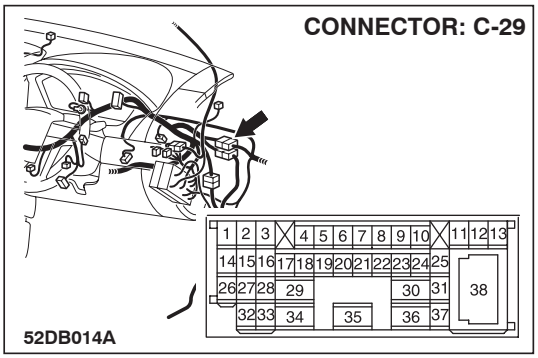
YES : Go to Step 24.
NO : Repair the damaged parts.

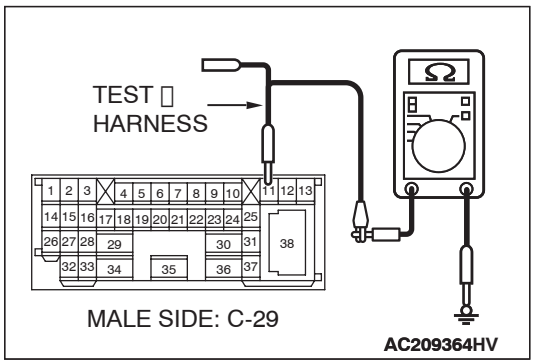
STEP 24. Check the CAN_H line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ 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 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 intermediate connector C-29 and ABS-ECU connector.

STEP 25. Check the CAN_H line (communication line only) between the A/T- ECU connector and ABS-ECU connector for short to ground. Measure the resistance at A/T- ECU connector B-19.

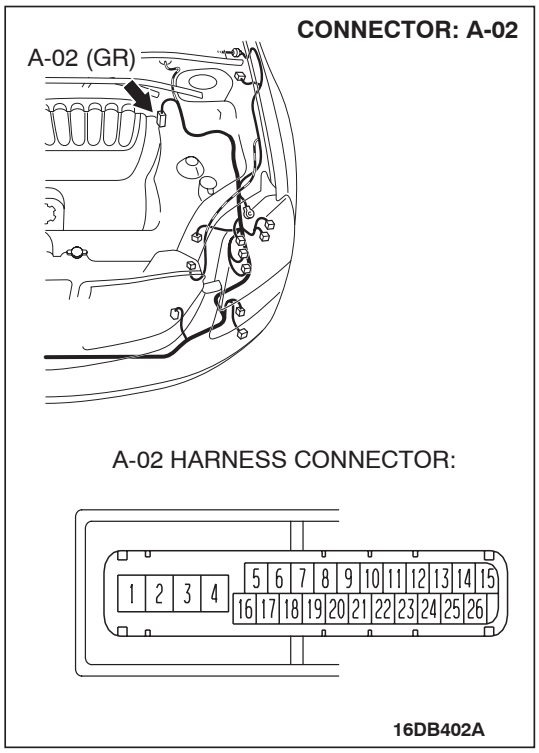
NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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.

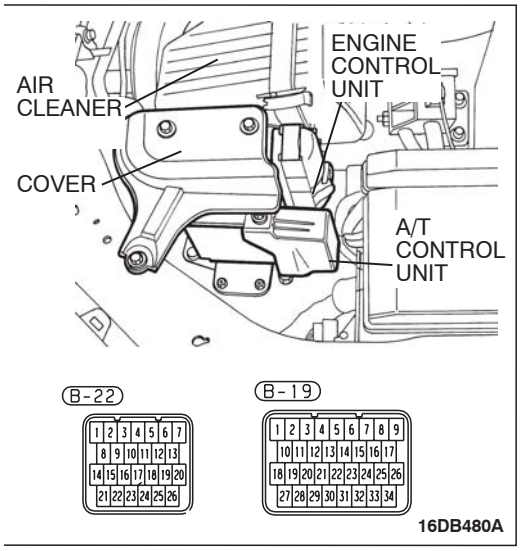


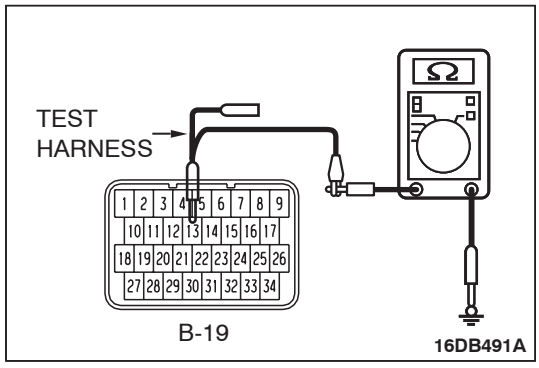
(1) Disconnect A/T- ECU connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of A/T- ECU connector B-19.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

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

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between A/T- ECU connector terminal 13 and body ground.

OK: 1 kΩ or more

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 A/T- ECU 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.

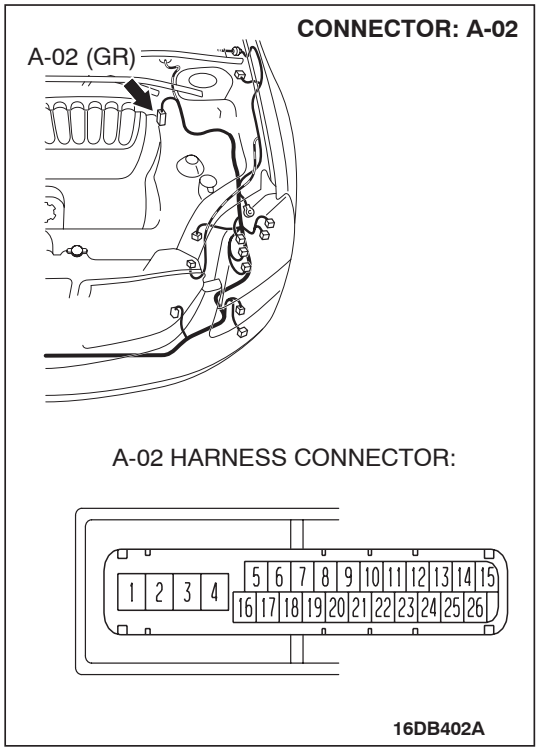
⚠ CAUTION

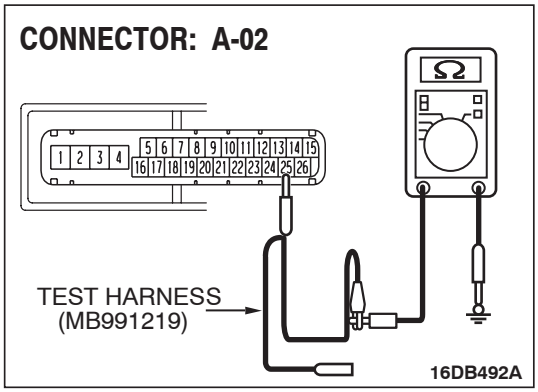
A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

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

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





(2) Measure the resistance at connector A-02, and use special tool Inspection Check Harness (MB991219) to probe the wiring harness-side connector.

NOTE: The special tool (Inspection test harness) MB991219 for connector pin contact pressure should be used. The test probe should never be forcibly inserted, as it may cause a defective contact.

(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 connector A-02 terminal 25 (using inspection test harness MB991219) 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-323.

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

STEP 27. Check the CAN_H line (communication line only) between the ENGINE- ECU connector and A/T-ECU connector for short to ground. Measure the resistance at ENGINE- ECU connector B-21.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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.

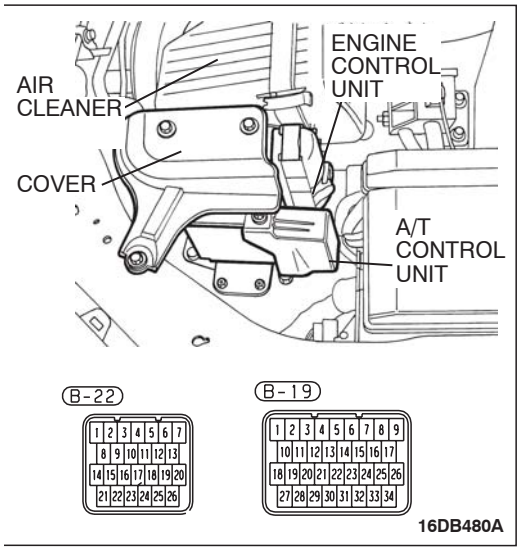
(1) Disconnect ENGINE- ECU connector B-21 and A/T-ECU connector B-19, and measure the resistance at the harness side of ENGINE- ECU connector B-21.

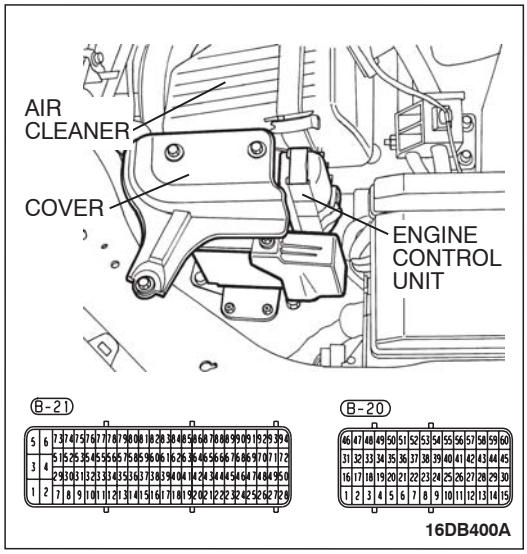
(2) Turn the ignition switch to the "LOCK" (OFF) position.

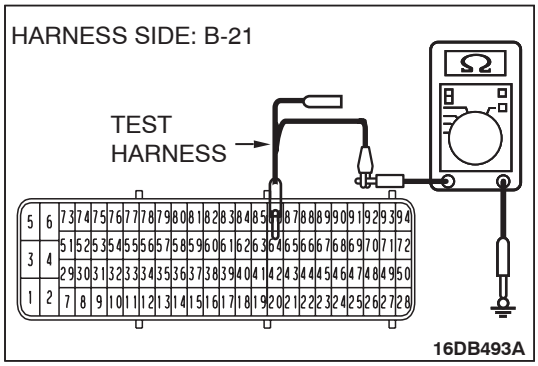
⚠ CAUTION

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

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between ENGINE- ECU connector terminal 64 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 28 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between ENGINE- ECU B-21 connector and A/T-ECU B-19 connector.

STEP 28. Check the CAN_H line inside the A/T-ECU for short to ground. Measure the resistance at A/T-ECU connector B-19.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

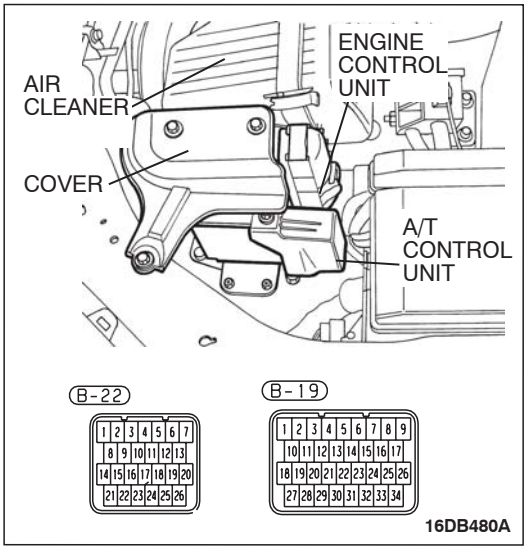
⚠ CAUTION

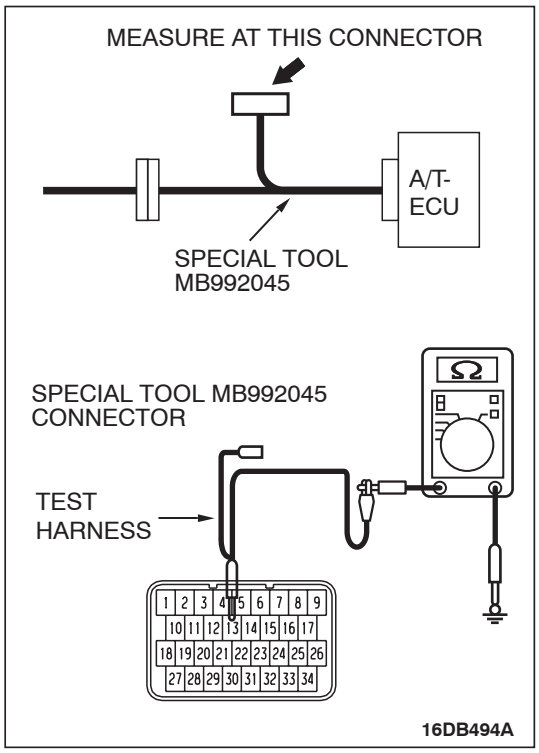
A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

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

(1) Disconnect A/T-ECU connector B-19.





(2) Connect special tool MB992045 (A/T check harness) to the A/T-ECU and the wiring harness, and measure the resistance at special tool MB992045 (A/T check harness).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

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

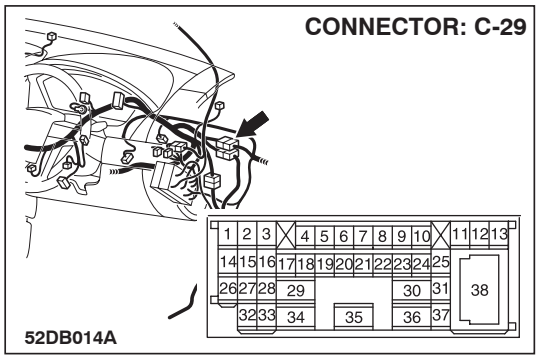
(4) Disconnect the negative battery terminal.
(5) Measure the resistance between special tool MB992045 (A/T check harness) connector terminal 13 and body ground.

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-323.
NO : If the resistance measures less than 1 kΩ, replace the A/T-ECU.

STEP 29. 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 30.
NO : Repair the damaged parts.

STEP 30. 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.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.

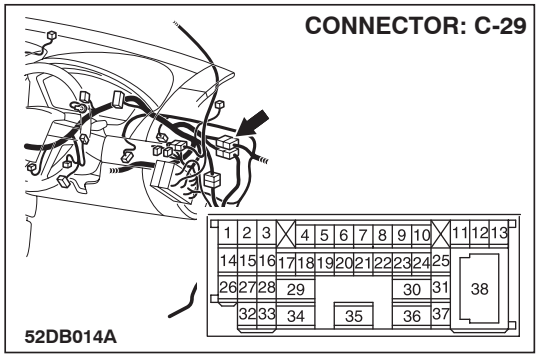
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

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

⚠ CAUTION

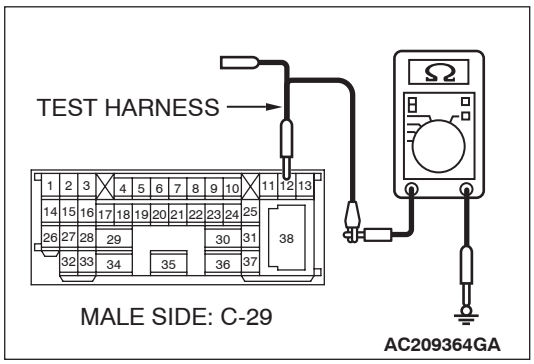
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



(4) Measure the resistance between intermediate connector terminal 12 and body ground.

OK: 1 kΩ or more



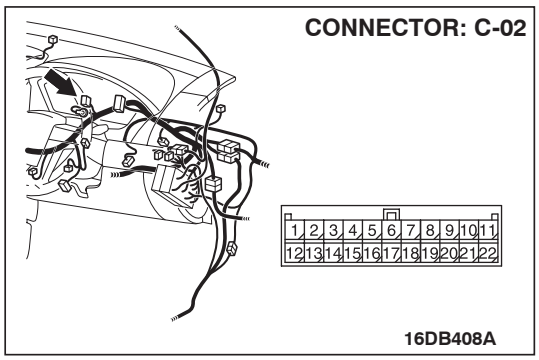
Q: Does the resistance measure 1 kΩ or more?

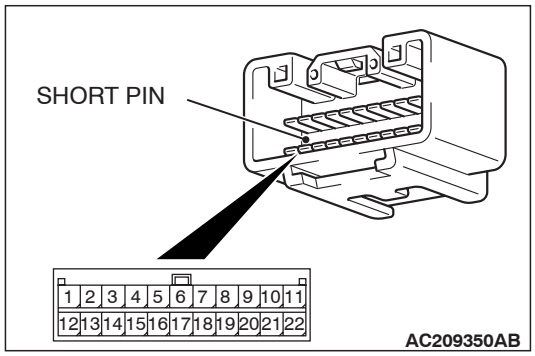
YES : If the resistance measures 1 kΩ or more, go to Step 31 .

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

STEP 31. 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 32.

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

STEP 32. 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.

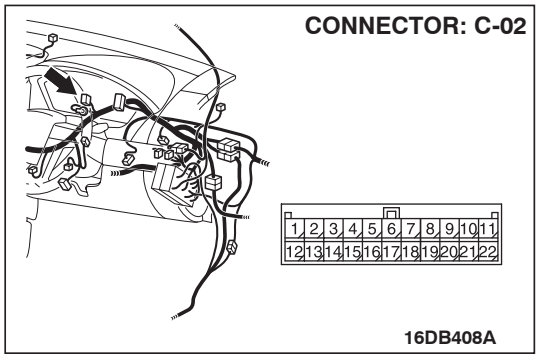
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

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

⚠ CAUTION

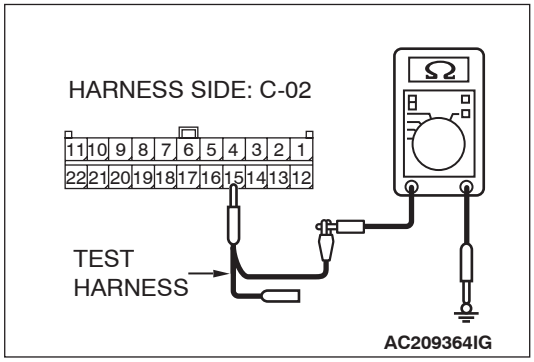
Disconnect the negative battery terminal. For details refer to P.54C-4.

(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 34 .

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

STEP 33. 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.

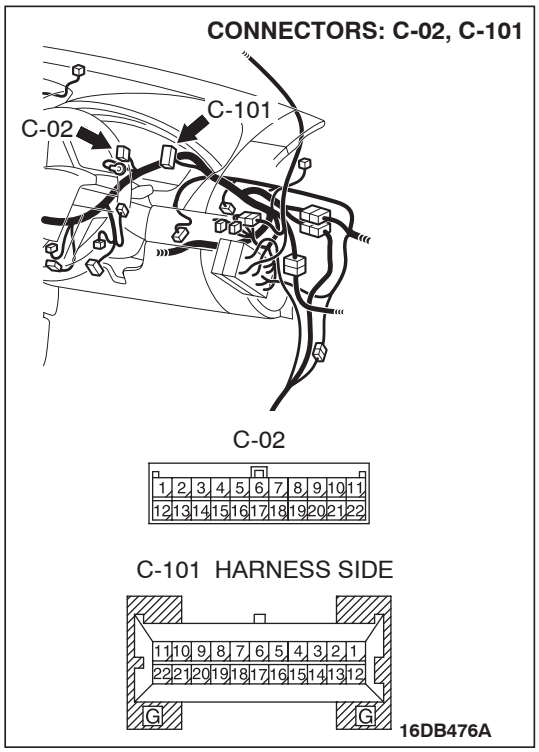
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

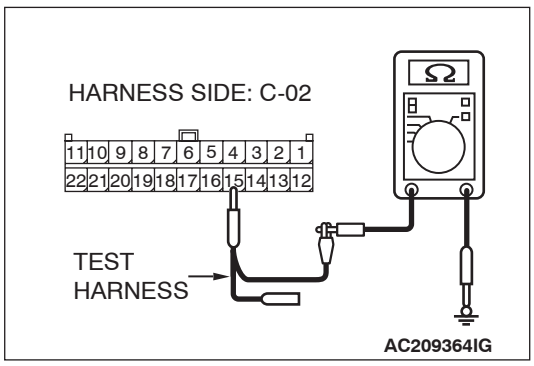
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

(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-323.
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the combination meter connector.

STEP 34. 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.

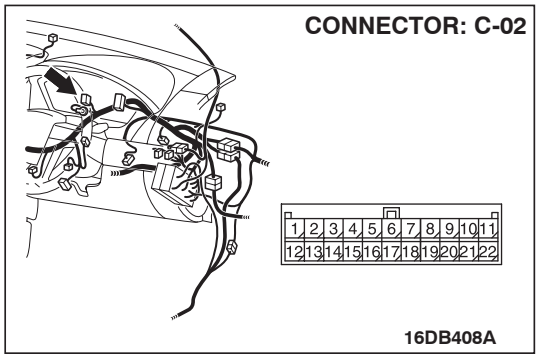
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

⚠ 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.

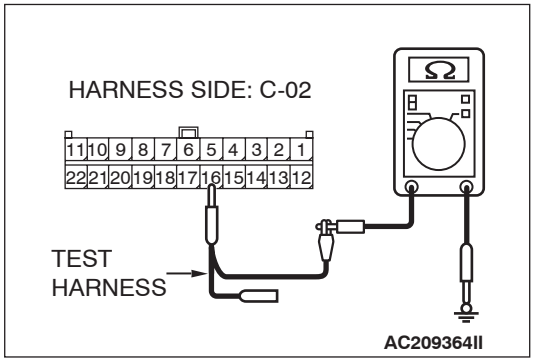


(4) Measure the resistance between joint connector (3) terminal 16 and body ground.

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 37 .
NO : If the resistance measures less than 1 kΩ, go to Step 35.

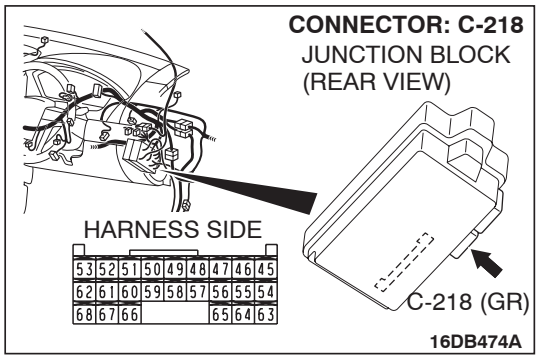


STEP 35. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ 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 36.
NO : Repair the damaged parts.

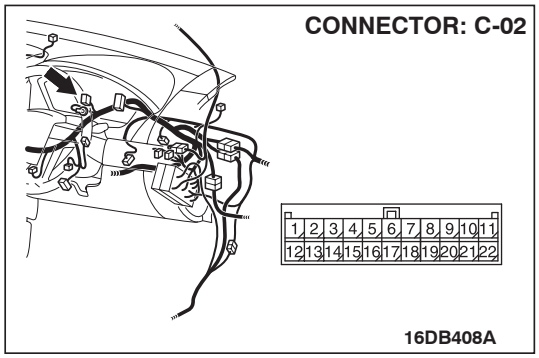


STEP 36. Check the CAN_L line (communication line only) between joint connector (3) and ETACS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.

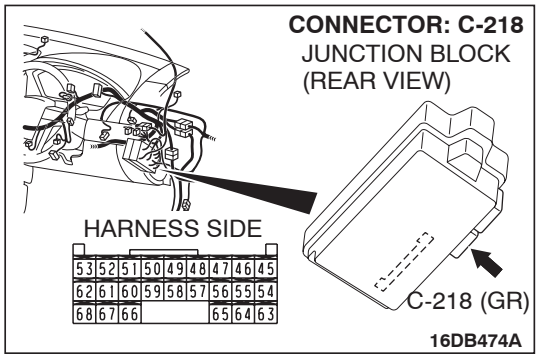
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.



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

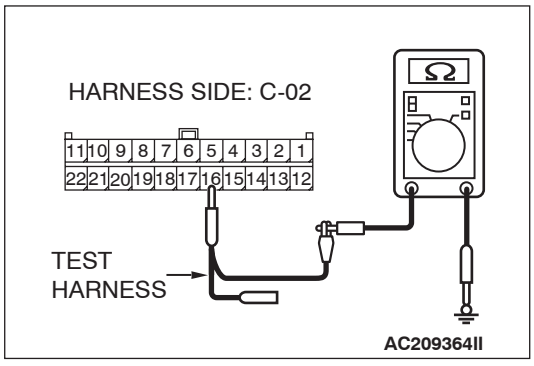
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



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

OK: 1 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-323.

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

STEP 37. 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.

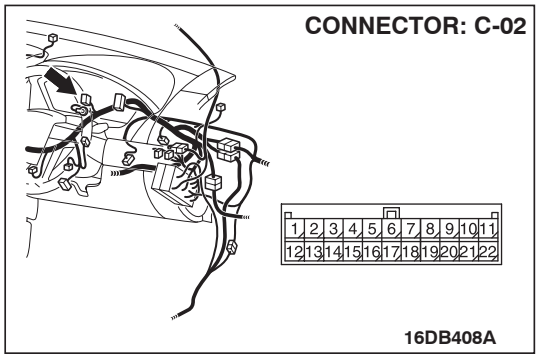
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

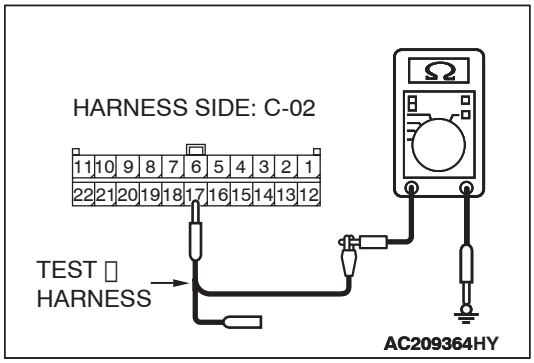
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

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

(3) Disconnect the negative battery terminal.





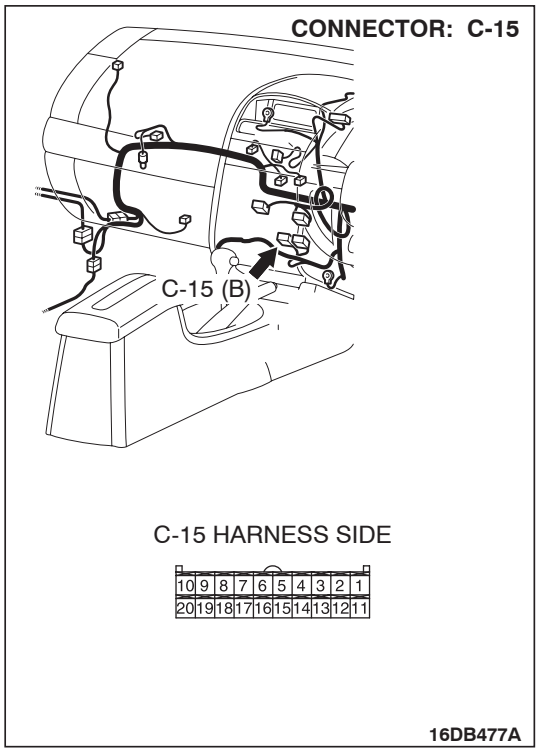
(4) Measure the resistance between joint connector (3) terminal 17 and body ground.

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 40 .

NO : If the resistance measures less than 1 kΩ, go to Step 38.



STEP 38. Check A/C-ECU connector C-15 automatic air conditioning system for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

Q: Is A/C-ECU connector C-15 automatic air conditioning system in good condition?

YES : Go to Step 39.
NO : Repair the damaged parts.

STEP 39. 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.

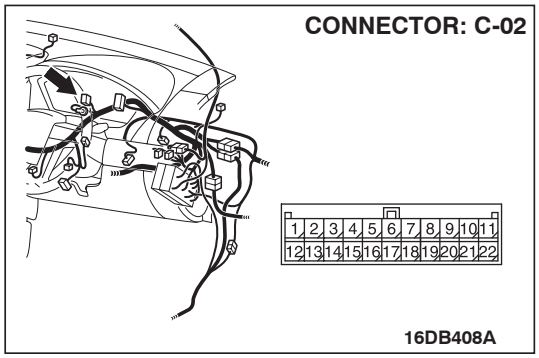
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15 automatic air conditioning system, and measure the resistance at the wiring harness side of joint connector (3) C-02.

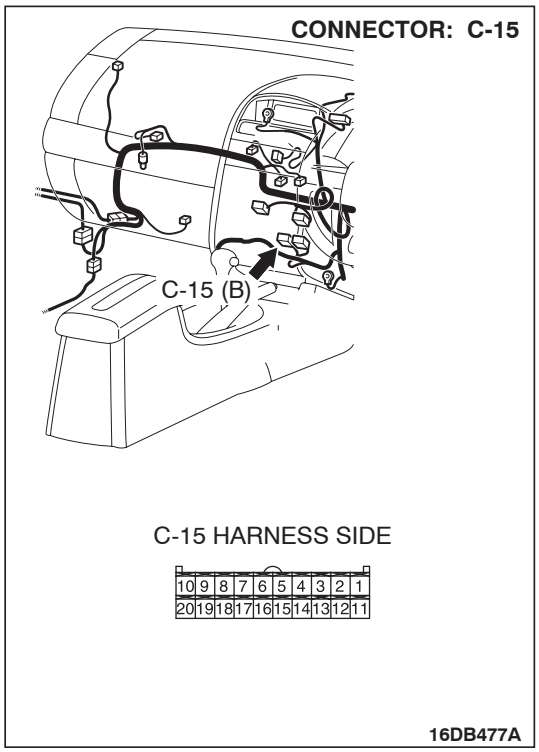
(2) Turn the ignition switch to the "LOCK" (OFF) position.

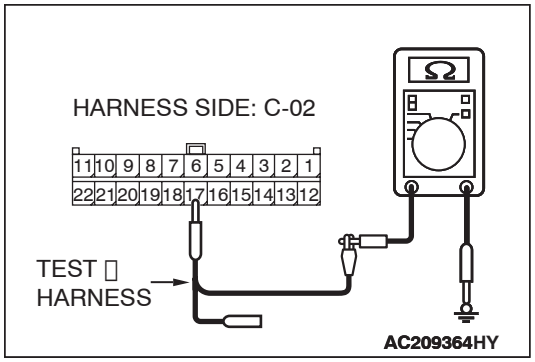
⚠ CAUTION

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-323.

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

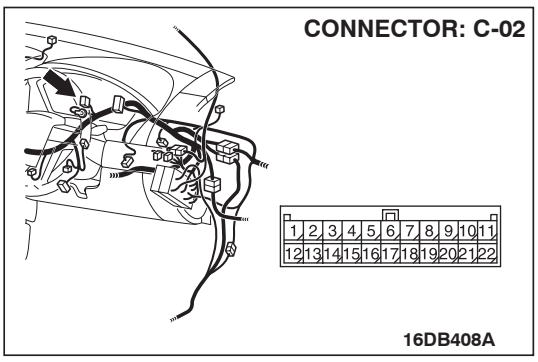
STEP 40. Check the CAN_L line (communication line including the SRS-ECU) between joint connector (3) and the SRS-ECU connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



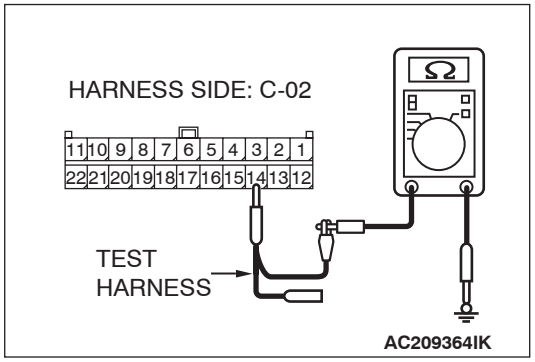
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 43 .

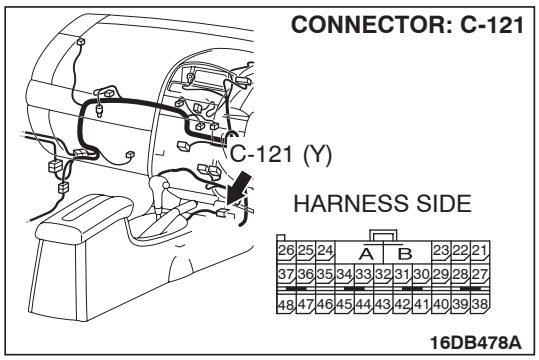
NO : If the resistance measures less than 1 kΩ, go to Step 41.

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 joint connector for a short circuit. Measure the resistance at joint connector C-02.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

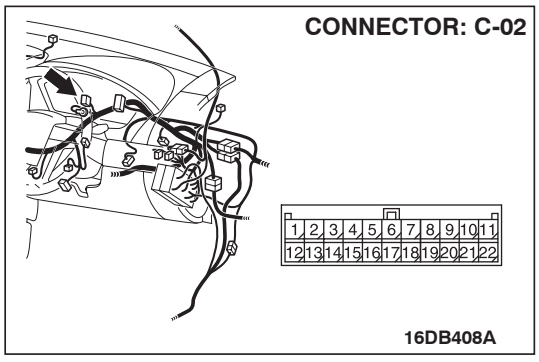
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

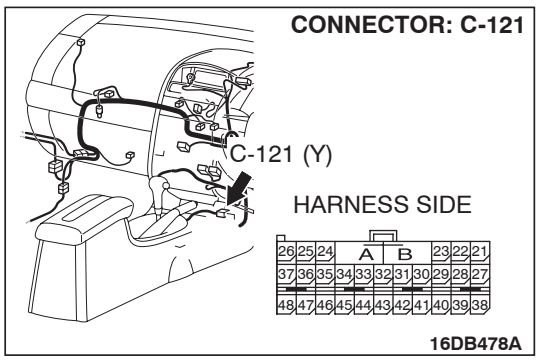
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

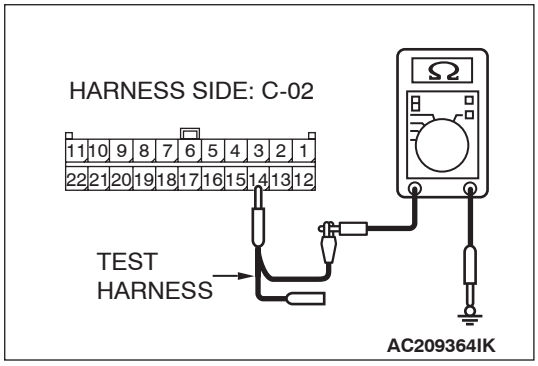
(1) Disconnect joint connector C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

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

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between intermediate 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-323.

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

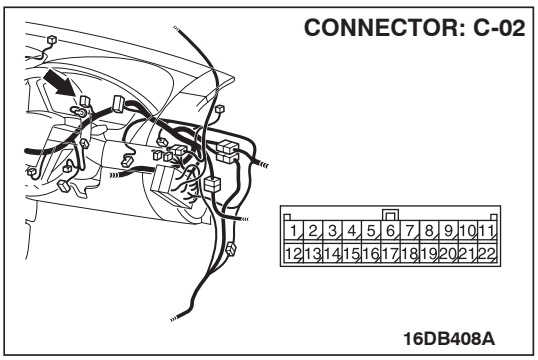
STEP 43. Check the CAN_L line (communication line including the multi-center display unit) between joint connector (3) and middle-grade multi-center display connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



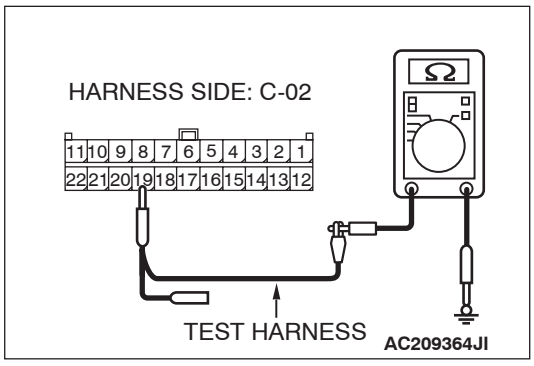
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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

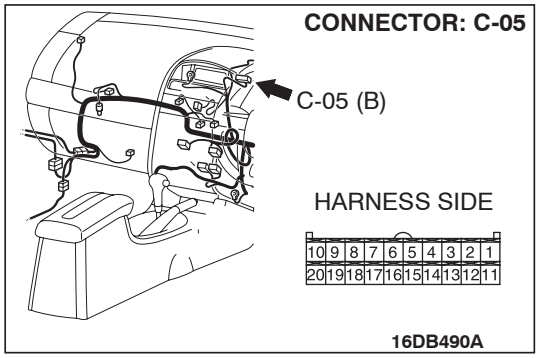
Q: Does the resistance measure 1 kΩ or more?

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

NO : If the resistance measures less than 1 kΩ, go to Step 44 .

STEP 44. Check multi-center display unit 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 connector C-05 in good condition?

YES : Go to Step 45.
NO : Repair the damaged parts.

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

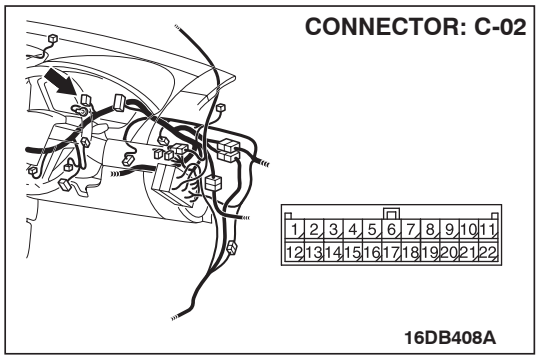
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

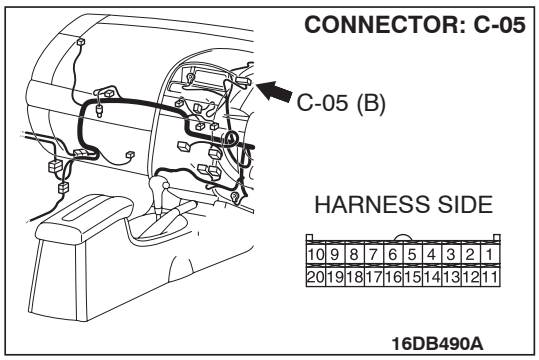
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

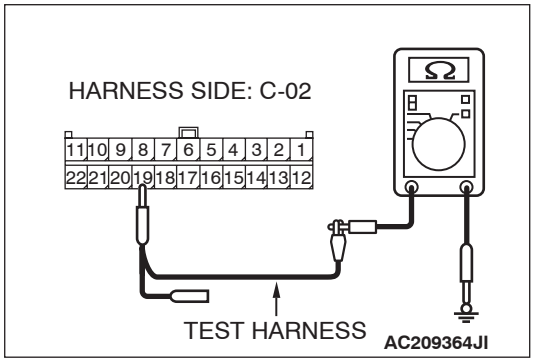
(1) Disconnect joint connector (3) C-02 and multi-center display unit connector C-05, and measure the resistance at the wiring harness side of joint connector (3) C-02.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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-323.

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

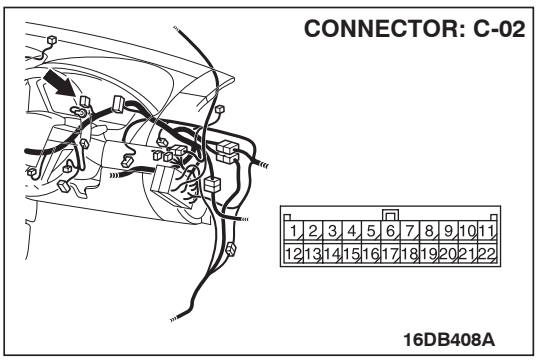
STEP 46. Check the CAN_L line (communication line only) between joint connector (3) and the data link connector for short to ground. Measure the resistance at joint connector (3) C-02.

⚠ 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.



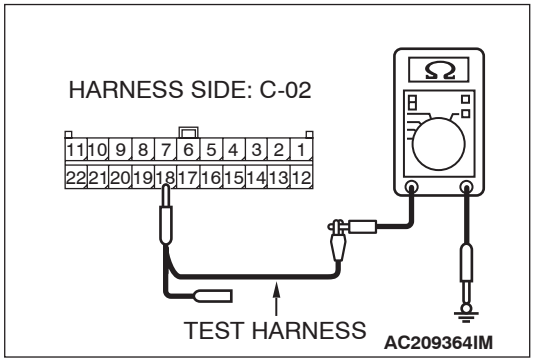
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 47 .

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

STEP 47. 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.

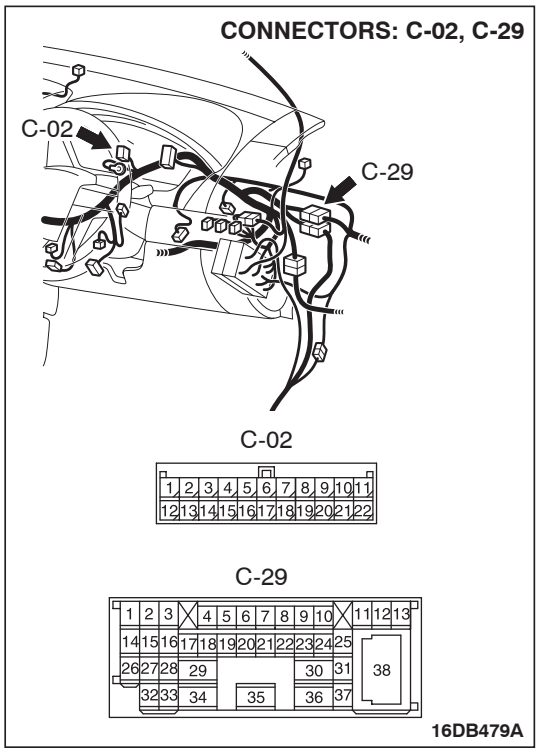
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

⚠ 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.

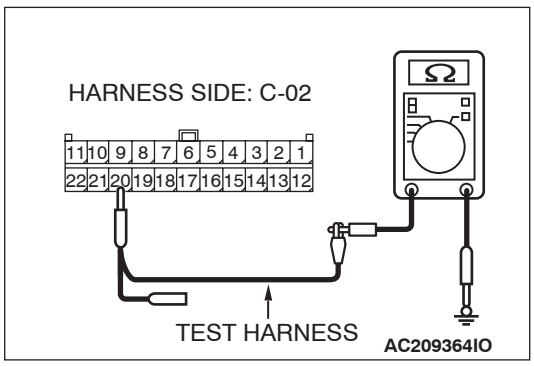
⚠ CAUTION
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.



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

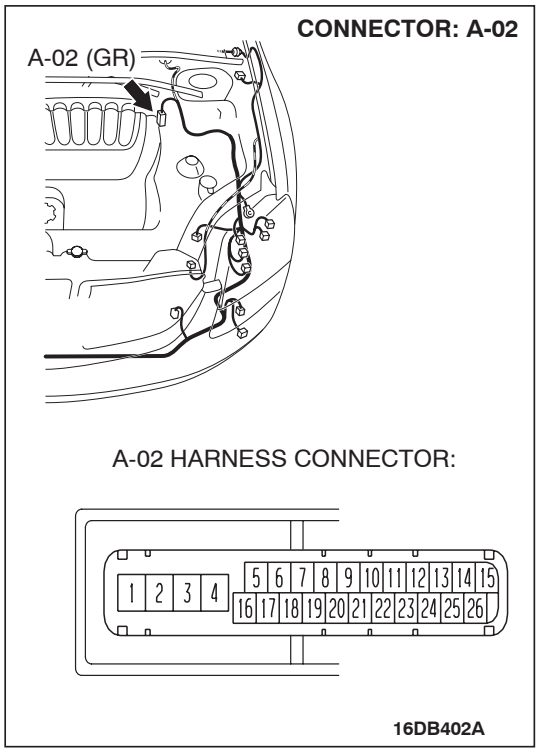
OK: 1 kΩ or more



⚠ 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-323.
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 48. 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.

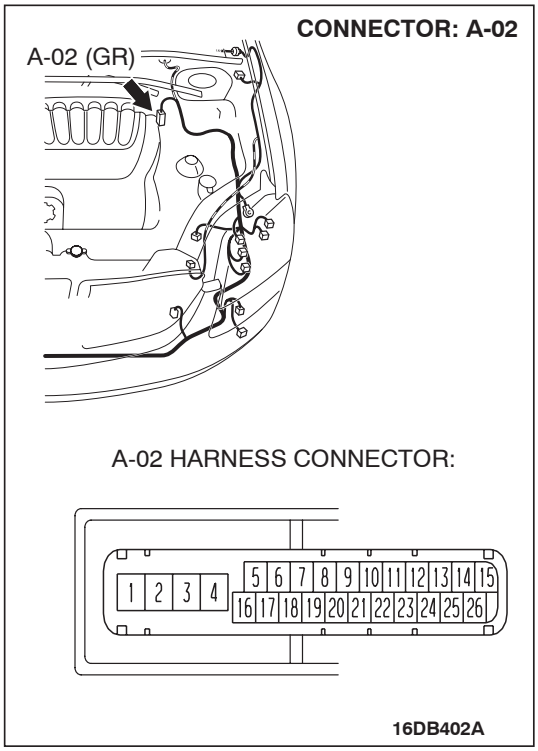
Q: Is ABS-ECU connector A-02 in good condition?

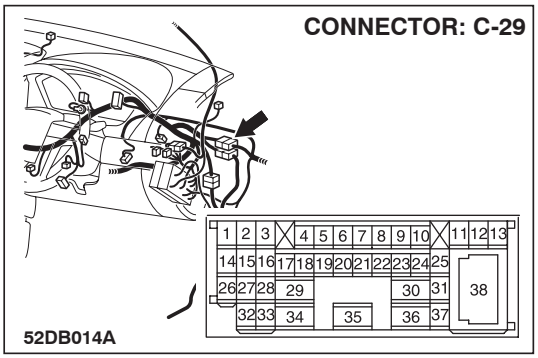
YES : Go to Step 49.
NO : Repair the damaged parts.

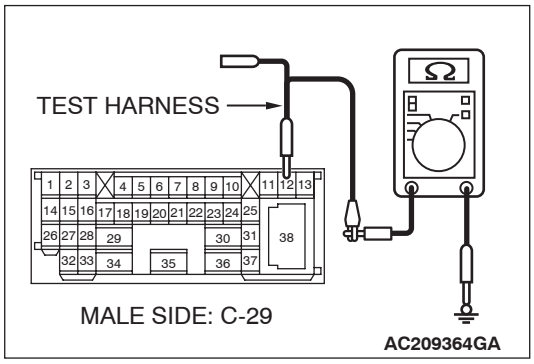
STEP 49. Check the CAN_L line (communication line only) between intermediate connector C-29 and ABS-ECU connector for short to ground. Measure the resistance at intermediate connector C-29.

⚠ 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 50 .

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

STEP 50. Check the CAN_L line (communication line only) between the A/T- ECU connector and ABS-ECU connector for short to ground. Measure the resistance at A/T- ECU connector B-19.

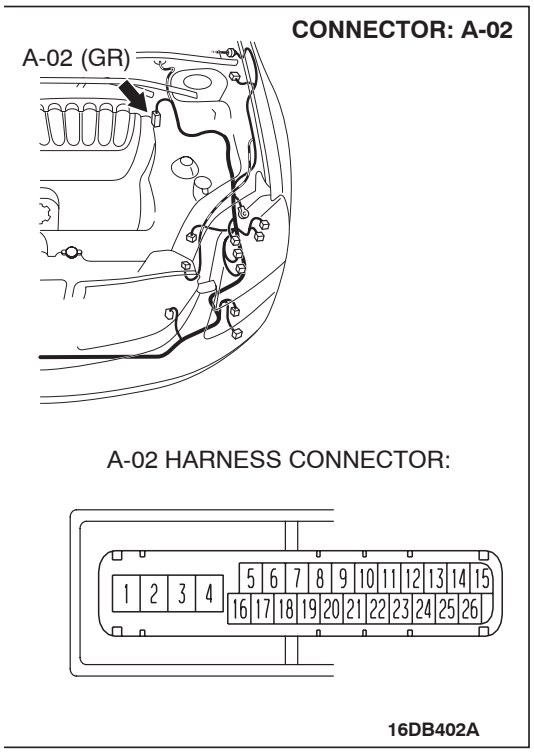
NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ CAUTION

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

⚠ CAUTION

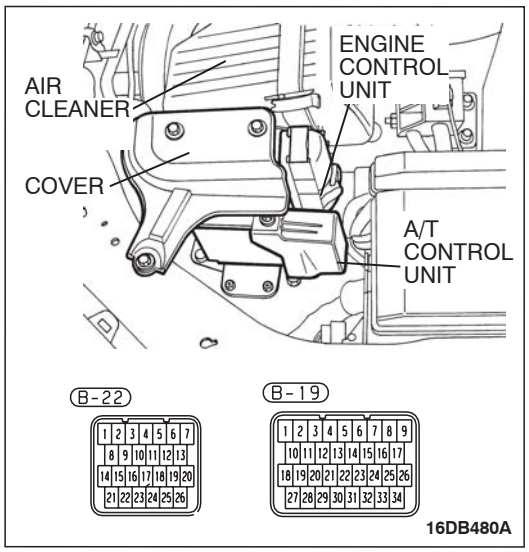
The test wiring harness should be used. For details refer to P.54C-4.

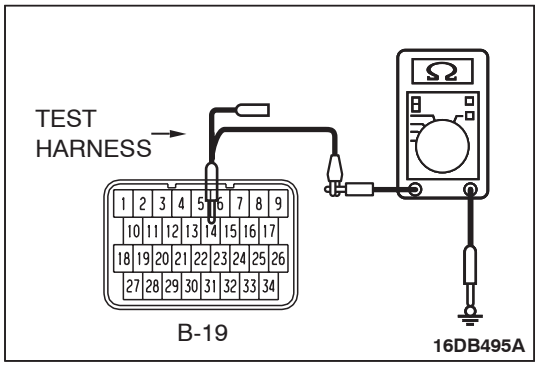


(1) Disconnect A/T- ECU connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of A/T- ECU connector B-19.
(2) Turn the ignition switch to the "LOCK" (OFF) position.

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

(3) Disconnect the negative battery terminal.





(4) Measure the resistance between A/T- ECU connector terminal 14 and body ground.

OK: 1 kΩ or more

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 A/T- ECU connector and ABS-ECU connector.

STEP 51. Check the CAN_L line inside the ABS-ECU for short to ground. Measure the resistance at ABS-ECU connector A-02.

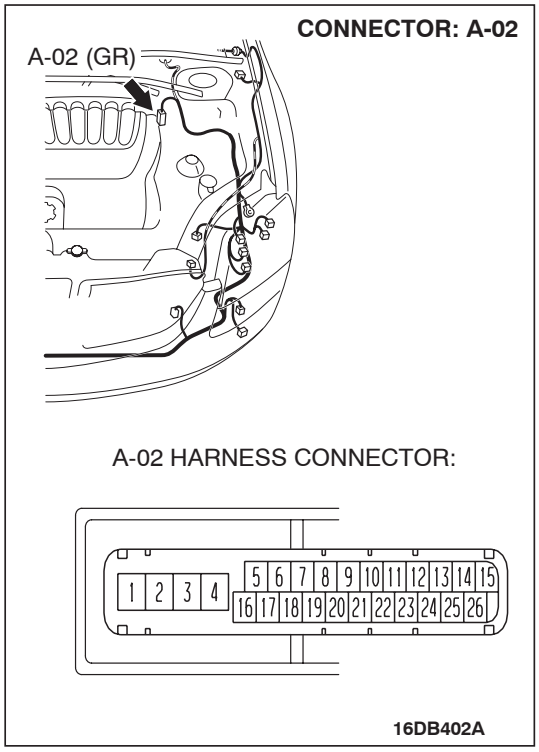
⚠ CAUTION

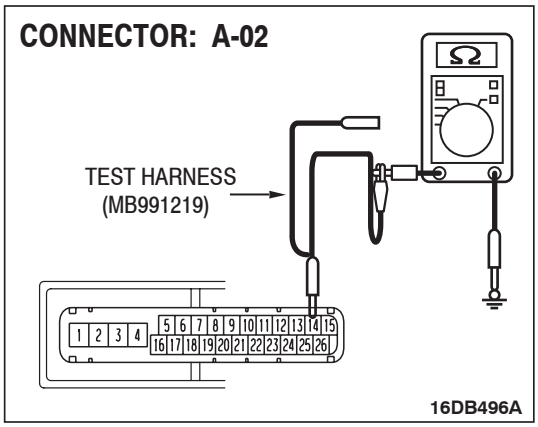
A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

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

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





(2) Measure the resistance at connector A-02, and use special tool Inspection Check Harness (MB991219) to probe the wiring harness-side connector.

NOTE: The special tool (Inspection test harness) MB991219 for connector pin contact pressure should be used. The test probe should never be forcibly inserted, as it may cause a defective contact.

(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 connector A-02 terminal 14 (using inspection test harness MB991219) 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-323.

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

STEP 52. Check the CAN_L line (communication line only) between the ENGINE- ECU connector and A/T-ECU connector for short to ground. Measure the resistance at ENGINE- ECU connector B-21.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.

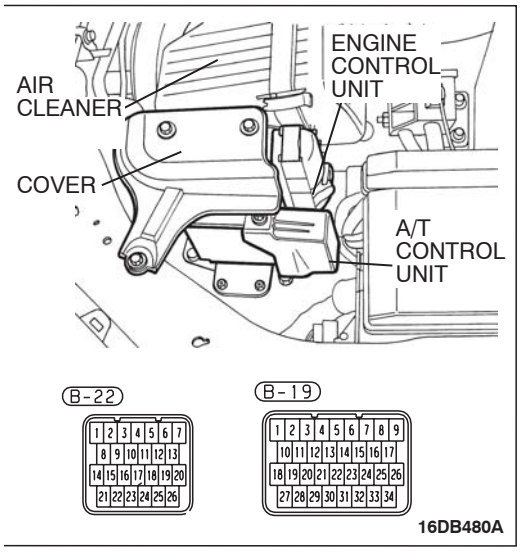
(1) Disconnect ENGINE- ECU connector B-21 and A/T-ECU connector B-19, and measure the resistance at the harness side of ENGINE- ECU connector B-21.

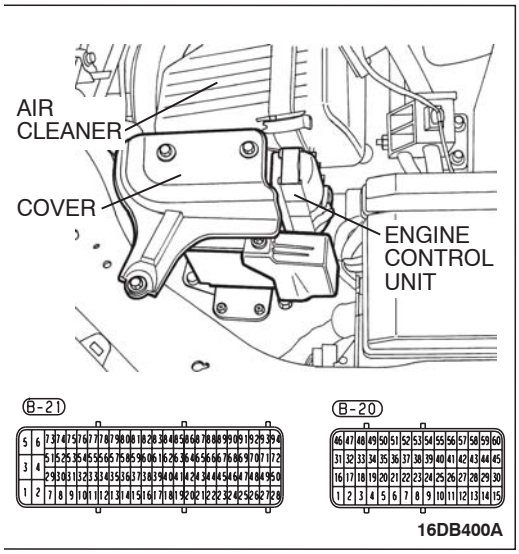
(2) Turn the ignition switch to the "LOCK" (OFF) position.

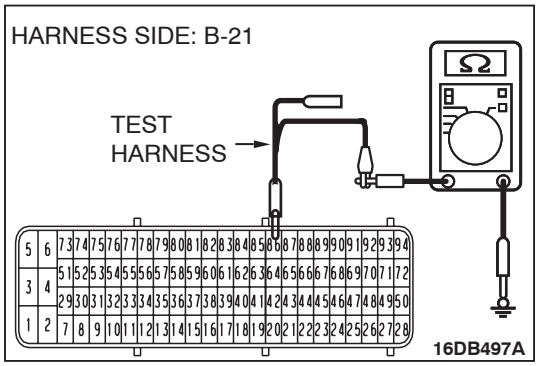
⚠ CAUTION

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

(3) Disconnect the negative battery terminal.







(4) Measure the resistance between ENGINE- ECU connector terminal 86 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 53 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between ENGINE- ECU connector and A/T-ECU connector.

STEP 53. Check the CAN_L line inside the A/T-ECU for short to ground. Measure the resistance at A/T-ECU connector B-19.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

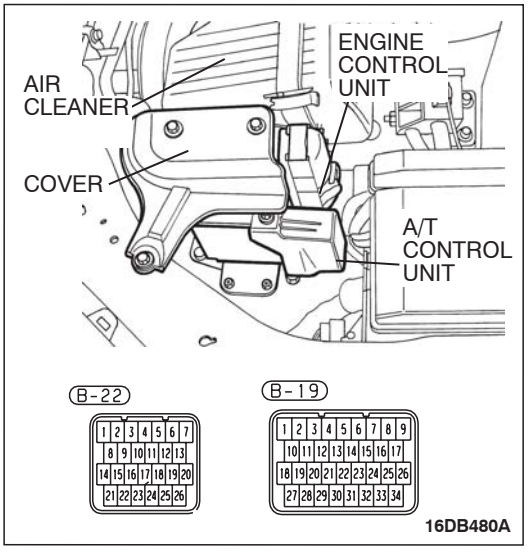
⚠ CAUTION

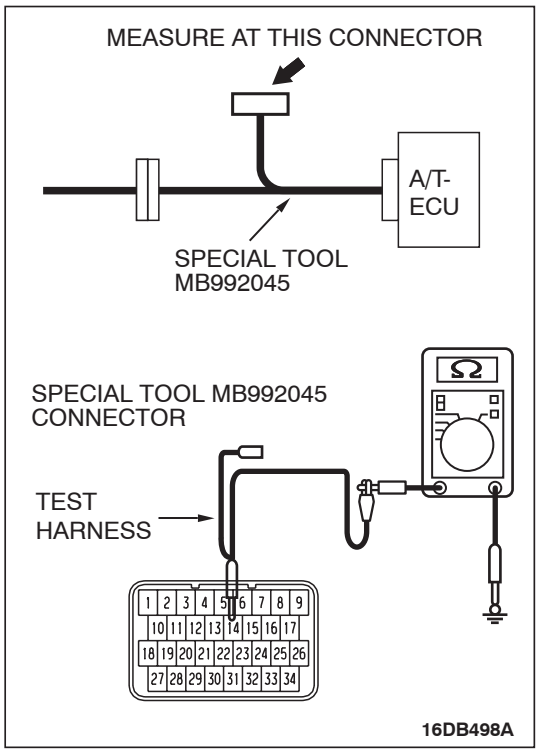
A digital multimeter should be used. For details refer to P.54C-4.

⚠ CAUTION

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

(1) Disconnect A/T-ECU connector B-19.





(2) Connect special tool MB992045 (A/T check harness) to the A/T-ECU and the wiring harness, and measure the resistance at special tool MB992045 (A/T check harness).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

NOTE: When diagnosing CAN BUS on vehicles with manual transmission (M/T) disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 MB992045 (A/T check harness) 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-323.

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

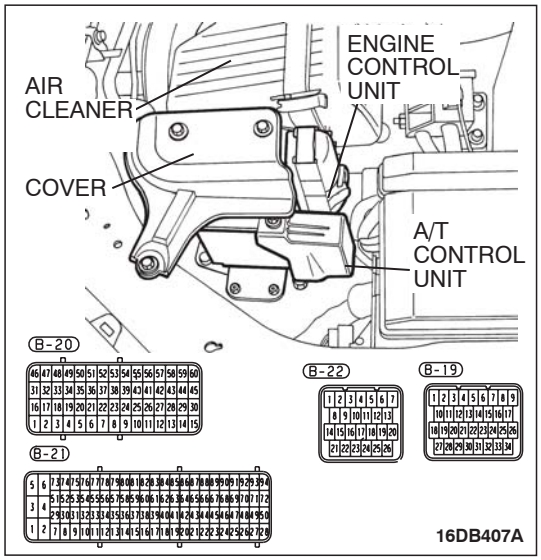
DIAGNOSTIC ITEM 5: Diagnose shorts between CAN_L and H lines

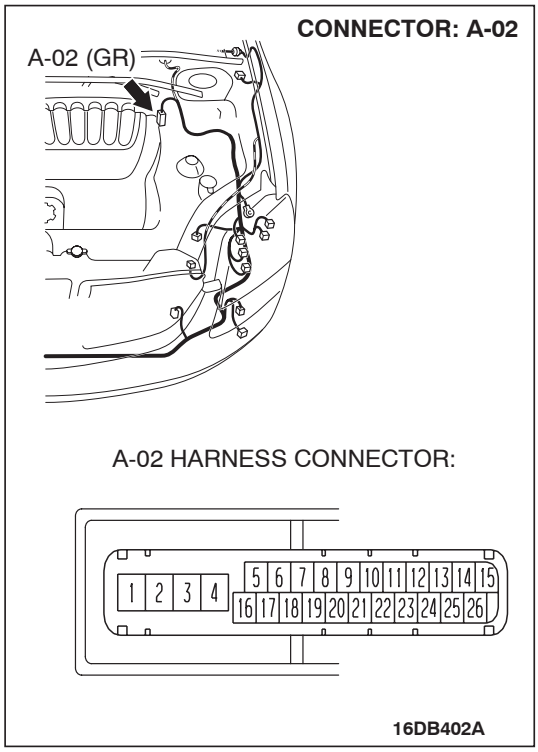
NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits.

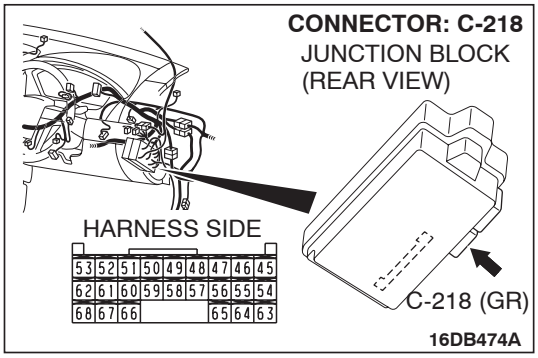
NOTE: When diagnosing CAN-BUS on vehicles that are not equipped with a multi-centre display, disregard the multi-centre display and it's wiring circuits.

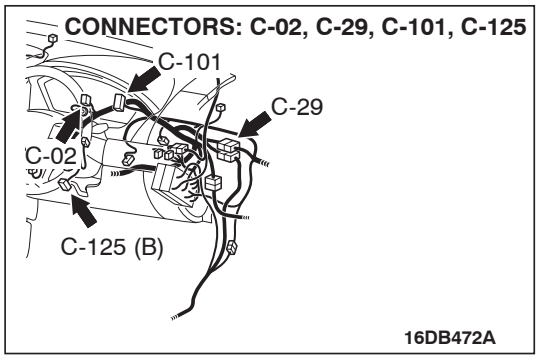
⚠ CAUTION

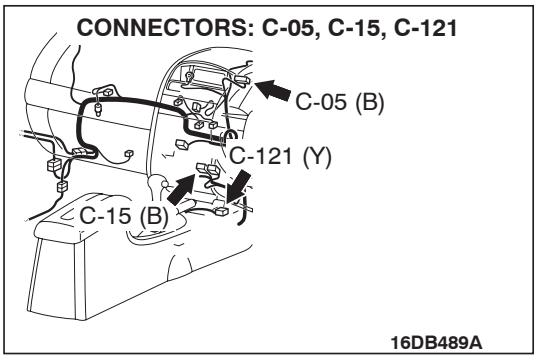
When servicing a CAN bus line, ground yourself by touching a metal object such as an unpainted water pipe. If you fail to do so, a component connected to the CAN bus line may be damaged.











TROUBLE JUDGMENT

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

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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 may be defective
- The ABS-ECU may be defective
- The A/T-ECU may be defective
- The ENGINE- ECU may be defective

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits.

NOTE: When diagnosing CAN-BUS on vehicles that are not equipped with a multi-centre display, disregard the multi-centre display and it's wiring circuits.

DIAGNOSIS

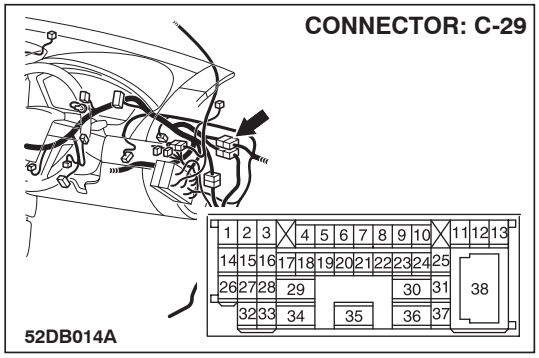
Required Special Tools:

- MB991223: Harness Set
- MB991219: Inspection Test Harness
- MB992045: A/T-ECU Check Harness
- MB992044: ENGINE-ECU 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.

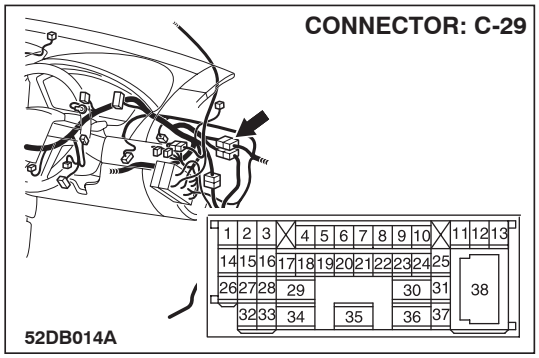
(1) Disconnect intermediate connector C-29, and measure the resistance at the male side (at front wiring harness side).

(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.



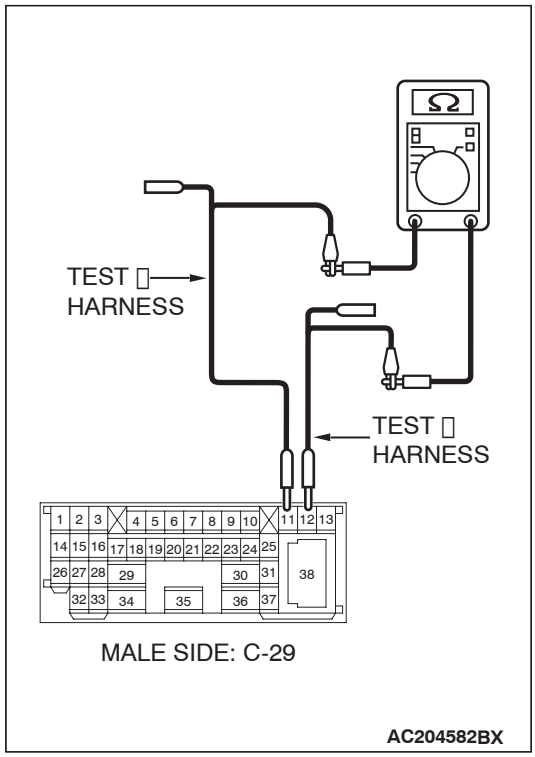
(4) Measure the resistance between intermediate connector terminals 11 and 12.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

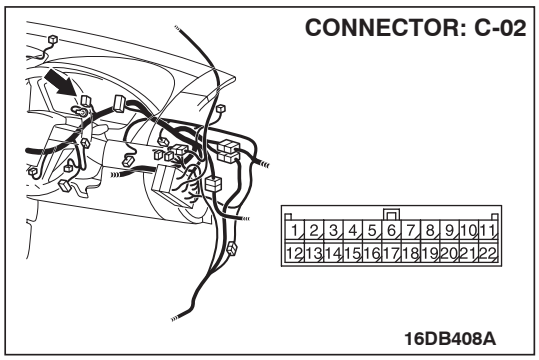
YES : If the resistance measures 120 ± 20 Ω, go to Step 3.

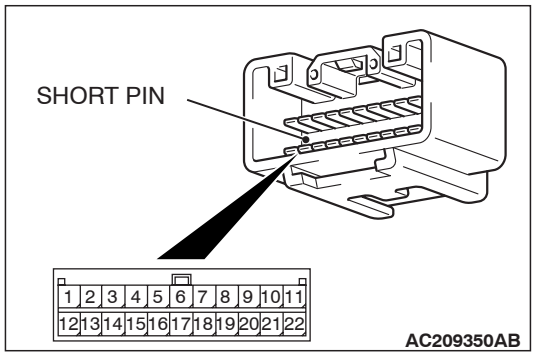
NO : If the resistance does not measure 120 ± 20 Ω, go to Step 27 .



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?

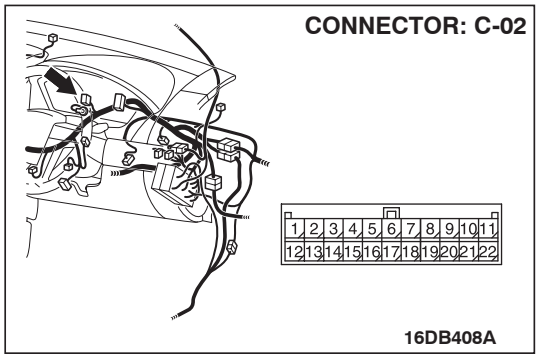
YES : Go to Step 4.

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.

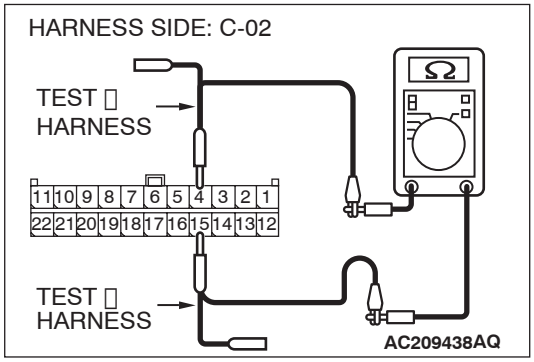
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.



(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.

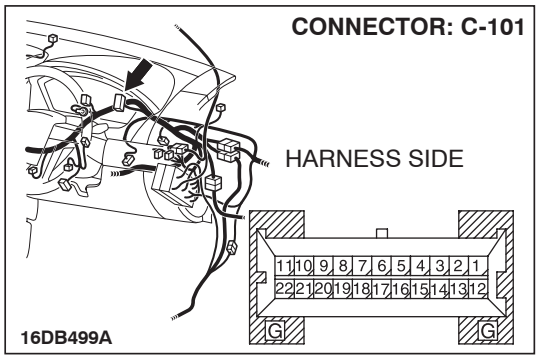
OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

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

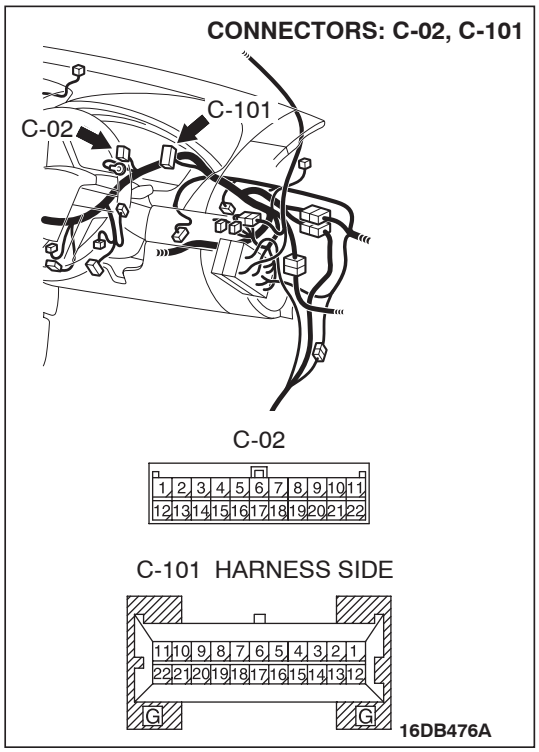
(1) Disconnect joint connector (3) C-02 and combination meter connector C-101, and measure the resistance at the wiring harness side of joint connector (3) C-02.

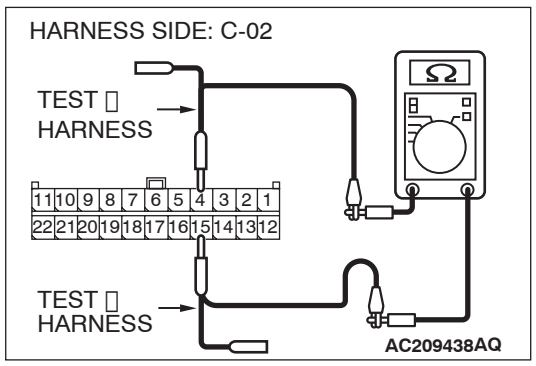
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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?

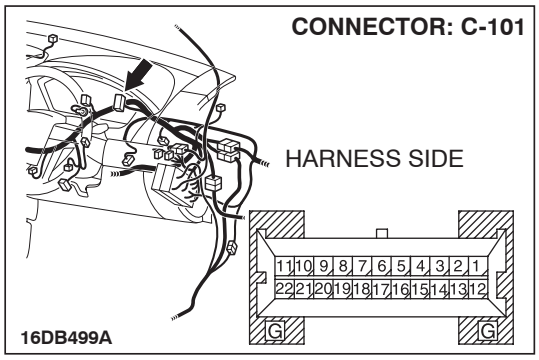
YES : If the resistance measures 1 kΩ or more, go to Step 7 .

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

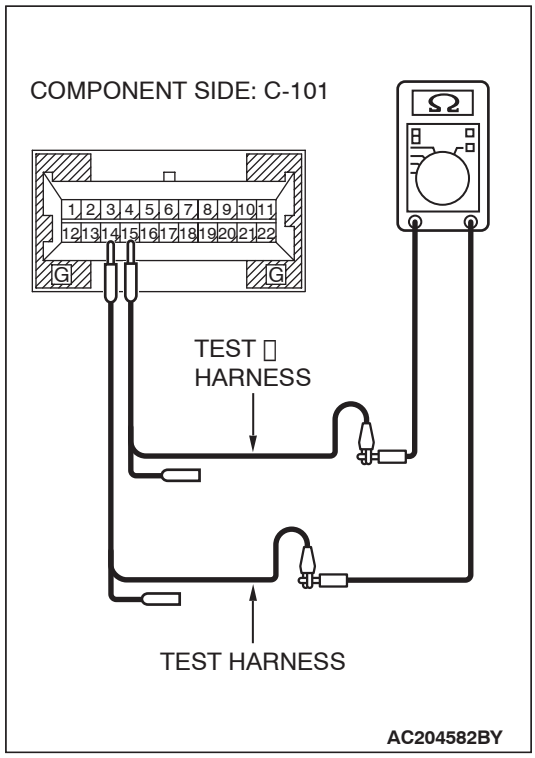
STEP 7. Check the combination meter for short circuit. Measure the resistance at combination meter connector C-101.

⚠ 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 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-323.

NO : If the resistance does not measure 120 ± 20 Ω, 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.

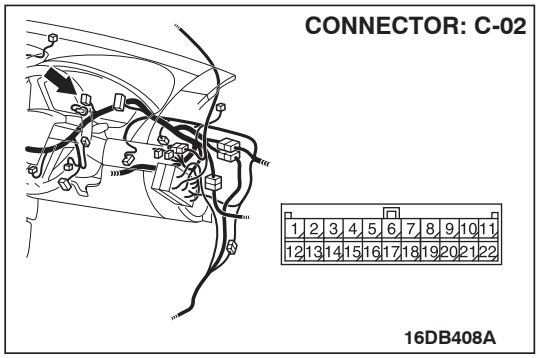
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

⚠ 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.

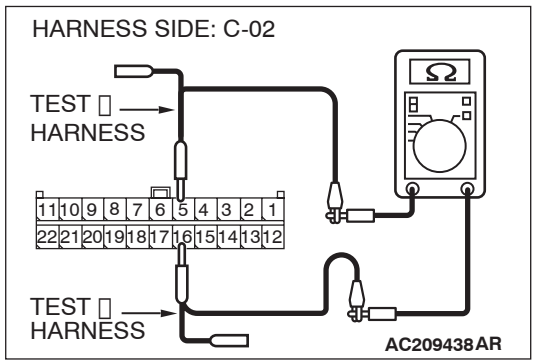


(4) Measure the resistance between joint connector (3) terminals 5 and 16.

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.

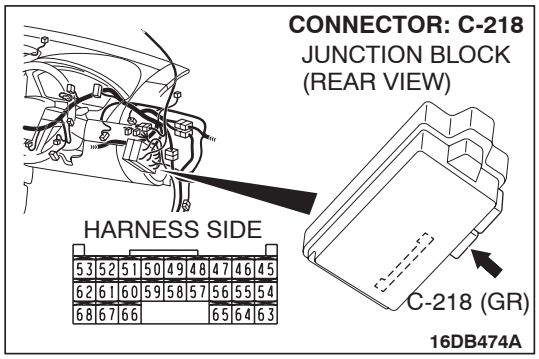


STEP 9. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

⚠ 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.

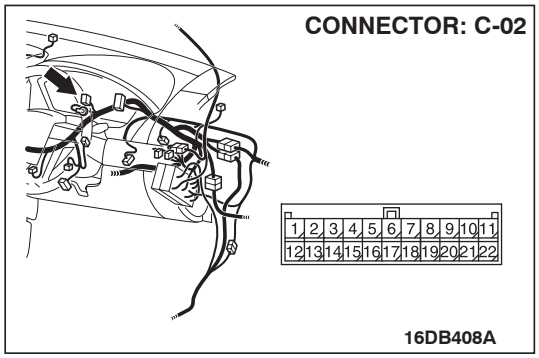
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

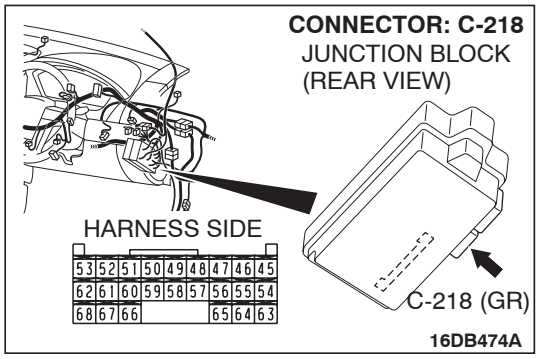
(1) Disconnect joint connector (3) C-02 and ETACS-ECU connector C-218, and measure the resistance at the wiring harness side of joint connector (3) C-02.

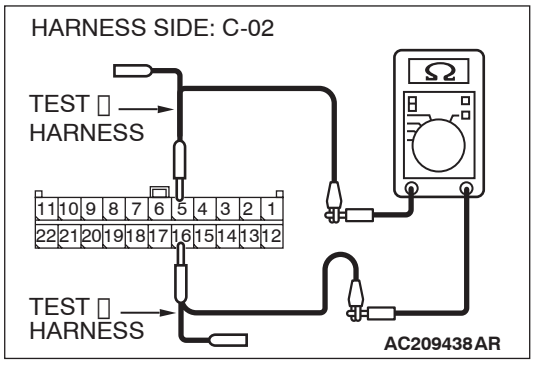
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ 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 .

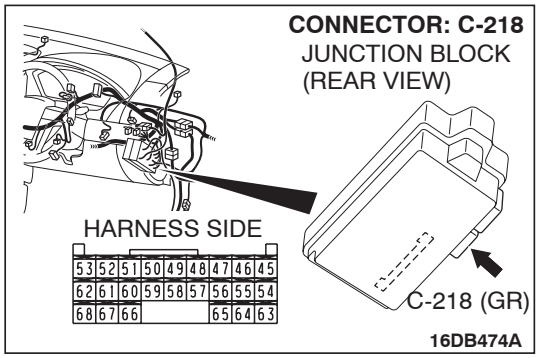
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the ETACS-ECU connector.

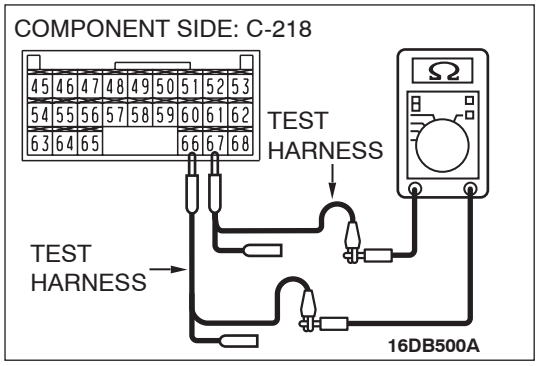
STEP 11. Check the ETACS-ECU for short circuit. Measure the resistance at ETACS-ECU connector C-218.

⚠ 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 66 and 67.

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-323.

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.

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

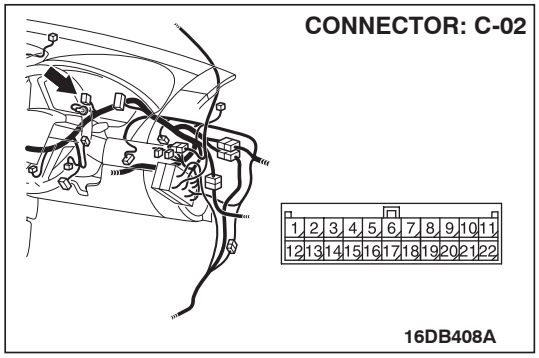
⚠ CAUTION

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.

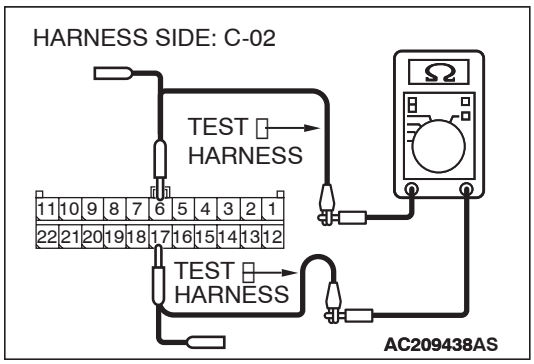
⚠ CAUTION

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.

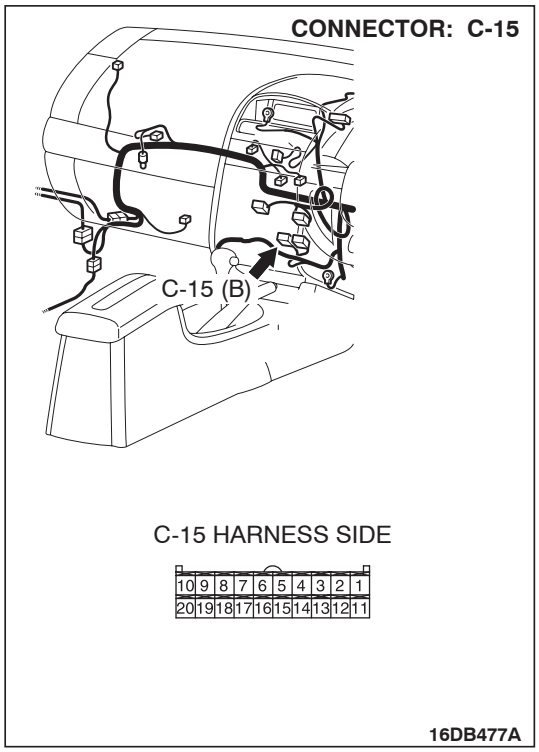
OK: 1 kΩ or more



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.

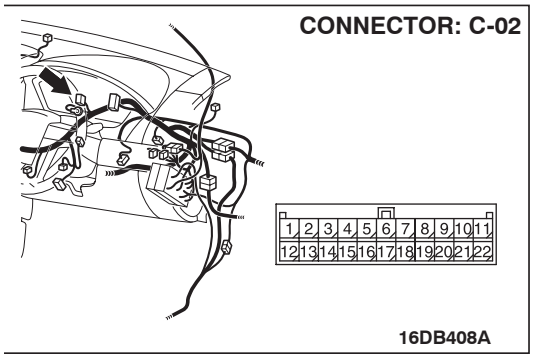
(1) Disconnect joint connector (3) C-02 and A/C-ECU connector C-15, and measure the resistance at the wiring harness side of joint connector (3) C-02.

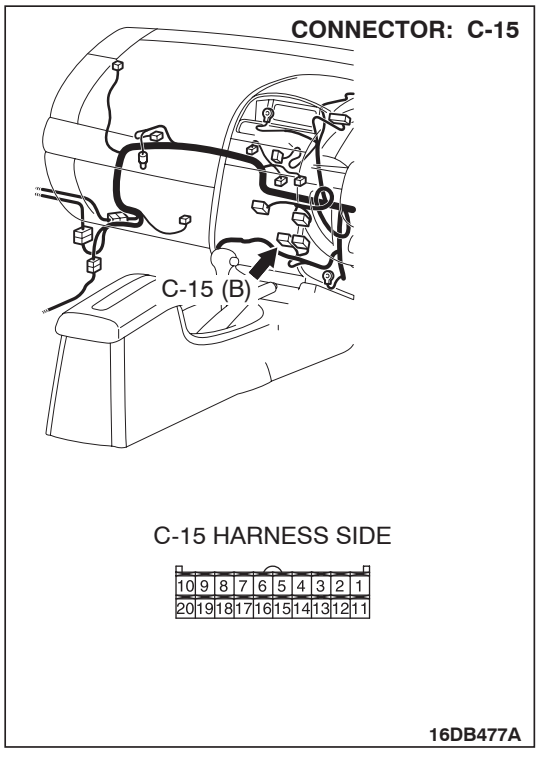
(2) Turn the ignition switch to the "LOCK" (OFF) position.

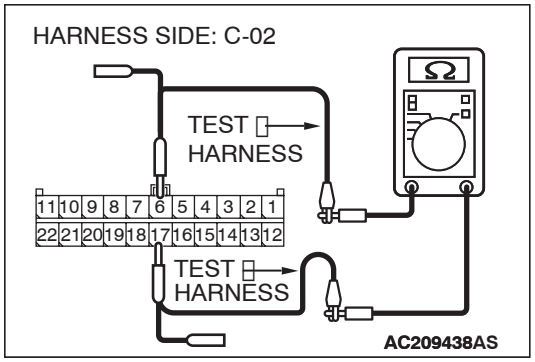
⚠ CAUTION

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 .

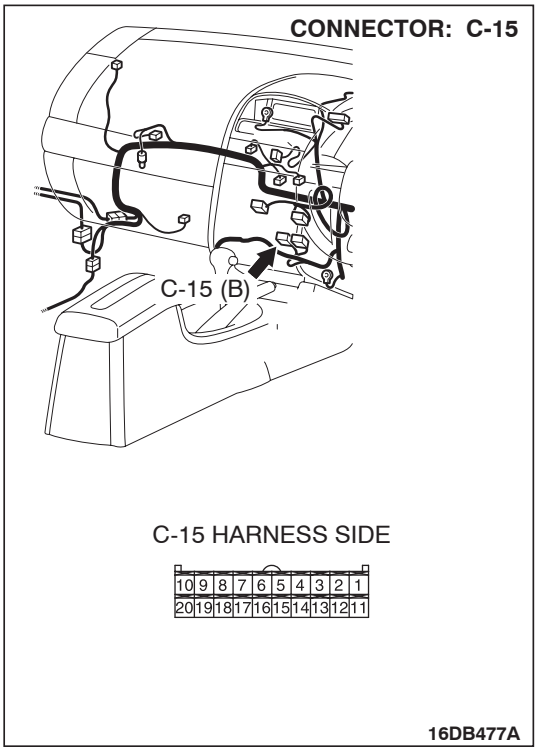
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector (3) and the A/C-ECU connector.

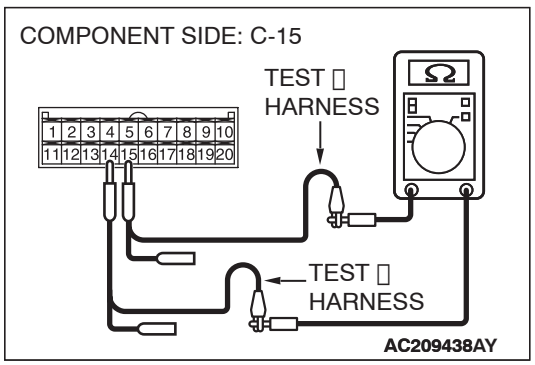
STEP 15. Check the A/C-ECU for short circuit. Measure the resistance at A/C-ECU connector C-15.

⚠ 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-323.

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

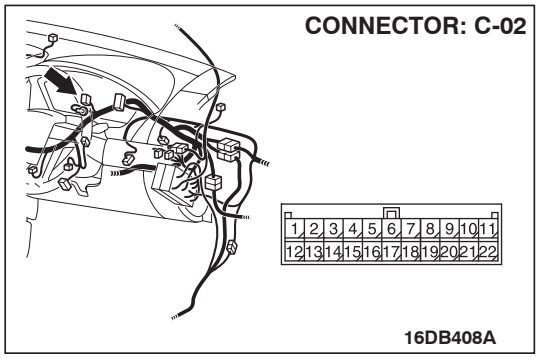
STEP 16. Check the CAN_L and H lines (communication lines including the SRS-ECU) between joint connector (3) and the SRS-ECU for a short circuit. Measure the resistance at joint connector (3) C-02.

⚠ 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.



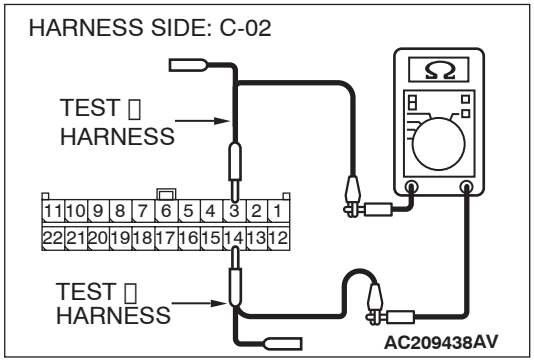
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 20 if vehicle has multi-centre display or go to Step 24 if vehicle not equipped with multi-centre display .

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

STEP 17. Check the CAN_L and H lines (communication lines only) between the SRS-ECU connector and joint connector for a short circuit. Measure the resistance at joint connector 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.

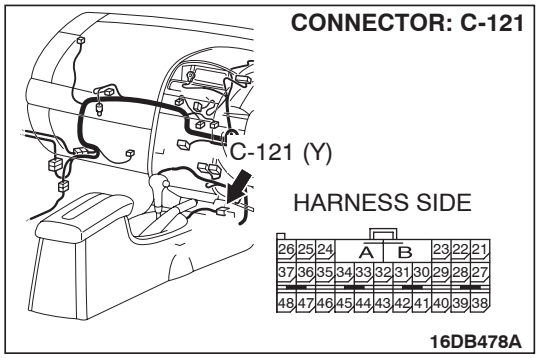
(1) Disconnect joint connector C-02 and SRS-ECU connector C-121, and measure the resistance at the wiring harness side of joint connector C-02.

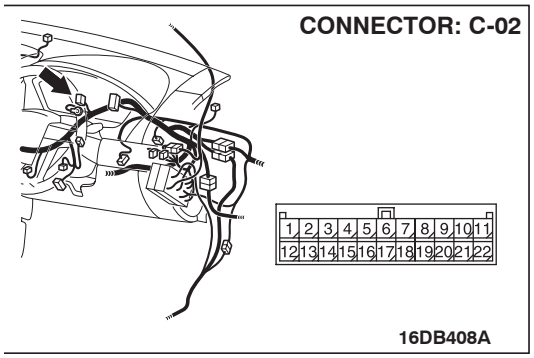
(2) Turn the ignition switch to the "LOCK" (OFF) position.

⚠ CAUTION

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

(3) Disconnect the negative battery terminal.





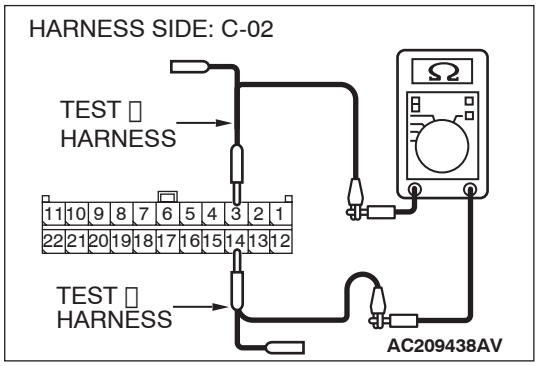
(4) Measure the resistance between intermediate connector terminals 3 and 14.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

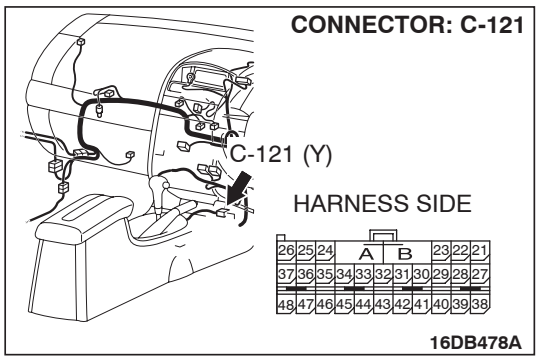
YES : If the resistance measures 1 kΩ or more, go to Step 18 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between joint connector C-02 and SRS-ECU connector.



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.



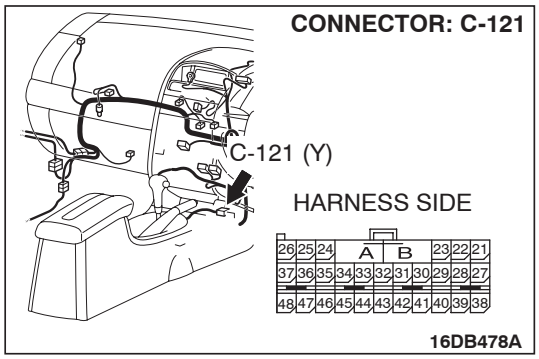
Q: Is SRS-ECU connector C-121 in good condition?

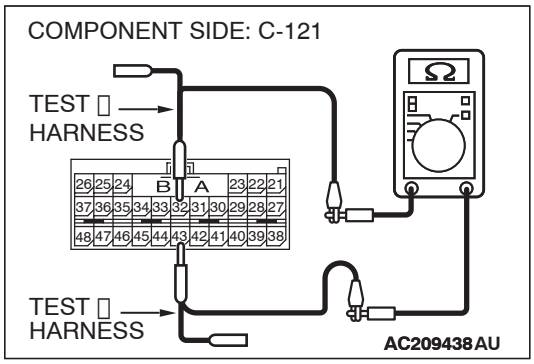
YES : Go to Step 19.
NO : Repair the damaged parts.

STEP 19. Check the 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-323.
NO : If the resistance measures less than 1 kΩ, replace the SRS-ECU.

STEP 20. Check the CAN_L and H lines (communication lines including the multi-center display unit) between joint connector (3) and the middle-grade multi-center display for a short circuit. Measure the resistance at joint connector (3) C-02.

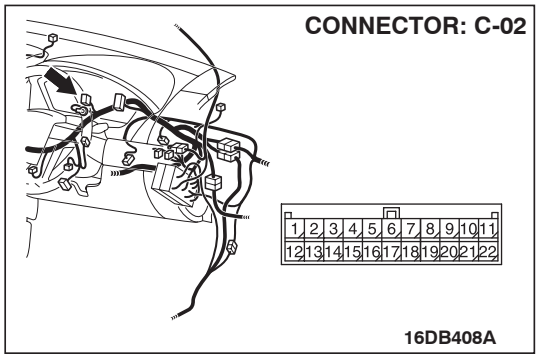
NOTE: If vehicle not equipped with multi-centre display go to Step 24

⚠ 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.



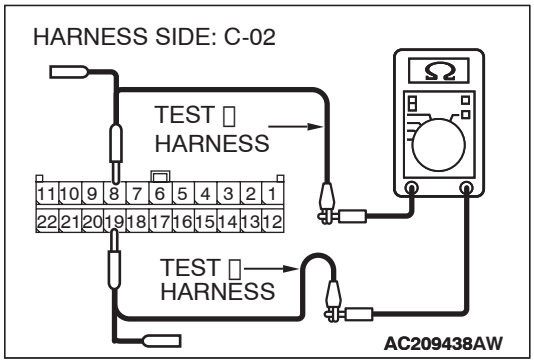
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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?

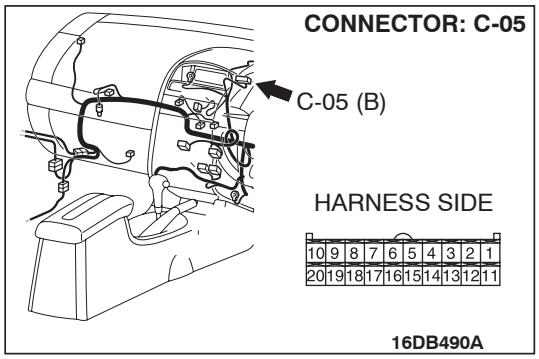
YES : If the resistance measures 1 kΩ or more, go to Step 24 .

NO : If the resistance measures less than 1 kΩ, go to Step 21.

STEP 21. Check multi-center display unit 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 connector C-05 in good condition?

YES : Go to Step 22.

NO : Repair the damaged parts.

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

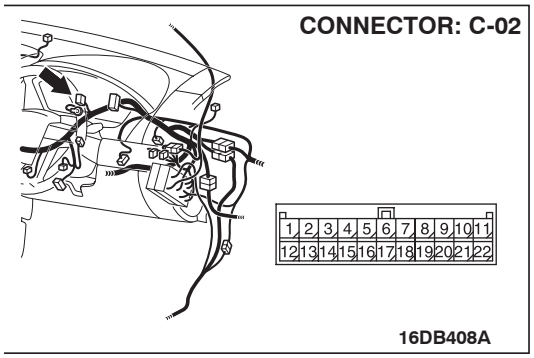
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

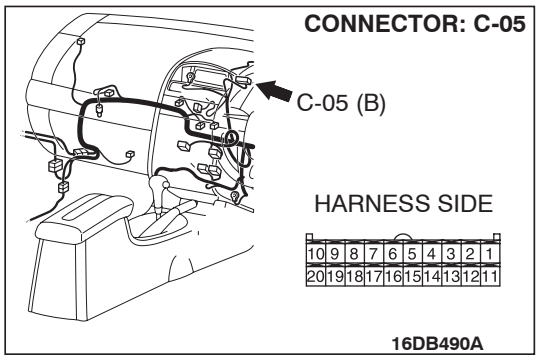
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

(1) Disconnect joint connector (3) C-02 and multi-center display unit 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.

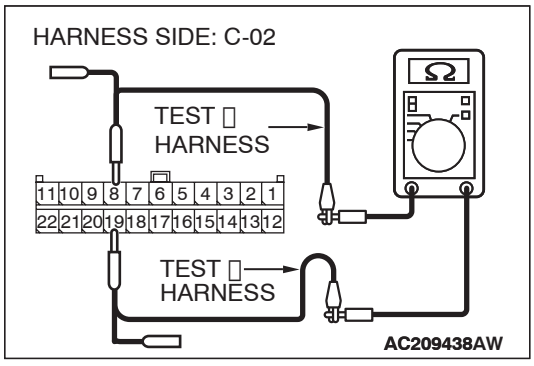
(3) Disconnect the negative battery terminal.





(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?

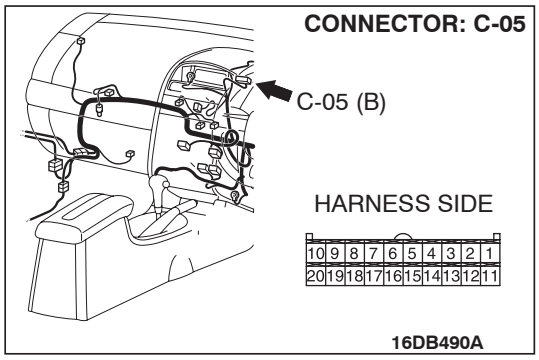
YES : If the resistance measures 1 kΩ or more, go to Step 23 .

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

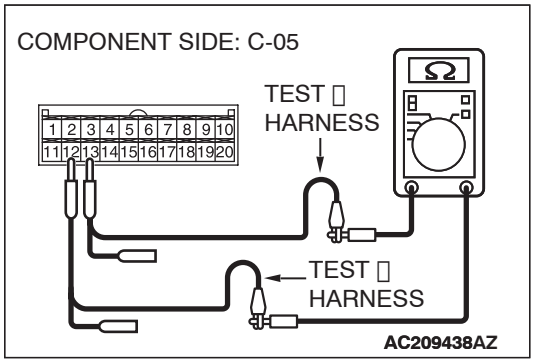
STEP 23. Check the multi-center display unit for short circuit. Measure the resistance at multi-center display unit connector C-05.

⚠ CAUTION

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



(1) Disconnect multi-center display unit connector C-05, and measure the resistance at the component side of multi-center display unit connector C-05.



(2) Measure the resistance between the multi-center display unit connector terminals 12 and 13.

OK: 1 kΩ or more

Q: Does the resistance measure 1 kΩ or more?

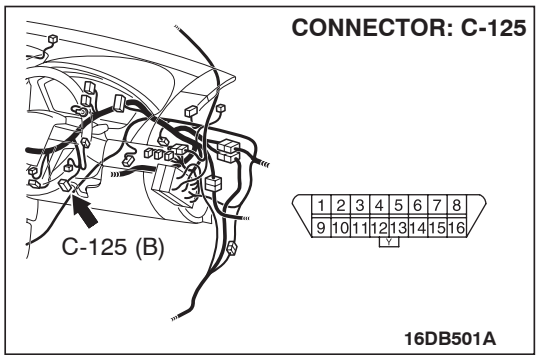
YES : If the resistance measures 1 kΩ or more, diagnose CAN bus lines thoroughly by referring to P.54C-323.

NO : If the resistance measures lower than 1 kΩ, replace the multi-center display unit .

STEP 24. 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 25.

NO : Repair the damaged parts.

STEP 25. 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.

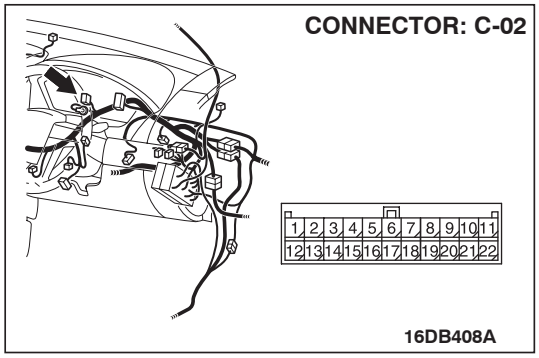
- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ 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.



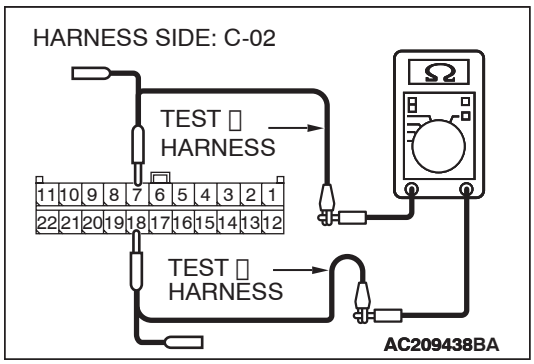
(1) Disconnect joint connector (3) C-02, and measure the resistance at the wiring harness side of joint connector (3) C-02.

(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 26 .

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

STEP 26. 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.

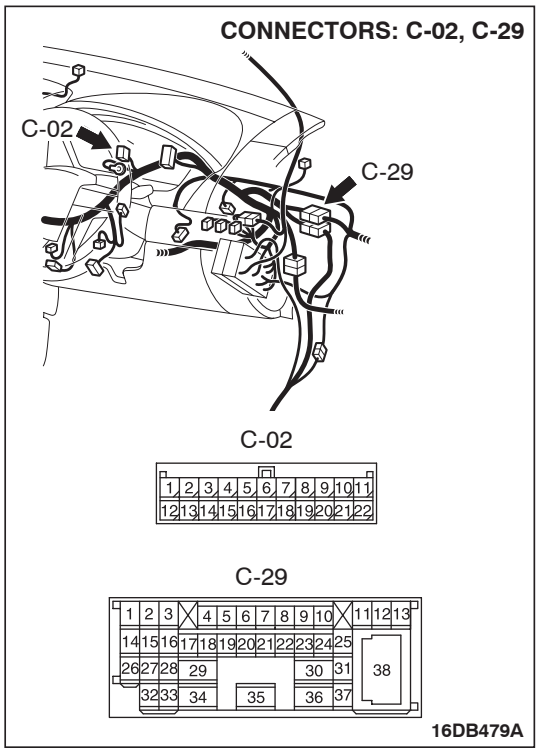
⚠ CAUTION
A digital multimeter should be used. For details refer to P.54C-4.

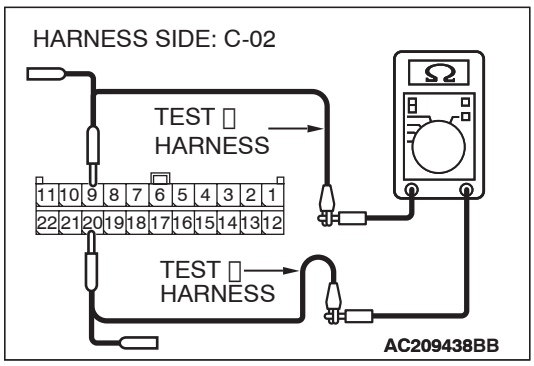
⚠ CAUTION
The test wiring harness should be used. For details refer to P.54C-4.

(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.





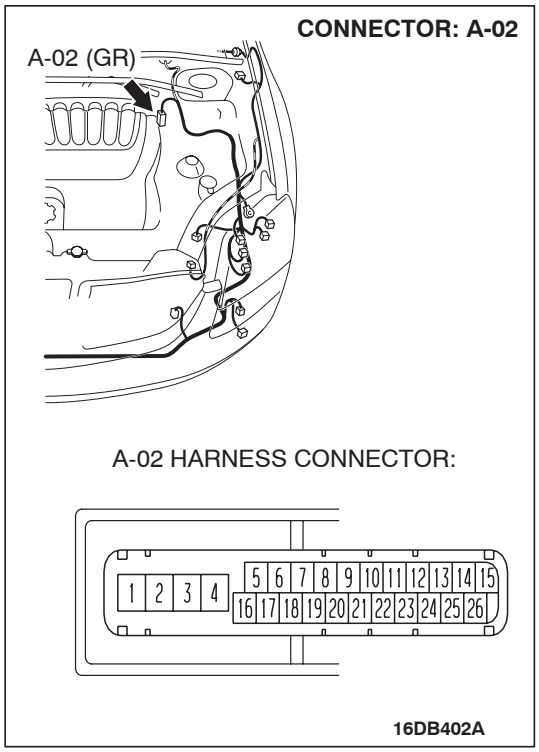
(4) Measure the resistance between joint connector (3) terminals 9 and 20.

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-323.
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and joint connector (3).



STEP 27. 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 28.

NO : Repair the damaged parts.

STEP 28. 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.

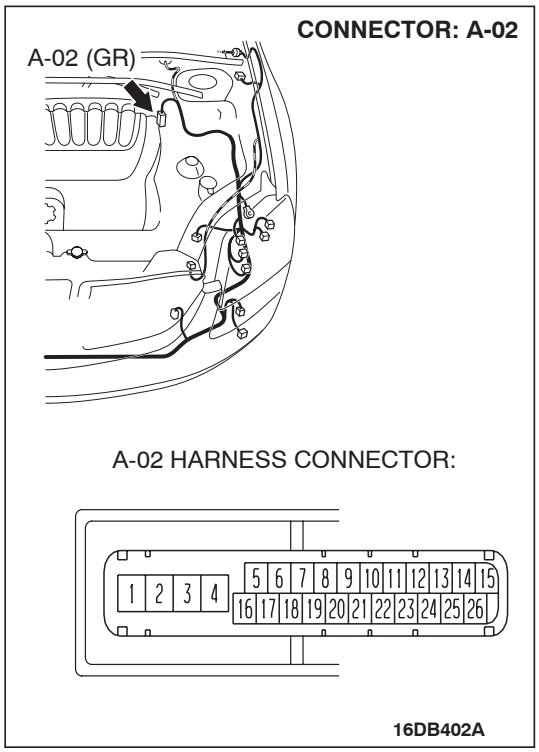
(1) Disconnect intermediate connector C-29 and ABS-ECU connector A-02, and measure the resistance at the male side of intermediate connector C-29 (at front wiring harness side).

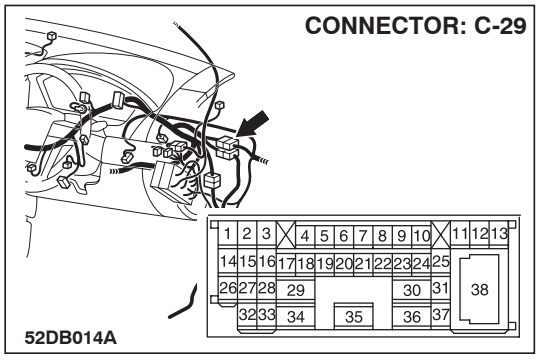
(2) Turn the ignition switch to the "LOCK" (OFF) position.

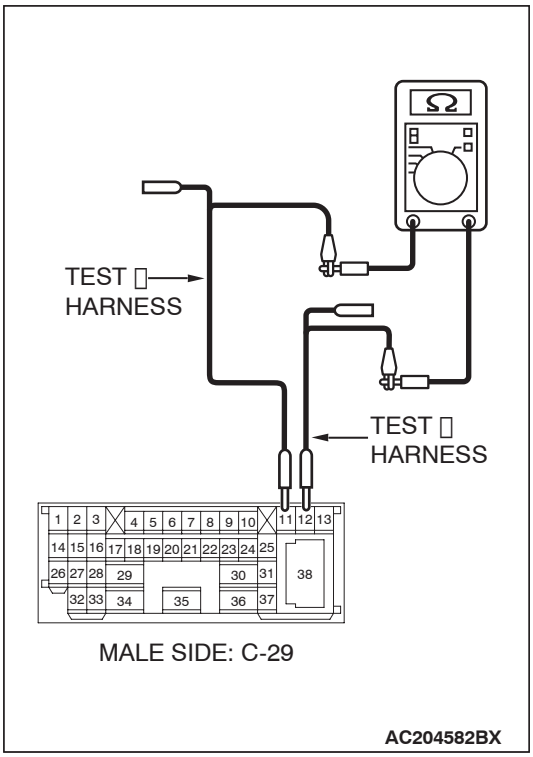
⚠ CAUTION

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 29 .

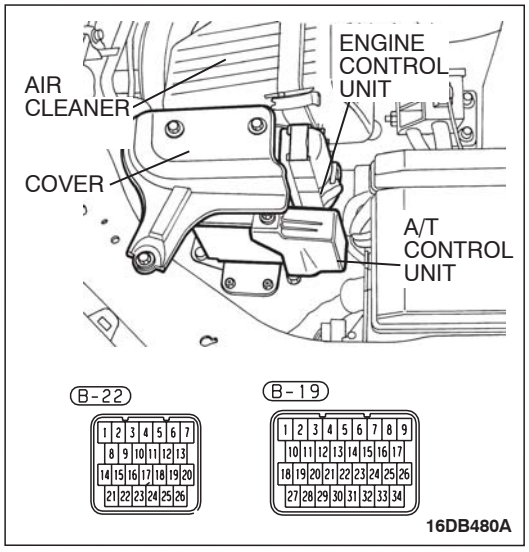
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between intermediate connector C-29 and ABS-ECU connector.

STEP 29. Check A/T- ECU connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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/T- ECU connector B-19 in good condition?

YES : Go to Step 30.

NO : Repair the damaged parts.

STEP 30. Check the CAN_L and H lines (communication lines only) between the A/T- ECU connector and the ABS-ECU connector for a short circuit. Measure the resistance at A/T- ECU 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 A/T- ECU connector B-19 and ABS-ECU connector A-02, and measure the resistance at the harness side of A/T- ECU connector B-19.

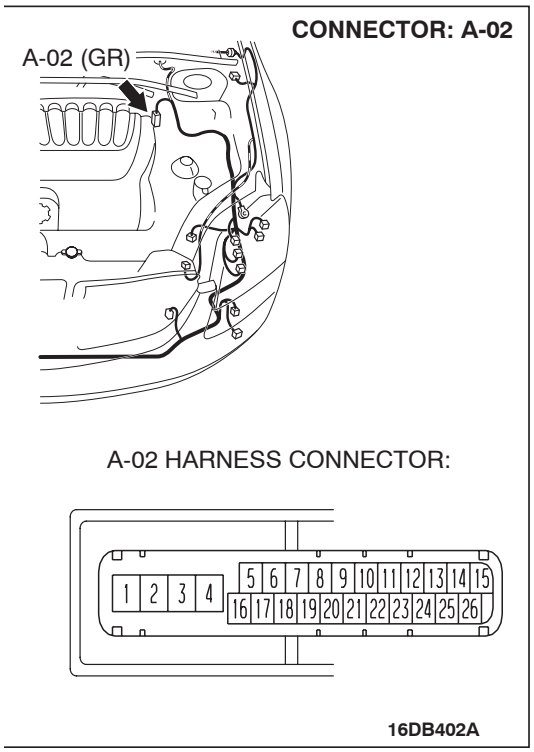
(2) Turn the ignition switch to the "LOCK" (OFF) position.

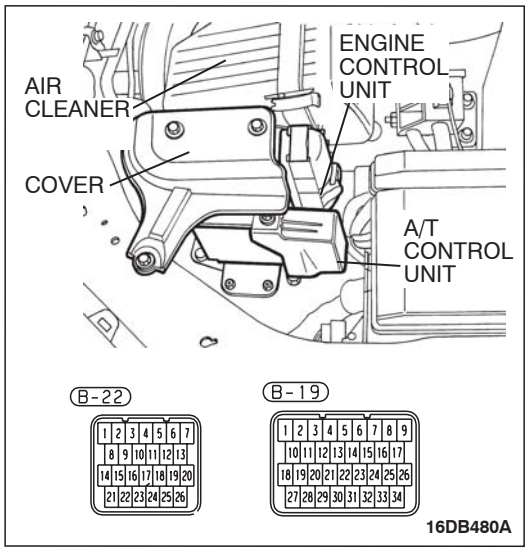
⚠ CAUTION

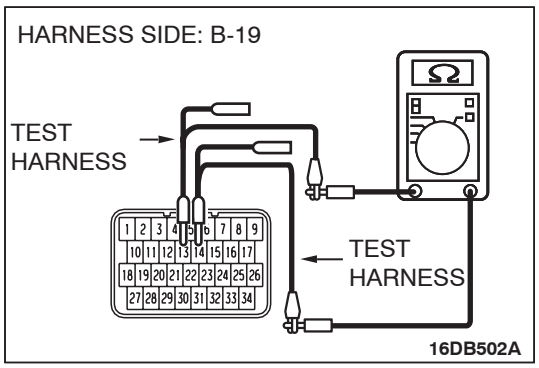
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.







(4) Measure the resistance between A/T- ECU connector terminals 13 and 14.

OK: 1 kΩ or more

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 31 .

NO : If the resistance measures less than 1 kΩ, repair the wiring harness between A/T- ECU connector and ABS-ECU connector.

STEP 31. Check ENGINE- ECU connector B-21 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

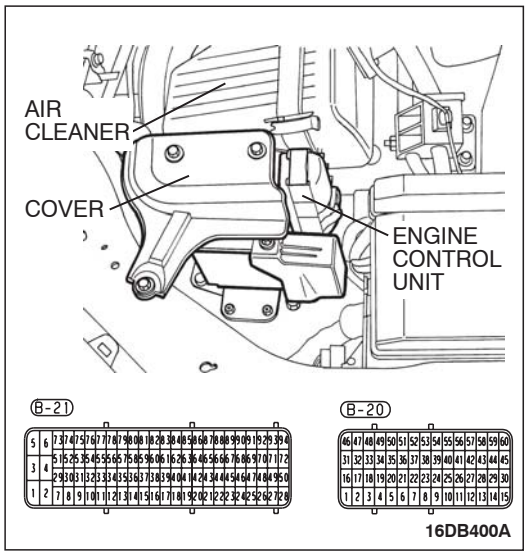
⚠ CAUTION

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 ENGINE- ECU connector B-21 in good condition?

YES : Go to Step 32.

NO : Repair the damaged parts.



STEP 32. Check the CAN_L and H lines (communication lines only) between the ENGINE- ECU connector and the A/T-ECU connector for a short circuit. Measure the resistance at ENGINE- ECU connector B-21.

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 ENGINE- ECU connector B-21 and A/T-ECU connector B-19, and measure the resistance at the harness side of ENGINE- ECU connector B-21.

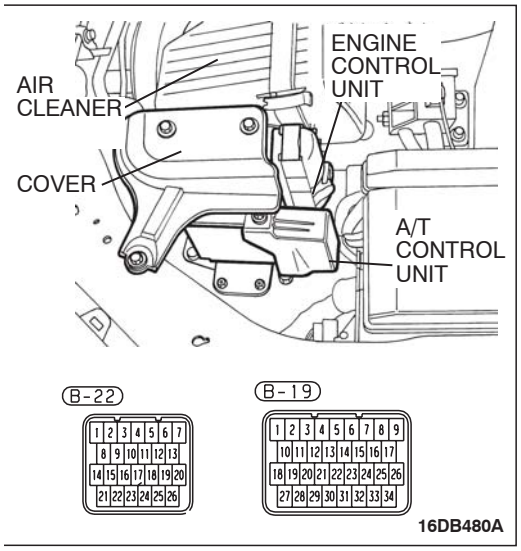
(2) Turn the ignition switch to the "LOCK" (OFF) position.

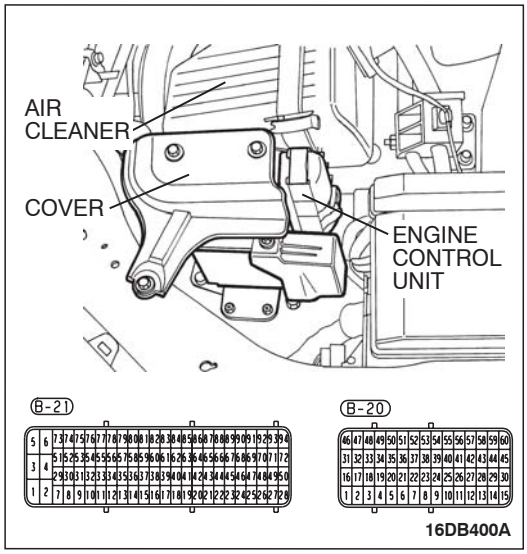
⚠ CAUTION

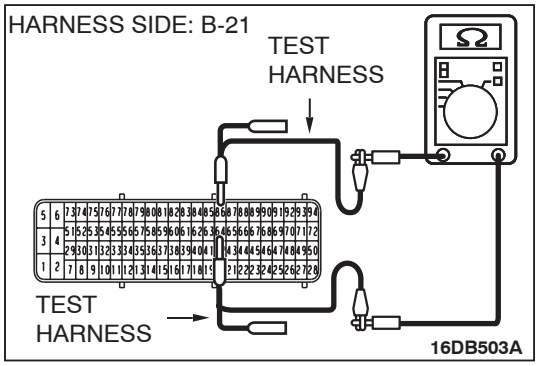
Disconnect the negative battery terminal. For details refer to P.54C-4.

(3) Disconnect the negative battery terminal.

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.







(4) Measure the resistance between ENGINE- ECU connector terminals 64 and 86.

OK: 1 kΩ or more

NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ 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 33 .

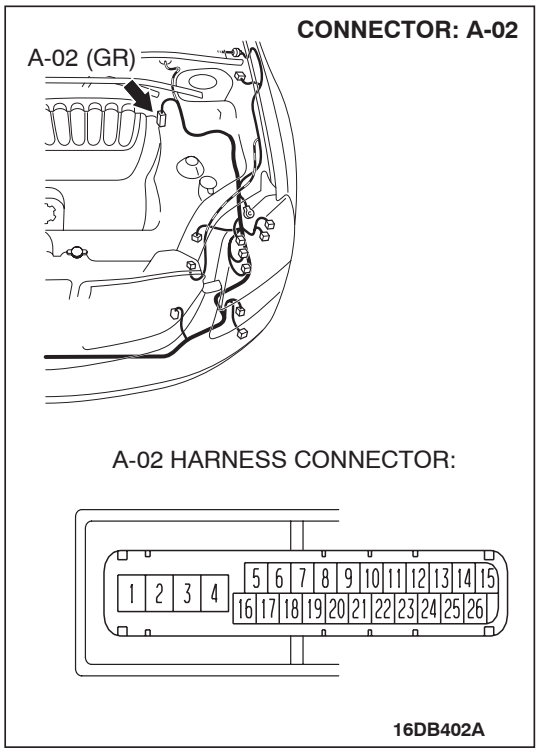
NO : If the resistance measures less than 1 kΩ, repair the wiring harness between ENGINE- ECU connector and A/T-ECU connector.

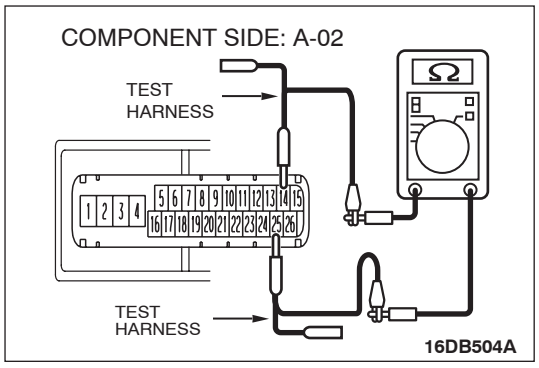
STEP 33. Check the ABS-ECU for short circuit. Measure the resistance at ABS-ECU connector A-02.

⚠ 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 14 and 25.

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 34 .

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

STEP 34. Check the A/T- ECU for short circuit. Measure the resistance at A/T- ECU connector B-19.

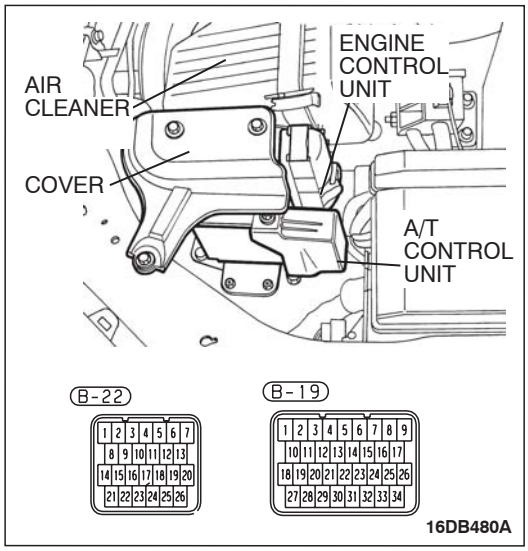
NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

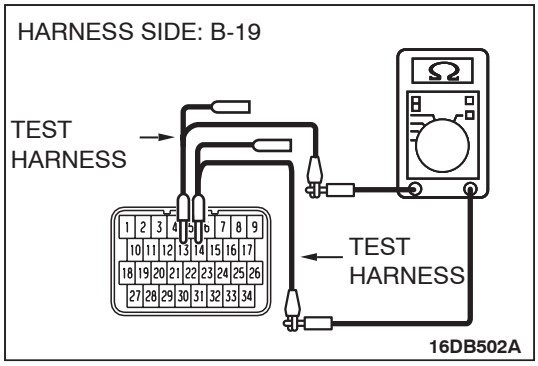
- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80

⚠ CAUTION

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

(1) Disconnect A/T- ECU connector B-19, and measure the resistance at the component side of A/T- ECU connector B-19.





(2) Measure the resistance between A/T- ECU connector terminals 13 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 35 .

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

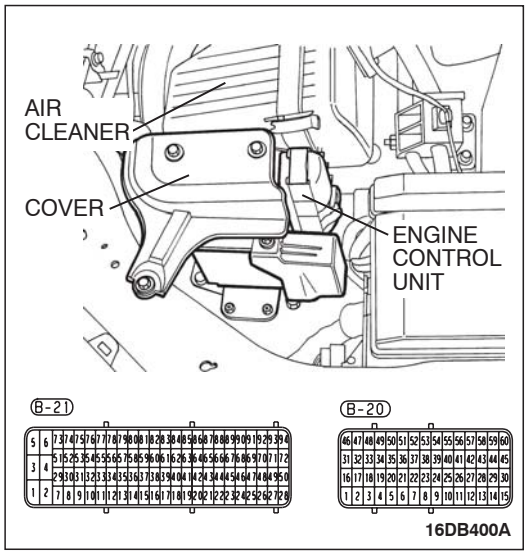
STEP 35. Check the ENGINE- ECU for short circuit.
Measure the resistance at ENGINE- ECU connector B-21.

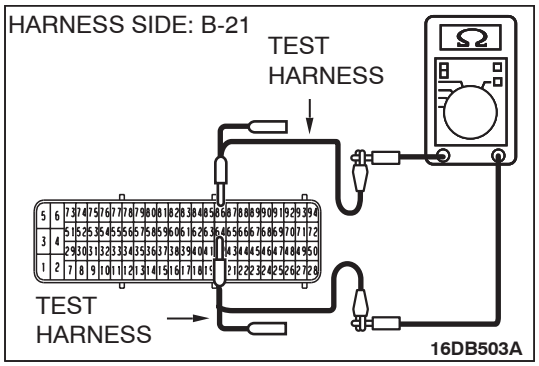
NOTE: When diagnosing CAN-BUS on vehicles with manual transmission (M/T), disregard A/T-ECU and it's wiring circuits and measure between ABS-ECU and ENGINE-ECU only.

⚠ CAUTION

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

(1) Disconnect ENGINE- ECU connector B-21, and measure the resistance at the component side of ENGINE- ECU connector B-21.





(2) Measure the resistance between ENGINE- ECU connector terminals 64 and 86.

OK: 120 ± 20 Ω

Q: Does the resistance measure 120 ± 20 Ω?

YES : If the resistance measures 120 ± 20 Ω, diagnose CAN bus lines thoroughly by referring to P.54C-323.

NO : If the resistance does not measure 120 ± 20 Ω, replace the ENGINE- ECU.

NEXT PAGE