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GROUP 54Bc

# SWS INPUT SIGNAL PROCEDURES

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## INPUT SIGNAL CHART

M1549024200039

&lt;SWS monitor&gt;

If a problem is found in the Service Data inspection,  
observe the table below.

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
ETACS-ECU does not receive any signal from the ignition switch (ACC).	M-1	<a href="#">P.54Bc-4</a>
ETACS-ECU does not receive any signal from the ignition switch (IG1).	M-2	<a href="#">P.54Bc-6</a>
ETACS-ECU does not receive any signal from the backup light switch. <M/T>	M-3	<a href="#">P.54Bc-10</a>
ETACS-ECU does not receive "R" position signal from the park/neutral position switch. <A/T>		<a href="#">P.54Bc-17</a>
ETACS-ECU does not receive signals from the front door switches.	M-4	<a href="#">P.54Bc-24</a>
Column switch	ETACS-ECU does not receive any signal from the tail light switch.	M-5
	ETACS-ECU does not receive any signal from the headlight switch.	
	ETACS-ECU does not receive any signal from the passing light switch.	
	ETACS-ECU does not receive any signal from the dimmer switch.	
	ETACS-ECU does not receive any signal from the turn-signal light switch.	
	ETACS-ECU does not receive any signal from the windshield mist wiper switch.	M-6
	ETACS-ECU does not receive any signal from the windshield intermittent wiper switch.	
	ETACS-ECU does not receive any signal from the windshield low-speed wiper switch.	
	ETACS-ECU does not receive any signal from the windshield high-speed wiper switch.	
	ETACS-ECU does not receive any signal from the windshield intermittent wiper interval adjusting knob.	M-7
Sunroof	ETACS-ECU does not receive any signal from the windshield washer switch.	M-6
	ETACS-ECU does not receive any signal from the rear wiper switch.	
	ETACS-ECU does not receive any signal from the rear washer switch.	
Sunroof	ETACS-ECU does not receive any signal from the up, open or close/down switch.	M-8
		<a href="#">P.54Bc-41</a>

<Scan tool or voltmeter>

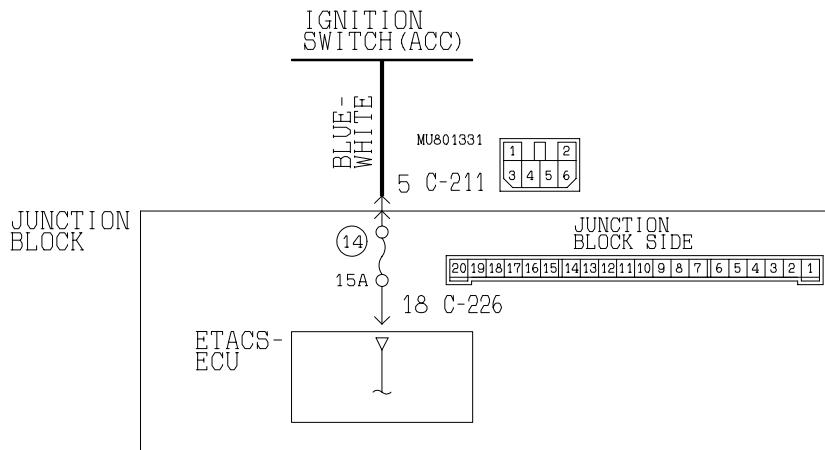
If a problem is found in the Pulse Check, observe the table below.

<b>SYMPTOM</b>	<b>INSPECTION PROCEDURE</b>	<b>REFERENCE PAGE</b>
ETACS-ECU does not receive any signal from the key reminder switch.	N-1	<a href="#">P.54Bc-45</a>
ETACS-ECU does not receive any signal from the hazard warning light switch.	N-2	<a href="#">P.54Bc-50</a>
ETACS-ECU does not receive any signal from the driver's seat belt switch.	N-3	<a href="#">P.54Bc-55</a>
The ETACS-ECU does not receive any signal from all the door switches.	N-4	<a href="#">P.54Bc-60</a>
ETACS-ECU does not receive any signal from the driver's or front passenger's door lock key cylinder switch.	N-5	<a href="#">P.54Bc-68</a>
ETACS-ECU does not receive any signal from the driver's door lock actuator switch.	N-6	<a href="#">P.54Bc-78</a>
ETACS-ECU does not receive any signal from the door lock switch (incorporated in the power window main switch).	N-7	<a href="#">P.54Bc-83</a>
ETACS-ECU does not receive any signal from the Vehicle Speed Sensor. <M/T>	N-8	<a href="#">P.54Bc-93</a>
ETACS-ECU does not Receive Vehicle Speed Signal. <A/T>		<a href="#">P.54Bc-96</a>
Transmitter	ETACS-ECU does not receive any signal from the lock or unlock switch.	N-9
		<a href="#">P.54Bc-99</a>
ETACS-ECU does not receive any interior light loaded signal.	N-10	<a href="#">P.54Bc-101</a>

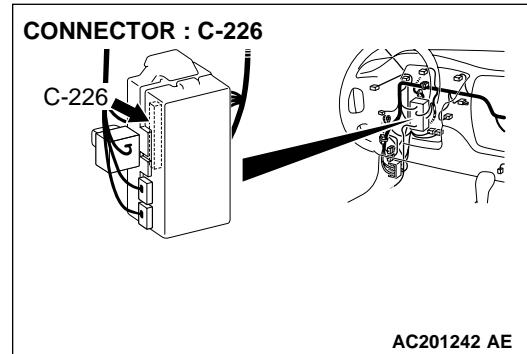
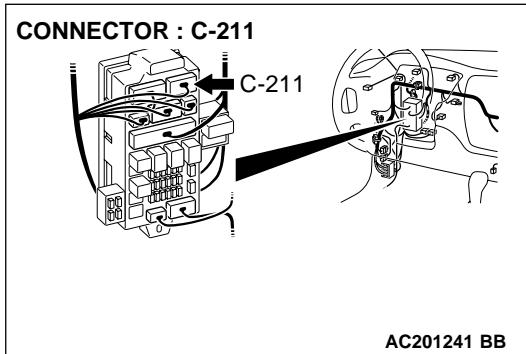
# INPUT SIGNAL PROCEDURES

**INSPECTION PROCEDURE M-1: The ETACS-ECU does not receive any signal from the ignition switch (ACC).**

**Ignition Switch (ACC) Input Circuit**



W2J08M10AB



## CIRCUIT OPERATION

The ETACS-ECU operates the following equipment according to signal from the ignition switch (ACC):

- Windshield wiper and washer
- Rear wiper and washer

## TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment, which is described in "CIRCUIT OPERATION", does not work normally.

## TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

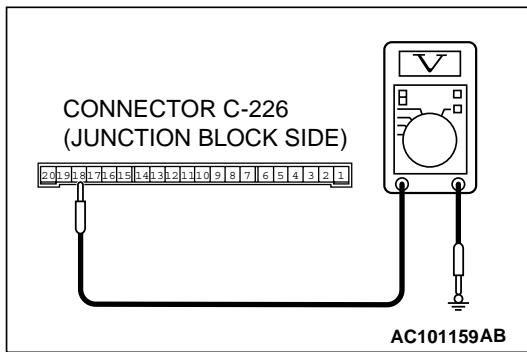
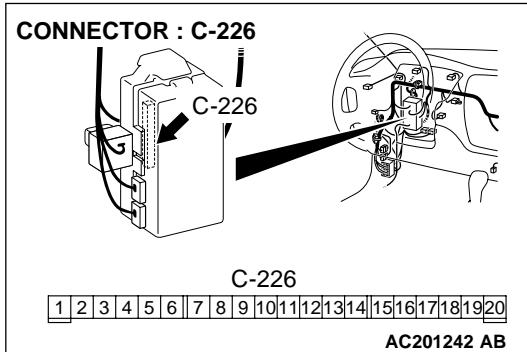
### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

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### STEP 1. Check the ignition switch (ACC) circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

- (1) Disconnect ETACS-ECU connector C-226 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ACC" position.



- (3) Measure the voltage between terminal 18 and ground.

- The voltage should equal approximately 12 volts (battery positive voltage).

**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

**YES :** Replace the ETACS-ECU. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.

**NO :** Go to Step 2.

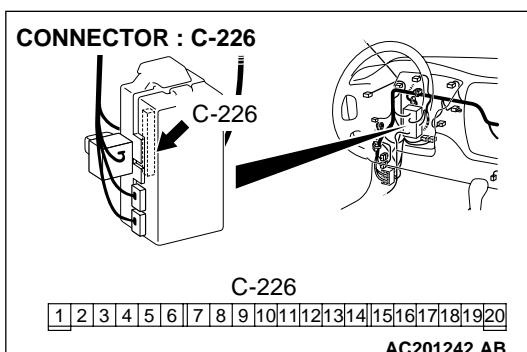
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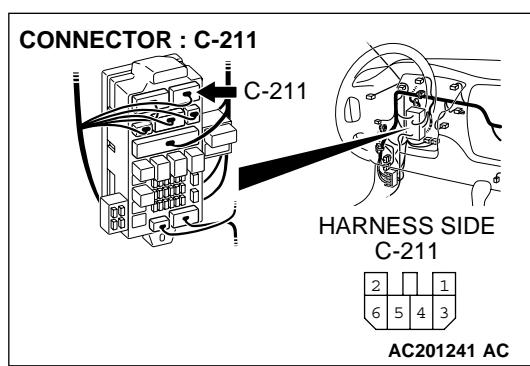
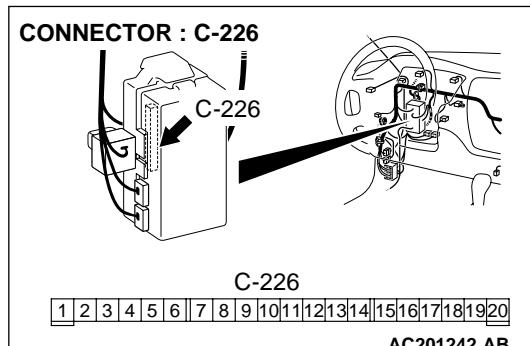
### STEP 2. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**Q: Is ETACS-ECU connector C-226 in good condition?**

**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.





**STEP 3. Check the wiring harness between ETACS-ECU connector C-226 (terminal 18) and the ignition switch (ACC).**

**NOTE:** Also check junction block connector C-211 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

**Q: Is the wiring harness between ETACS-ECU connector C-226 (terminal 18) and ignition switch (ACC) in good condition?**

**YES :** No action is necessary and testing is complete.

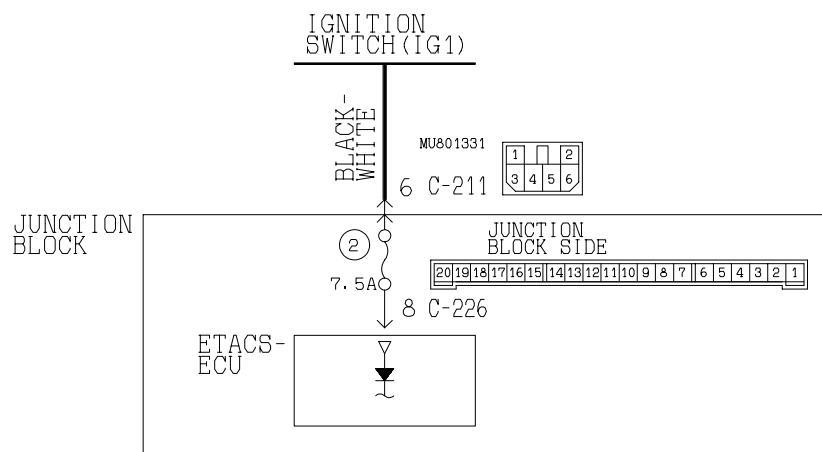
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.

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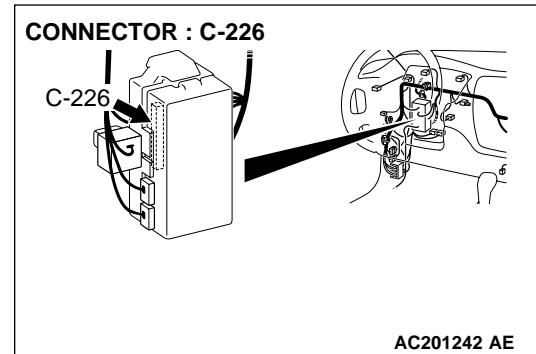
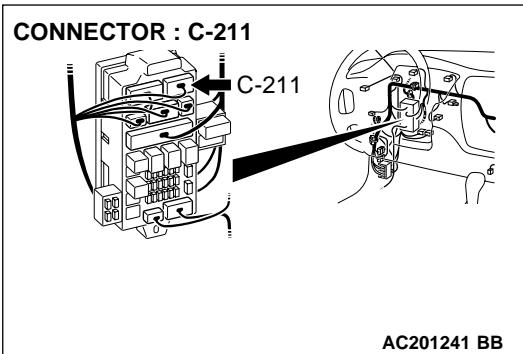
**INSPECTION PROCEDURE M-2: The ETACS-ECU does not receive any signal from the ignition switch (IG1).**

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**Ignition Switch (IG1) Input Circuit**



W2J08M11AB



### CIRCUIT OPERATION

- The ETACS-ECU operates the following equipment or functions according to signal from the ignition switch (IG1):
  - Ignition key reminder tone alarm function
  - Light reminder tone alarm function
  - Seat belt tone alarm function
  - Power window timer function
  - Seat belt warning light
  - Headlight automatic shutdown function
  - Turn-signal light
  - Dome light dimming function

- If the power supply circuit from the battery to the ETACS-ECU is open, this circuit is used as backup circuit.

### TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment or functions, which are described in "CIRCUIT OPERATION", do not work normally.

### TROUBLESHOOTING HINTS

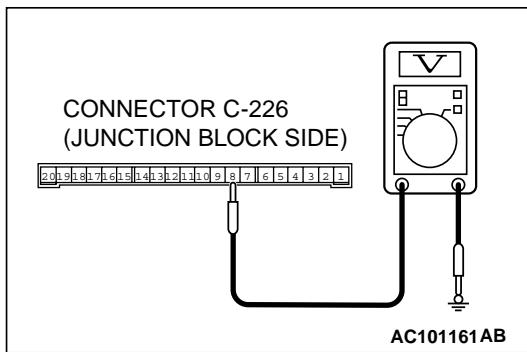
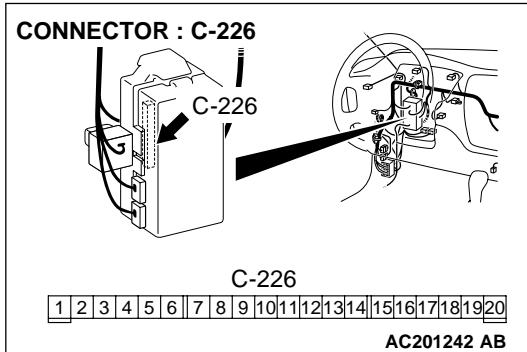
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

**STEP 1. Check the ignition switch (IG1) circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.**

- (1) Disconnect ETACS-ECU connector C-226 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between terminal 8 and ground.

- The voltage should equal approximately 12 volts (battery positive voltage).

**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.

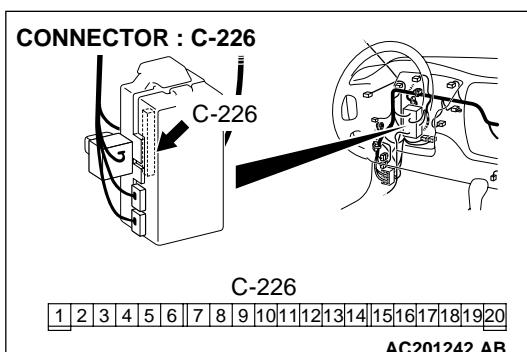
**NO :** Go to Step 2.

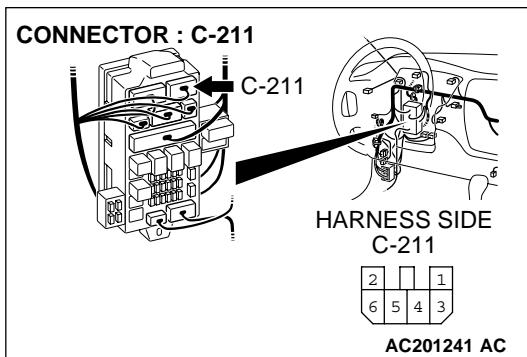
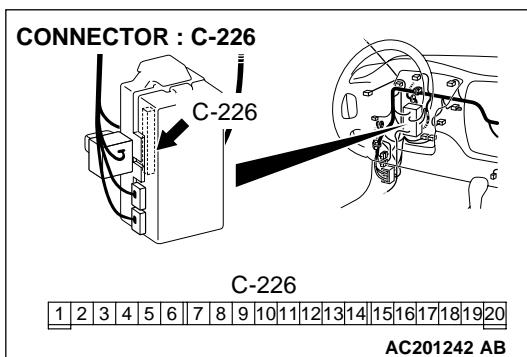
**STEP 2. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ETACS-ECU connector C-226 in good condition?**

**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.





**STEP 3. Check the wiring harness between ETACS-ECU connector C-226 (terminal 8) and the ignition switch (IG1).**

*NOTE: Also check junction block connector C-211 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

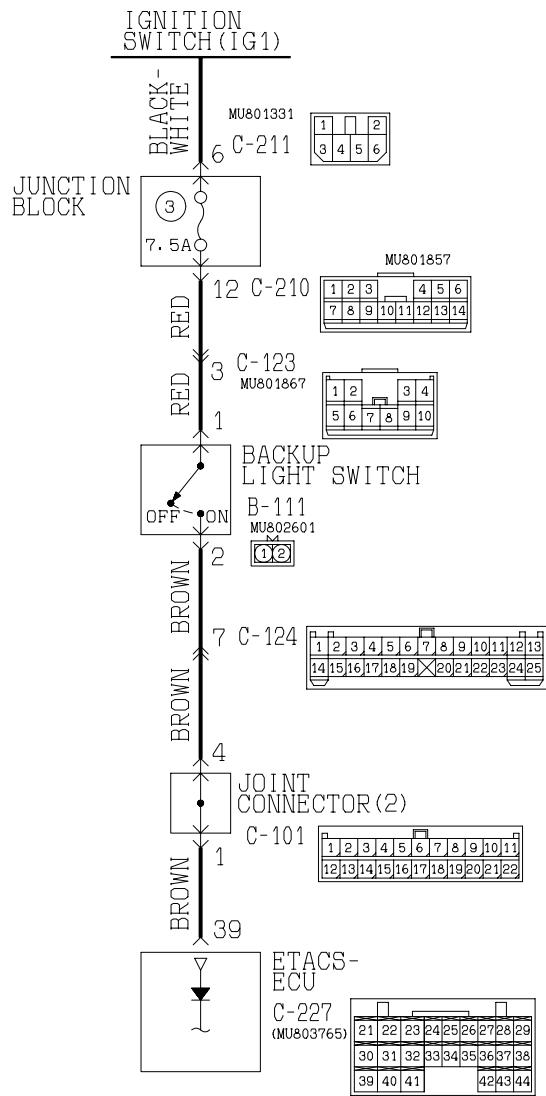
**Q: Is the wiring harness between ETACS-ECU connector C-226 (terminal 8) and ignition switch (IG1) in good condition?**

**YES :** No action is necessary and testing is complete.

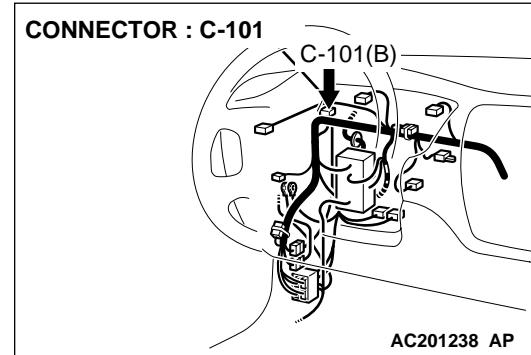
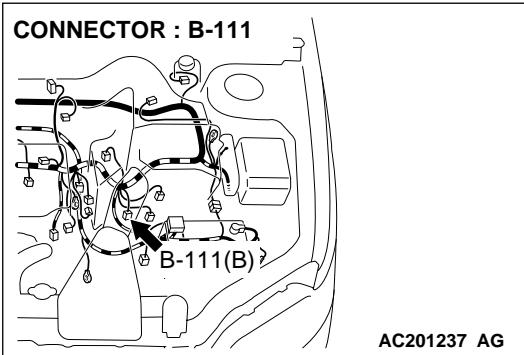
**NO :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.

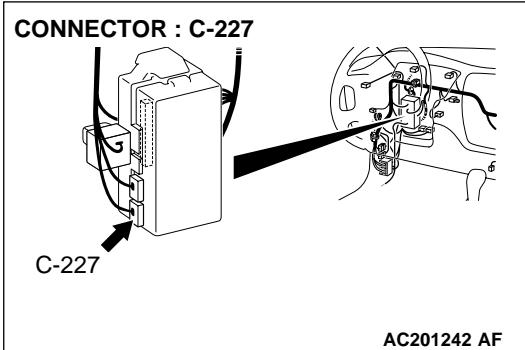
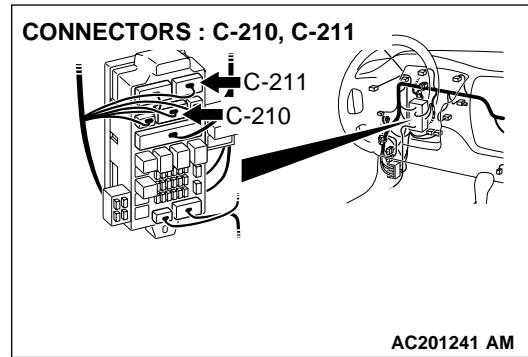
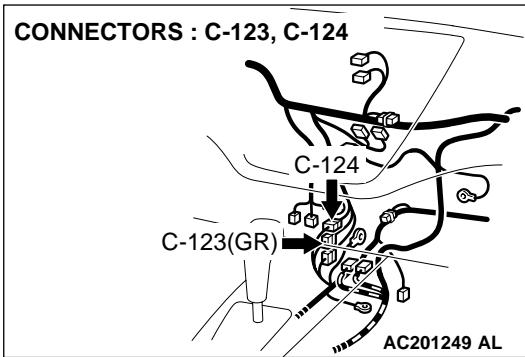
**INSPECTION PROCEDURE M-3: ETACS-ECU does not receive any signal from the backup light switch <M/T>.**

**Backup Light Switch Input Circuit**



W3J05M01AA





### CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper according to signal from the backup light switch.

### TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the rear wiper does not operate consecutively twice when the shift lever is moved to the "R" position with the rear wiper on. If the signal is not normal, the backup light switch or the ETACS-ECU may be defective.

### TROUBLESHOOTING HINTS

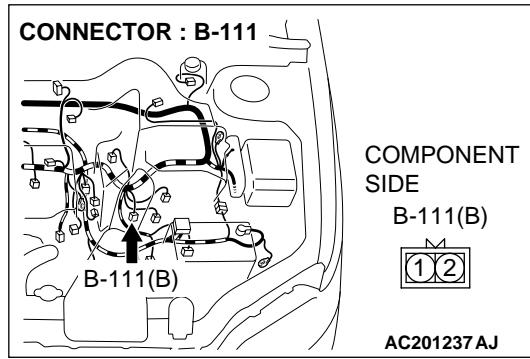
- The backup light switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

**STEP 1. Check the backup light switch.**

Disconnect backup light switch connector B-111. Then check continuity between the switch terminals.



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Other than "R"	1 – 2	Open circuit
R	1 – 2	Less than 2 ohms

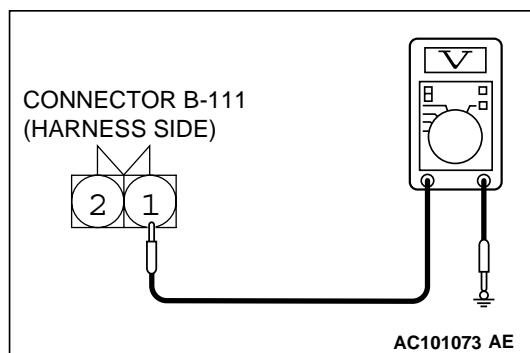
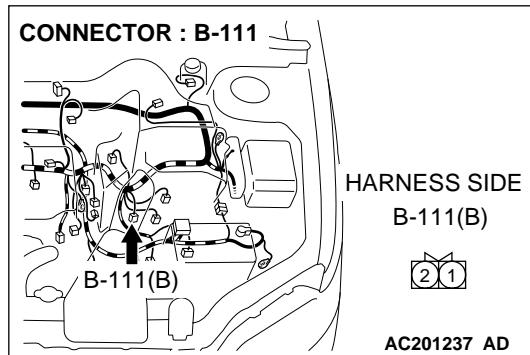
**Q: Is the backup light switch in good condition?**

**YES :** Go to Step 2.

**NO :** Replace the backup light switch. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.

**STEP 2. Check the ignition switch (IG1) circuit to the backup light switch. Test at backup light switch connector B-111.**

- (1) Disconnect backup light switch connector B-111 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

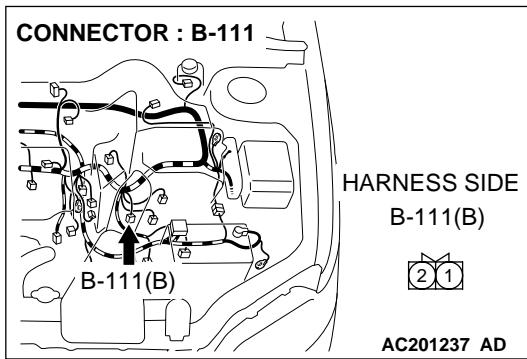


- (3) Measure the voltage between terminal 1 and ground.
  - The voltage should equal approximately 12 volts (battery positive voltage).

**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

**YES :** Go to Step 5.

**NO :** Go to Step 3.



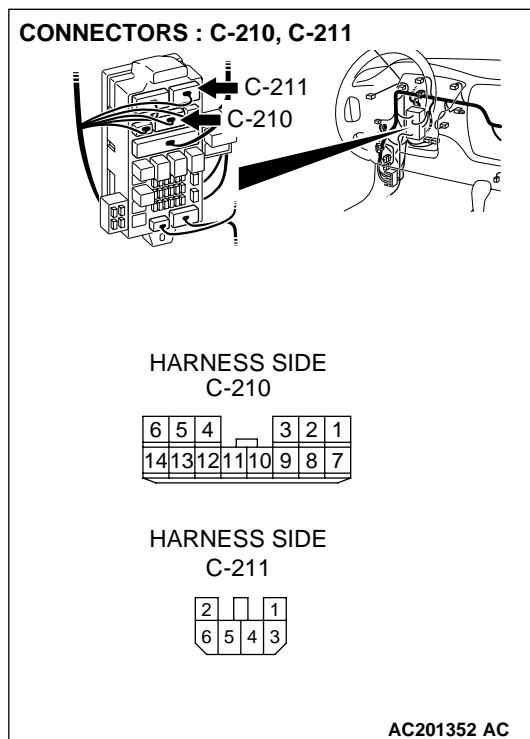
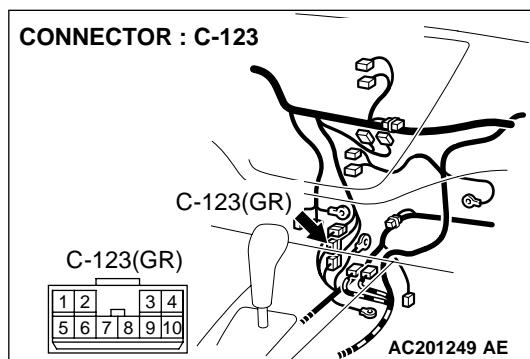
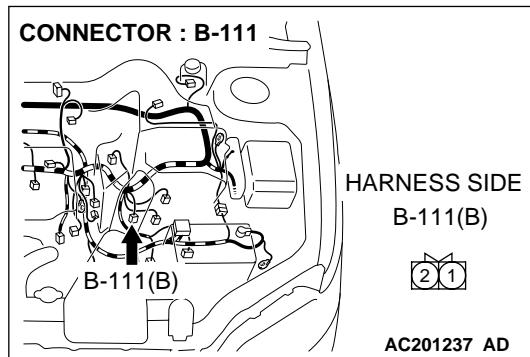
**STEP 3. Check backup light switch connector B-111 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is the backup light switch connector B-111 in good condition?**

**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.



**STEP 4. Check the wiring harness between backup light switch connector B-111 (terminal 1) and the ignition switch (IG1).**

*NOTE: Also check junction block connectors C-210, C-211 and intermediate connector C-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connectors C-210, C-211 or intermediate connectors C-123 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between backup light switch connector B-111 (terminal 1) and the ignition switch (IG1) in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.

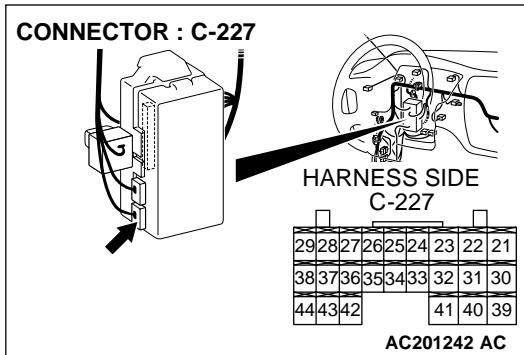
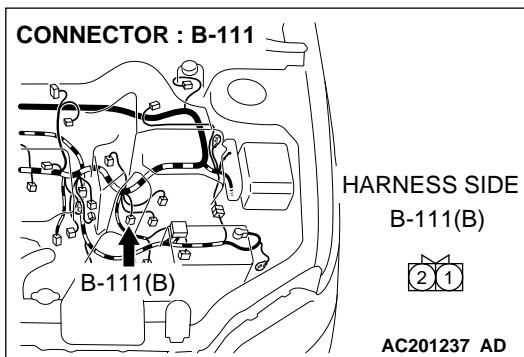
**STEP 5. Check backup light switch connector B-111 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

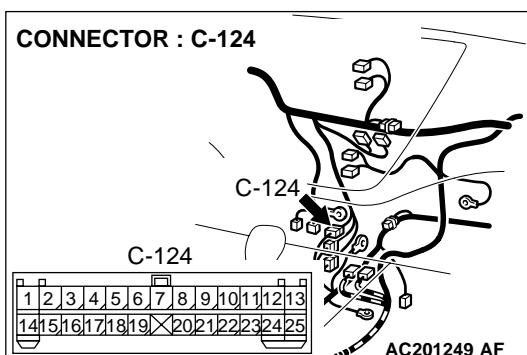
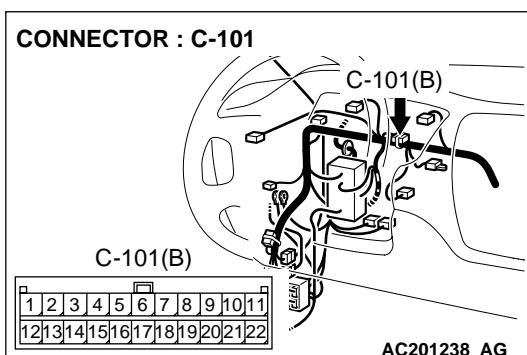
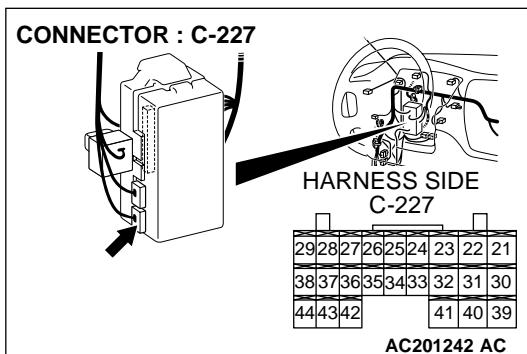
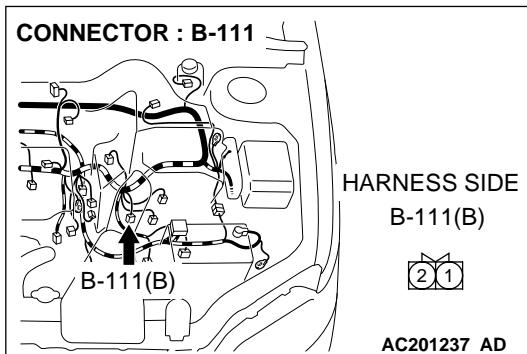
**Q: Are backup light switch connector B-111 and ETACS-ECU connector C-227 in good condition?**

**YES :** Go to Step 6.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.





**STEP 6. Check the wiring harness between backup light switch connector B-111 (terminal 2) and ETACS-ECU connector C-227 (terminal 39).**

*NOTE: Also check joint connector C-101 and intermediate connector C-124 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-101 or intermediate connectors C-124 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

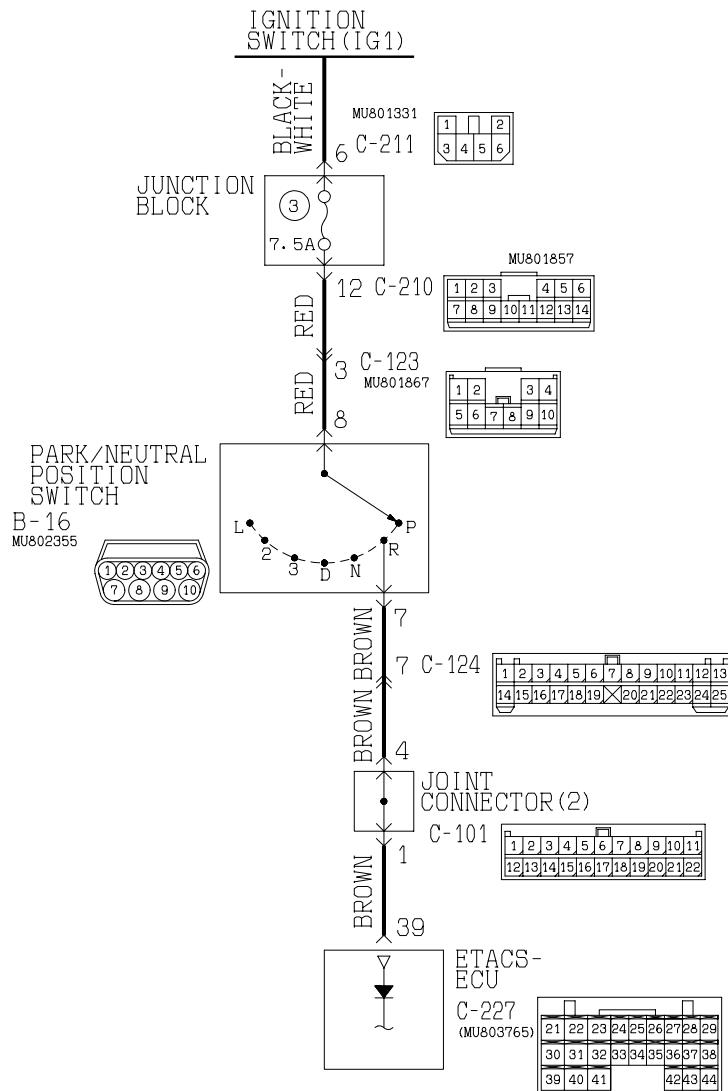
**Q: Is the wiring harness between backup light switch connector B-111 (terminal 2) and ETACS-ECU connector C-227 (terminal 39) in good condition?**

**YES :** Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.

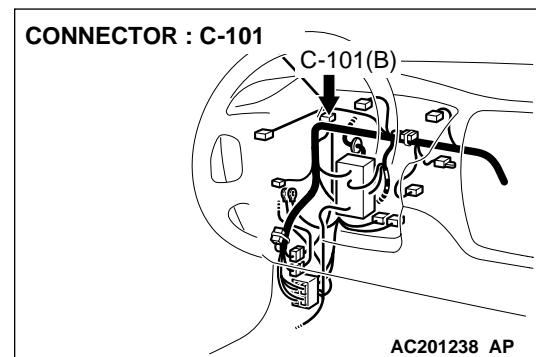
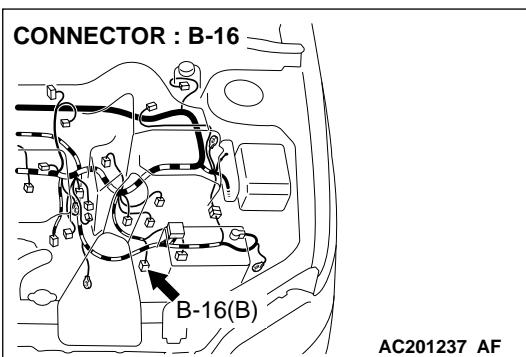
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.

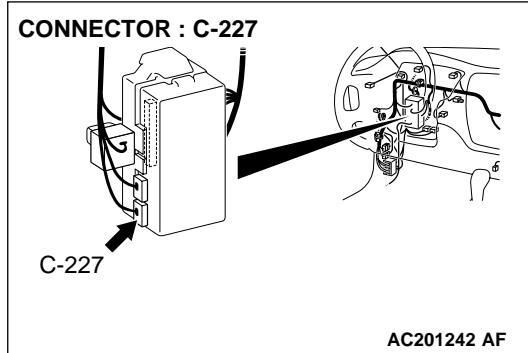
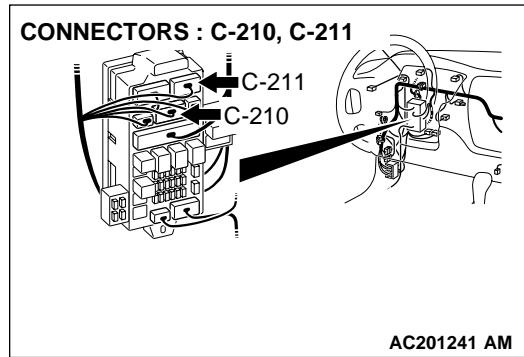
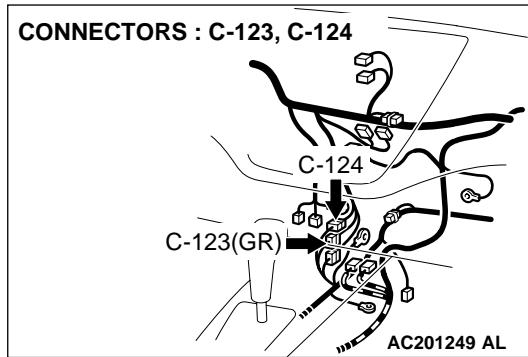
**INSPECTION PROCEDURE M-3: ETACS-ECU does not receive "R" position signal from the park/neutral position switch <A/T>.**

Park/neutral Position Switch Input Circuit



W3J01M27AA



**CIRCUIT OPERATION**

The ETACS-ECU operates the rear wiper according to signal from the park/neutral position switch.

**TECHNICAL DESCRIPTION (COMMENT)**

If the signal is not normal, the rear wiper does not operate consecutively twice when the selector lever is moved to the "R" position with the rear wiper on. If the signal is not normal, the park/neutral position switch or the ETACS-ECU may be defective.

*NOTE: The park/neutral position switch is shared with the automatic transaxle control system. If this problem is not solved, carry out the troubleshooting regarding the automatic transaxle control system. Refer to GROUP 23A, A/T Diagnosis P.23Ab-2.*

**TROUBLESHOOTING HINTS**

- The park/neutral position switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

### STEP 1. Check the park/neutral position switch.

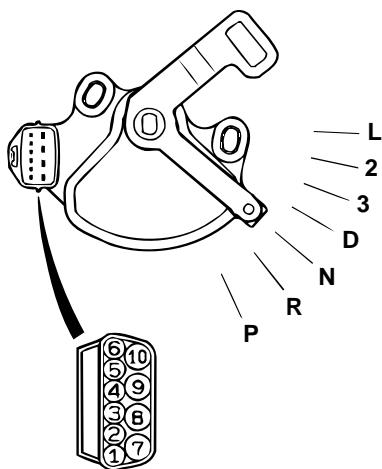
Disconnect park/neutral position switch connector B-16. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
P, N, D, 3, 2, L	7 – 8	Open circuit
R	7 – 8	Less than 2 ohms

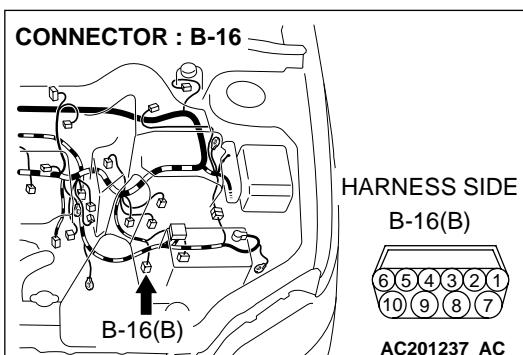
### Q: Is the park/neutral position switch in good condition?

**YES :** Go to Step 2.

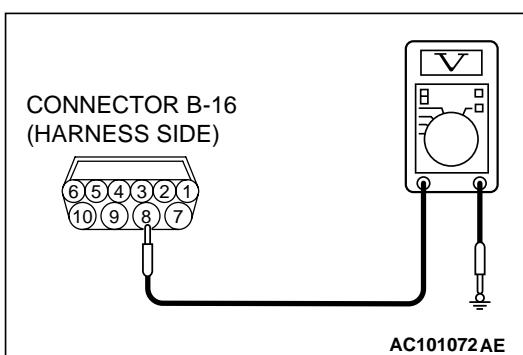
**NO :** Replace the park/neutral position switch. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.



AC005865 AB



HARNESS SIDE  
B-16(B)  
AC201237 AC



AC101072 AE

### STEP 2. Check the ignition switch (IG1) line of the power supply circuit to the park/neutral switch. Test at park/neutral switch connector B-16.

- (1) Disconnect park/neutral position switch connector B-16 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

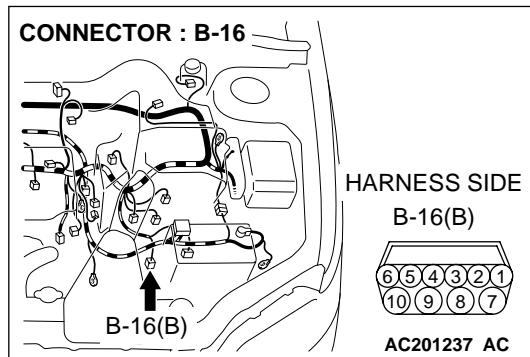
- (3) Measure the voltage between terminal 8 and ground.

- The voltage should equal approximately 12 volts (battery positive voltage).

### Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

**YES :** Go to Step 5.

**NO :** Go to Step 3.



**STEP 3. Check park/neutral position switch connector B-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is park/neutral position switch connector B-16 in good condition?**

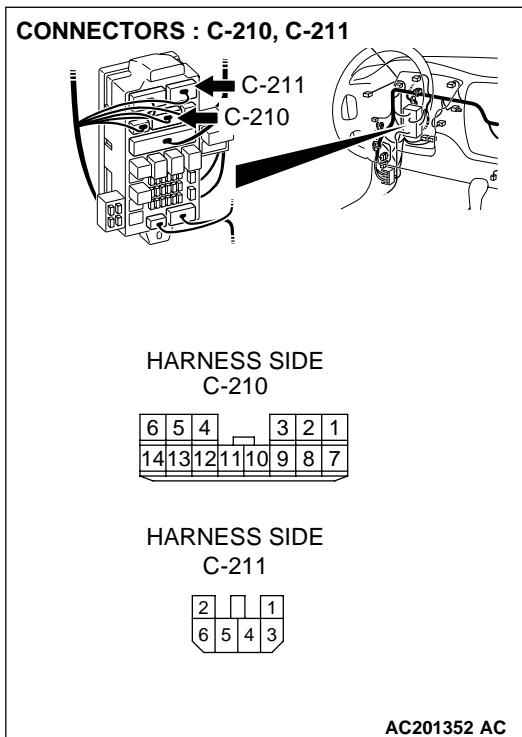
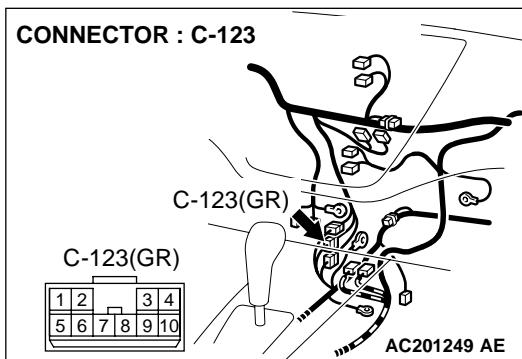
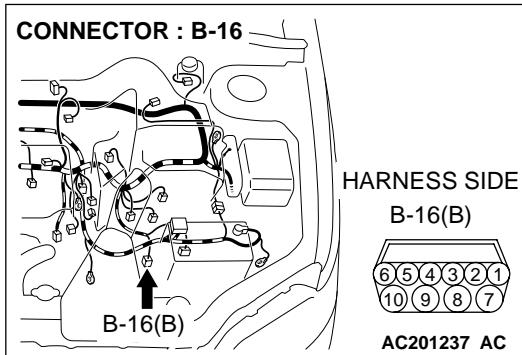
**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

**STEP 4. Check the wiring harness between park/neutral position switch connector B-16 (terminal 8) and the ignition switch (IG1).**

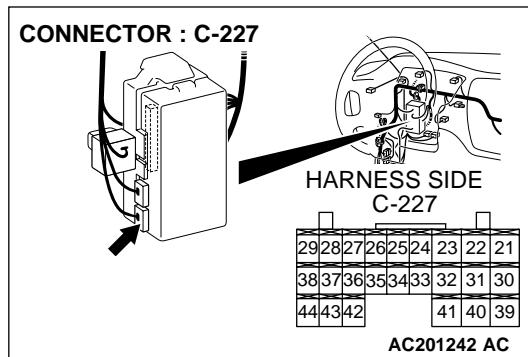
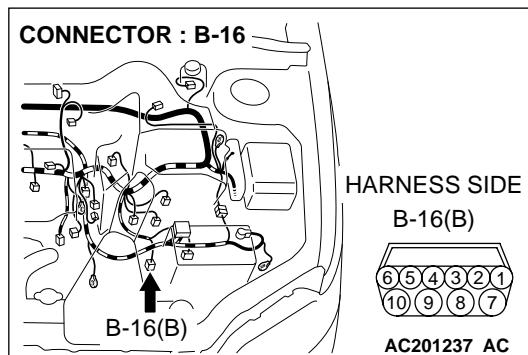
**NOTE:** Also check junction block connectors C-210, C-211 and intermediate connector C-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connectors C-210, C-211 or intermediate connectors C-123 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



**Q: Is the wiring harness between park/neutral position switch connector B-16 (terminal 8) and the ignition switch (IG1) in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.



**STEP 5.** Check park/neutral position switch connector B-16 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**Q:** Are park/neutral position switch connector B-16 and ETACS-ECU connector C-227 in good condition?

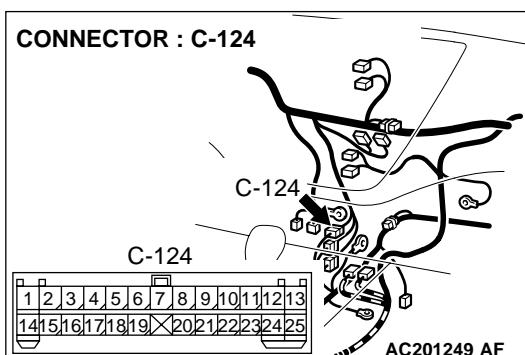
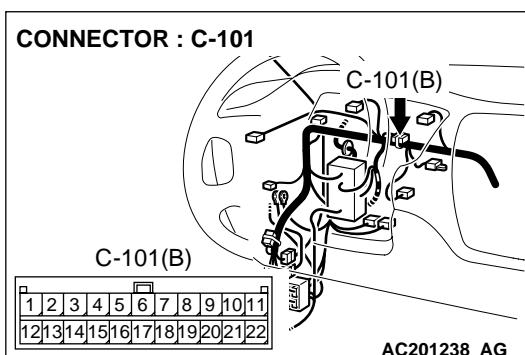
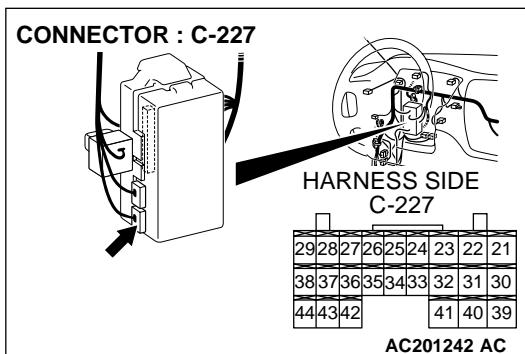
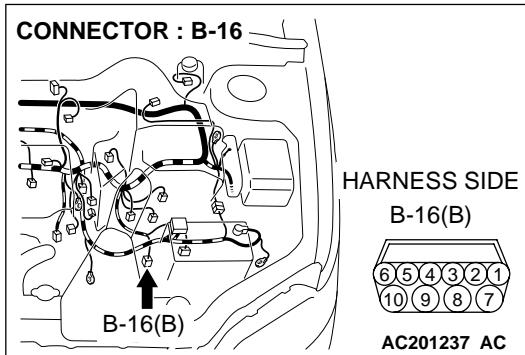
**YES :** Go to Step 6.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

**STEP 6. Check the wiring harness between park/neutral position switch connector B-16 (terminal 7) and ETACS-ECU connector C-227 (terminal 39).**

**NOTE:** Also check joint connector C-101 and intermediate connector C-124 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-101 or intermediate connectors C-124 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



**Q: Is the wiring harness between park/neutral position switch connector B-16 (terminal 7) and ETACS-ECU connector C-227 (terminal 39) in good condition?**

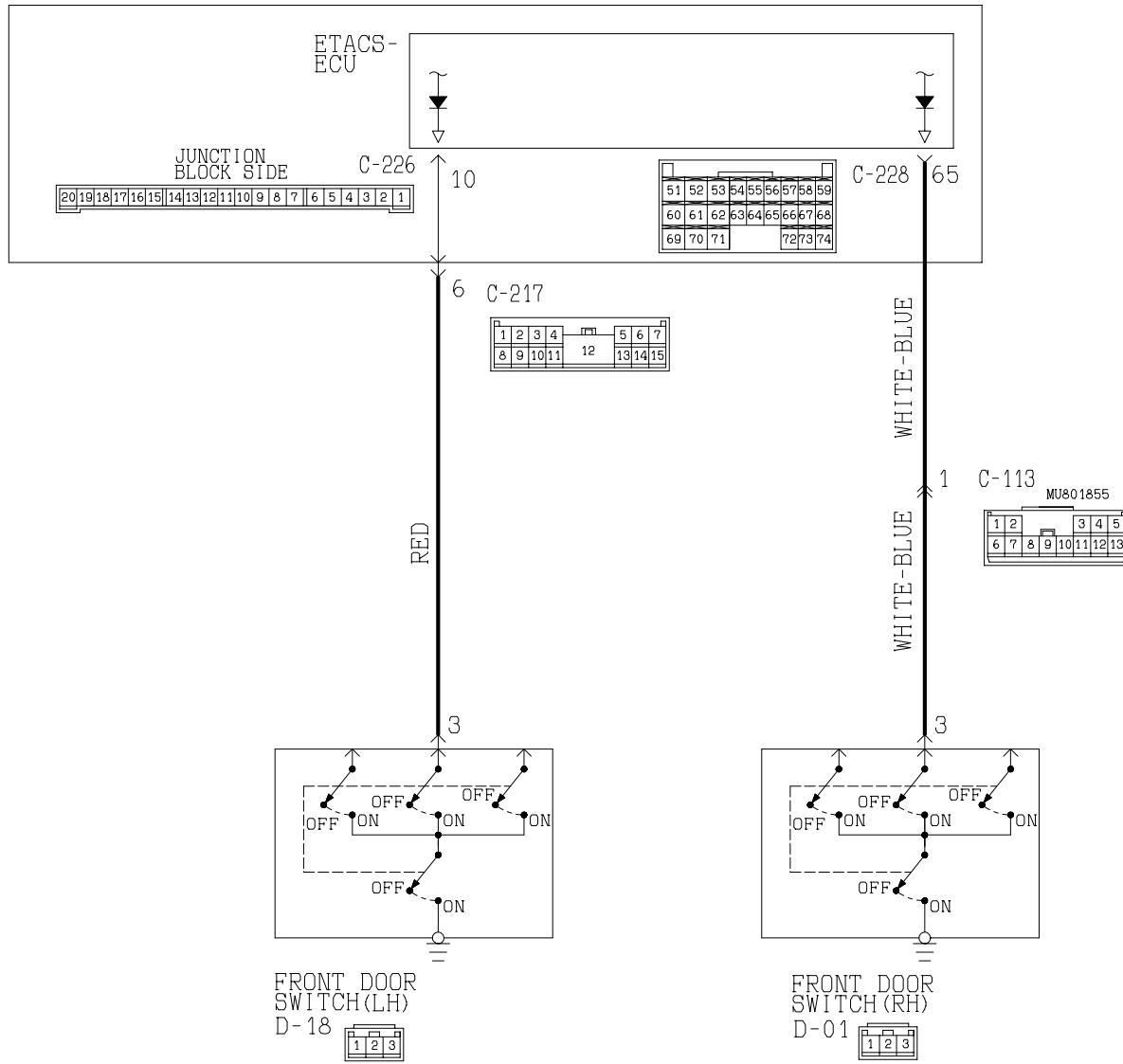
**YES :** Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

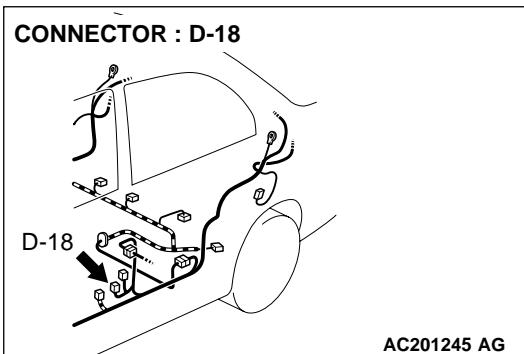
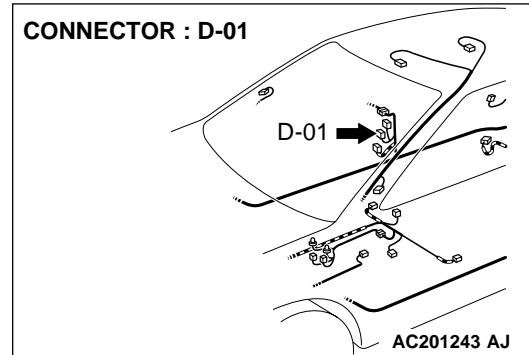
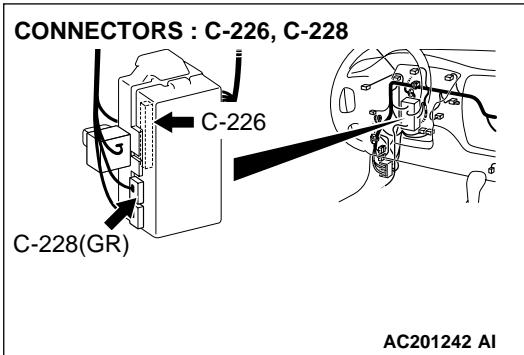
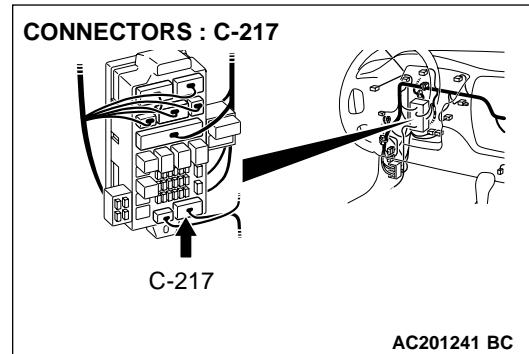
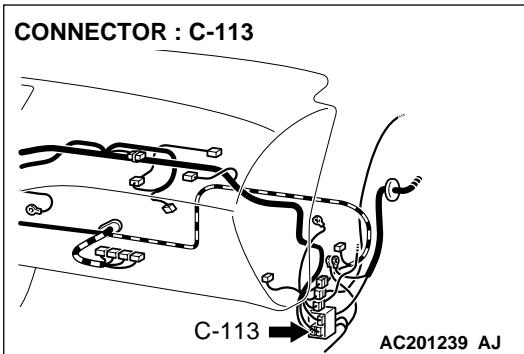
**INSPECTION PROCEDURE M-4: The ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch.**

**Front Door Switches Input Circuit**

JUNCTION BLOCK



W2J08M14AA



## CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the driver's or front passenger's door switches:

- Ignition key reminder tone alarm function
- Light reminder tone alarm function
- Power window timer function
- Headlight automatic shutdown function
- Dome light

## TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally. If the signal is not normal, the driver's or front passenger's door switch or the ETACS-ECU may be defective.

## TROUBLESHOOTING HINTS

- The driver's or front passenger's door switches may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

**STEP 1. Check the input signal by using the pulse check mode of the monitor.**

Check the input signals from the front door switches.

** CAUTION**

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (3) When each front door is opened and closed, check if scan tool MB991502 sounds or not.

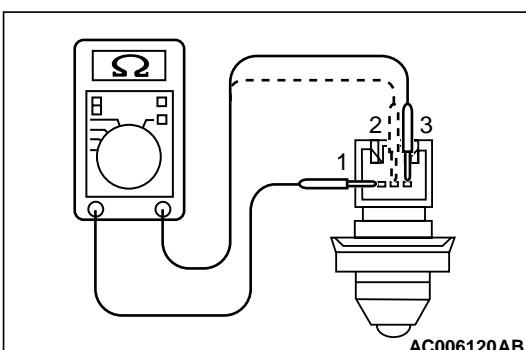
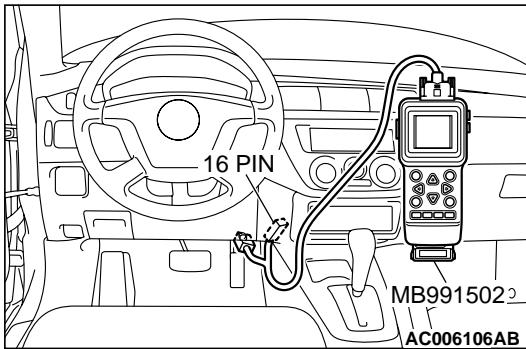
**Q: Does scan tool MB991502 sound when each front door is opened and closed?**

**When the driver's door is opened and closed, scan tool MB991502 does not sound. : Go to Step 2.**

**When the front passenger's door is opened and closed, scan tool MB991502 does not sound. : Go to Step 6.**

**when each front door is opened and closed, scan tool MB991502 sounds. : Replace the ETACS-ECU. If the**

functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's or the front passenger's door switch should be normal.

**STEP 2. Check the driver's door switch.**

Remove the driver's door switch. Then check the continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 3, 1 – 2, 2 – 3	Less than 2 ohms
Pressed	1 – 3, 1 – 2, 2 – 3	Open circuit

**Q: Is the driver's door switch in good condition?**

**YES : Go to Step 3.**

**NO : Replace the front door switch (LH). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.**

**STEP 3. Measure at the lower metal part of the driver's door switch in order to check the ground circuit to the driver's door switch.**

*NOTE: Check that the driver's door switch is grounded to the vehicle body by means of its mounting screw.*

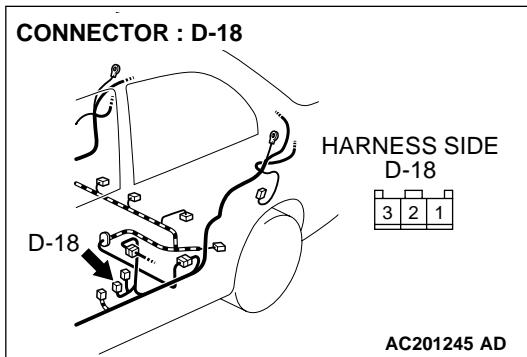
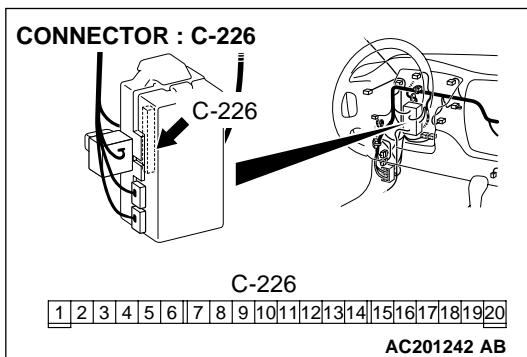
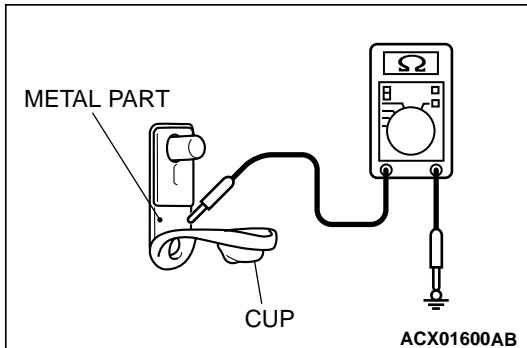
Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 4.

**NO :** Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.

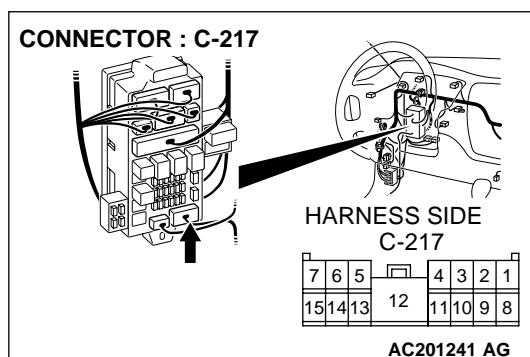
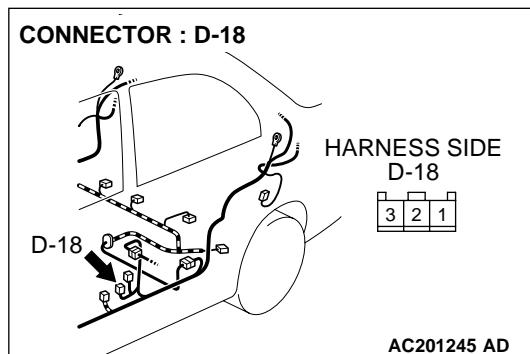
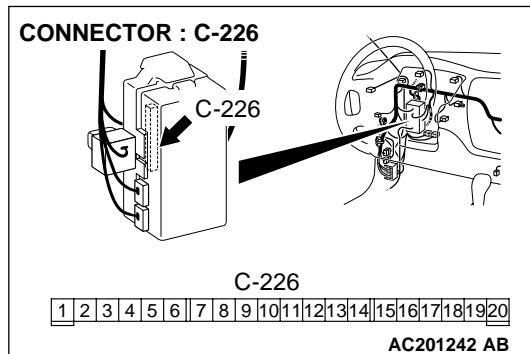


**STEP 4. Check driver's door switch connector D-18 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are driver's door switch connector D-18 and ETACS-ECU connector C-226 in good condition?**

**YES :** Go to Step 5.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.



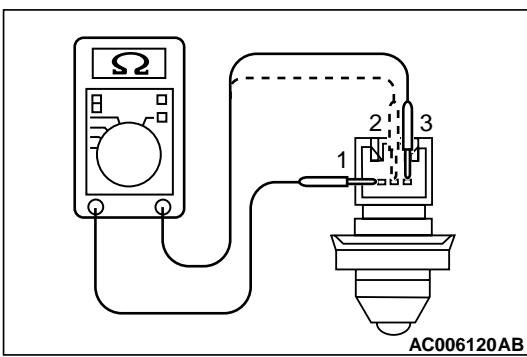
**STEP 5. Check the wiring harness between driver's door switch connector D-18 (terminal 3) and ETACS-ECU connector C-226 (terminal 10).**

*NOTE: Also check junction block connector C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-217 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between driver's door switch connector D-18 (terminal 3) and ETACS-ECU connector C-226 (terminal 10) in good condition?**

**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.



**STEP 6. Check the front passenger's door switch.**

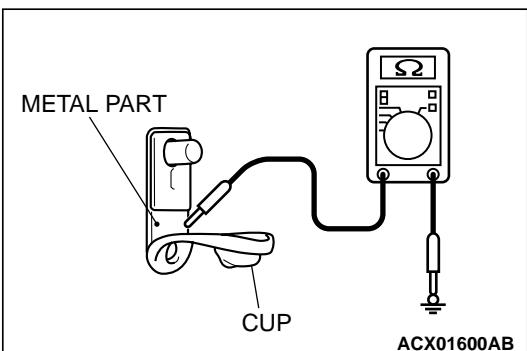
Remove the front passenger's door switch. Then check the continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 3, 1 – 2, 2 – 3	Less than 2 ohms
Pressed	1 – 3, 1 – 2, 2 – 3	Open circuit

**Q: Is the front passenger's door switch in good condition?**

**YES :** Go to Step 7.

**NO :** Replace the front passenger's door switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door switch should be normal.



**STEP 7. Measure at the lower metal part of the passenger's door switch in order to check the ground circuit to the front passenger's door switch.**

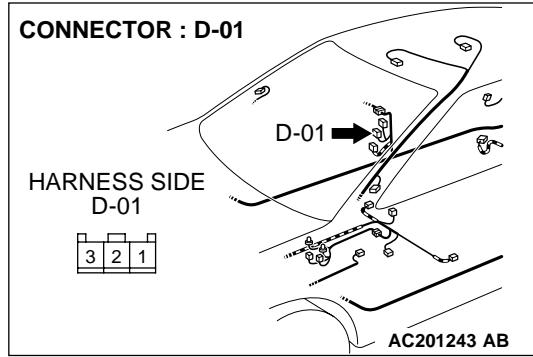
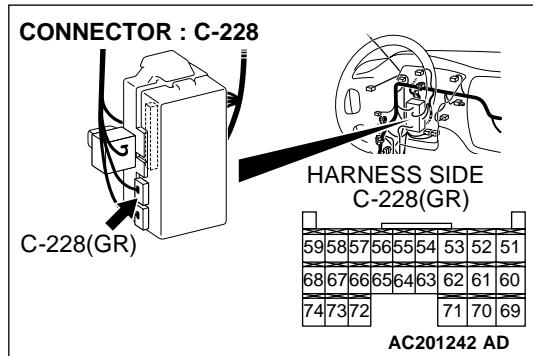
*NOTE: Check that the front passenger's door switch is grounded to the vehicle body by means of its mounting screw. Remove the cap, and measure the resistance value between the lower metal part and the ground.*

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 8.

**NO :** Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door switch should be normal.



**STEP 8. Check front passenger's door switch connector D-01 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are front passenger's door switch connector D-01 and ETACS-ECU connector C-228 in good condition?**

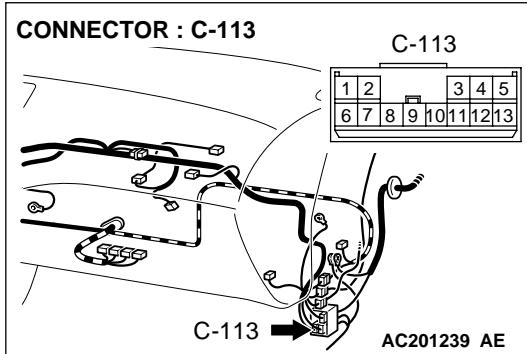
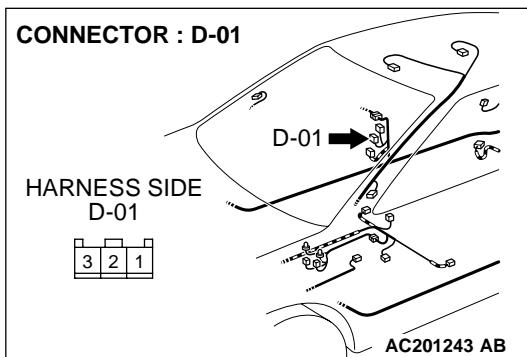
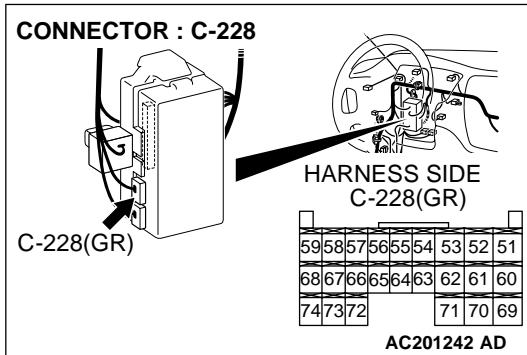
**YES :** Go to Step 9.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door switch should be normal.

**STEP 9. Check the wiring harness between front passenger's door switch connector D-01 (terminal 3) and ETACS-ECU connector C-228 (terminal 65).**

*NOTE: Also check intermediate connector C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-113 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*



**Q: Is the wiring harness between front passenger's door switch connector D-01 (terminal 3) and ETACS-ECU connector C-228 (terminal 65) in good condition?**

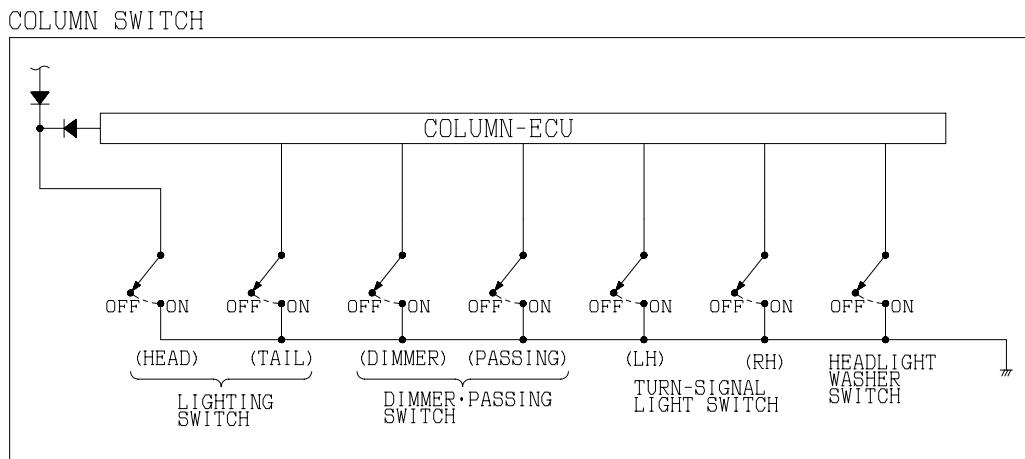
**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door switch should be normal.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door switch should be normal.

**INSPECTION PROCEDURE M-5: Column Switch: ETACS-ECU does not receive any signal from the taillight switch, the headlight switch, the passing light switch, the dimmer switch, the turn-signal light switch or switch.**

*NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."*

#### Turn-signal Light and Lighting Switch Input Circuit



W2J08M15AA

#### CIRCUIT OPERATION

The ETACS-ECU operates the following equipment or functions according to signal from the column switch (turn-signal light and lighting switch):

- Light reminder tone alarm function
- Headlight
- Turn-signal light

#### TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment or functions, which are described in "CIRCUIT OPERATION", do not work normally. If the signal is not normal, the column switch (turn-signal light and lighting switch) or the ETACS-ECU may be defective.

#### TROUBLESHOOTING HINTS

- The column switch (turn-signal light and lighting switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

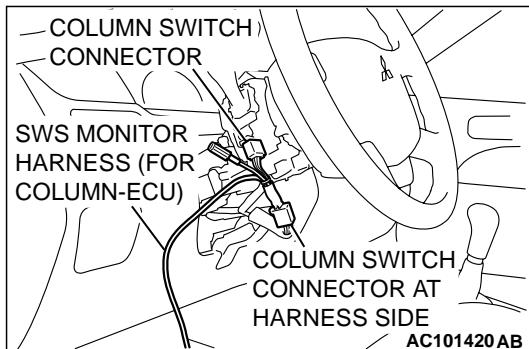
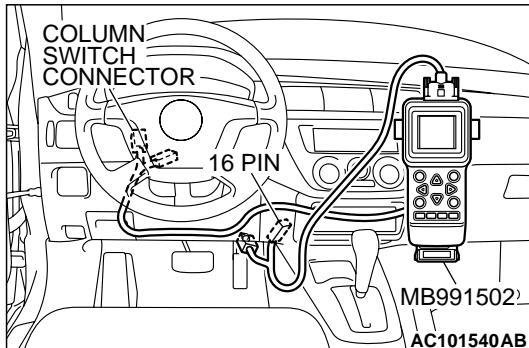
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### STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the column-ECU.

 **CAUTION**

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "SWS MONITOR."
  4. Select "ECU COMM CHK."

- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHK" menu for the "COLUMN ECU" menu.

**Q: Is "OK" displayed on the "COLUMN ECU" menu?**

**YES :** Go to Step 2.

**NO :** Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54Bb-13."

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### STEP 2. Replace the ECU.

- (1) Replace the column switch (turn-signal light and lighting switch).
- (2) If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (turn-signal light and lighting switch) should be normal.

**Q: Does the column switch (turn-signal light and lighting switch) send normal signal to the ECU?**

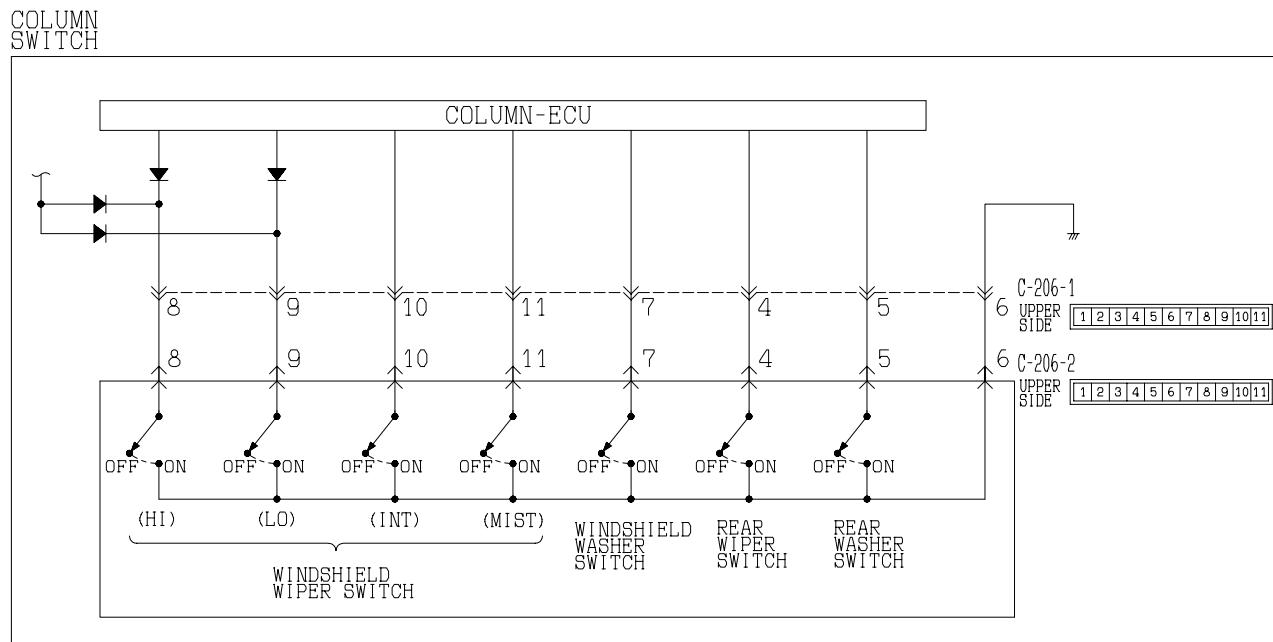
**YES :** No action is necessary and testing is complete.

**NO :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (turn-signal light and lighting switch) should be normal.

**INSPECTION PROCEDURE M-6: Column switch: ETACS-ECU does not receive any signal from windshield mist wiper switch, windshield intermittent wiper switch, windshield low-speed wiper switch, windshield high-speed wiper switch, windshield washer switch, rear wiper switch or rear washer switch.**

*NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."*

**Windshield Wiper and Washer Switch Input Circuit**



W2J08M16AA

### CIRCUIT OPERATION

The ETACS-ECU operates the following equipment or functions according to signal from the column switch (windshield wiper and washer switch):

- Windshield wiper and washer
- Rear wiper and washer

### TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment, which is described in "CIRCUIT OPERATION", does not work normally.

### TROUBLESHOOTING HINTS

- The column switch (windshield wiper and washer switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

**STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.**

Check the column-ECU.

#### CAUTION

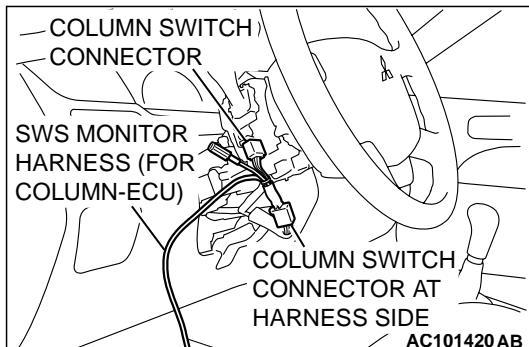
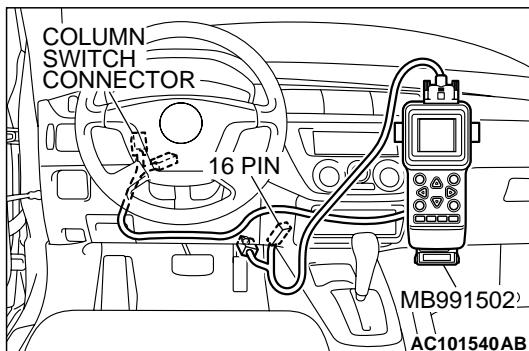
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

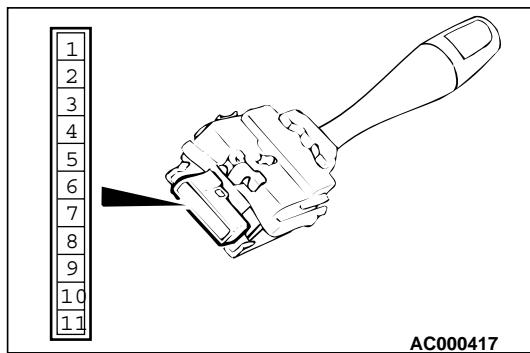
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "SWS MONITOR."
  4. Select "ECU COMM CHK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHK" menu for the "COLUMN ECU" menu.

**Q: Is "OK" displayed on the "COLUMN ECU" menu?**

**YES :** Go to Step 2.

**NO :** Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54Bb-13."



**STEP 2. Check the windshield wiper and washer switch.**

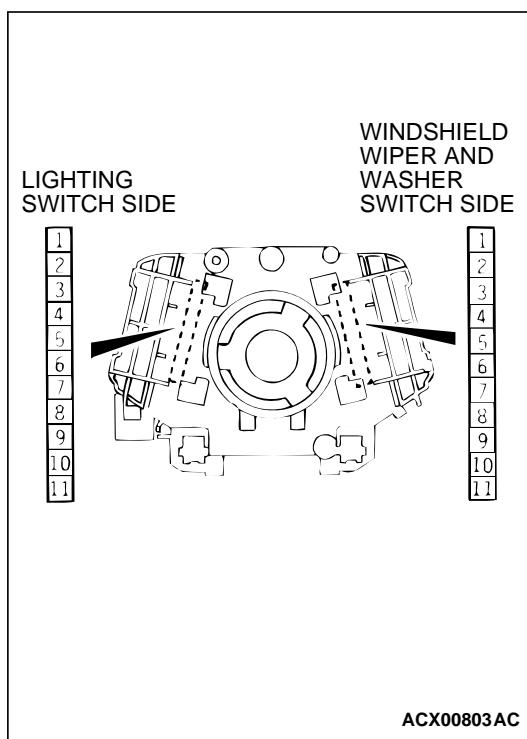
Remove the windshield wiper and washer switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	4 – 6, 5 – 6, 6 – 7, 6 – 8, 6 – 9, 6 – 10, 6 – 11	Open circuit
Windshield mist wiper switch	6 – 11	Less than 2 ohms
Windshield intermittent wiper switch	6 – 10	Less than 2 ohms
Windshield low- speed wiper switch	6 – 9	Less than 2 ohms
Windshield high- speed wiper switch	6 – 8	Less than 2 ohms
Windshield washer switch	6 – 7	Less than 2 ohms
Rear wiper switch	4 – 6	Less than 2 ohms
Rear washer switch	5 – 6	Less than 2 ohms

**Q: Are the windshield wiper and washer switch in good condition?**

**YES :** Go to Step 3.

**NO :** Replace the column switch. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.



**STEP 3. Check the switch body.**

Remove the turn-signal light and lighting switch and windshield wiper and washer switch. Then check continuity between the switch body terminals.

SWITCH BODY	TESTER CONNECTION	SPECIFIED CONDITION
Lighting switch side – Windshield wiper and washer switch side	4 – 4 5 – 5 6 – 6 7 – 7 8 – 8 9 – 9 10 – 10 11 – 11	Less than 2 ohms

**Q: Is the switch body in good condition?**

**YES :** Go to Step 4.

**NO :** Replace the column switch. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

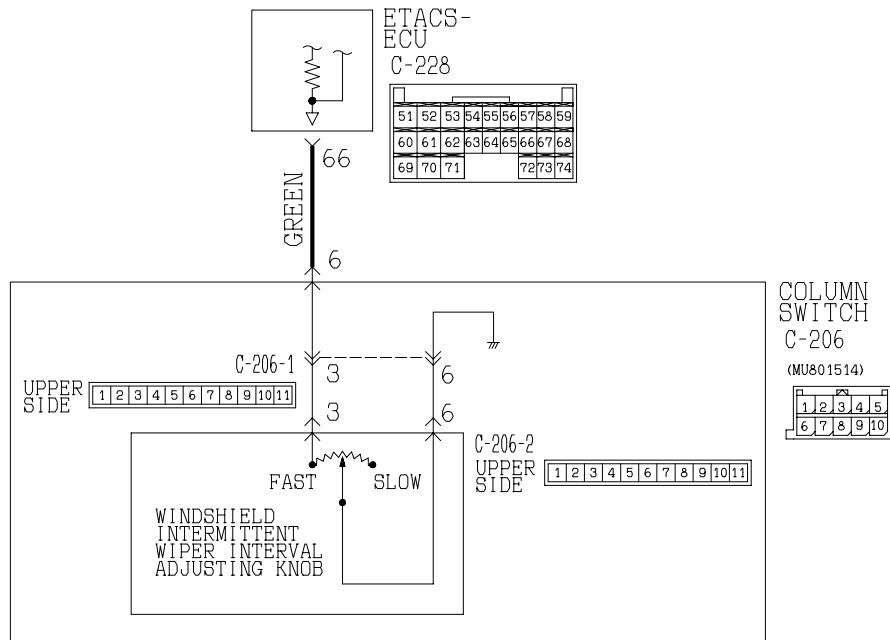
**STEP 4. Replace the ECU.**

- (1) Replace the column switch (turn-signal light and lighting switch).
- (2) If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

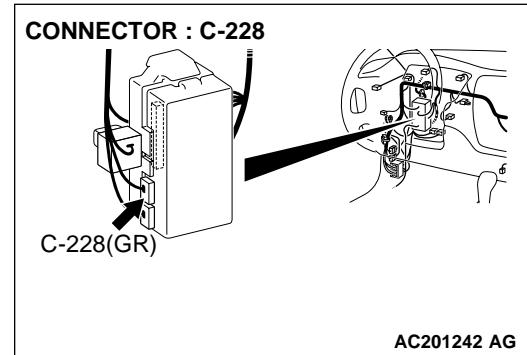
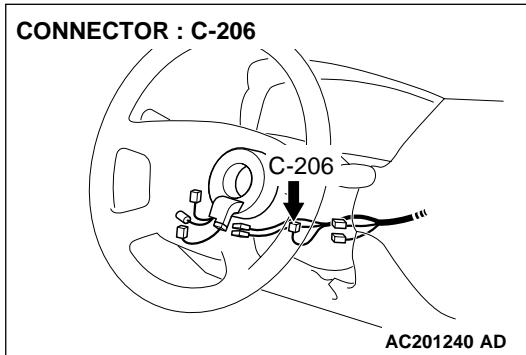
**Q: Does the column switch (windshield wiper and washer switch) send a normal signal to the ECU?**

**YES :** No action is necessary and testing is complete.

**NO :** Replace the ETACS-ECU. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

**INSPECTION PROCEDURE M-7: Column Switch: ETACS-ECU does not receive any signal from the windshield intermittent wiper interval adjusting knob.**
**Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit**


W2J08M17AA


**CIRCUIT OPERATION**

The ETACS-ECU calculates the windshield intermittent wiper interval according to the position of the windshield intermittent wiper interval adjusting knob, which is incorporated in column switch (windshield wiper and washer switch).

**TECHNICAL DESCRIPTION (COMMENT)**

If the windshield intermittent wiper interval can not be adjusted, the column switch or the ETACS-ECU may be defective.

**TROUBLESHOOTING HINTS**

- The column switch (windshield wiper and washer switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

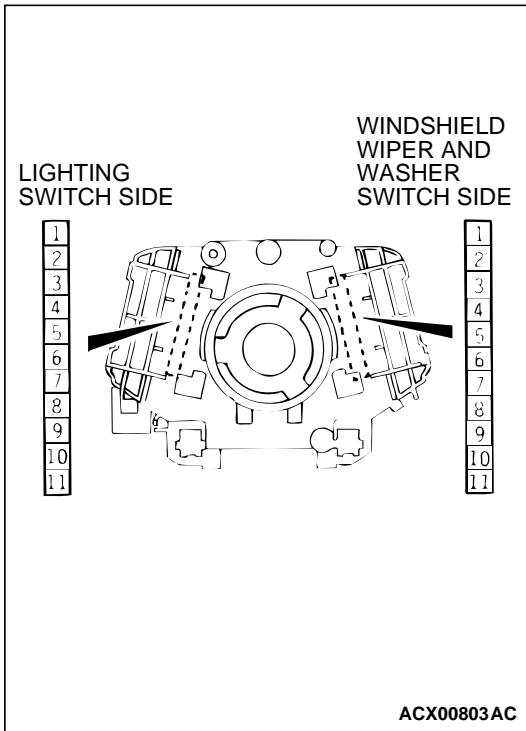
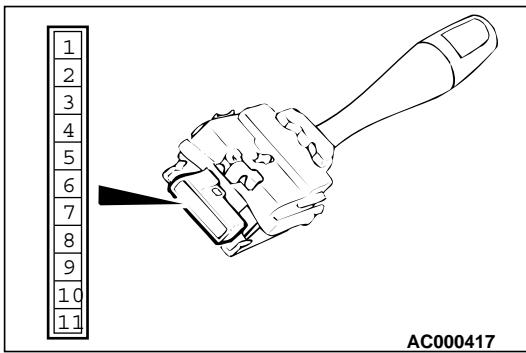
### STEP 1. Check the windshield intermittent wiper interval adjusting knob.

- (1) Remove the windshield wiper and washer switch, and check at the switch side.
- (2) Measure the resistance value between terminals 3 and 6. The measured resistance should change smoothly from approximately 0 ohm ("FAST" position) to 1 kilohm ("SLOW" position).

**Q: Is the windshield intermittent wiper interval adjusting knob in good condition?**

**YES :** Go to Step 2.

**NO :** Replace the column switch (windshield wiper and washer switch). If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.



### STEP 2. Check the column switch body.

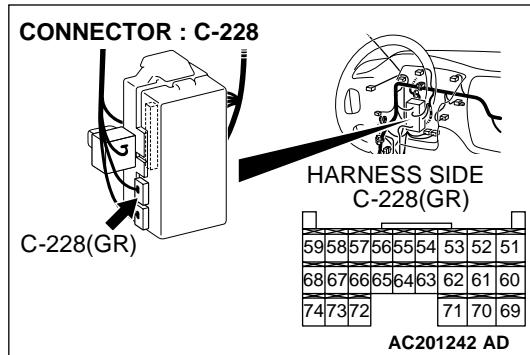
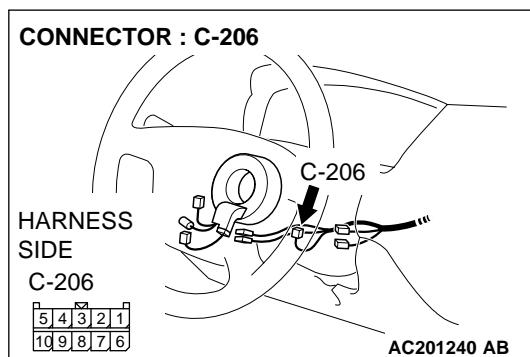
Remove the turn-signal light and lighting switch and windshield wiper and washer switch. Then check continuity between the switch body terminals.

SWITCH BODY	TESTER CONNECTION	SPECIFIED CONDITION
Lighting switch side – Windshield wiper and washer switch side	3 – 3 6 – 6	Less than 2 ohms

**Q: Is the column switch body in good condition?**

**YES :** Go to Step 3.

**NO :** Replace the column switch body. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.




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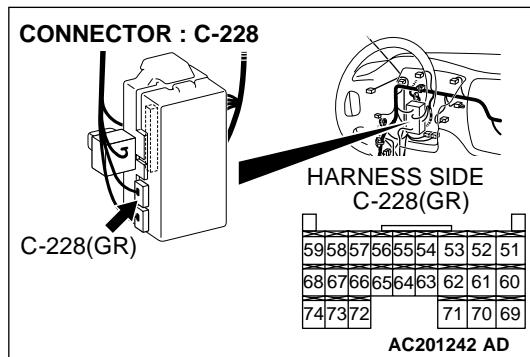
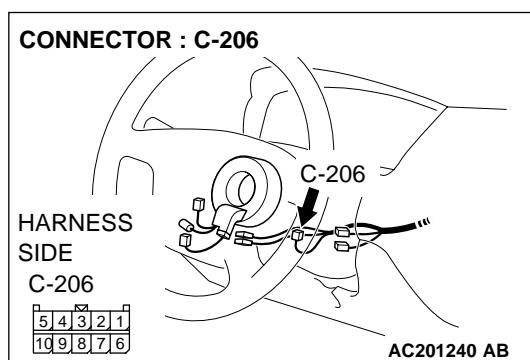
**STEP 3. Check column switch connector C-206 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are column switch connector C-206 and ETACS-ECU connector C-228 in good condition?**

**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.




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**STEP 4. Check the wiring harness between column switch connector C-206 (terminal 6) and ETACS-ECU connector C-228 (terminal 66).**

**Q: Is the wiring harness between column switch connector C-206 (terminal 6) and ETACS-ECU connector C-228 (terminal 66) in good condition?**

**YES :** Go to Step 5.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

**STEP 5. Replace the ECU.**

- (1) Replace the ETACS-ECU.
- (2) If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

**Q: Can input signal be confirmed when the windshield intermittent wiper interval adjusting knob is operated?**

**YES :** No action is necessary and testing is complete.

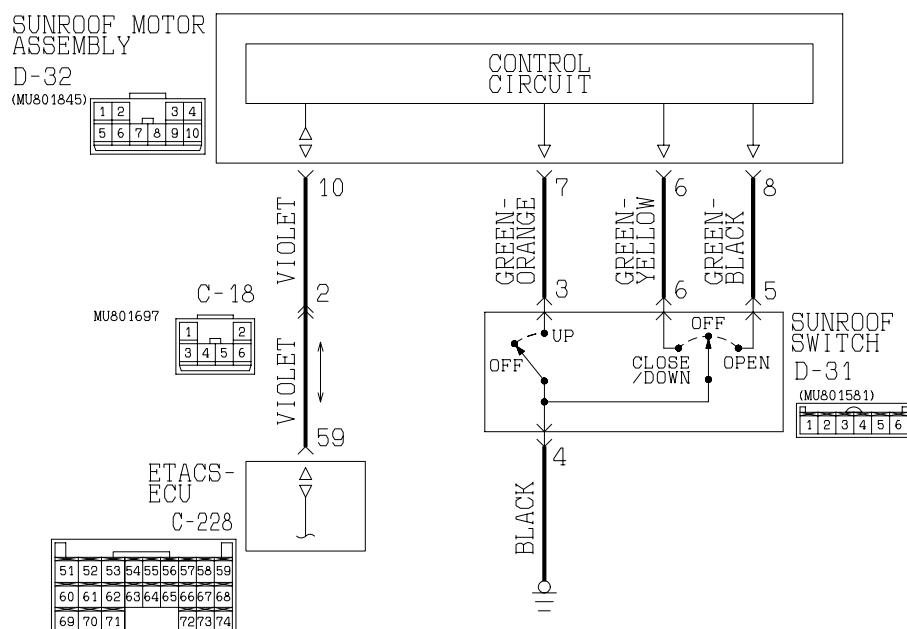
**NO :** Replace the column switch (windshield wiper and washer switch). If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

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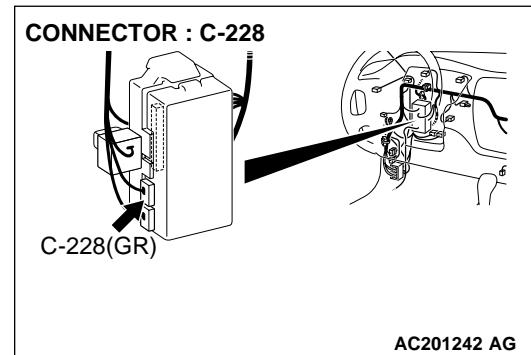
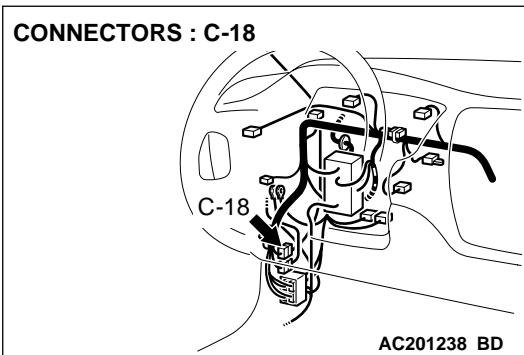
**INSPECTION PROCEDURE M-8: Sunroof Switch: The ETACS-ECU does not receive any signal from the up, open or close/down switch.**

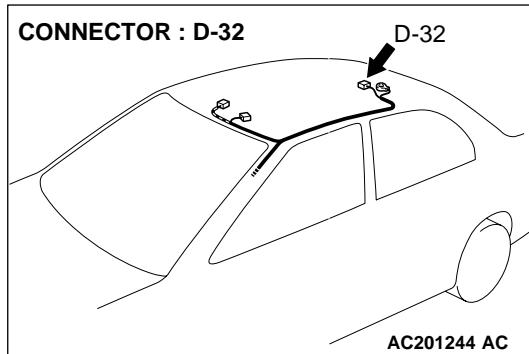
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**Sunroof Switch Input Circuit**



W3J05M03AA





### CIRCUIT OPERATION

The ETACS-ECU receives a signal through the sunroof motor assembly via the SWS communication line from the sunroof switch, and sends a signal to the data link connector.

### TECHNICAL DESCRIPTION (COMMENT)

If the SWS communication line between the sunroof motor assembly and the ETACS-ECU is defective, the ETACS-ECU cannot identify the input signal from the sunroof switch even if the sunroof is normal.

### TROUBLESHOOTING HINTS

- The sunroof switch may be defective
- The sunroof motor assembly may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

### DIAGNOSIS

#### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

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#### STEP 1. Verify the sunroof operation.

**Q: Does the sunroof work normally?**

**YES :** Go to Step 2.

**NO :** Refer to Inspection Procedure F-1 "Sunroof does not operate [P.54Bb-175](#)."

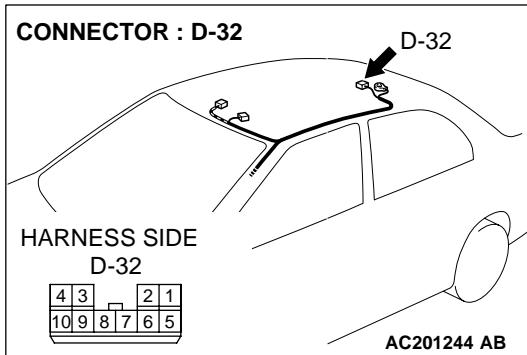
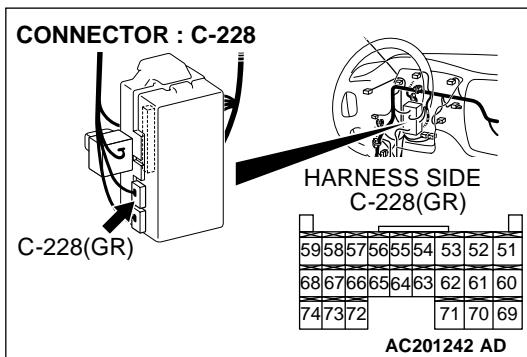
**STEP 2. Check sunroof motor assembly connector D-32 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

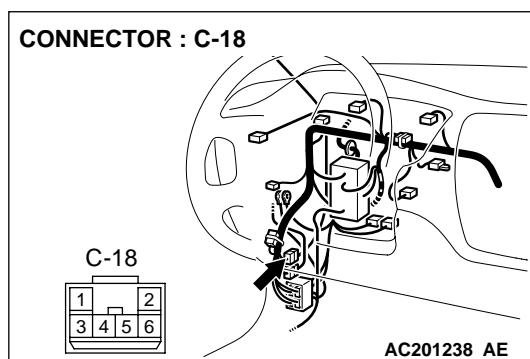
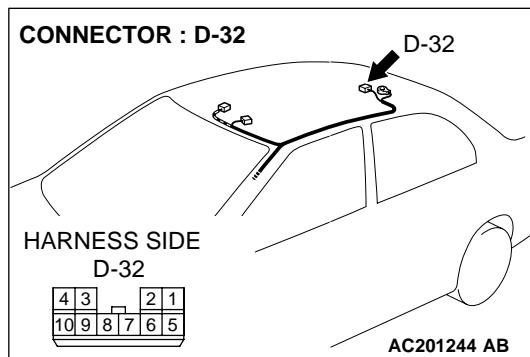
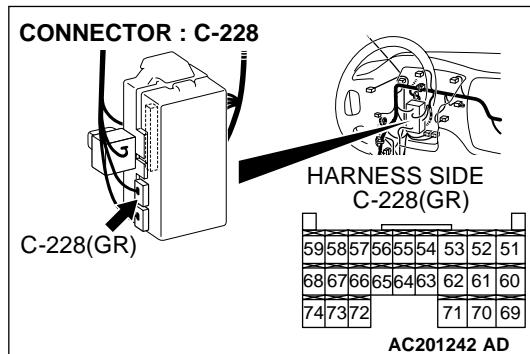
**Q: Are sunroof motor assembly connector D-32 and ETACS-ECU connector C-228 in good condition?**

**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.





**STEP 3. Check the wiring harness between sunroof motor assembly connector D-32 (terminal 10) and ETACS-ECU connector C-228 (terminal 59).**

**NOTE:** Also check intermediate connector C-18 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-18 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**Q: Is the wiring harness between sunroof motor assembly connector D-32 (terminal 10) and ETACS-ECU connector C-228 (terminal 59) in good condition?**

**YES :** Go to Step 4.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

**STEP 4. Replace the ECU.**

- (1) Replace the sunroof motor assembly.
- (2) If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

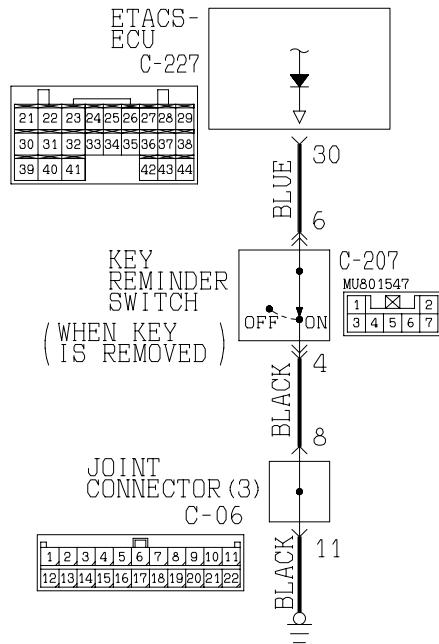
**Q: Does the ETACS-ECU receive correct signals from the sunroof switch?**

**YES :** No action is necessary and testing is complete.

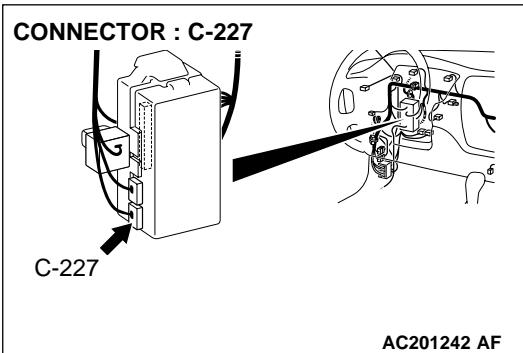
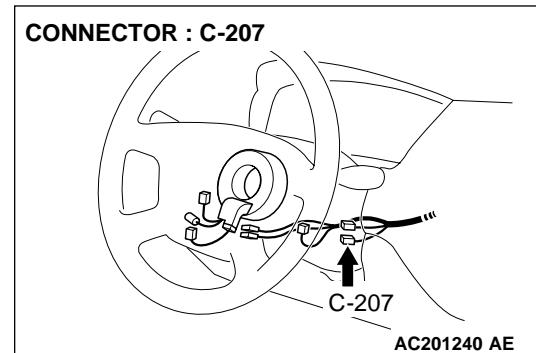
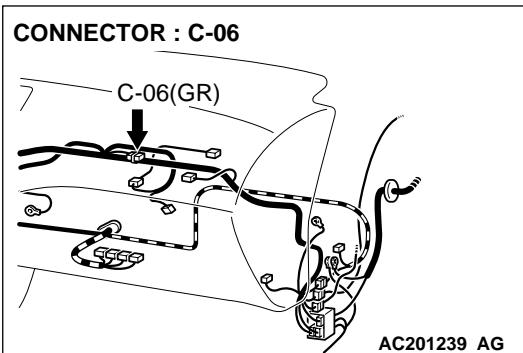
**NO :** Replace the ETACS-ECU. If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

**INSPECTION PROCEDURE N-1: ETACS-ECU does not receive any signal from the key reminder switch.**

Key Reminder Switch Input Circuit



W2J08M18AA



**CIRCUIT OPERATION**

The ETACS-ECU operates the following functions or systems according to signal from the key reminder switch:

- Ignition key reminder tone alarm function
- Keyless entry system
- Dome light dimming function

**TECHNICAL DESCRIPTION (COMMENT)**

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally.

**TROUBLESHOOTING HINTS**

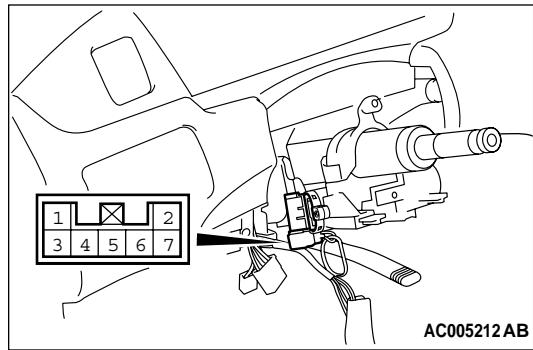
- The key reminder switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

**STEP 1. Check the key reminder switch.**

Disconnect key reminder switch connector C-207. Then check continuity between terminals.

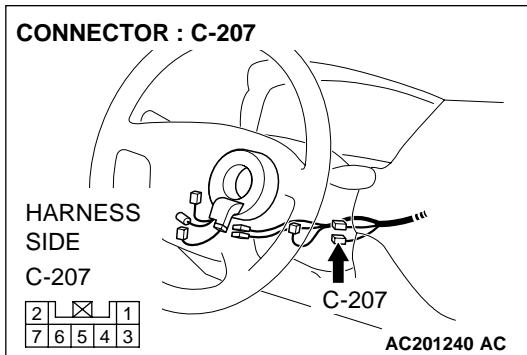
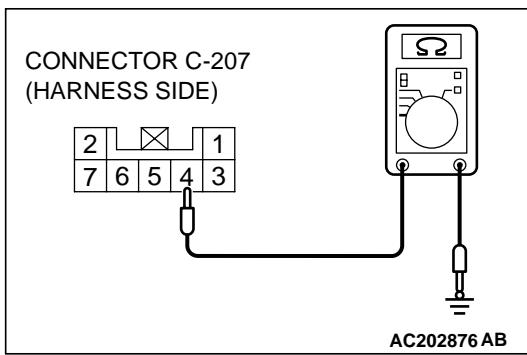
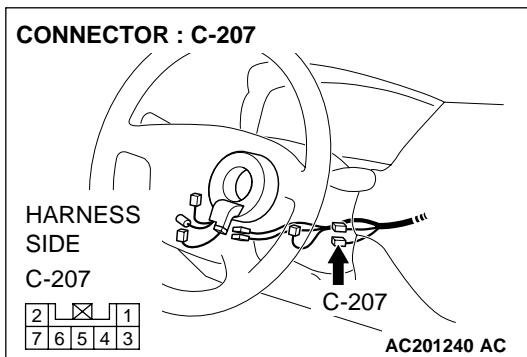


IGNITION KEY	TESTER CONNECTION	SPECIFIED CONDITION
Removed	4 – 6	Less than 2 ohms
Inserted	4 – 6	Open circuit

**Q: Is the key reminder switch in good condition?**

**YES :** Go to Step 2.

**NO :** Replace the key reminder switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.



**STEP 2. Check the ground circuit to the key reminder switch. Test at key reminder switch connector C-207.**

(1) Disconnect key reminder switch connector C-207 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 5.

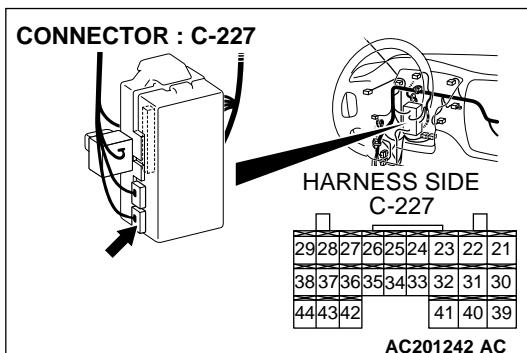
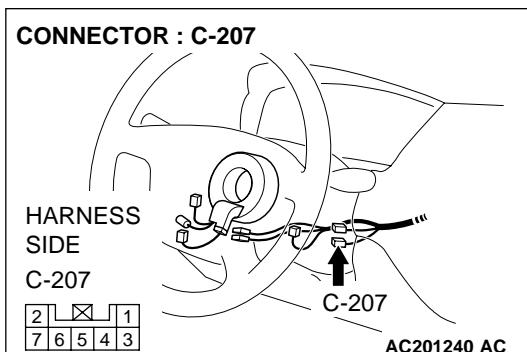
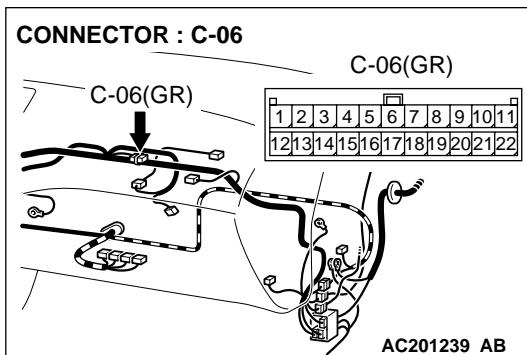
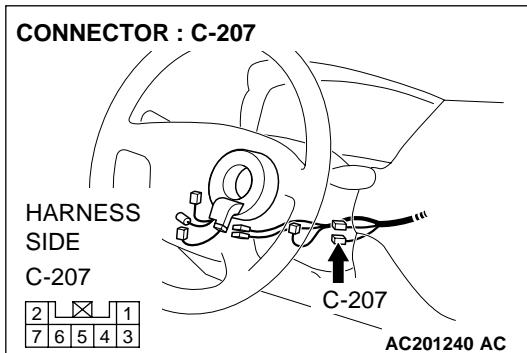
**NO :** Go to Step 3.

**STEP 3. Check key reminder switch connector C-207 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is key reminder switch connector C-207 in good condition?**

**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.



#### STEP 4. Check the wiring harness between key reminder switch connector C-207 (terminal 4) and ground.

*NOTE: Also check joint connector C-06 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-06 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).*

**Q: Is the wiring harness between key reminder switch connector C-207 (terminal 4) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

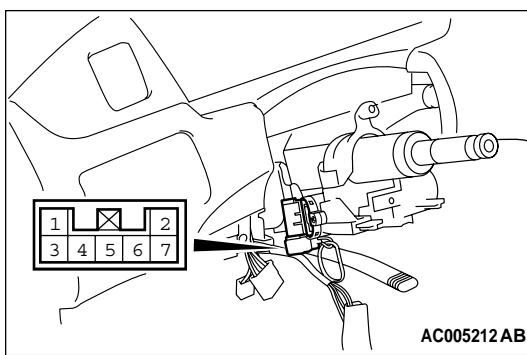
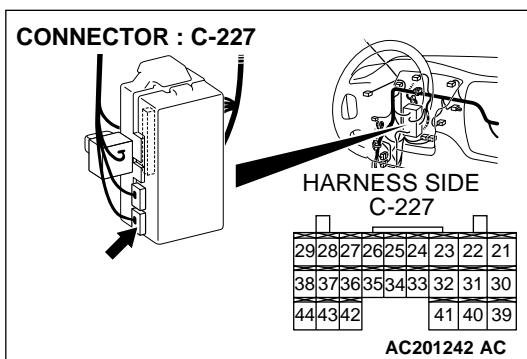
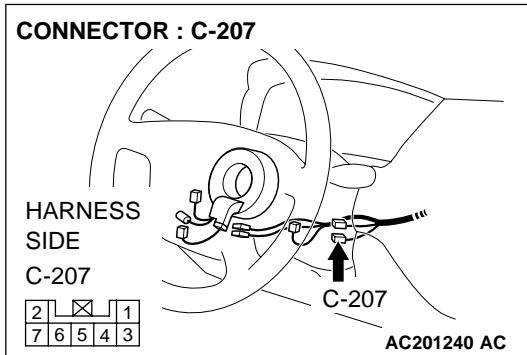
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

#### STEP 5. Check key reminder switch connector C-207 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**Q: Are key reminder switch connector C-207 and ETACS-ECU connector C-227 in good condition?**

**YES :** Go to Step 6.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.



**STEP 6. Check the wiring harness between key reminder switch connector C-207 (terminal 6) and ETACS-ECU connector C-227 (terminal 30).**

**Q: Is the wiring harness between key reminder switch connector C-207 (terminal 6) and ETACS-ECU connector C-227 (terminal 30) in good condition?**

**YES :** Go to Step 7.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

**STEP 7. Check for continuity between key reminder switch connector C-207 terminal 4 and each of the other terminals as well as terminal 6 and each of the other terminals.**

- (1) Disconnect key reminder switch connector C-207 and measure the resistance available at the equipment side of the connector.
- (2) Check for continuity between key reminder switch connector C-207 terminal 4 and each of the other terminals as well as terminal 6 and each of the other terminals.

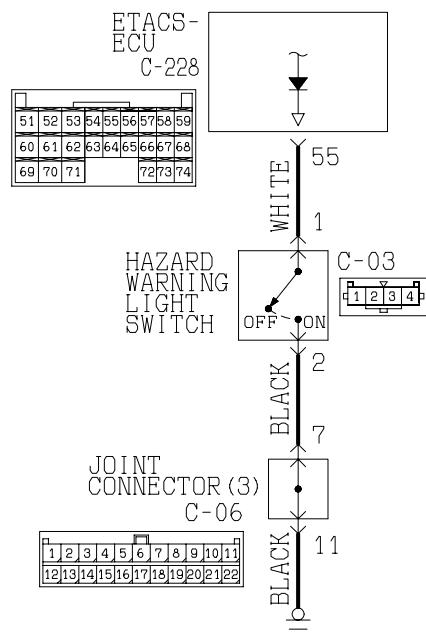
**Q: Does the continuity exist between the terminals?**

**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

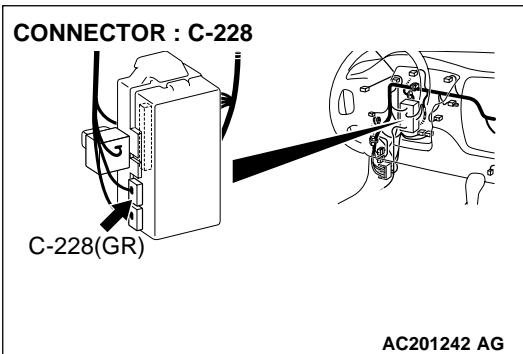
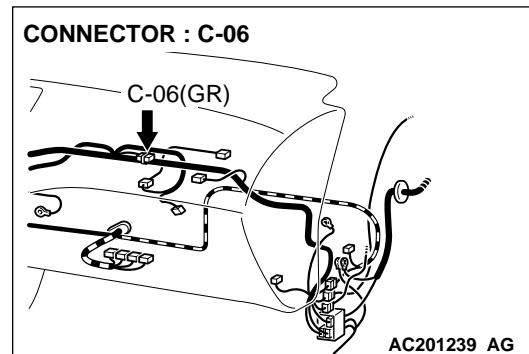
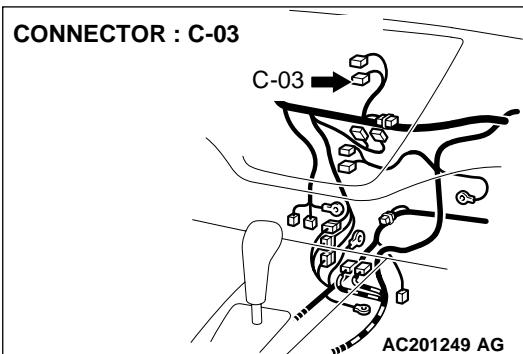
**NO :** Replace the key reminder switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

**INSPECTION PROCEDURE N-2: The ETACS-ECU does not receive any signal from the hazard warning light switch.**

**Hazard Warning Light Switch Input Circuit**



W3J01M28AA



## CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the hazard warning light switch:

- Hazard warning light
- Keyless entry system (registering the encrypted code)

## TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment or systems, which are described in "CIRCUIT OPERATION", do not work normally.

## TROUBLESHOOTING HINTS

- The hazard warning light switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

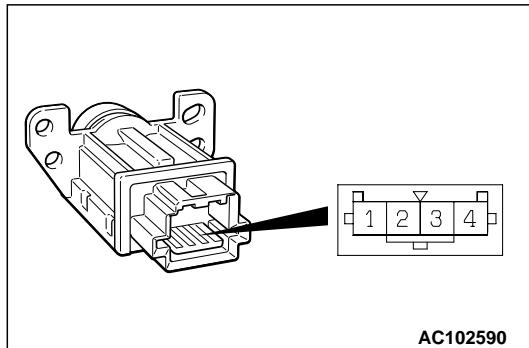
## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

### STEP 1. Check the hazard warning light switch.

Remove the hazard warning light switch. Then check continuity between the switch terminals.

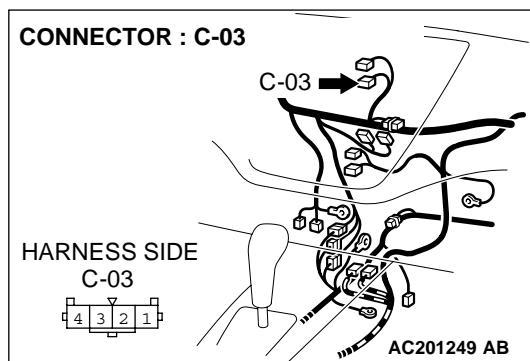
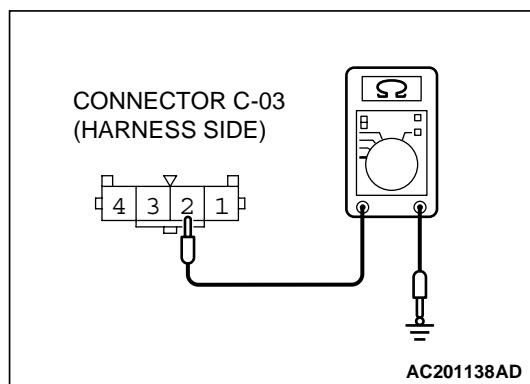
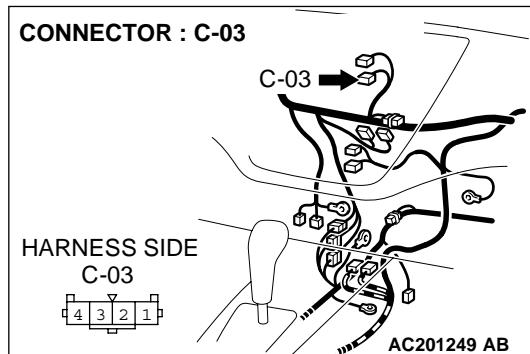


SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Open circuit
Pressed	1 – 2	Less than 2 ohms

### Q: Is the hazard warning light switch in good condition?

**YES :** Go to Step 2.

**NO :** Replace the hazard warning light switch. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.




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**STEP 2. Check the ground circuit to the hazard warning light switch. Test at hazard warning light switch connector C-03.**

(1) Disconnect hazard warning light switch connector C-03 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 5.

**NO :** Go to Step 3.

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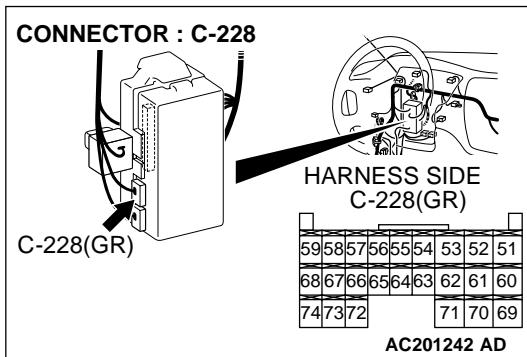
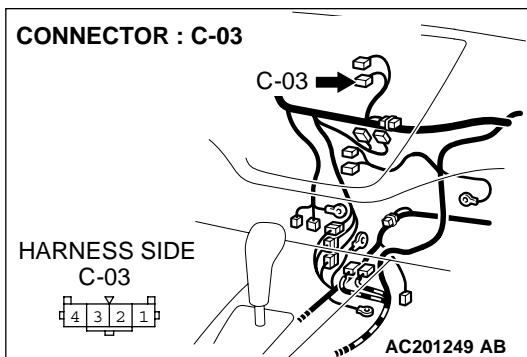
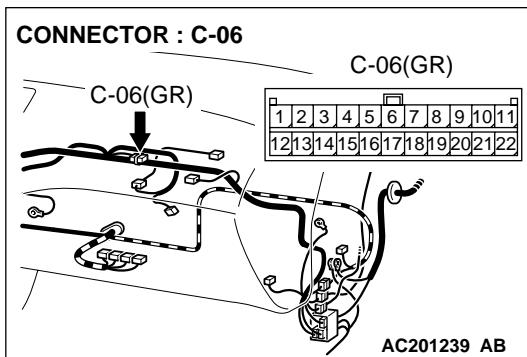
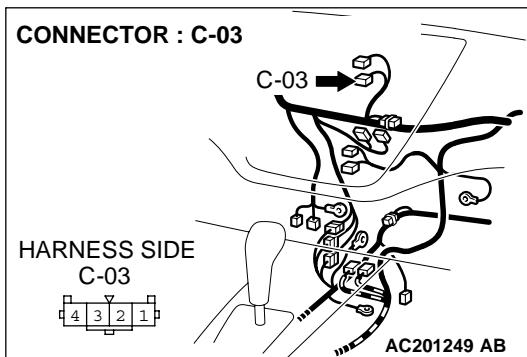
**STEP 3. Check hazard warning light switch connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is hazard warning light switch connector C-03 in good condition?**

**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.



**STEP 4. Check the wiring harness between hazard warning light switch connector C-03 (terminal 2) and ground.**

**NOTE:** Also check joint connector C-06 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-06 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**Q: Is the wiring harness between hazard warning light switch connector C-03 (terminal 2) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

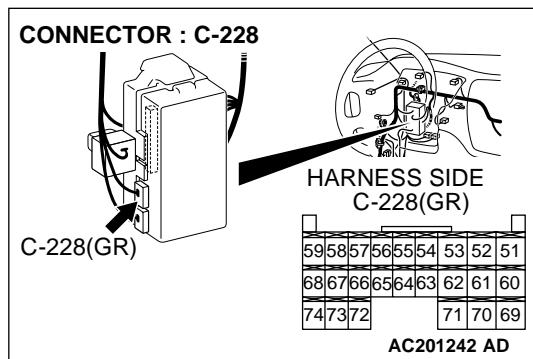
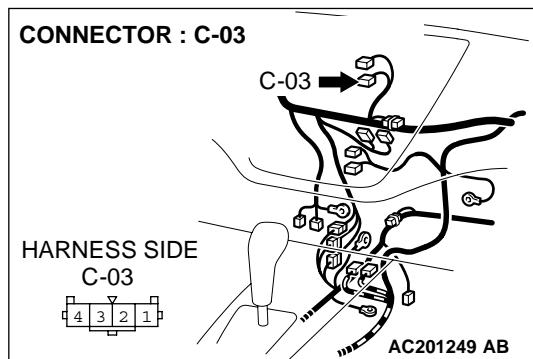
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

**STEP 5. Check hazard warning light switch connector C-03 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are hazard warning light switch connector C-03 and ETACS-ECU connector C-228 in good condition?**

**YES :** Go to Step 6.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.



**STEP 6. Check the wiring harness between hazard warning light switch connector C-03 (terminal 1) and ETACS-ECU connector C-228 (terminal 55).**

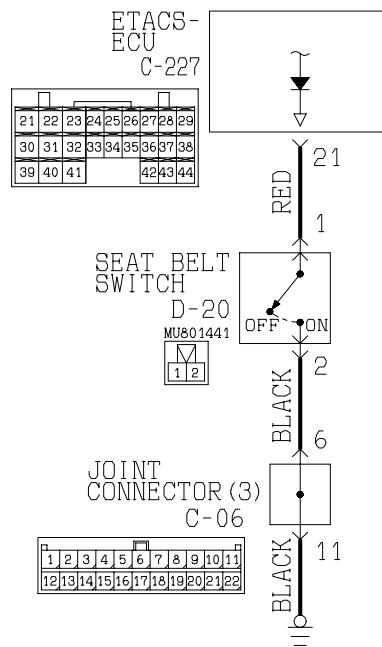
**Q: Is the wiring harness between hazard warning light switch connector C-03 (terminal 1) and ETACS-ECU connector C-228 (terminal 55) in good condition?**

**YES :** Replace the ETACS-ECU. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

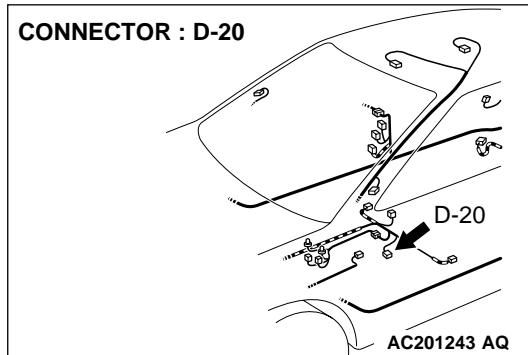
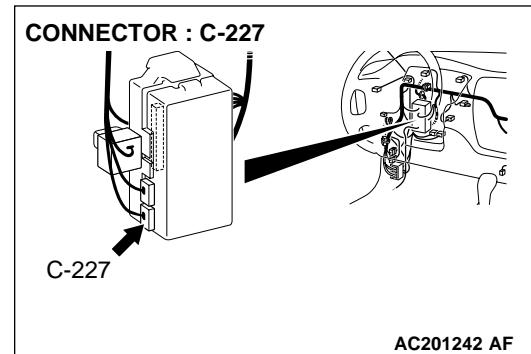
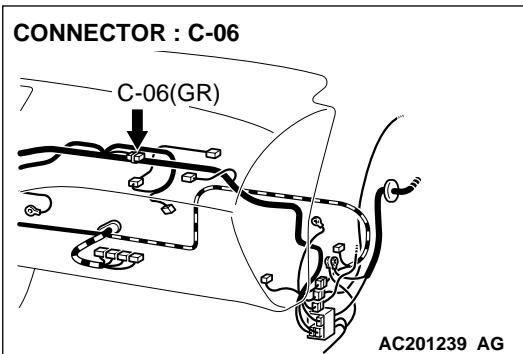
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

**INSPECTION PROCEDURE N-3: The ETACS-ECU does not receive any signal from the driver's seat belt switch.**

**Seat Belt Switch Input Circuit**



W2J08M20AA



**CIRCUIT OPERATION**

The ETACS-ECU operates the following functions and equipment according to signal from the driver's seat belt switch:

- Seat belt tone alarm function
- Seat belt warning light

**TECHNICAL DESCRIPTION (COMMENT)**

If the signal is not normal, the equipment and functions, which are described in "CIRCUIT OPERATION", do not work normally.

**TROUBLESHOOTING HINTS**

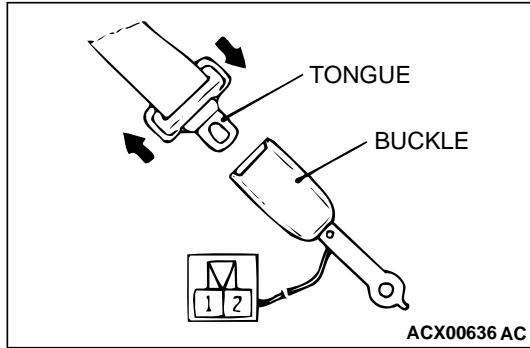
- The driver's inner seat belt (driver's seat belt switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

**STEP 1. Check the driver's seat belt switch.**

Disconnect driver's seat belt switch connector D-20. Then check continuity between the switch terminals.

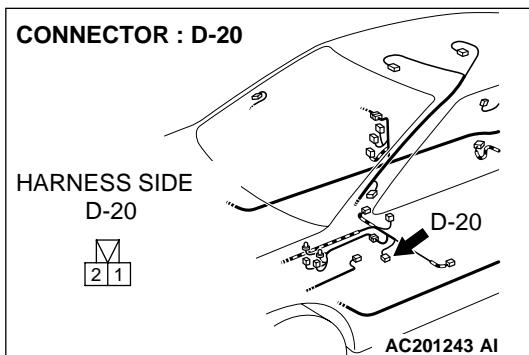
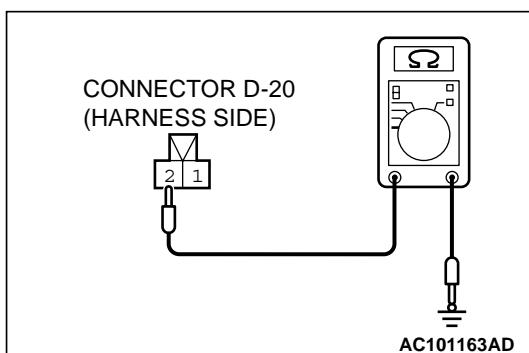
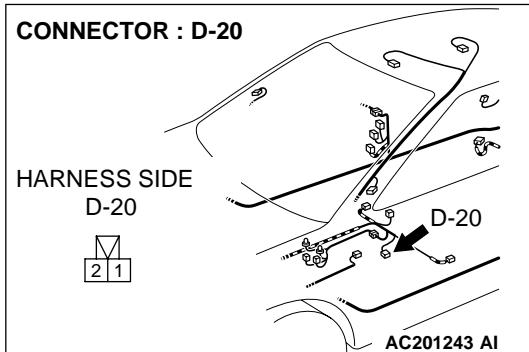


ITEM	TESTER CONNECTION	SPECIFIED CONDITION
Fastened seat belt	1 – 2	Open circuit
Unfastened seat belt	1 – 2	Less than 2 ohms

**Q: Is the driver's seat belt switch in good condition?**

**YES :** Go to Step 2.

**NO :** Replace the driver's seat belt. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.



**STEP 2. Check the battery ground circuit to the driver's seat belt switch. Test at driver's seat belt switch connector D-20.**

(1) Disconnect driver's seat belt switch connector D-20 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 5.

**NO :** Go to Step 3.

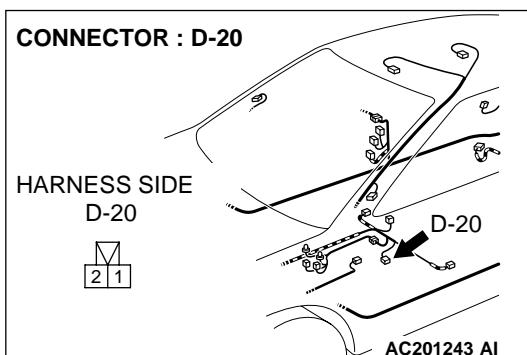
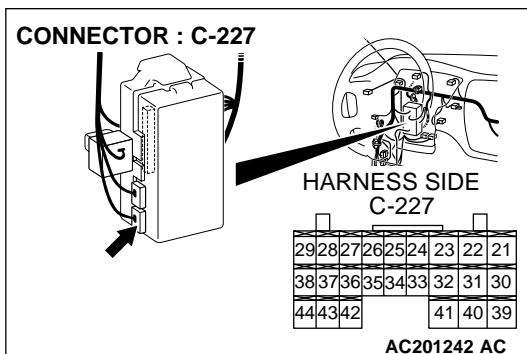
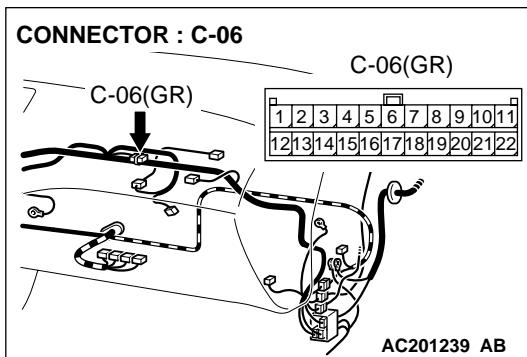
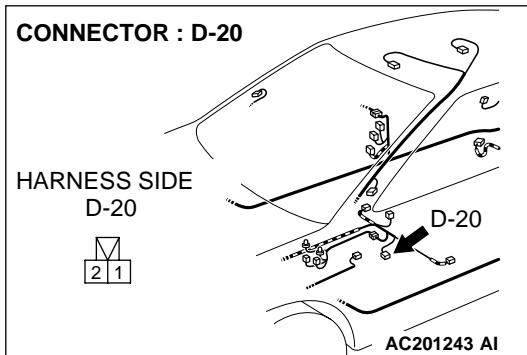
**STEP 3. Check driver's seat belt switch connector D-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is the driver's seat belt switch connector D-20 in good condition?**

**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.



#### STEP 4. Check the wiring harness between driver's seat belt switch connector D-20 (terminal 2) and ground.

*NOTE: Also check joint connector C-06 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-06 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between driver's seat belt switch connector D-20 (terminal 2) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

#### STEP 5. Check driver's seat belt switch connector D-20 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**Q: Are driver's seat belt switch connector D-20 and ETACS-ECU connector C-227 in good condition?**

**YES :** Go to Step 6.

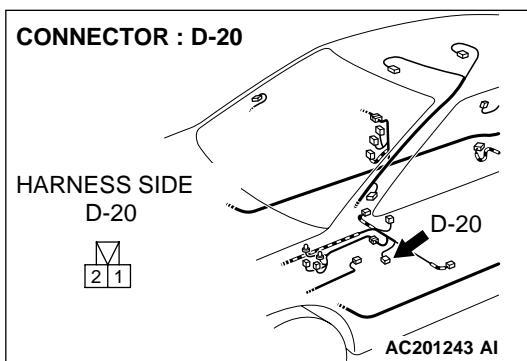
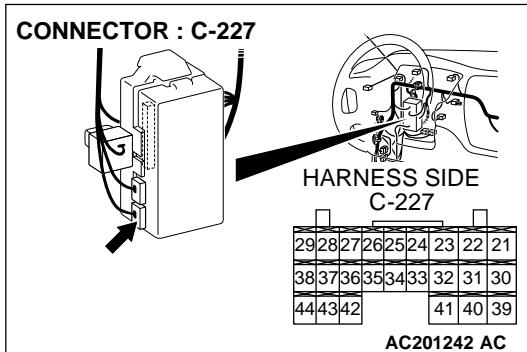
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

**STEP 6. Check the wiring harness between driver's seat belt switch connector D-20 (terminal 1) and ETACS-ECU connector C-227 (terminal 21).**

**Q: Is the wiring harness between driver's seat belt switch connector D-20 (terminal 1) and ETACS-ECU connector C-227 (terminal 21) in good condition?**

**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

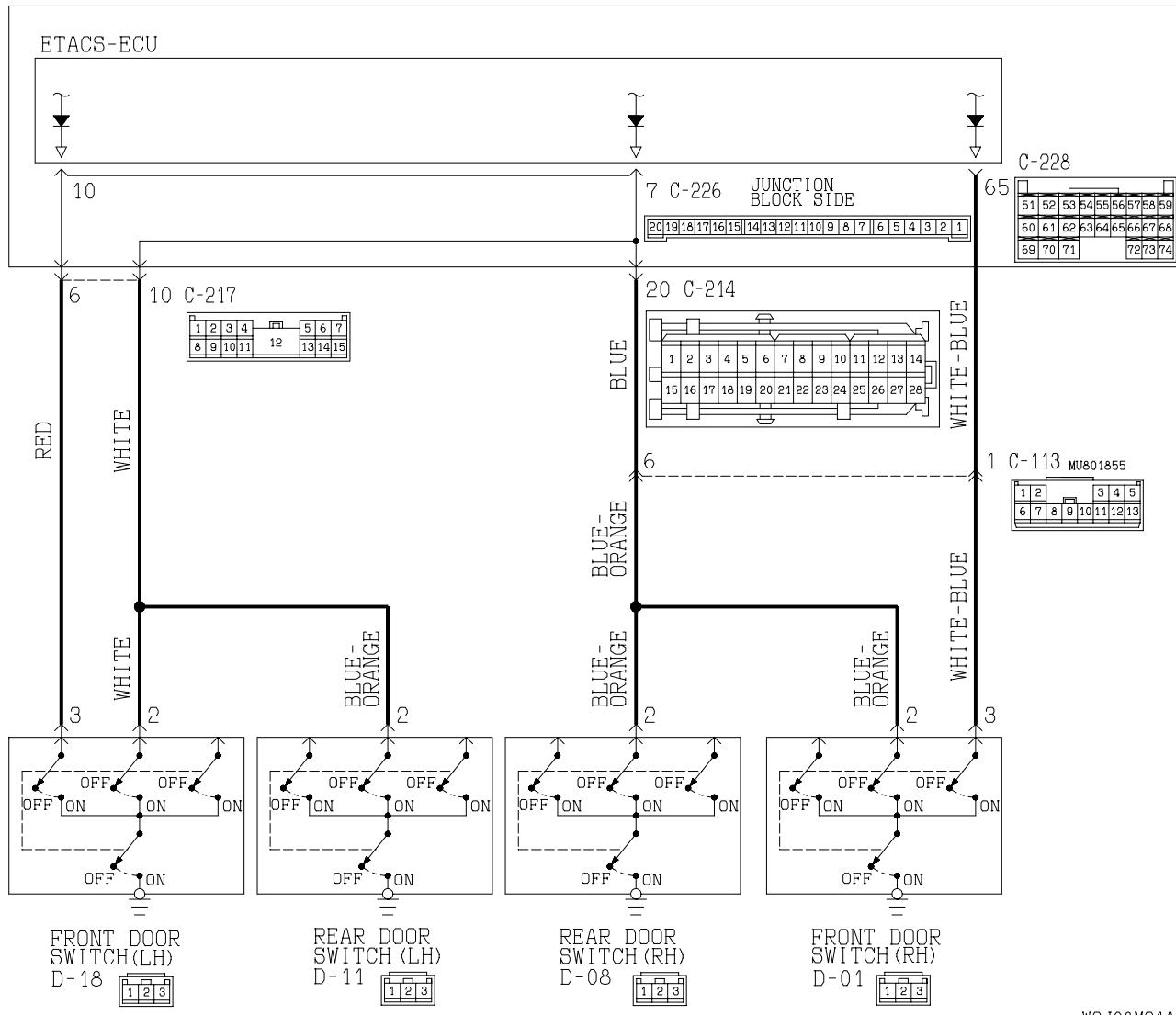
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.



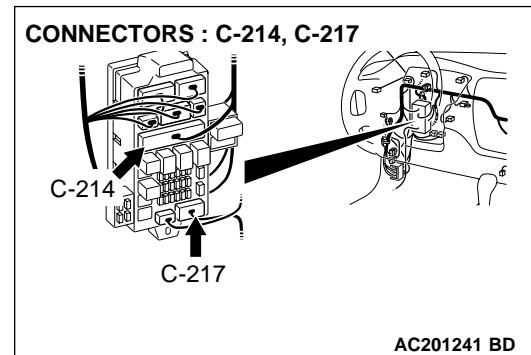
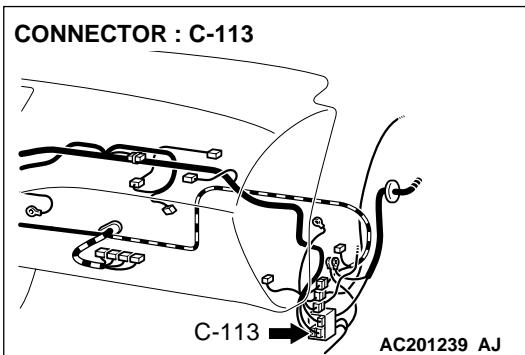
**INSPECTION PROCEDURE N-4: The ETACS-ECU does not receive any signal from all the door switches.**

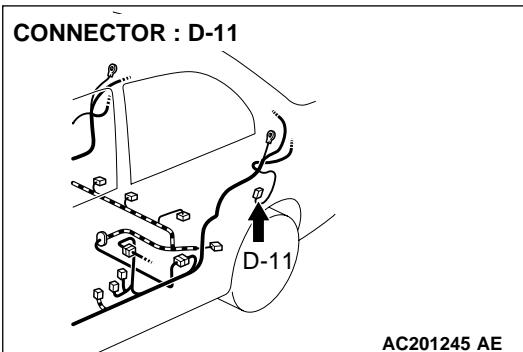
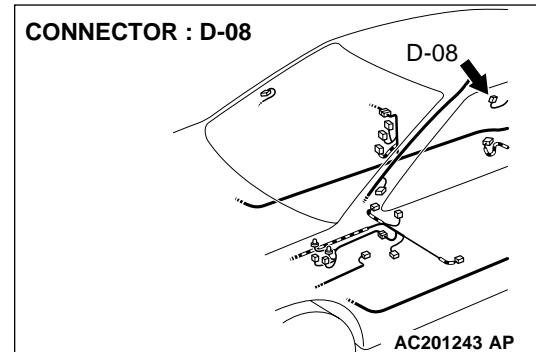
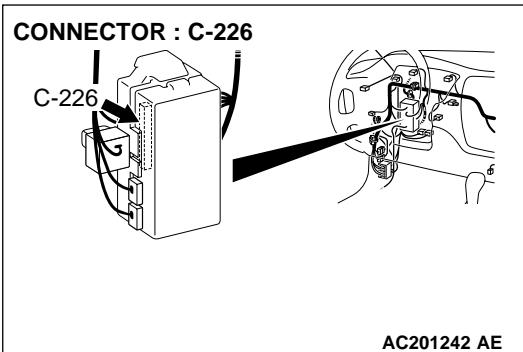
**All Door Switches Input Circuit**

JUNCTION BLOCK



W2J08M21AB





## CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the driver's or front passenger's, rear or back door switches:

- Light reminder tone alarm function <Driver's door switch>
- Power window timer function <Driver's, front passenger's door switch>
- Headlight automatic shutdown function <Driver's door switch>
- Keyless entry system <All door switches>
- Dome light <All door switches>

## TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally. If the signal is not normal, the driver's, front passenger's, rear or back door switch or the ETACS-ECU may be defective.

## TROUBLESHOOTING HINTS

- The driver's, front passenger's, rear or back door switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

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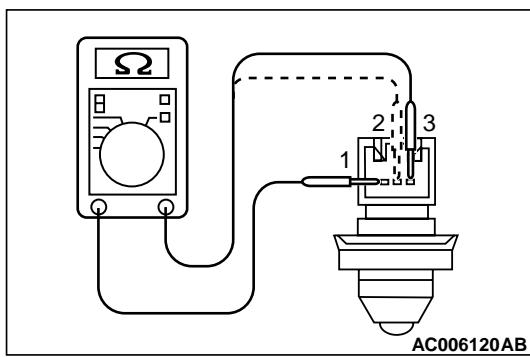
### STEP 1. Check which door switch is defective.

#### Q: Which door switch signal is not entered?

**Driver's or front passenger's door :** Refer to Inspection Procedure M-4 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch [P.54Bc-24](#)."

**Rear door (LH) :** Go to Step 2.

**Rear door (RH) :** Go to Step 6.

**STEP 2. Check the rear door switch (LH).**

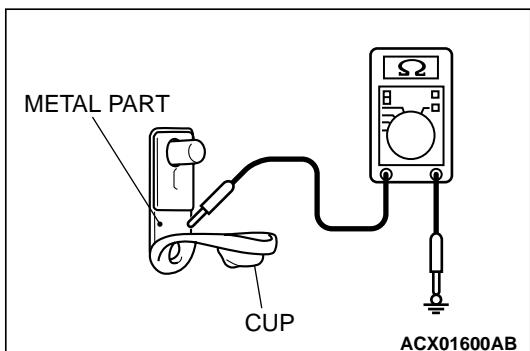
Remove the rear door switch (LH). Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2, 1 – 3, 2 – 3	Less than 2 ohms
Pressed	1 – 2, 1 – 3, 2 – 3	Open circuit

**Q: Is the rear door switch (LH) in good condition?**

**YES :** Go to Step 3.

**NO :** Replace the rear door switch (LH). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

**STEP 3. Measure at the lower metal part of the rear door switch (LH) in order to check the ground circuit to the rear door switch (LH).**

*NOTE: Check that the rear door switch (LH) is grounded to the vehicle body by means of its mounting screw.*

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 4.

**NO :** Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

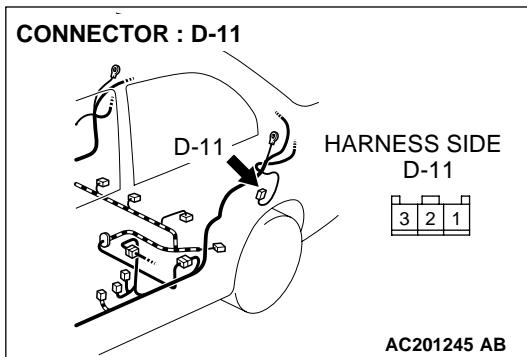
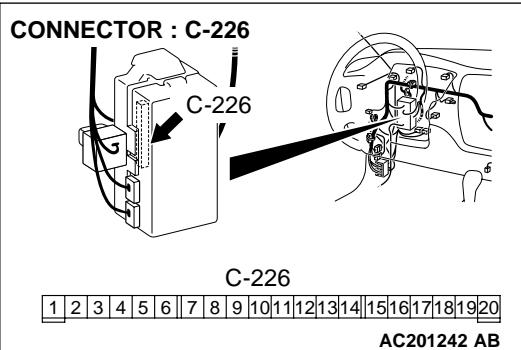
**STEP 4. Check rear door switch (LH) connector D-11 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

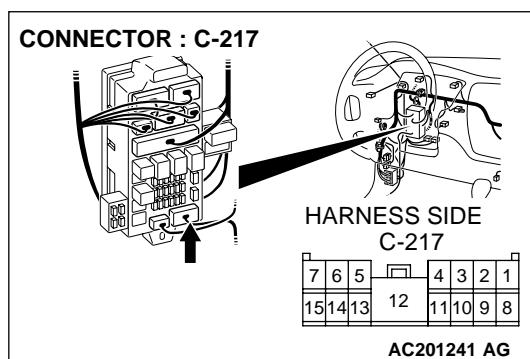
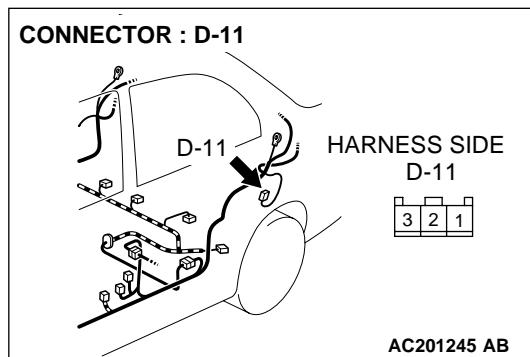
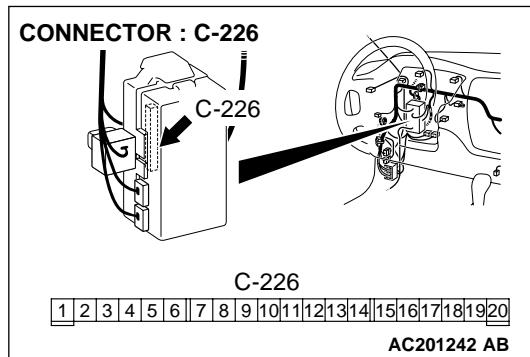
**Q: Are rear door switch (LH) connector D-11 and ETACS-ECU connector C-226 in good condition?**

**YES :** Go to Step 5.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.





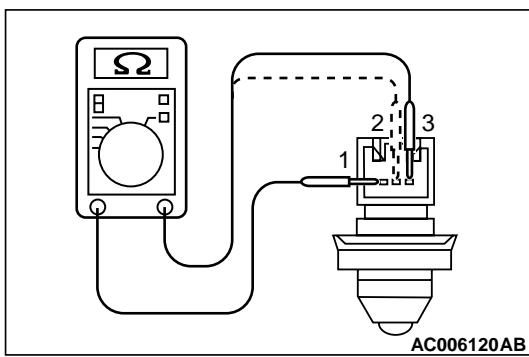
**STEP 5. Check the wiring harness between rear door switch (LH) connector D-11 (terminal 2) and ETACS-ECU connector C-226 (terminal 7).**

*NOTE: Also check junction block connector C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-217 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between rear door switch (LH) connector D-11 (terminal 2) and ETACS-ECU connector C-226 (terminal 7) in good condition?**

**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.



**STEP 6. Check the rear door switch (RH).**

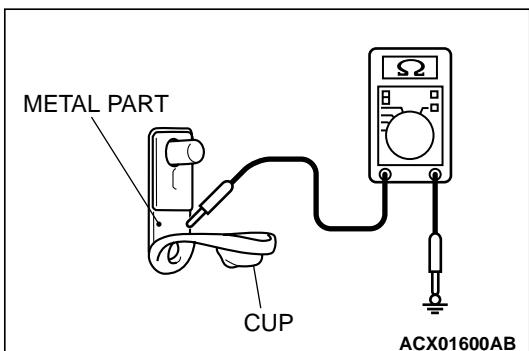
Remove the rear door switch (RH). Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2, 1 – 3, 2 – 3	Less than 2 ohms
Pressed	1 – 2, 1 – 3, 2 – 3	Open circuit

**Q: Is the rear door switch (RH) in good condition?**

**YES :** Go to Step 7.

**NO :** Replace the rear door switch (RH). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.



**STEP 7. Measure at the lower metal part of the rear door switch (RH) in order to check the ground circuit to the rear door switch (RH).**

*NOTE: Check that the rear door switch (RH) is grounded to the vehicle body by means of its mounting screw.*

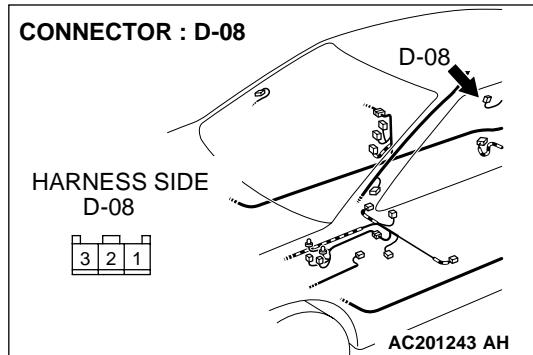
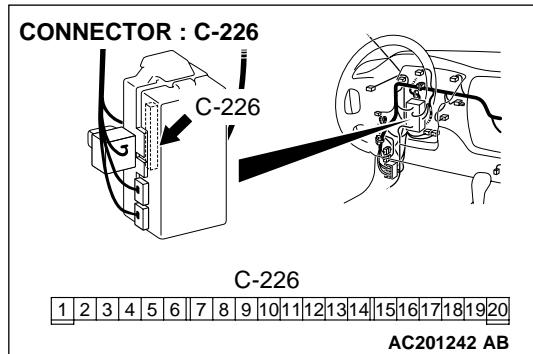
Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 8.

**NO :** Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.



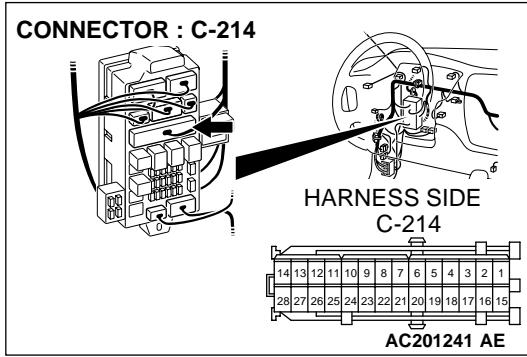
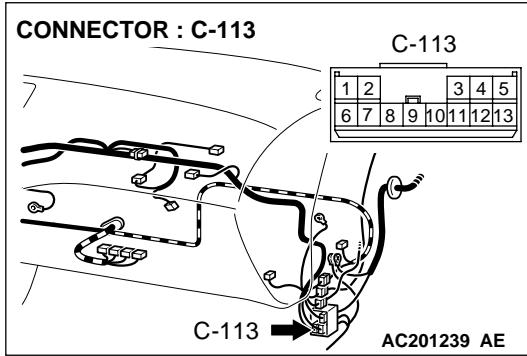
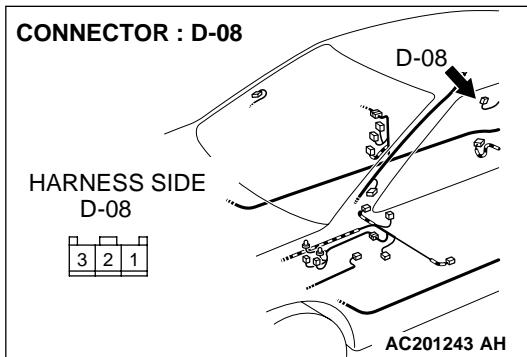
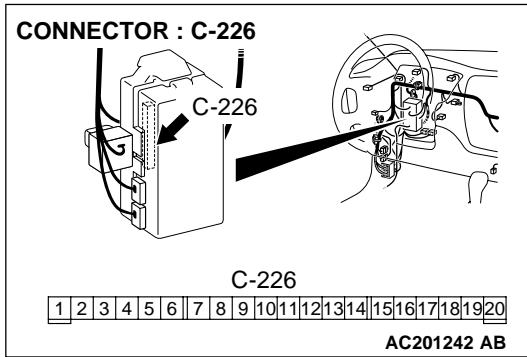
**STEP 8. Check rear door switch (RH) connector D-08 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are rear door switch (RH) connector D-08 and ETACS-ECU connector C-226 in good condition?**

**YES :** Go to Step 9

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.



**STEP 9. Check the wiring harness between rear door switch (RH) connector D-08 (terminal 2) and ETACS-ECU connector C-226 (terminal 7).**

*NOTE: Also check intermediate connector C-113 and junction block connector C-214 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-113 or junction block connector C-214 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

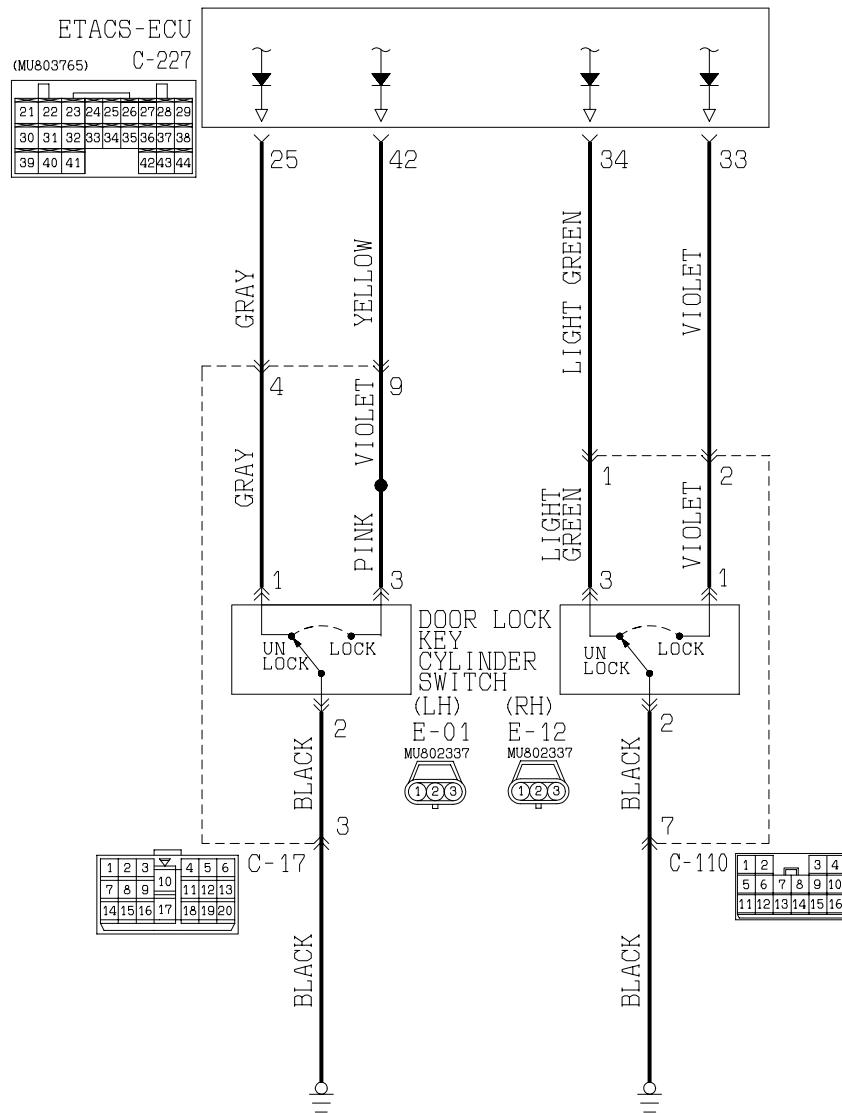
**Q: Is the wiring harness between rear door switch (RH) connector D-08 (terminal 2) and ETACS-ECU connector C-226 (terminal 7) in good condition?**

**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

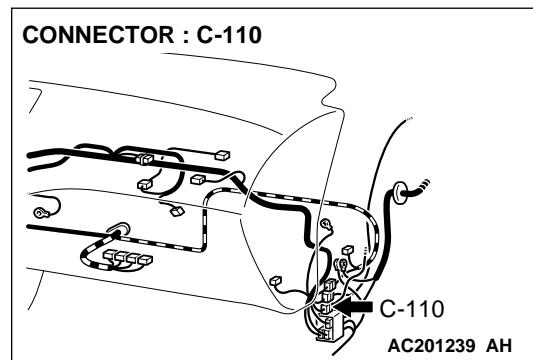
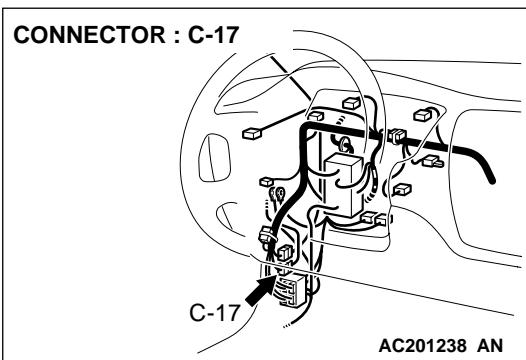
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

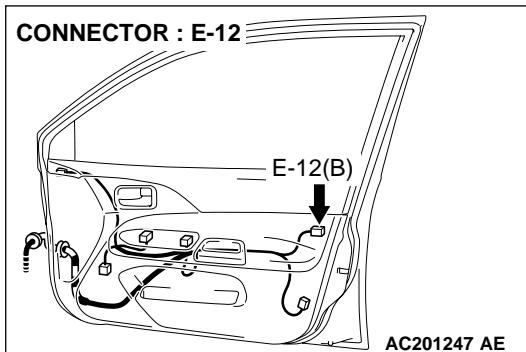
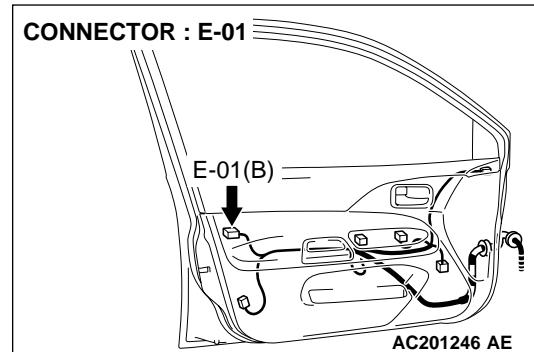
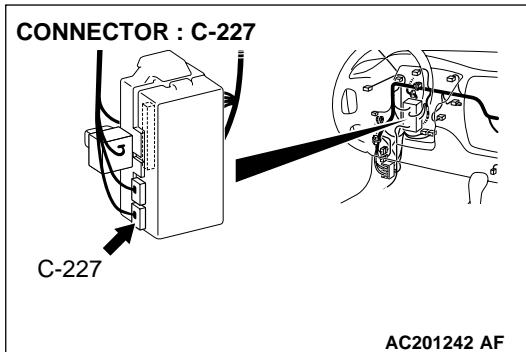
**INSPECTION PROCEDURE N-5: The ETACS-ECU does not receive any signal from the driver's door lock key cylinder switch.**

**Door Lock Key Cylinder Switch Input Circuit**



W3J05M02AA





### CIRCUIT OPERATION

The ETACS-ECU operates the central door locking system according to signal from the driver's door lock key cylinder switch.

### TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the systems, which are described in "CIRCUIT OPERATION", do not work normally.

### TROUBLESHOOTING HINTS

- The driver's door lock key cylinder switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

### DIAGNOSIS

#### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

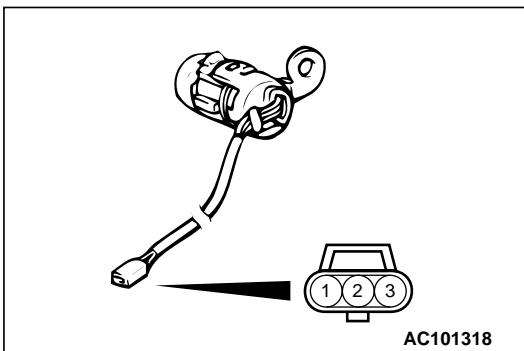
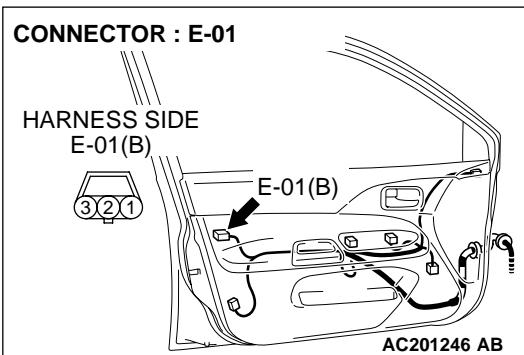
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#### STEP 1. Check which door lock key cylinder switch is defective.

**Q: Which door lock key cylinder switch does not send a signal to the ECU?**

**Driver's door :** Go to Step 2.

**Front passenger's door :** Go to Step 8.



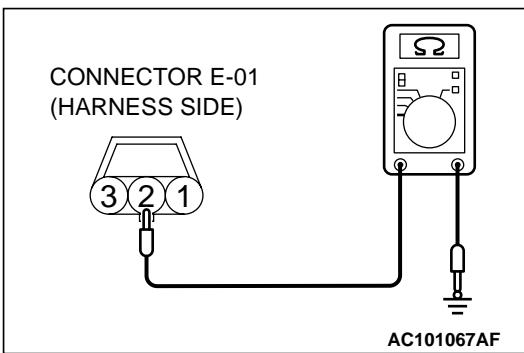
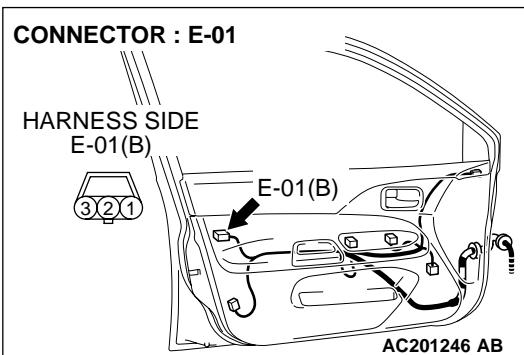
**STEP 2. Check the driver's door lock key cylinder switch.**  
Disconnect door lock key cylinder switch (LH) connector E-01. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	2 – 3	Less than 2 ohms
UNLOCK	1 – 2	Less than 2 ohms

**Q: Is the driver's door lock key cylinder switch in good condition?**

**YES :** Go to Step 3.

**NO :** Replace the driver's door lock key cylinder switch. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



**STEP 3. Check the ground circuit to the driver's door lock key cylinder switch. Test at driver's door lock key cylinder switch connector E-01.**

(1) Disconnect driver's door lock key cylinder switch connector E-01 and measure the resistance available at the wiring harness side of the connector.

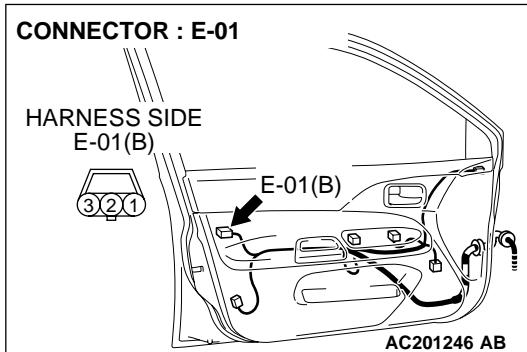
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 6.

**NO :** Go to Step 4.

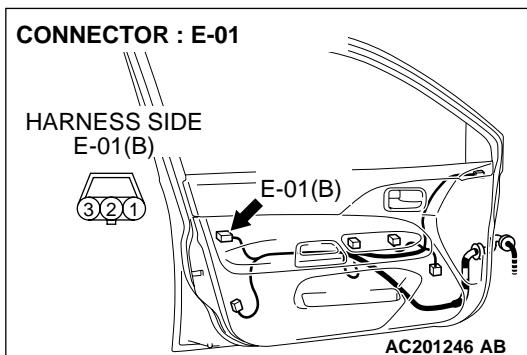


**STEP 4. Check driver's door lock key cylinder switch connector E-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is driver's door lock key cylinder switch connector E-01 in good condition?**

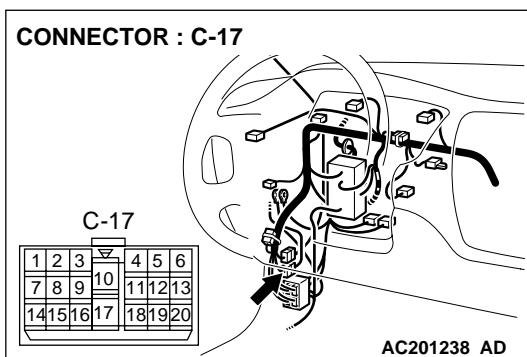
**YES :** Go to Step 5.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



**STEP 5. Check the wiring harness between driver's door lock key cylinder switch connector E-01 (terminal 2) and ground.**

**NOTE:** Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



**Q: Is the wiring harness between driver's door lock key cylinder switch connector E-01 (terminal 2) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

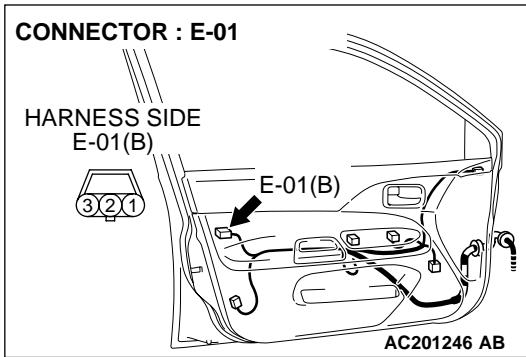
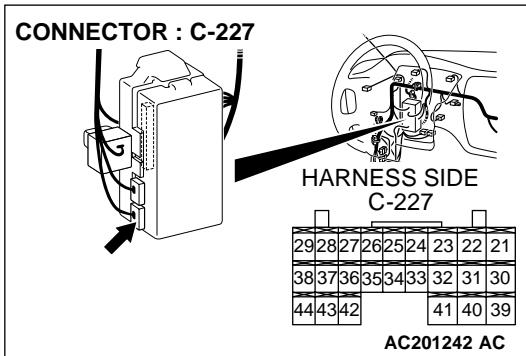
**STEP 6. Check driver's door lock key cylinder switch connector E-01 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

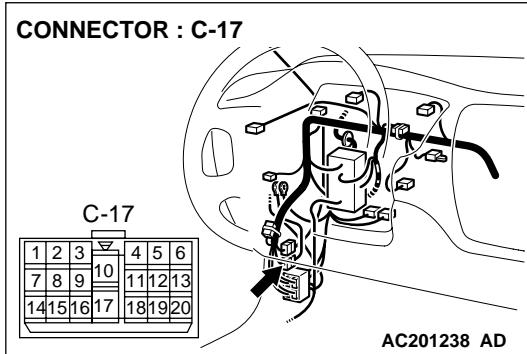
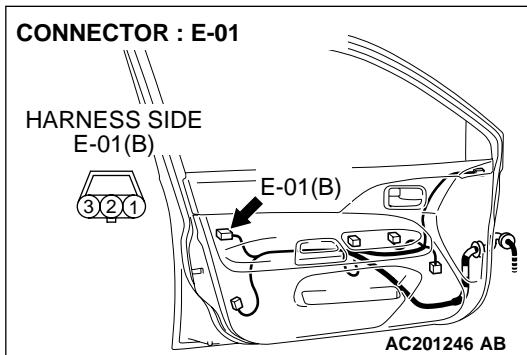
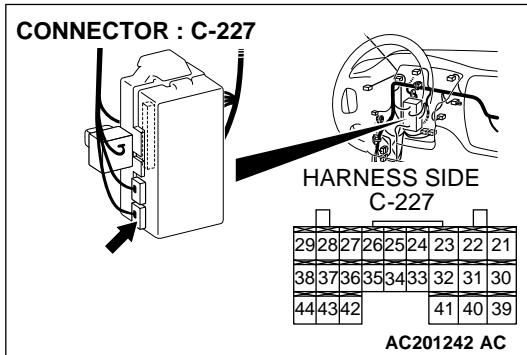
**Q: Are driver's door lock key cylinder switch connector E-01 and ETACS-ECU connector C-227 in good condition?**

**YES :** Go to Step 7.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.





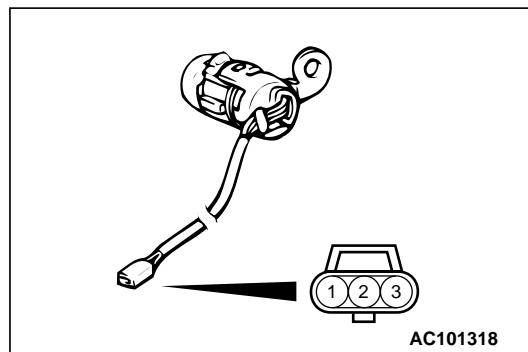
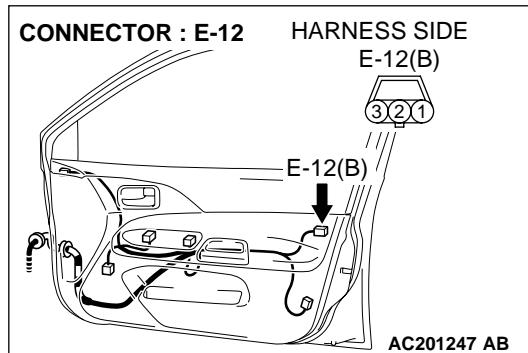
**STEP 7. Check the wiring harness between driver's door lock key cylinder switch connector E-01 (terminal 1 and 3) and ETACS-ECU connector C-227 (terminal 25 and 42).**

**NOTE:** Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**Q: Is the wiring harness between driver's door lock key cylinder switch connector E-01 (terminal 1 and 3) and ETACS-ECU connector C-227 (terminal 25 and 42) in good condition?**

**YES :** Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.




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**STEP 8. Check the front passenger's door lock key cylinder switch.**

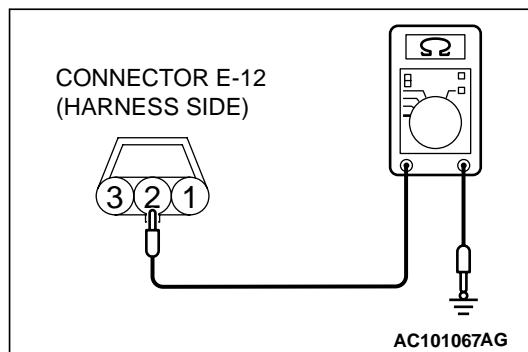
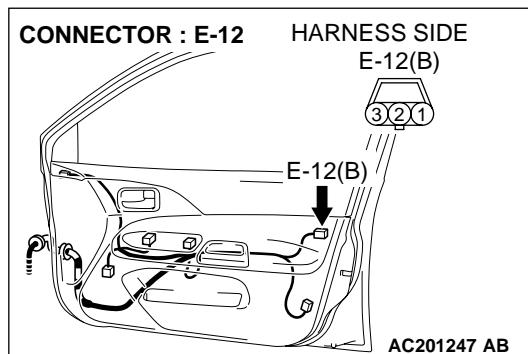
Disconnect door lock key cylinder switch (RH) connector E-12. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Less than 2 ohms
UNLOCK	2 – 3	Less than 2 ohms

**Q: Is the front passenger's door lock key cylinder switch in good condition?**

**YES :** Go to Step 9.

**NO :** Replace the front passenger's door lock key cylinder switch. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.




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**STEP 9. Check the ground circuit to the door lock key cylinder switch (RH). Test at door lock key cylinder switch (RH) connector E-12.**

(1) Disconnect front passenger's door lock key cylinder switch connector E-12 measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 12.

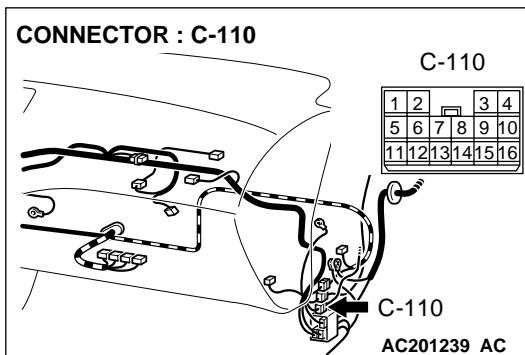
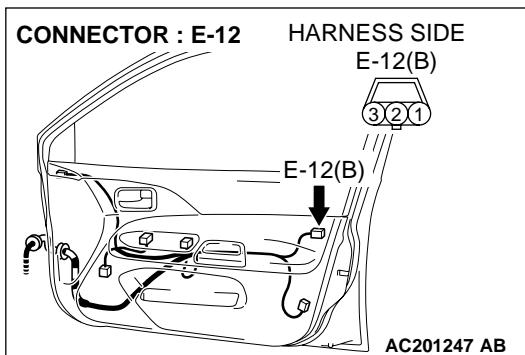
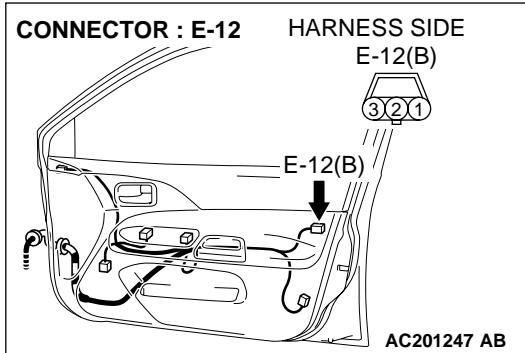
**NO :** Go to Step 10.

**STEP 10. Check front passenger's door lock key cylinder switch connector E-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is front passenger's door lock key cylinder switch connector E-12 in good condition?**

**YES :** Go to Step 11.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.



**STEP 11. Check the wiring harness between front passenger's door lock key cylinder switch connector E-12 (terminal 2) and ground.**

*NOTE: Also check intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-110 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between front passenger's door lock key cylinder switch connector E-12 (terminal 2) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

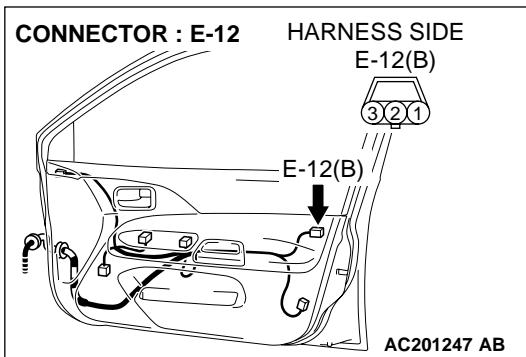
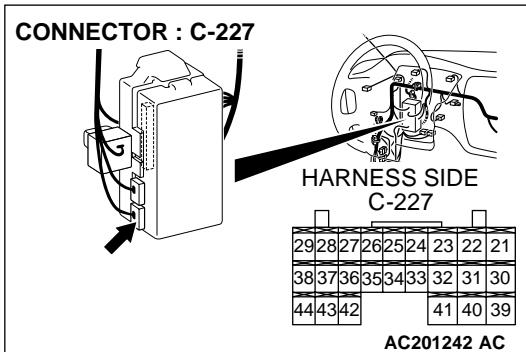
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

**STEP 12. Check front passenger's door lock key cylinder switch connector E-12 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are front passenger's door lock key cylinder switch connector E-12 and ETACS-ECU connector C-227 in good condition?**

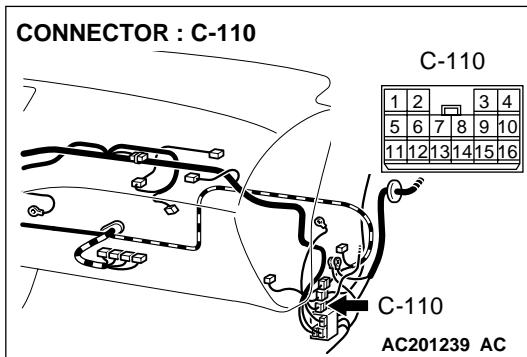
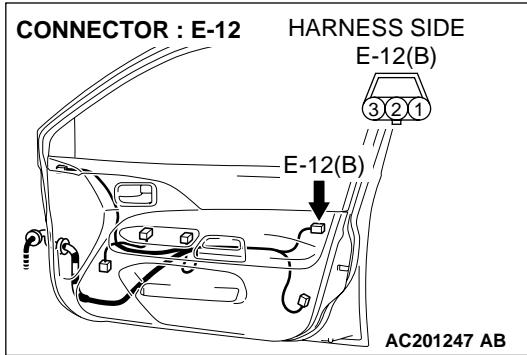
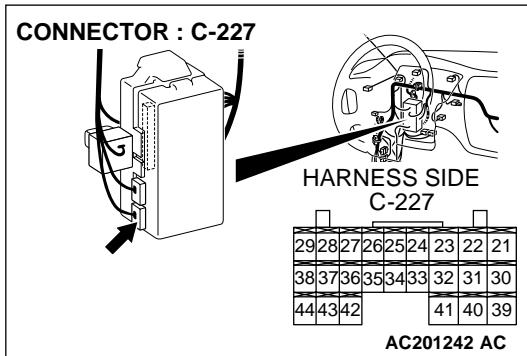
**YES :** Go to Step 13.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.



**STEP 13. Check the wiring harness between front passenger's door lock key cylinder switch connector E-12 (terminal 1 and 3) and ETACS-ECU connector C-227 (terminal 33 and 34).**

*NOTE: Also check intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-110 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*



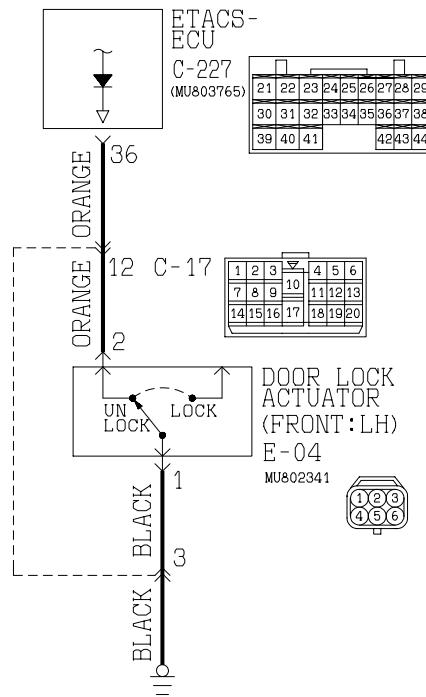
**Q: Is the wiring harness between front passenger's door lock key cylinder switch connector E-12 (terminal 1 and 3) and ETACS-ECU connector C-227 (terminal 33 and 34) in good condition?**

**YES :** Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

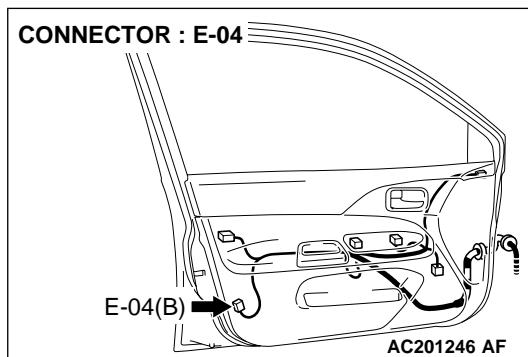
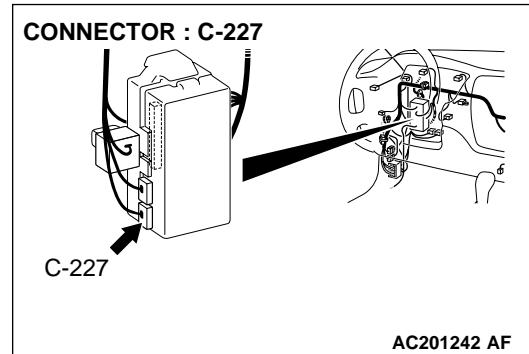
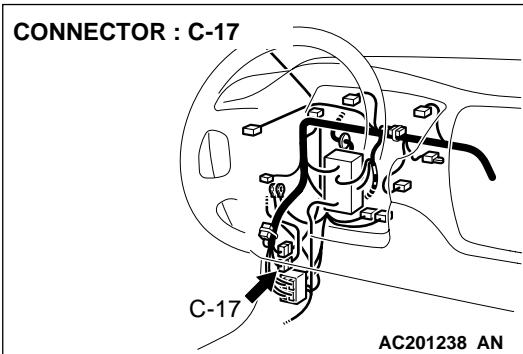
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

**INSPECTION PROCEDURE N-6 : The ETACS-ECU does not receive any signal from the driver's door lock actuator switch.**

**Door Lock Actuator Input Circuit**



W3J01M29AA



## CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the driver's or front passenger's, rear or back door lock actuator switch:

- Central door locking system
- Keyless entry system
- Dome light dimming function

## TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally.

## TROUBLESHOOTING HINTS

- The driver's door latch assembly may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

### STEP 1. Check the driver's door lock actuator switch.

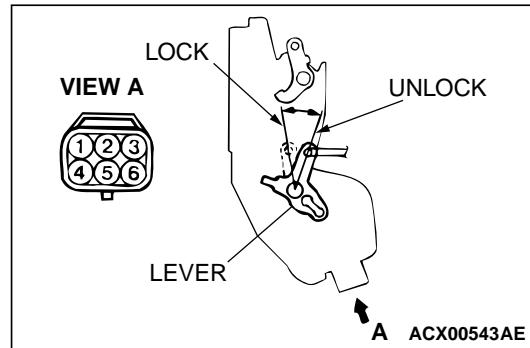
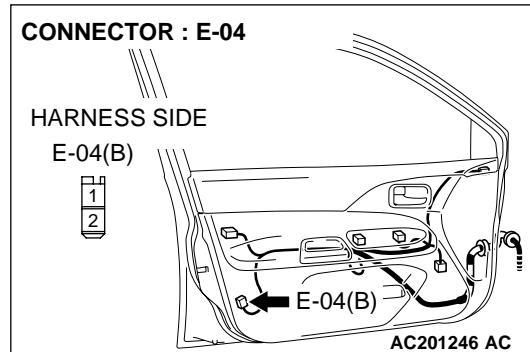
Disconnect driver's door lock actuator switch connector E-04. Then check continuity between the switch terminals.

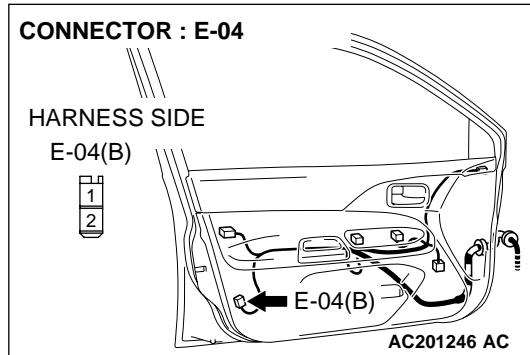
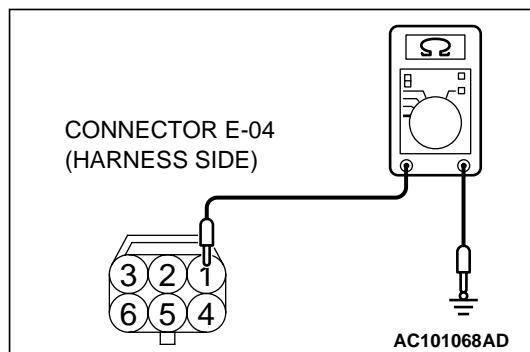
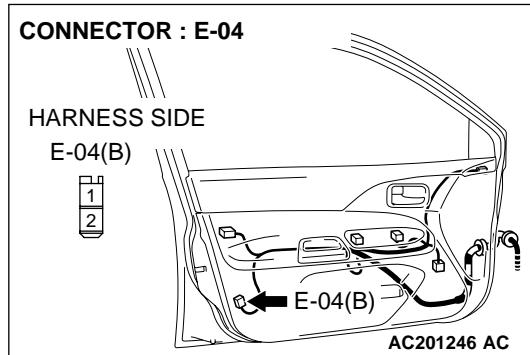
LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	1 – 2	Less than 2 ohms

**Q: Is the driver's door lock actuator switch in good condition?**

**YES :** Go to Step 2.

**NO :** Replace the driver's door lock actuator switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.





**STEP 2. Check the ground circuit to the driver's door lock actuator switch. Test at driver's door lock actuator switch connector E-04.**

- (1) Disconnect driver's door lock actuator switch connector E-04 and measure the resistance available at the wiring harness side of the connector.

- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 5.

**NO :** Go to Step 3.

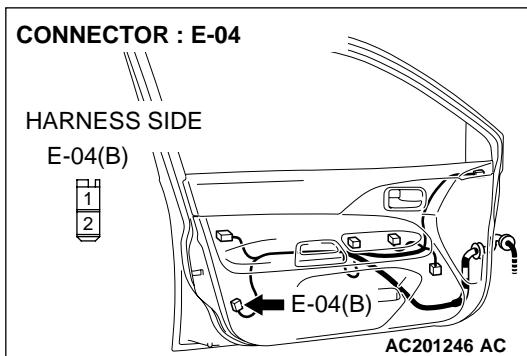
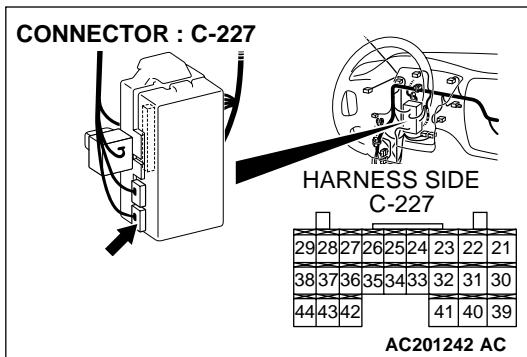
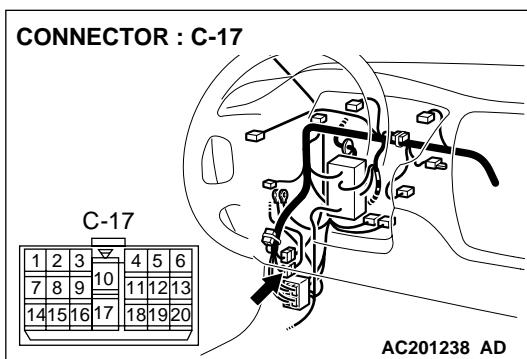
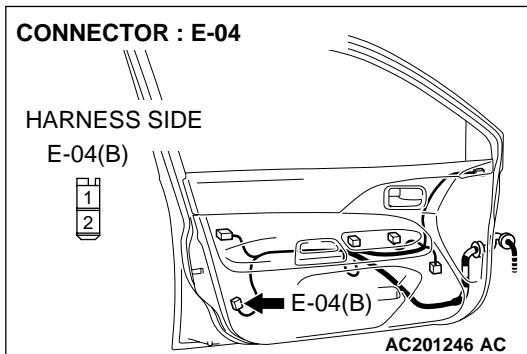
**STEP 3. Check driver's door lock actuator switch connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is driver's door lock actuator switch connector E-04 in good condition?**

**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.



**STEP 4. Check the wiring harness between driver's door lock actuator switch connector E-04 (terminal 1) and ground.**

**NOTE:** Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**Q: Is the wiring harness between driver's door lock actuator switch connector E-04 (terminal 1) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

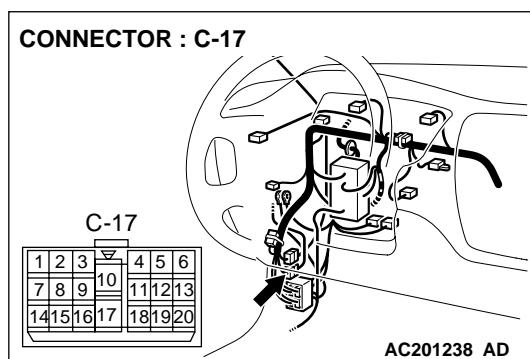
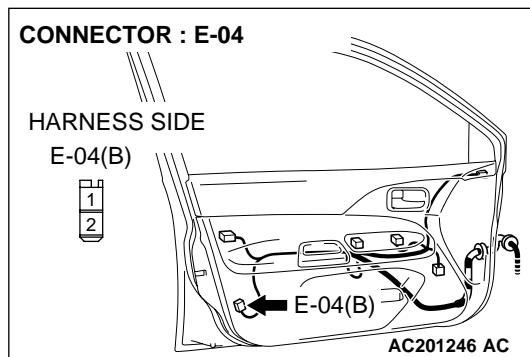
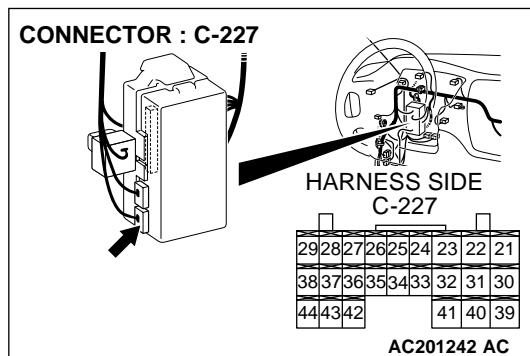
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

**STEP 5. Check driver's door lock actuator switch connector E-04 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are driver's door lock actuator switch connector E-04 and ETACS-ECU connector C-227 in good condition?**

**YES :** Go to Step 6.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.



**STEP 6. Check the wiring harness between driver's door lock actuator switch connector E-04 (terminal 2) and ETACS-ECU connector C-227 (terminal 36).**

**NOTE:** Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

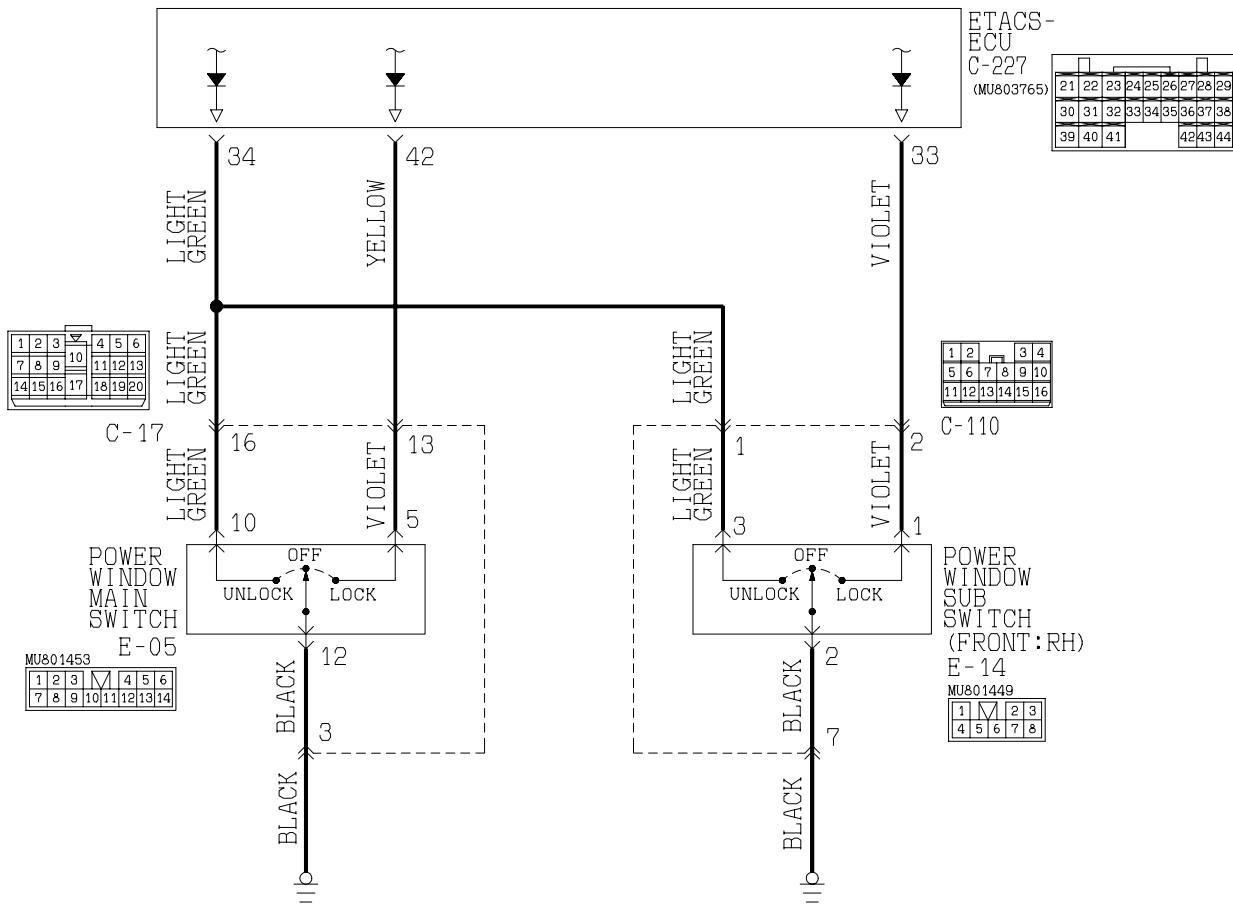
**Q: Is the wiring harness between driver's door lock actuator switch connector E-04 (terminal 2) and ETACS-ECU connector C-227 (terminal 36) in good condition?**

**YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

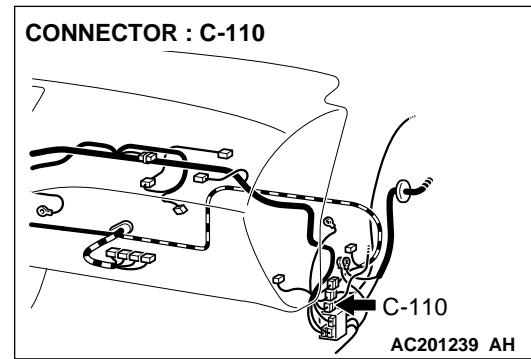
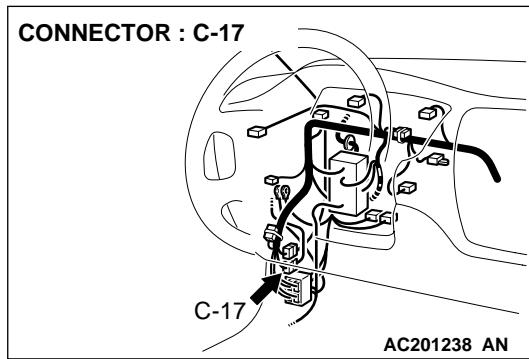
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

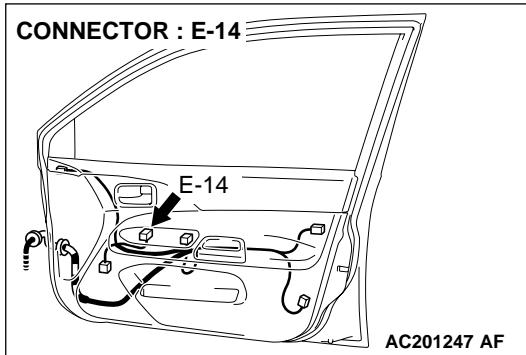
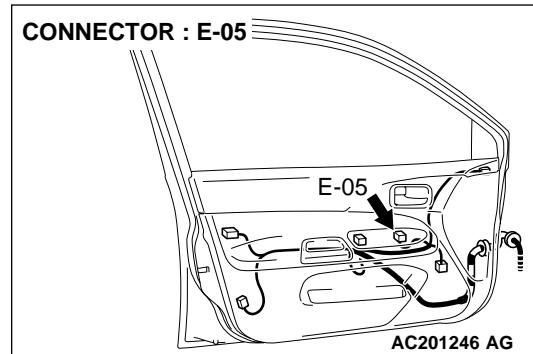
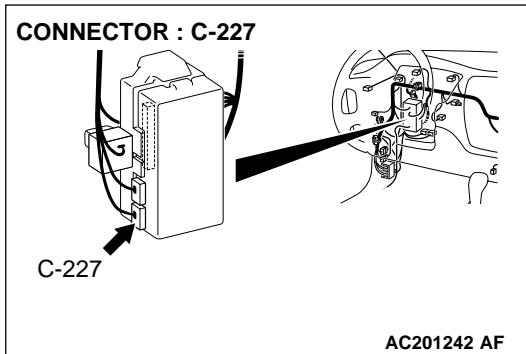
**INSPECTION PROCEDURE N-7: The ETACS-ECU does not receive any signal from the door lock switch (incorporated in power window main switch and power window sub switch) .**

Door Lock Switch Input Circuit



W3J01M30AA





## CIRCUIT OPERATION

The ETACS-ECU operates the central door locking system according to signal from the door lock switch.

## TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the doors is not locked or unlocked. If the signal is not normal, the power window main switch, power window sub switch or the ETACS-ECU may be defective.

## TROUBLESHOOTING HINTS

- The power window main switch or power window sub switch (door lock switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

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### STEP 1. Check which door switch is defective.

#### Q: Which door switch signal is not entered?

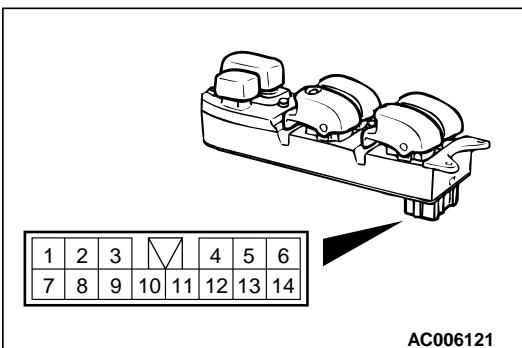
**Power window main switch (Driver's door) :** Go to Step 2.

**Power window sub switch (Front passenger's door) :** Go to Step 8.

**STEP 2. Check the door lock switch (power window main switch).**

Remove the power window main switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	5 – 12	Less than 2 ohms
OFF	5 – 10, 10 – 12, 5 – 12	Open circuit
UNLOCK	10 – 12	Less than 2 ohms



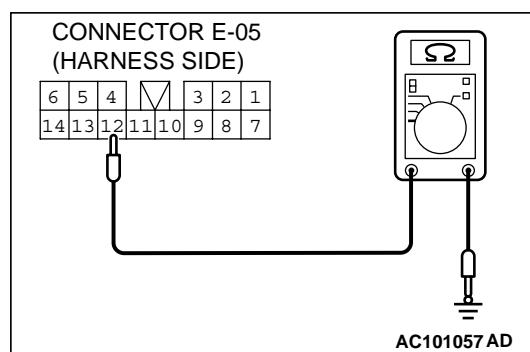
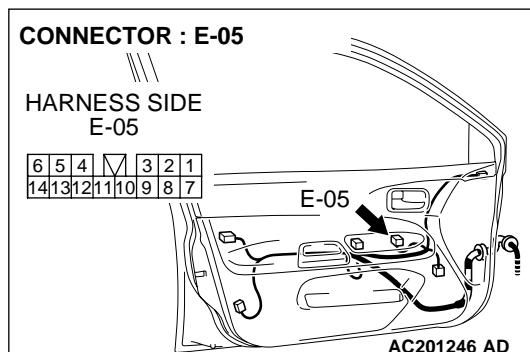
**Q: Is the door lock switch (power window main switch) in good condition?**

**YES :** Go to Step 3.

**NO :** Replace the power window main switch. If the central door locking system works normally, input signal from the door lock switch should be normal.

**STEP 3. Check the ground circuit to the power window main switch. Test at power window main switch connector E-05.**

(1) Disconnect power window main switch connector E-05 and measure the resistance available at the wiring harness side of the connector.



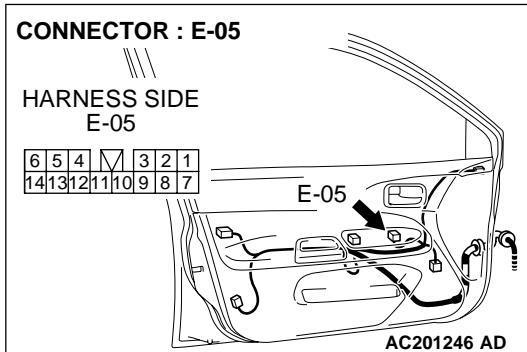
(2) Measure the resistance value between terminal 12 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 6.

**NO :** Go to Step 4.



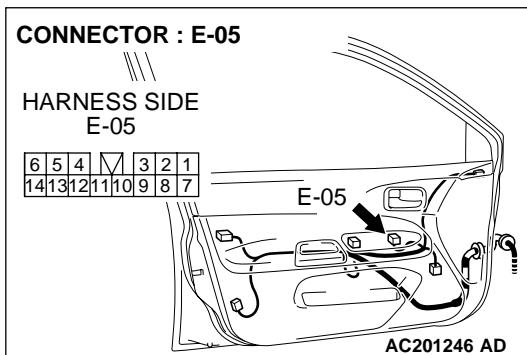
**STEP 4. Check power window main switch connector E-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is power window main switch connector E-05 in good condition?**

**YES :** Go to Step 5.

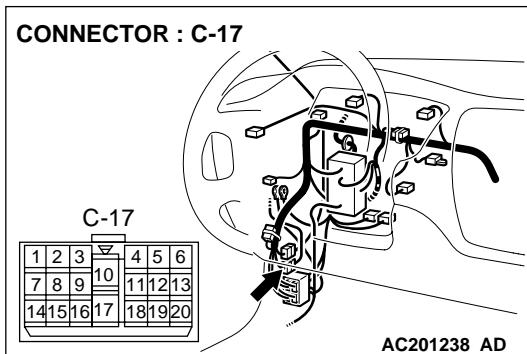
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the central door locking system works normally, input signal from the door lock switch should be normal.



**STEP 5. Check the wiring harness between power window main switch E-05 (terminal 12) and ground.**

**NOTE:** Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



**Q: Is the wiring harness between power window main switch connector E-05 (terminal 12) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

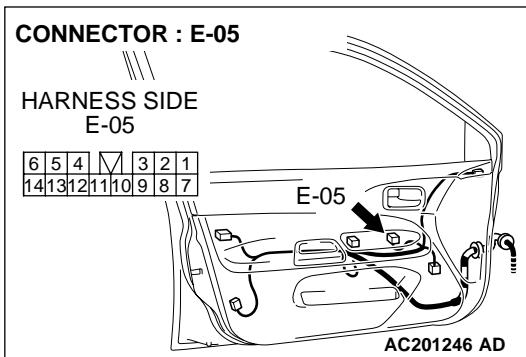
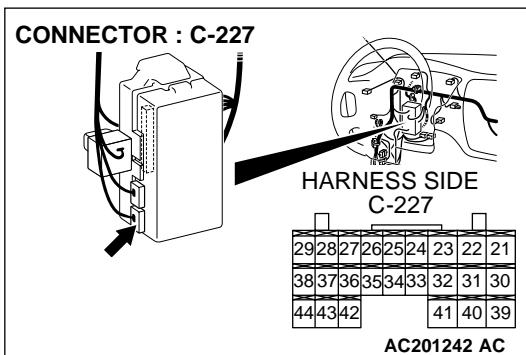
**STEP 6. Check power window main switch connector E-05 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

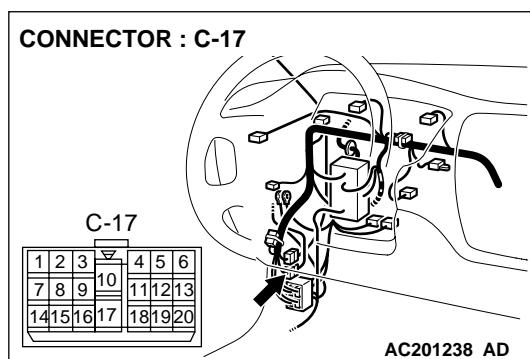
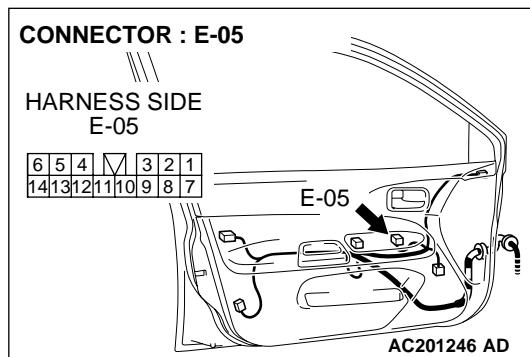
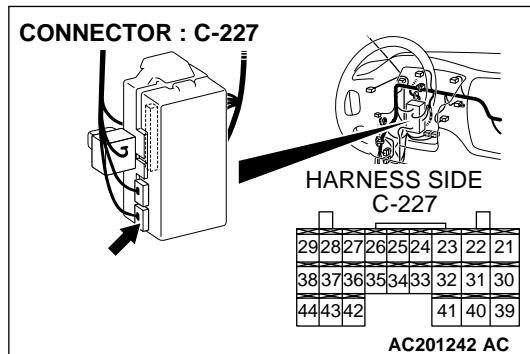
**Q: Are power window main switch connector E-05 and ETACS-ECU connector C-227 in good condition?**

**YES :** Go to Step 7.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the central door locking system works normally, input signal from the door lock switch should be normal.





**STEP 7. Check the wiring harness between power window main switch connector E-05 (terminal 5 and 10) and ETACS-ECU connector C-227 (terminal 42 and 34).**

**NOTE:** Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**Q: Is the wiring harness between power window main switch connector E-05 (terminal 5 and 10) and ETACS-ECU connector C-227 (terminal 42 and 34) in good condition?**

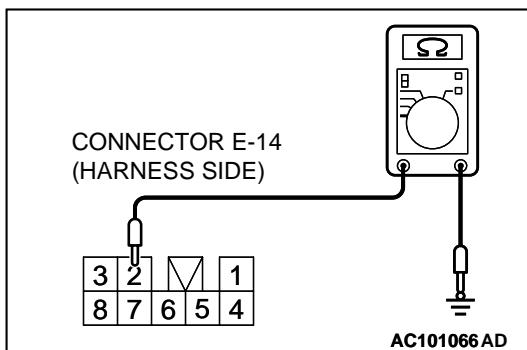
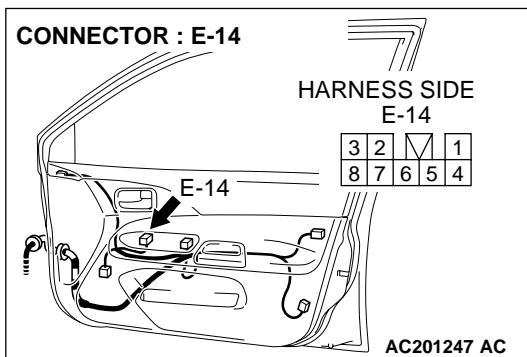
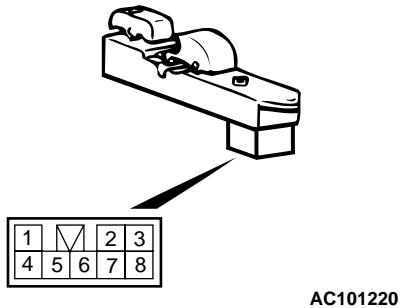
**YES :** Replace the ETACS-ECU. If the central door locking system works normally, input signal from the door lock switch should be normal.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

**STEP 8. Check the door lock switch (power window sub switch).**

Remove the power window sub switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Less than 2 ohms
OFF	1 – 2, 2 – 3, 1 – 3	Open circuit
UNLOCK	2 – 3	Less than 2 ohms



**Q: Is the door lock switch (power window sub switch) in good condition?**

**YES :** Go to Step 9.

**NO :** Replace the power window sub switch. If the central door locking system works normally, input signal from the door lock switch should be normal.

**STEP 9. Check the ground circuit to the power window sub switch. Test at power window sub switch connector E-14.**

(1) Disconnect power window sub switch connector E-14 and measure the resistance available at the wiring harness side of the connector.

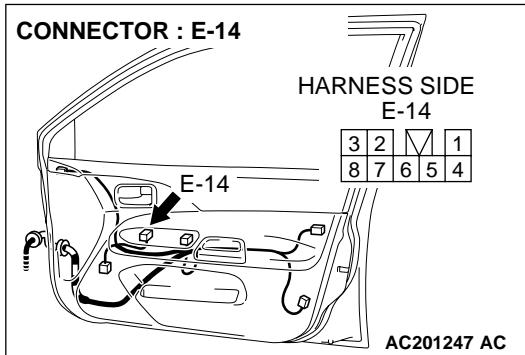
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 12.

**NO :** Go to Step 10.



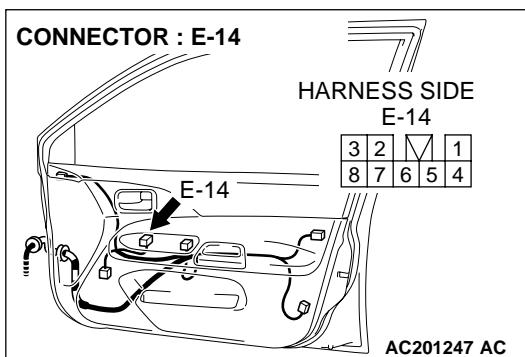
**STEP 10. Check power window sub switch connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is power window sub switch connector E-14 in good condition?**

**YES :** Go to Step 11.

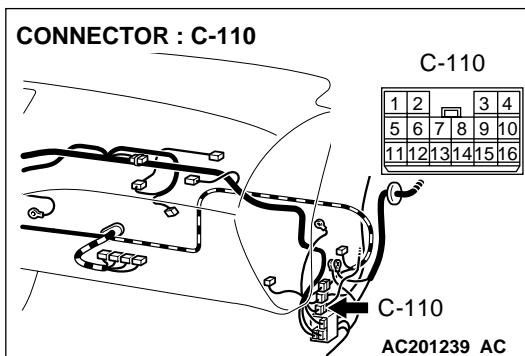
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the central door locking system works normally, input signal from the door lock switch should be normal.



**STEP 11. Check the wiring harness between power window sub switch E-14 (terminal 2) and ground.**

**NOTE:** Also check intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-110 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection **P.00E-2.**



**Q: Is the wiring harness between power window sub switch connector E-14 (terminal 2) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

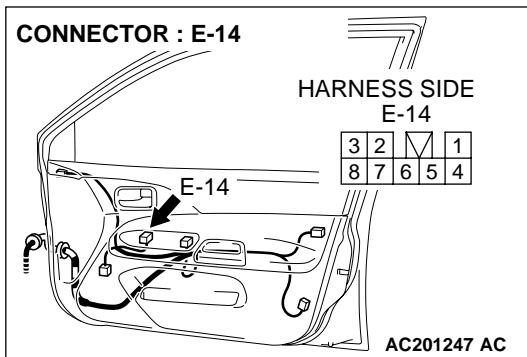
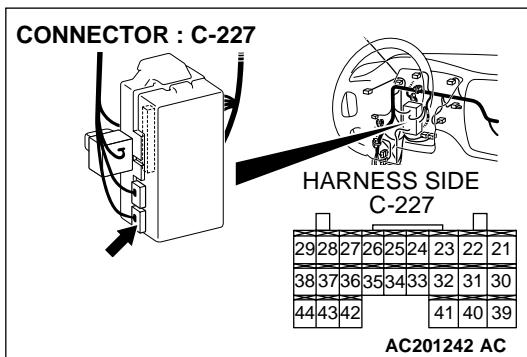
**STEP 12. Check power window sub switch connector E-14 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

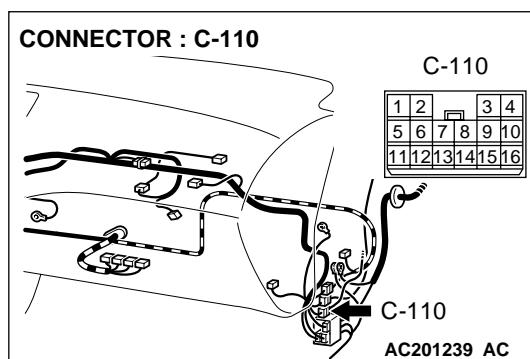
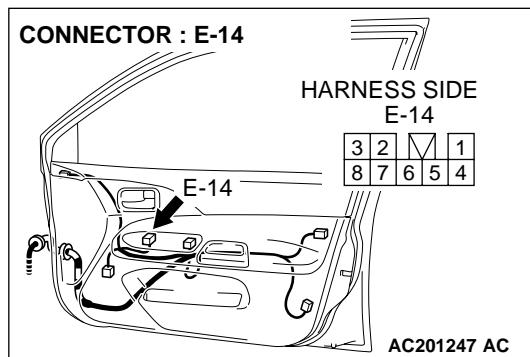
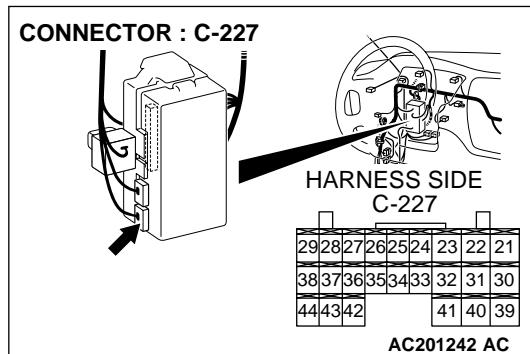
**Q: Are power window sub switch connector E-14 and ETACS-ECU connector C-227 in good condition?**

**YES :** Go to Step 13.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the central door locking system works normally, input signal from the door lock switch should be normal.






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**STEP 13. Check the wiring harness between power window sub switch connector E-14 (terminal 1 and 3) and ETACS-ECU connector C-227 (terminal 33 and 34).**

*NOTE: Also check intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-110 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

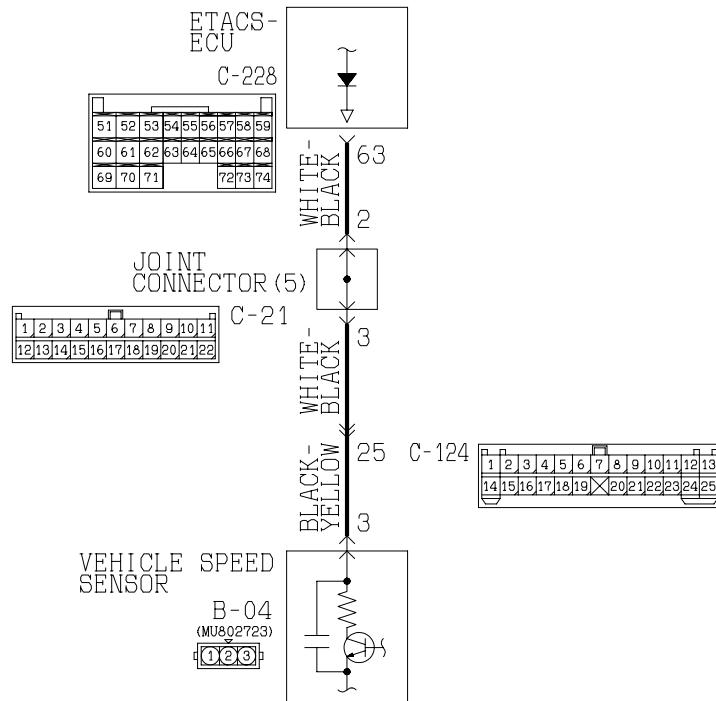
**Q: Is the wiring harness between power window sub switch connector E-14 (terminal 1 and 3) and ETACS-ECU connector C-227 (terminal 33 and 34) in good condition?**

**YES :** Replace the ETACS-ECU. If the central door locking system works normally, input signal from the door lock switch should be normal.

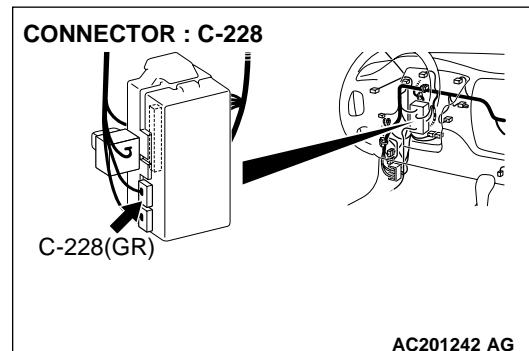
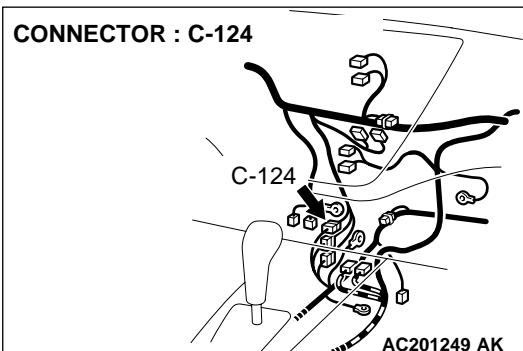
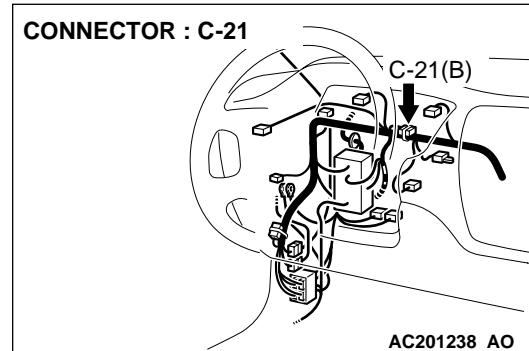
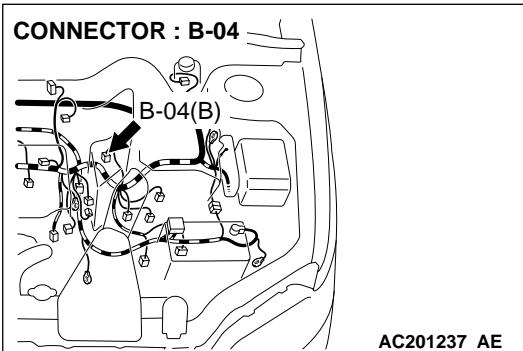
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

**INSPECTION PROCEDURE N-8: ETACS-ECU does not receive any signal from the vehicle speed sensor. <M/T>**

**Vehicle Speed Sensor Input Circuit**



W2J08M26AA



**CIRCUIT OPERATION**

The ETACS-ECU controls the windshield intermittent wiper interval according to the vehicle speed sensor signal.

**TECHNICAL DESCRIPTION (COMMENT)**

If the signal is not normal, the wiper interval, which is described in "CIRCUIT OPERATION", will not be changed correctly. If the signal is not normal, the vehicle speed sensor or the ETACS-ECU may be defective.

**TROUBLESHOOTING HINTS**

- The vehicle speed sensor may be defective
- The ETACS-ECU may be defective
- Damaged harness wires or connectors

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

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

**STEP 1. Check that the combination meter (speedometer) works normally.**

**Q: Does the combination meter (speedometer) work normally?**

**YES :** Go to Step 2.

**NO :** Refer to GROUP 54A, Combination Meters Assembly and Vehicle Speed Sensor - Symptom Procedures "Speed meter does not work <M/T> [P.54Bc-96](#)."

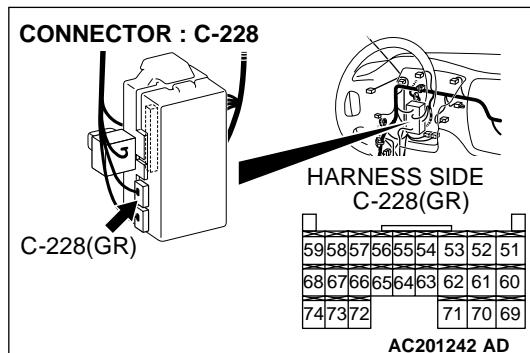
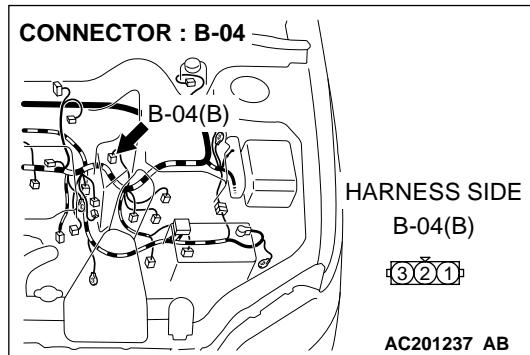
**STEP 2. Check ETACS-ECU connector C-228 and vehicle speed sensor connector B-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are ETACS-ECU connector C-228 and vehicles speed sensor connector B-04 in good condition?**

**YES :** Go to Step 3.

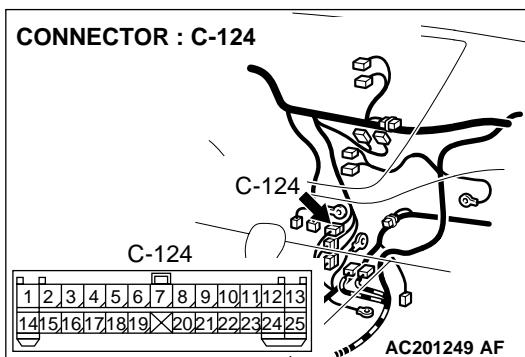
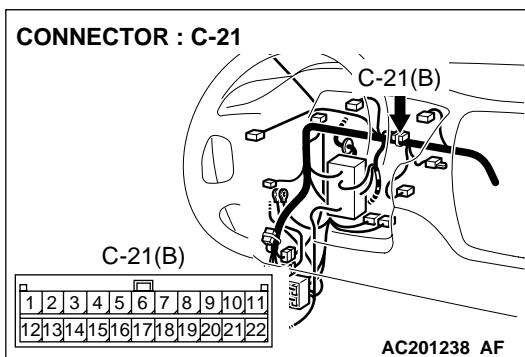
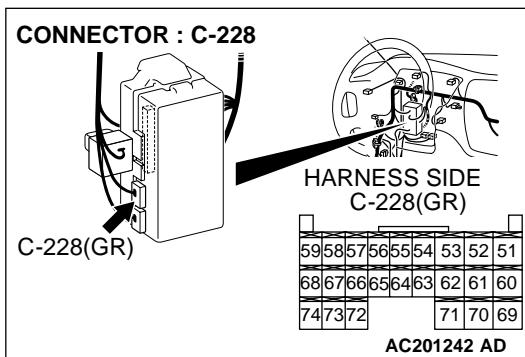
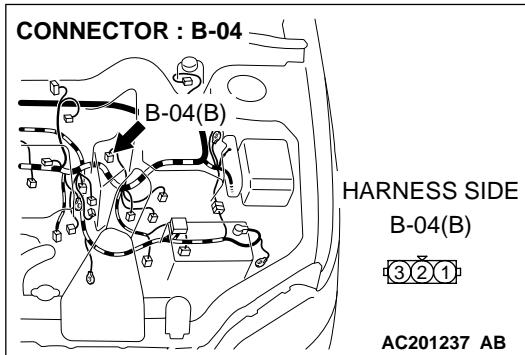
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.



**STEP 3. Check the wiring harness between ETACS-ECU connector C-228 (terminal 63) and vehicle speed sensor connector B-04 (terminal 3).**

*NOTE: Also check intermediate connector C-124 and joint connector C-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-124 or joint connector C-21 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*



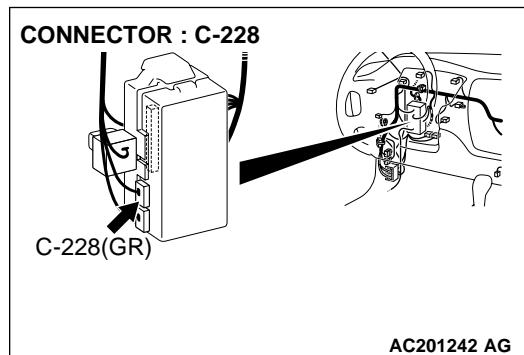
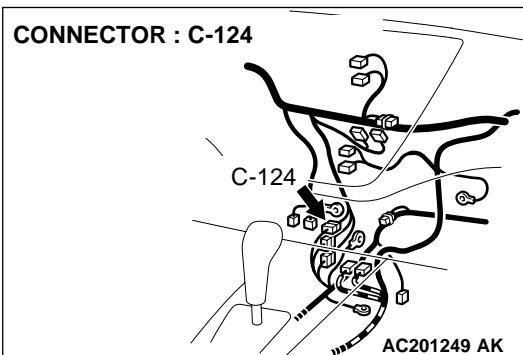
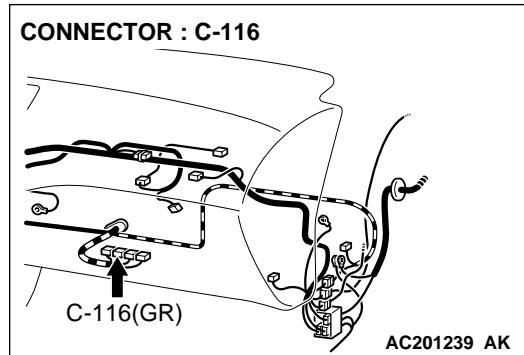
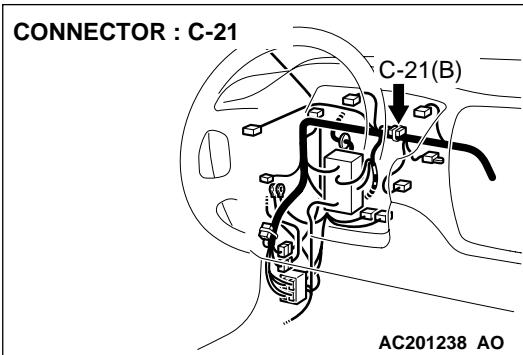
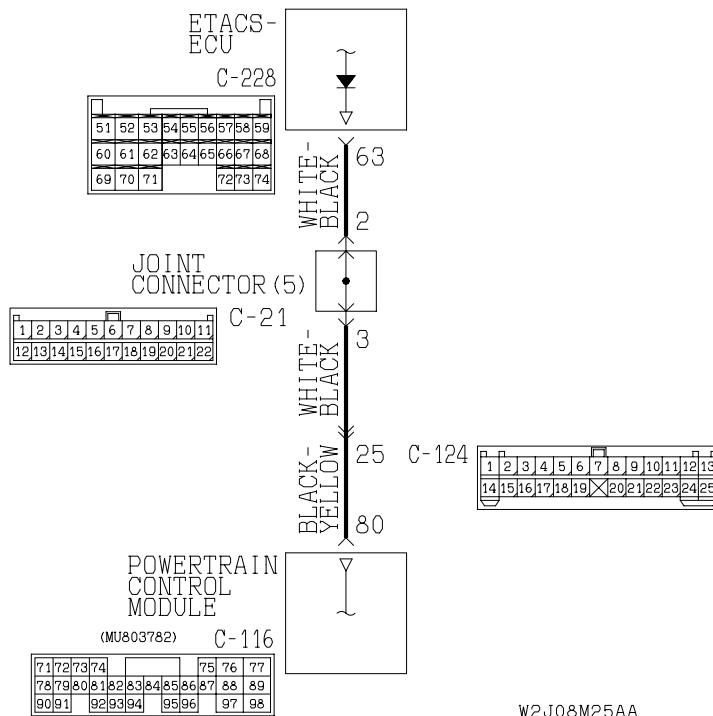
**Q: Is the wiring harness between ETACS-ECU connector C-228 (terminal 63) and vehicle speed sensor connector B-04 (terminal 3) in good condition?**

**YES :** Replace the ETACS-ECU. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

**INSPECTION PROCEDURE N-8: ETACS-ECU does not receive vehicle speed signal <A/T>.**

**Vehicles Speed Signal Input Circuit**



## CIRCUIT OPERATION

The ETACS-ECU controls the windshield intermittent wiper interval according to the vehicle speed signal, which the powertrain control module sends.

## TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the wiper interval, which is described in "CIRCUIT OPERATION", will not be changed correctly. If the signal is not normal, the powertrain control module or the ETACS-ECU may be defective.

## TROUBLESHOOTING HINTS

- The powertrain control module may be defective
- The ETACS-ECU may be defective
- Damaged harness wipes or connectors

## DIAGNOSIS

### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

### STEP 1. Check that the combination meter (speedometer) works normally.

**Q: Does the combination meter (speedometer) work normally?**

**YES :** Go to Step 2.

**NO :** Refer to GROUP 54A, Combination Meters Assembly and Vehicle Speed Sensor - Symptom Procedures "Speed meter does not work <A/T> [P.54Bc-93](#)."

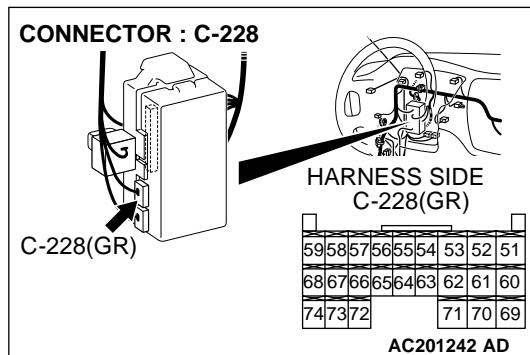
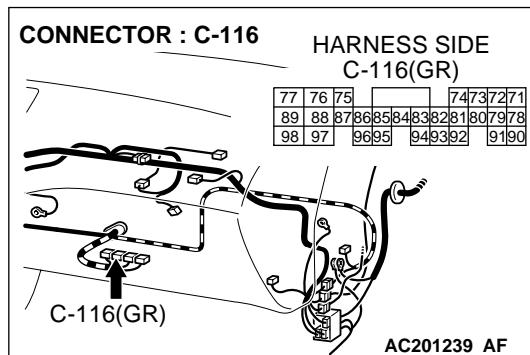
### STEP 2. Check ETACS-ECU connector C-228 and powertrain control module connector C-116 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

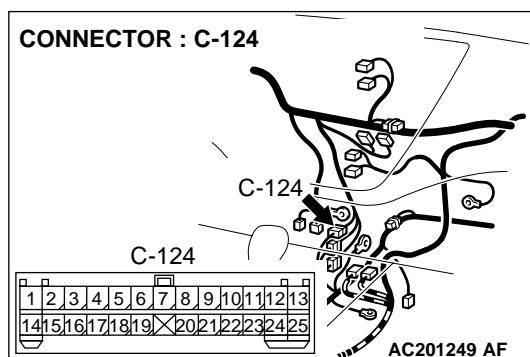
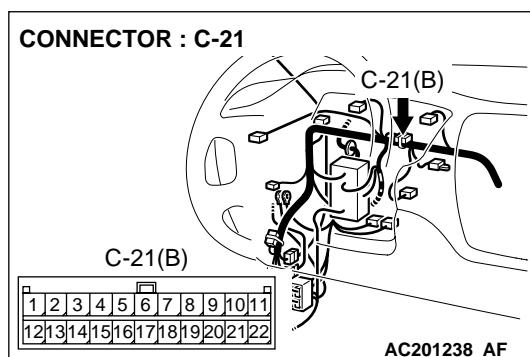
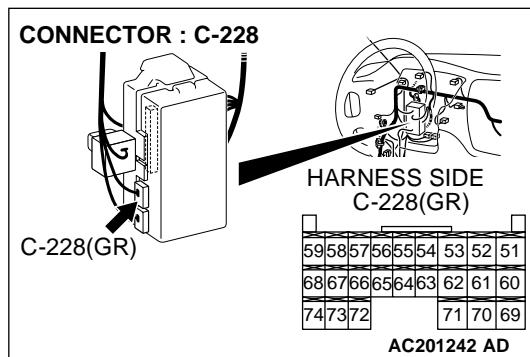
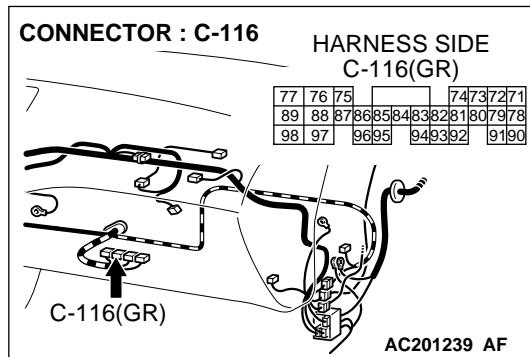
**Q: Are ETACS-ECU connector C-228 and powertrain control module connector C-116 in good condition?**

**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.





**STEP 3. Check the wiring harness between ETACS-ECU connector C-228 (terminal 63) and powertrain control module connector C-116 (terminal 80).**

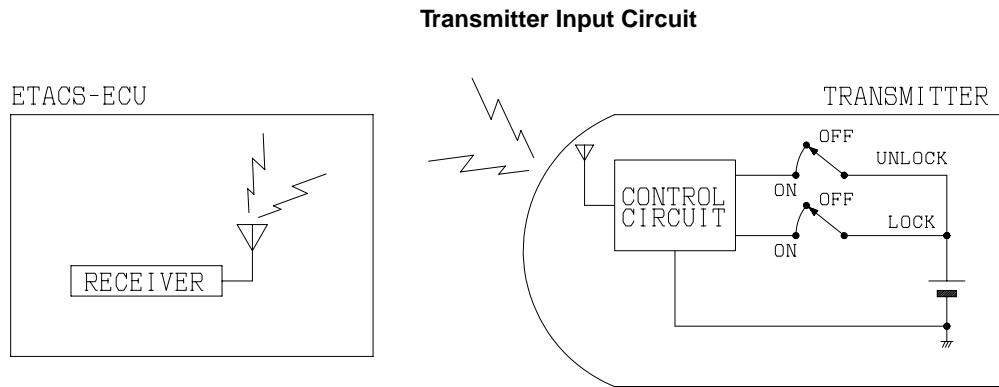
**NOTE:** Also check intermediate connector C-124 and joint connector C-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-124 or joint connector C-21 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**Q: Is the wiring harness between ETACS-ECU connector C-228 (terminal 63) and powertrain control module connector C-116 (terminal 80) in good condition?**

**YES :** Replace the ETACS-ECU. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

**INSPECTION PROCEDURE N-9: Transmitter: The ETACS-ECU does not receive any signal from the lock or unlock switch.**



W2J08M27AA

### CIRCUIT OPERATION

The ETACS-ECU receives signal through its receiver from the transmitter, and operates the keyless entry system according to the signal.

### TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the systems, which are described in "CIRCUIT OPERATION", do not work normally.

### TROUBLESHOOTING HINTS

- The transmitter may be defective
- The ETACS-ECU may be defective

### DIAGNOSIS

#### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

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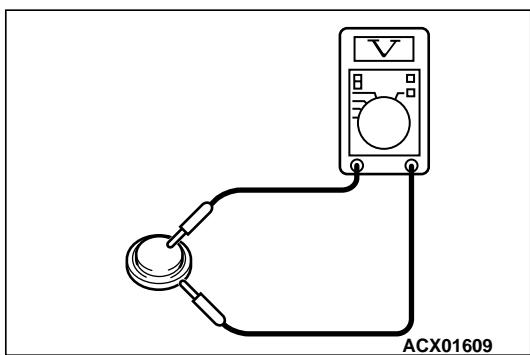
#### STEP 1. Register the transmitter.

Replace the transmitter. Refer to GROUP 42, Keyless Entry System, On-vehicle Service, How to register secret code [P.42-64](#).

#### Q: Can the transmitter be registered correctly?

**YES :** If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

**NO :** Go to Step 2.



---

**STEP 2. Check the transmitter battery.**

Measure the voltage of the transmitter battery.

- The value should be approximately 2.5 - 3.2 volts.

**Q: Is the measured voltage approximately 2.5 - 3.2 volts (battery positive voltage)?**

**YES :** Go to Step 3.

**NO :** Replace the battery. If the transmitter can be registered normally, and the systems, which are described in "CIRCUIT OPERATION", operate normally, it indicates that the transmitter is sending normal signal to the ECU.

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**STEP 3. Check the transmitter.**

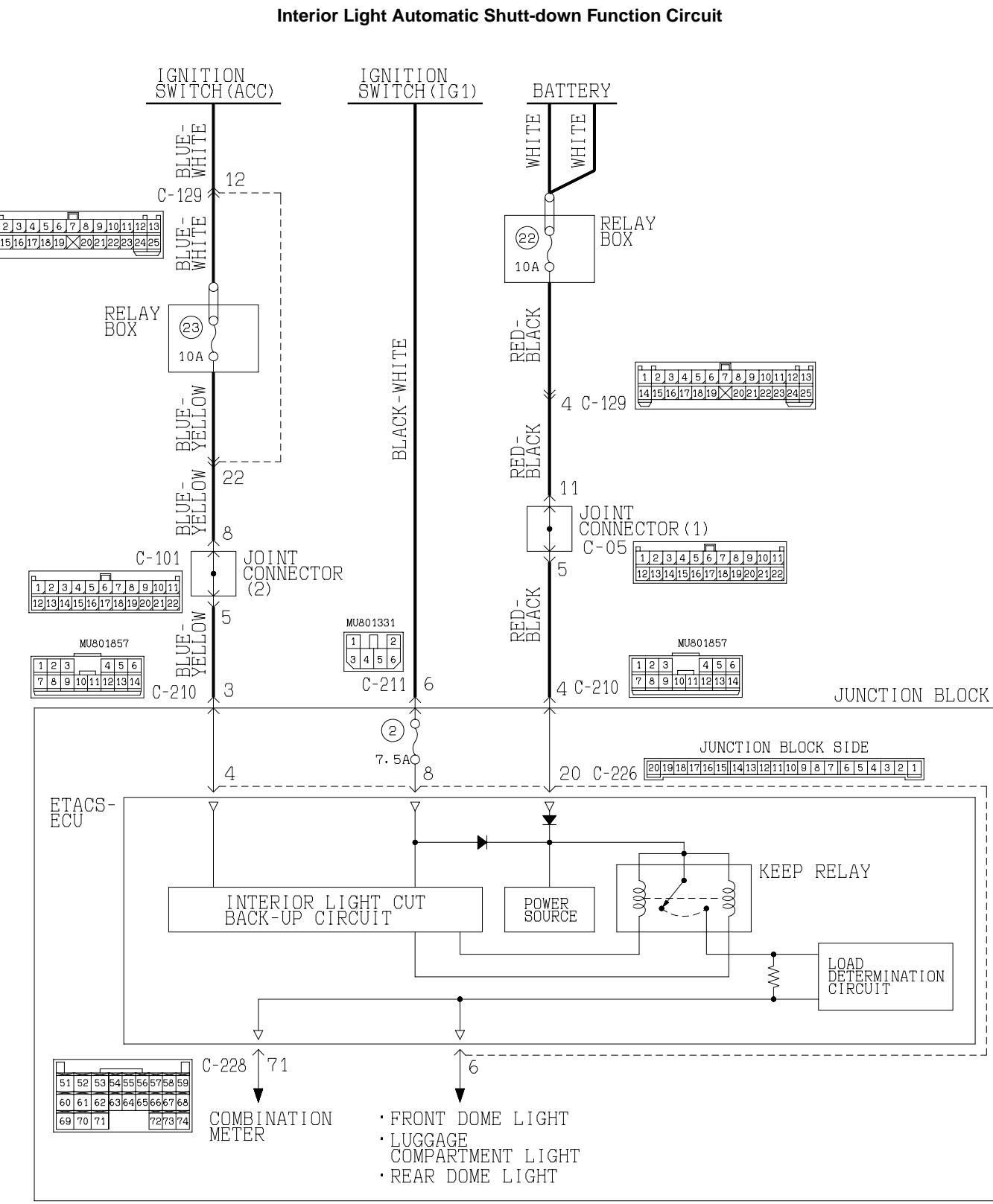
Substantial other transmitter in order to register encrypted code. Refer to GROUP 42, Keyless Entry System, On-vehicle Service, How to register secret code [P.42-64](#).

**Q: Can the transmitter be registered correctly?**

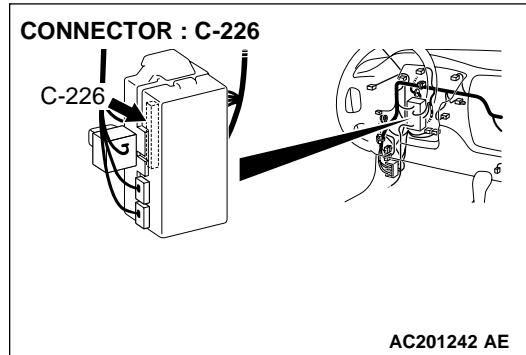
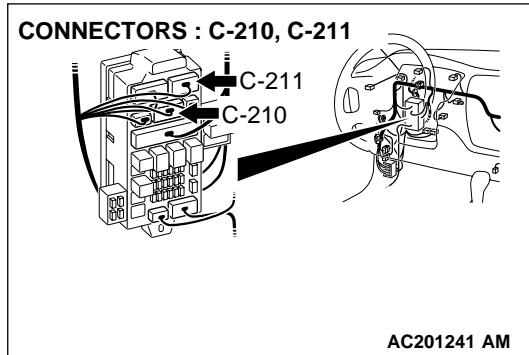
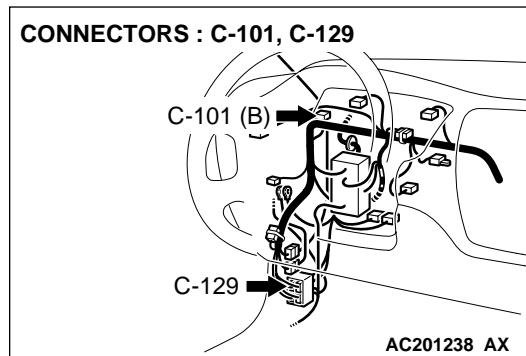
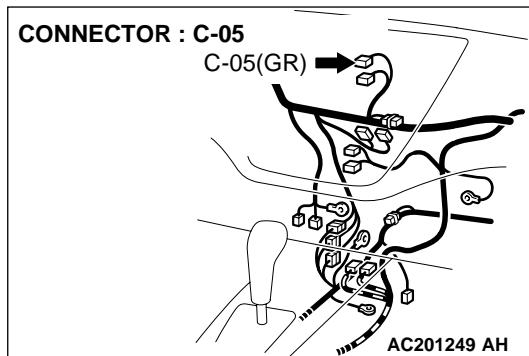
**YES :** If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

**NO :** Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

**INSPECTION PROCEDURE N-10: ETACS-ECU does not receive any interior light loaded signal.**



W3J01M31AA



### CIRCUIT OPERATION

The ETACS-ECU operates the following equipment or functions by the interior light loaded signal:

- Interior light automatic shutoff function
- Front dome light, rear dome light and luggage compartment light
- Door-ajar indicator light

### TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment or functions, which are described in "CIRCUIT OPERATION", do not work normally.

### TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

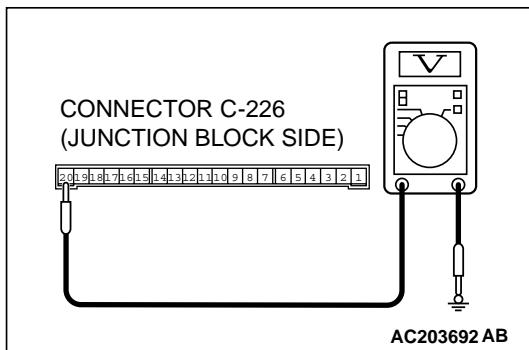
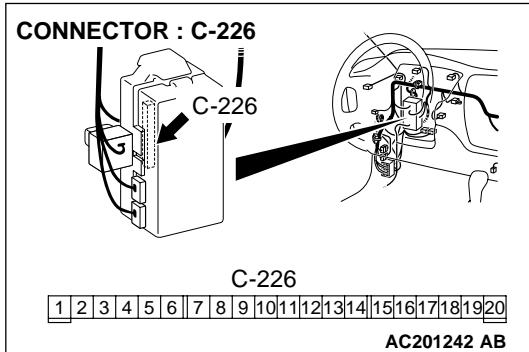
### Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

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### STEP 1. Check the battery power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

(1) Disconnect ETACS-ECU connector C-226 and measure the voltage available at the junction block side of the connector.



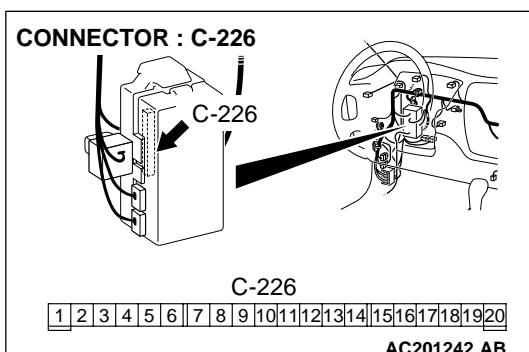
(2) Measure the voltage between terminal 20 and ground.

- The voltage should equal approximately 12 volts (battery positive voltage).

**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

**YES :** Go to Step 4.

**NO :** Go to Step 2.



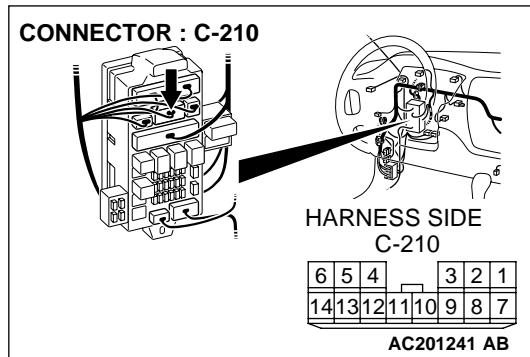
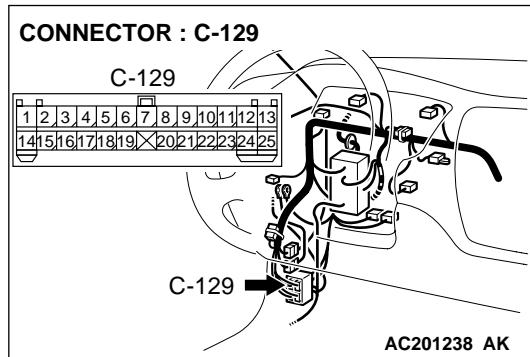
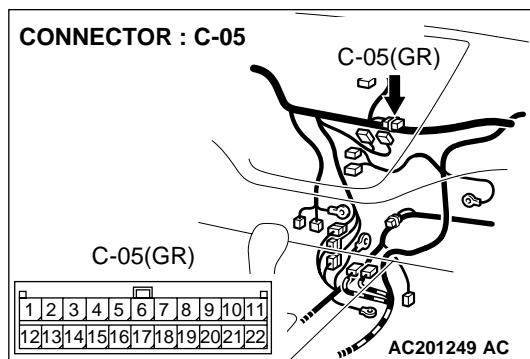
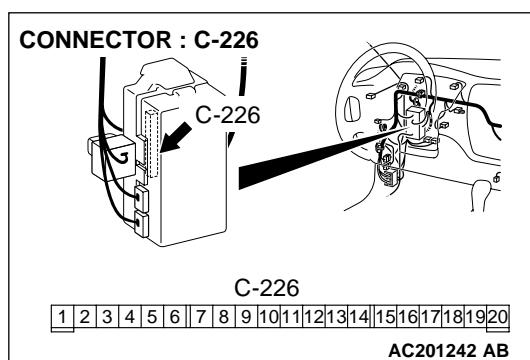

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### STEP 2. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**Q: Is ETACS-ECU connector C-226 in good condition?**

**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



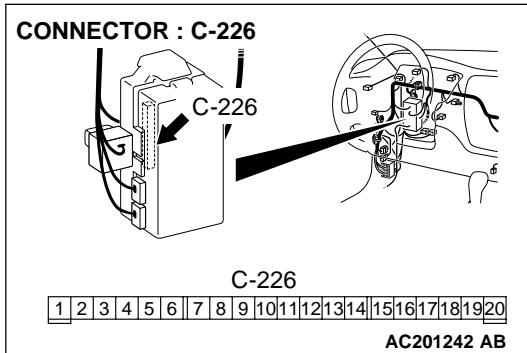
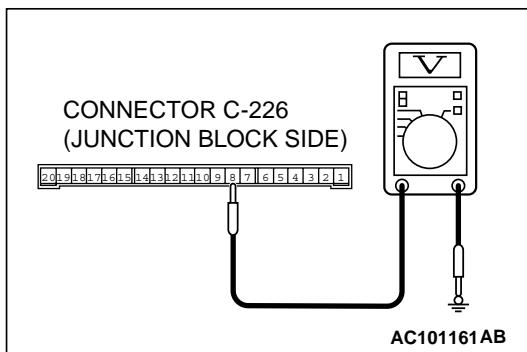
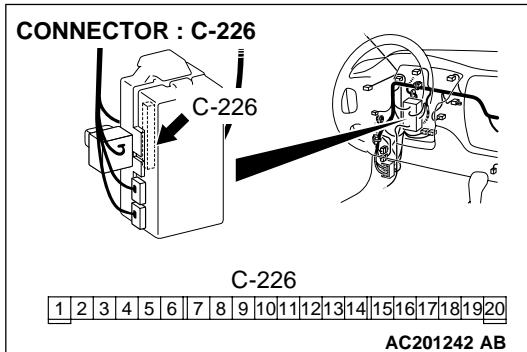
**STEP 3. Check the wiring harness between ETACS-ECU connector C-226 (terminal 20) and the battery.**

*NOTE: Also check junction block connector C-210, joint connector C-05 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210, joint connector C-05 or intermediate C-129 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between ETACS-ECU connector C-226 (terminal 20) and the battery in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



**STEP 4. Check the ignition switch (IG1) line of the power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.**

- (1) Disconnect ETACS-ECU connector C-226 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between terminal 8 and ground.

- The voltage should equal approximately 12 volts (battery positive voltage).

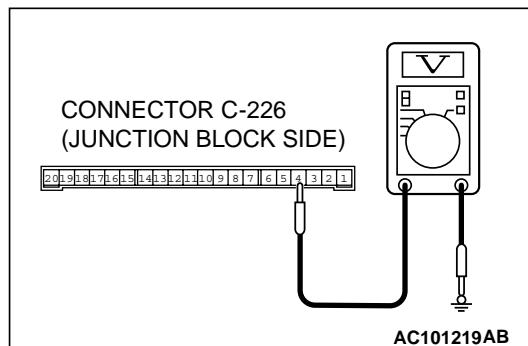
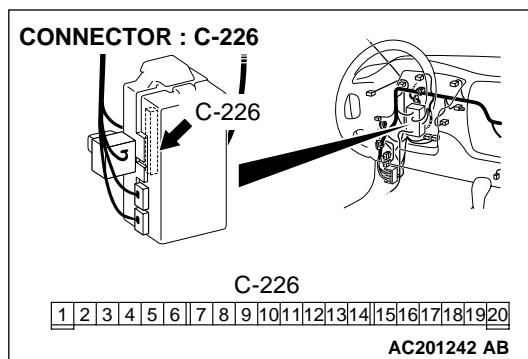
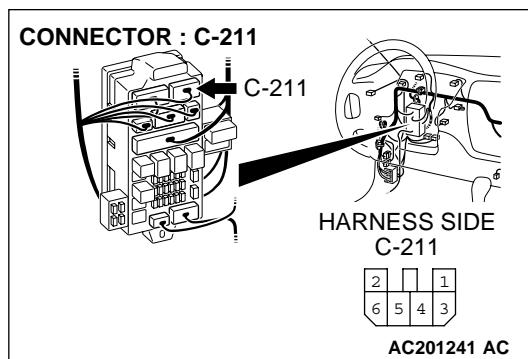
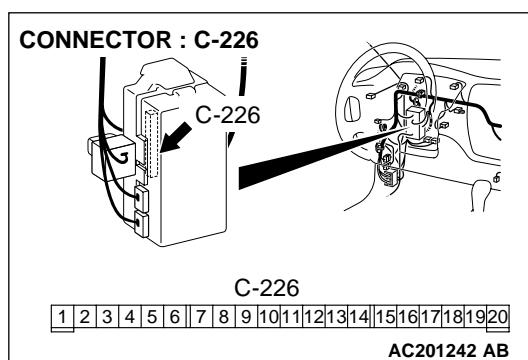
**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

- YES :** Go to Step 7.  
**NO :** Go to Step 5.

**STEP 5. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ETACS-ECU connector C-226 in good condition?**

- YES :** Go to Step 6.  
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



### STEP 6. Check the wiring harness between ETACS-ECU connector C-226 (terminal 8) and the ignition switch (IG1).

**NOTE:** Also check junction block connector C-211 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**Q: Is the wiring harness between ETACS-ECU connector C-226 (terminal 8) and the ignition switch (IG1) in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.

### STEP 7. Check the ignition switch (ACC) line of the power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

- (1) Disconnect ETACS-ECU connector C-226 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ACC" position.

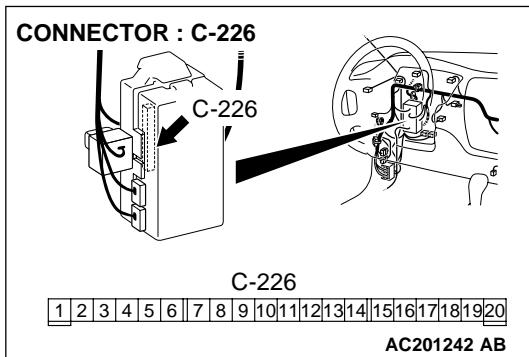
- (3) Measure the voltage between terminal 4 and ground.

- The voltage should equal approximately 12 volts (battery positive voltage).

**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

**YES :** Replace the ETACS-ECU. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.

**NO :** Go to Step 8.



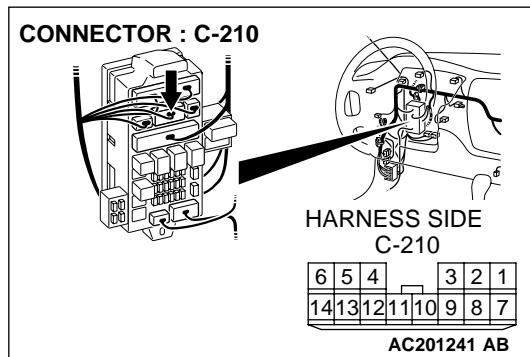
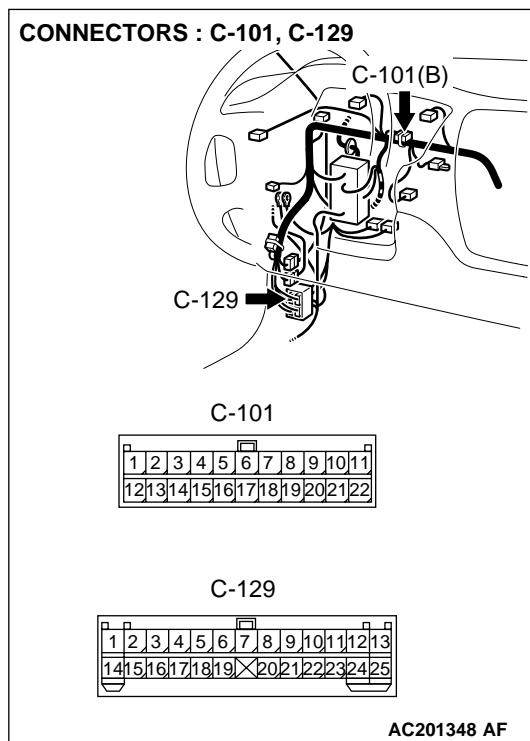
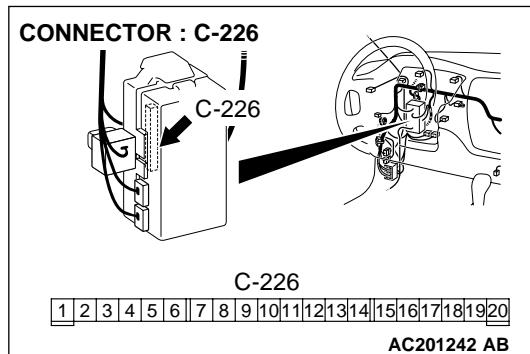
**STEP 8. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ETACS-ECU connector C-226 in good condition?**

**YES :** Go to Step 9.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

**P.00E-2.** If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



**STEP 9. Check the wiring harness between ETACS-ECU connector C-226 (terminal 4 and 18) and the ignition switch (ACC).**

*NOTE: Also check junction block connector C-210, joint connector C-101 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210, joint connector C-101 or intermediate C-129 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between ETACS-ECU connector C-226 (terminal 4 and 18) and ignition switch (ACC) in good condition?**

**YES :** No action is necessary and testing is complete.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.