

GROUP 42B

KEYLESS OPERATION SYSTEM (KOS)

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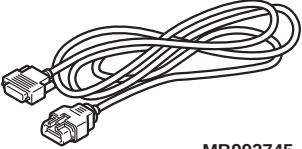
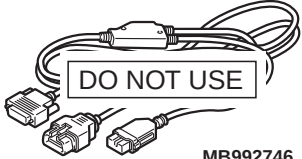
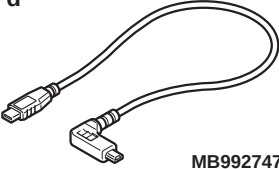
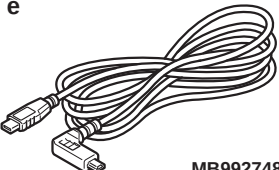
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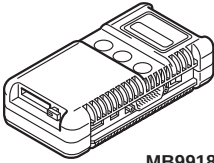
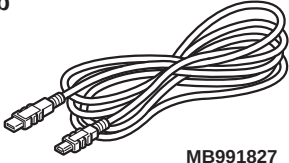
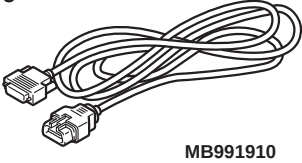
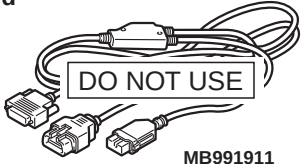
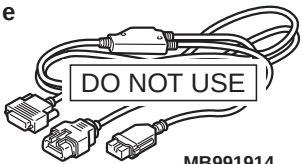
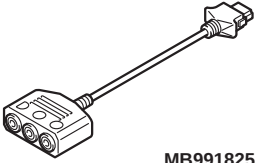
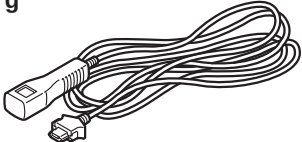
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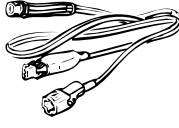
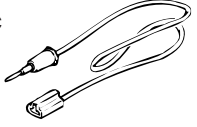
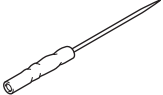
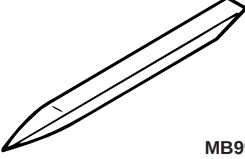
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SPECIAL TOOLS

M1429604300145

Tool	Tool number and name	Supersession	Application
a  MB992744	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748	—	• DTC, service data, actuator test check • Registration of ID codes
b  MB992745	a. Vehicle communication interface-Lite (V.C.I.-Lite)		
c  MB992746	b. V.C.I.-Lite main harness A (for vehicles with CAN communication) c. V.C.I.-Lite main harness B (for vehicles without CAN communication)		
d  MB992747	d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long		
e  MB992748 ACB05421AB			

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT <i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i>	⚠ CAUTION M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle. DTC, data list and actuator test check.

Tool	Tool number and name	Supersession	Application
a  b  c  d 	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	General service tool (jumper)	Continuity check and voltage measurement at harness wire or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 MB992006	MB992006 Extra fine probe	—	Continuity check and voltage measurement at harness wire or connector
 MB990784	MB990784 Ornament remover	General service tool	Removal of combination meter bezel

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1429604400056

Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points [P.00-6](#).

DIAGNOSTIC FUNCTION

M1429605400457

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the scan tool (GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

When detecting fault and storing the diagnostic trouble code, the ECU connected to CAN bus line obtains the data before the determination of the diagnostic trouble code and the data when the diagnostic trouble code is determined, and then stores the ECU status of that time. By analyzing each data from special tool, the troubleshooting can be performed more efficiently. The displayed items are as the table below.

Display item list

Item No.	Item name	Data item	Unit
1	Odometer	Total driving distance after the diagnostic trouble code is generated.	km
4	Accumulated minute	Cumulative time for current malfunction of diagnostic trouble code.	min

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A (for vehicles with CAN communication)
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

1. Turn the power supply mode of the engine switch to "ON".
2. Start up the personal computer.
3. Connect special tool MB992747/MB991748 or special tool MB991827 to special tool MB992744 or special tool MB991824 and the personal computer.
4. Connect special tool MB992745 or special tool MB991910 to special tool MB992744 or special tool MB991824.
5. Connect special tool MB992745 or special tool MB991910 to the data link connector.

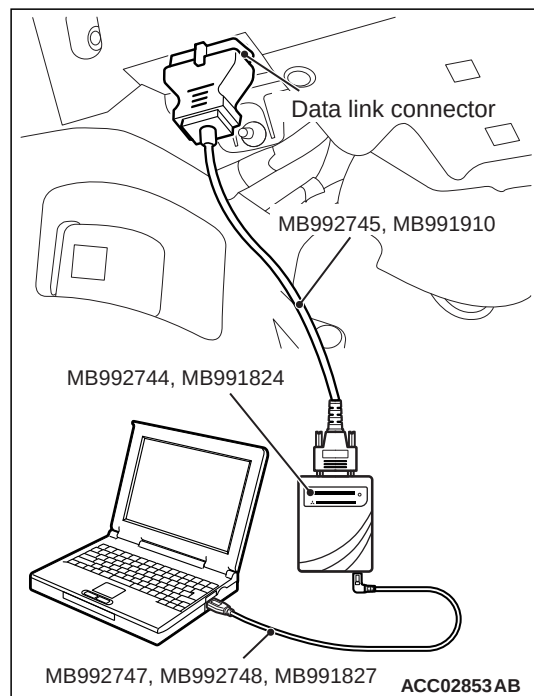
NOTE: when the special tool MB992745 is connected to the data link connector, the special tool MB992744 indicator light will be illuminated in a green color.

6. Turn the power switch of special tool MB991824 to the "ON" position <When using the special tool MB991824>.

NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.

7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool (M.U.T.-III) is the reverse of the connecting sequence, making sure that the power supply mode of the engine switch to the "OFF" position.



HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A (for vehicles with CAN communication)
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool (M.U.T.-III) does not display.

1. Connect scan tool (M.U.T.-III) to the data link connector.
2. Turn the power supply mode of the engine switch to "ON".
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.

6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

1. Connect scan tool (M.U.T.-III) to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.

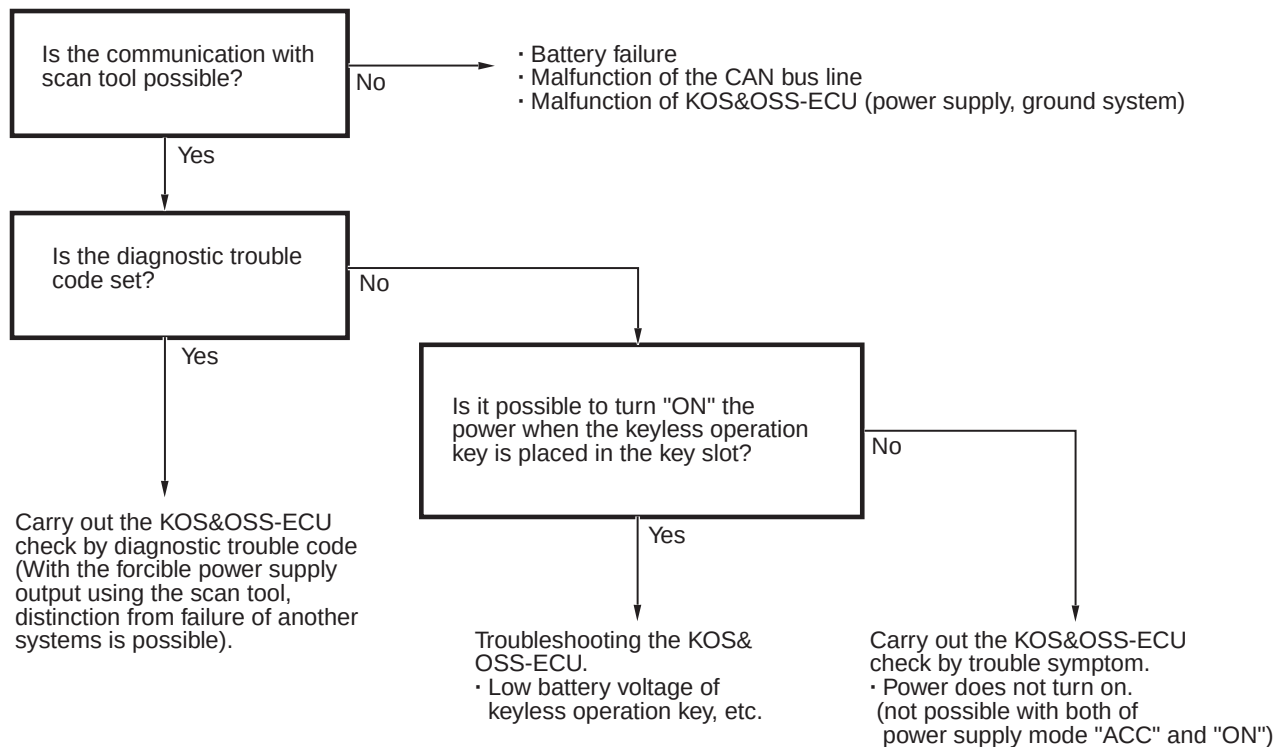
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

TROUBLESHOOTING PROCEDURE WHEN VEHICLE POWER DOES NOT TURN ON

M1429628300086

When the power does not turn "ON", open the driver's door. Then, check the communication between KOS&OSS-ECU and scan tool and others as shown in the flowchart below (KOS&OSS-ECU can communicate with the scan tool even when the power supply is "OFF").

Simplified troubleshooting flow chart



AC905152AJ

FORCED POWER SUPPLY OUTPUT PROCEDURE

M1429627400079

Required Special Tools:

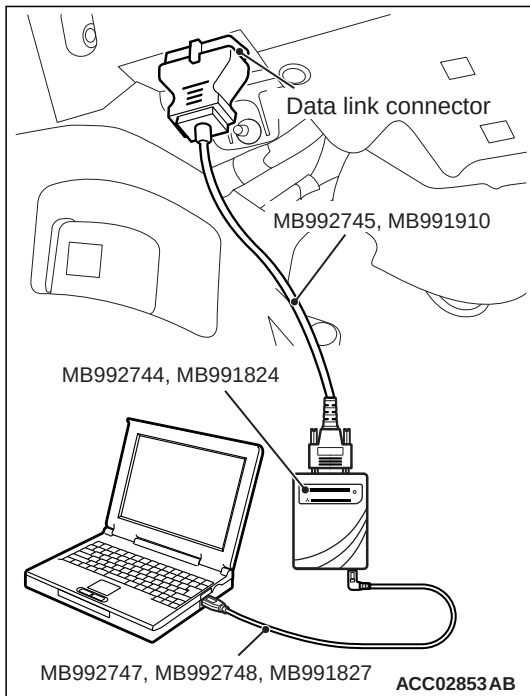
- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)

- MB992745: V.C.I.-Lite main harness A (for vehicles with CAN communication)
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

With OSS, the power supply cannot be turned "ON" until the certification communication with KOS is complete. However, using the scan tool, the power can be forced "ON" even when the certification communication with KOS is not completed. Through this process, the error in certification with KOS can be distinguished from the malfunction in power supply. In addition, the process allows the CAN bus diagnosis as well as the reading of diagnostic trouble code, belonging to systems other than OSS, to be performed.



FORCED POWER SUPPLY OUTPUT PROCEDURE

1. Connect special tool MB992747/MB991748 or special tool MB991827 to special tool MB992744 or special tool MB991824 and the personal computer.
2. Connect special tool MB992745 or special tool MB991910 to special tool MB992744 or special tool MB991824.
3. Connect special tool MB992745 or special tool MB991910 to the data link connector.

NOTE: when the special tool MB992745 is connected to the data link connector, the special tool MB992744 indicator light will be illuminated in a green color

4. On the "M.U.T.-III system" selection screen, select "KOS/OSS/IMMO/Keyless"
5. Select "Special Function" from KOS/OSS/IMMO/Keyless screen. For vehicles with KOS, select "with KOS".
6. Select "Forced power supply output" from Special Function screen.
7. From the forced power supply output screen, select the status with which the control is desired (Selection can be made from "IG-ACC", "IG-ON", and "IG-ST").
8. On the execution confirmation screen, select "OK".
9. While the process is executed, the selected control status is maintained.

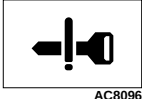
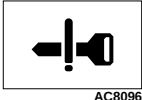
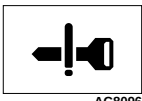
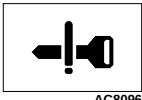
NOTE: During the forced power supply output, the indicator flashes in orange.

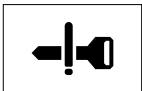
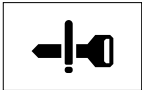
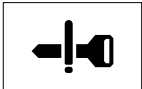
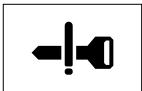
10. To cancel the forced power supply output, select "Forced power supply output (stop)" on the Special Function screen, or operate the engine switch.

WARNING AND WARNING INDICATOR

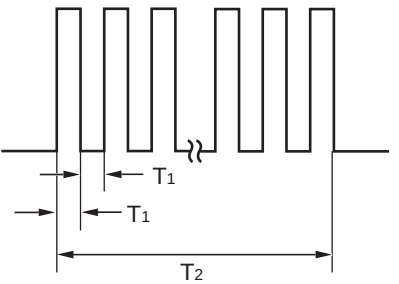
WARNING AND WARNING INDICATOR
LIST FOR KOS

When KOS failed or operated improperly, KOS&OSS-ECU warns the driver of this by setting off the outer buzzer and the keyless operation warning indicator on the combination meter.

Item	Indicator	State	Warning operation	Warning cancellation condition (when any of the condition met)
Keyless operation key battery low voltage warning	 AC809615	The keyless operation key with low battery voltage is detected when the engine switch is pressed.	Warning indicator flashes for 30 seconds.	- Power supply mode OFF is detected. 30 seconds have passed after the warning output started.
Keyless operation key take out warning	 AC809615	The keyless operation key is carried out of the vehicle when the power supply mode is in other than "OFF", and the door is closed.	- Warning indicator flashes when KOS&OSS-ECU has detected a keyless operation key inside the vehicle. - Outer buzzer sounds for pattern 2.	- Power supply mode OFF is detected. - KOS&OSS-ECU has detected a keyless operation key inside the vehicle. - The power supply mode is in ACC.
Door lock does not operate (keyless operation key is located inside the vehicle).	 AC809615	The driver's side lock/unlock switch or the liftgate lock/unlock switch are pressed when the keyless operation key is still located inside the car.	- Warning indicator flashes for 5 seconds. - Outer buzzer sounds for pattern 1.	- Driver's side lock/unlock switch or liftgate lock/unlock switch are pressed again. 5 seconds have passed after the warning output started.
Door lock does not operate (door open).	 AC809615	The driver's side lock/unlock switch or the liftgate lock/unlock switch are pressed when the door is ajar.	- Warning indicator flashes for 5 seconds. - Outer buzzer sounds for pattern 1.	- All doors are closed. 5 seconds have passed after the warning output started.

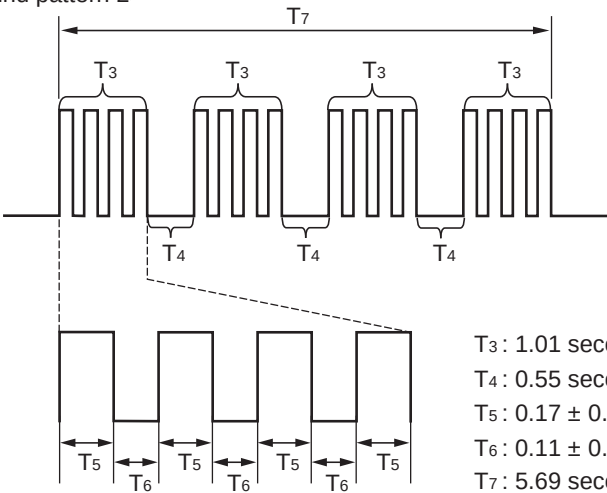
Item	Indicator	State	Warning operation	Warning cancellation condition (when any of the condition met)
System error	 AC809615	Engine switch is pressed when an error has been detected in EEPROM of KOS&OSS-ECU.	The warning indicator illuminates for 5 minutes.	Five minutes have passed since the alarm sounds, and also the power supply mode is OFF
		Engine switch is pressed when a transmission antenna has an open circuit or short to power supply.		
		Open circuit or short to ground is detected in the key slot.		
		An error is detected, and the power supply mode is other than "OFF".		
No keyless operation key detected inside the car	 AC809615	No keyless operation key is detected inside the car when the engine switch is pressed.	The warning indicator flashes for 5 seconds.	- Power supply mode OFF is detected. 5 seconds have passed after the warning output started.
Key reminder	 AC809615	With the driver's door kept open, the keyless operation key is not removed from the key slot located in the floor console.	- The warning indicator flashes for 1 minute. - Outer buzzer sounds for pattern 1.	- Key is removed from the key slot in the floor console. 1 minute has passed after the warning output started.
Engine switch reminder	 AC809615	The driver's side lock/unlock switch or the liftgate lock/unlock switch are pressed when the power supply mode is other than "OFF".	- Warning indicator flashes for 5 seconds. - Outer buzzer sounds for pattern 1.	- Power supply mode OFF is detected. 5 seconds have passed after the warning output started.

<Sound pattern 1>



T1 : 0.08 ± 0.01 seconds
T2 : 2.96 seconds

<Sound pattern 2>

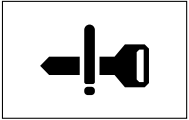


T3 : 1.01 seconds
T4 : 0.55 seconds
T5 : 0.17 ± 0.01 seconds
T6 : 0.11 ± 0.01 seconds
T7 : 5.69 seconds

AC501053AC

**WARNING AND WARNING INDICATOR
LIST FOR OSS**

When OSS failed or operated improperly,
KOS&OSS-ECU warns the driver to that effect by
displaying the one-touch start system warning indica-
tor on the combination meter.

Item	Indicator	Factor	Warning operation
Immobilizer error	 ACD01702	• Displayed when the certification communication fails with engine control module. • Displayed when the power supply mode is turned "ON" while the keyless operation key is judged to be brought outside the vehicle with the power supply mode in "ACC", or when the engine starting operation is performed after such a status.	• The warning indicator illuminates.
Power supply system error	 AC809615	Displayed when an error occurs to the power supply system.	• The warning indicator illuminates. • Tone alarm sounds.
Power OFF indication	—	The driver's door is open with the power supply mode in "ON" or in "ACC".	Tone alarm sounds.

DIAGNOSIS TROUBLE CODE CHART

M1429600201194

Diagnostic trouble code No.	Diagnostic item	Reference page
B1130	Ignition power supply	P.42B-15
B1131	Starter setting circuit fail	P.42B-25
B1132	Starter circuit fail	P.42B-27
B1133	IG1 setting circuit fail	P.42B-29
B1134	ECU power supply	P.42B-31
B1135	Engine switch	P.42B-33
B1136	Stop light switch	P.42B-35
B1137	P range detect SW	P.42B-38
B1157	EEPROM fail	P.42B-41
B1158	ECU internal error	
B1160	Key code not programmed	P.42B-42
B1161	VIN mismatch	P.42B-42
B1163	Coding data mismatch	P.42B-42
B1166	Special mode	P.42B-43
B1731	PCM authentication timeout	P.42B-43
B1A08	F.A.S.T. key1 fail	P.42B-44
B1A09	F.A.S.T. key2 fail	
B1A0A	F.A.S.T. key3 fail	
B1A0B	F.A.S.T. key4 fail	
B1A10	F.A.S.T. key 1 low battery	P.42B-45
B1A11	F.A.S.T. key 2 low battery	
B1A12	F.A.S.T. key 3 low battery	
B1A13	F.A.S.T. key 4 low battery	
B1A24	Transponder ID not registered	P.42B-46
B1A25	Transponder ID unmatched	P.42B-47
B1A28	PCM authentication error	P.42B-51
B2352	Antenna fail	P.42B-51
B2400	F.A.S.T. key registration fail	P.42B-52
B2401	F.A.S.T. key ID not registered	P.42B-54
B240A	DR side antenna(outdoor) open	P.42B-55
B240B	PS side antenna(outdoor) open	P.42B-56
B240C	Tail gate antenna(outdoor) open	P.42B-57
B240D	Front antenna(indoor) open	P.42B-58
B240E	RR antenna(indoor) open	P.42B-59

Diagnostic trouble code No.	Diagnostic item	Reference page
C1564	Vehicles speed data invalid	Refer to GROUP 31, Trouble Symptom Chart P.31-34.
C1900	Tire ID code No registration	
C1901	Vehicles speed signal	
C1902	Reset fail (warning threshold)	
C1910	Transmitter BATT. voltage, Tire1	
C1911	Tire ID reception fail, Tire1	
C1912	Tire air pressure low, Tire1	
C1913	Acceleration sensor, Tire1	
C1914	Tire air pressure sensor, Tire1	
C1915	Transmitter OFF mode, Tire1	
C1916	Temperature sensor, Tire1	
C1920	Transmitter BATT. voltage, Tire2	
C1921	Tire ID reception fail, Tire2	
C1922	Tire air pressure low, Tire2	
C1923	Acceleration sensor, Tire2	
C1924	Tire air pressure sensor, Tire2	
C1925	Transmitter OFF mode, Tire2	
C1926	Temperature sensor, Tire2	
C1930	Transmitter BATT. voltage, Tire3	
C1931	Tire ID reception fail, Tire3	
C1932	Tire air pressure low, Tire3	
C1933	Acceleration sensor, Tire3	
C1934	Tire air pressure sensor, Tire3	
C1935	Transmitter OFF mode, Tire3	
C1936	Temperature sensor, Tire3	
C1940	Transmitter BATT. voltage, Tire4	
C1941	Tire ID reception fail, Tire4	
C1942	Tire air pressure low, Tire4	
C1943	Acceleration sensor, Tire4	
C1944	Tire air pressure sensor, Tire4	
C1945	Transmitter OFF mode, Tire4	
C1946	Temperature sensor, Tire4	
U0100	Engine CAN timeout	P.42B-60
U0101	T/M CAN timeout	P.42B-62
U0141	ETACS CAN timeout	P.42B-65
U0155	Meter CAN timeout	P.42B-67
U0164	A/C CAN timeout	P.42B-69
U1190	No receive fault detect signal	P.42B-71
U1195	Coding not completed	P.42B-73

Diagnostic trouble code No.	Diagnostic item	Reference page
U1199	VIN not programmed	P.42B-42

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B1130: Ignition power supply

CAUTION

- If DTC B1130 is set, always diagnose the CAN bus lines.
- Before replacing ECU, ensure that the communication circuit is normal.

DTC SET CONDITION

If the output power supply status is different from the engine switch status information received from ETACS-ECU via CAN, KOS&OSS-ECU stores DTC B1130. At the same time, KOS&OSS-ECU displays the power supply system error warning to the combination meter, and flashes the indicator of engine switch in orange.

TECHNICAL DESCRIPTION (COMMENT)

Check Conditions

- The terminal voltage of IOD and +B is between 10 and 16 V.

Judgment Criterion

- Any of the following conditions is met, and 2 seconds or more have elapsed.
 - a. The CAN information (ACC, IG1 or IG2) received from ETACS-ECU is ON when the power supply mode is "OFF".

- b. The CAN information (ACC) received from ETACS-ECU is "OFF" when the power supply mode is "ACC".
- c. The CAN information (IG1 or IG2) received from ETACS-ECU is "ON" when the power supply mode is "ACC".
- d. The CAN information (ACC, IG1 or IG2) received from ETACS-ECU is "OFF" when the power supply mode is "ON".
- e. The CAN information (ACC, IG1 or IG2) from ETACS-ECU not receive.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- Damaged wiring harness or connector (short to ground, short to power supply, or open circuit in ACC line, IG1 line, IG2 line or IGM2 line)
- Malfunction of ACC relay
- Malfunction of IG1 relay
- Malfunction of IG2 Relay
- Malfunction of KOS&OSS-ECU
- Malfunction of ETACS-ECU
- Commercial electric products that are connected to the accessory socket

NOTE: Be sure to remove the commercial electric products that are connected to the accessory socket before troubleshooting. Otherwise troubleshooting cannot be performed correctly.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if KOS&OSS-ECU DTC B1133 is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the OFF position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) (Refer to "How to connect the Scan Tool (M.U.T.-III) P.42B-5").
- (2) Turn the power supply mode of the engine switch to OFF.
- (3) Operate the engine switch to change the power supply mode, and check that the data list display of ETACS-ECU is changed.
 - When power supply mode is OFF.

ETACS-ECU data list		
Item No.	Item name	Normal condition
29	Ignition switch(ACC)	OFF
30	Ignition switch(IG1)	OFF
44	Ignition switch(IG2)	OFF

- When power supply mode is ACC.

ETACS-ECU data list		
Item No.	Item name	Normal condition
29	Ignition switch(ACC)	ON
30	Ignition switch(IG1)	OFF
44	Ignition switch(IG2)	OFF

- When power supply mode is ON.

ETACS-ECU data list		
Item No.	Item name	Normal condition
29	Ignition switch(ACC)	ON
30	Ignition switch(IG1)	ON
44	Ignition switch(IG2)	ON

OK: Normal conditions are displayed for all the items.

Q: Are the check result normal?

YES (Normal conditions are displayed for all the items) :
Go to Step 27.

NO (Normal condition is not displayed for item No. 29) :
Go to Step 4.

NO (Normal condition is not displayed for item No. 30) :
Go to Step 11.

NO (Normal condition is not displayed for item No. 44) :
Go to Step 18.

STEP 4. ACC relay check.

Check that the ACC relay works normally (Refer to [P.42B-129](#)).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the ACC relay.

STEP 5. Resistance measurement at ACC relay connector (ground line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the ACC relay connector (ground line) and the body ground.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check of open circuit in ground line between the ACC relay connector and the body ground.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 7. Voltage measurement at ACC relay connector (ACC line and power supply line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the voltage between the ACC relay connector (power supply line) and the body ground.

OK: System voltage

- (3) Turn the power supply mode of the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (4) Measure the voltage between the ACC relay connector (ACC line) and the body ground.

OK: System voltage

- (5) Turn the power supply mode of the power supply mode of the engine switch from ON position to LOCK (OFF) position.
- (6) Measure the voltage between the ACC relay connector (ACC line) and the body ground.

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 8.

STEP 8. Check of short and open circuit in ACC line between the KOS&OSS-ECU connector and the ACC relay connector.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the connector(s) or wiring harness.

STEP 9. Check of short and open circuit in power supply line between the junction block connector and the ACC relay connector.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 10. Voltage measurement at ETACS-ECU connector (ACC line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (3) Measure the voltage between the ETACS-ECU connector (ACCI line) and the body ground.

OK: System voltage

- (4) Turn the power supply mode of the engine switch from ON position to LOCK (OFF) position.
- (5) Measure the voltage between the ETACS-ECU connector (ACC line) and the body ground.

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 25.

NO : Repair the wiring harness, ACC line between the ETACS-ECU connector and the fusible link.

STEP 11. IG1 relay check.

Check that the IG1 relay works normally (Refer to [P.42B-129](#)).

Q: Is the check result normal?

YES : Go to Step 12.

NO : Replace the IG1 relay.

STEP 12. Resistance measurement at IG1 relay connector (ground line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the IG1 relay connector (ground line) and the body ground.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 14.

NO : Go to Step 13.

STEP 13. Check of open circuit in ground line between the IG1 relay connector and the body ground.**Q: Is the check result normal?**

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 14. Voltage measurement at IG1 relay connector (IG1 line and power supply line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the voltage between the IG1 relay connector (power supply line) and the body ground.

OK: System voltage

- (3) Turn the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (4) Measure the voltage between the IG1 relay connector (IG1 line) and the body ground.

OK: System voltage

- (5) Turn the power supply mode of the engine switch from ON position to LOCK (OFF) position.
- (6) Measure the voltage between the IG1 relay connector (IG1 line) and the body ground.

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 17.

NO : Go to Step 15.

STEP 15. Check of short and open circuit in IG1 line between the KOS&OSS-ECU connector and the IG1 relay connector.**Q: Is the check result normal?**

YES : Go to Step 16.

NO : Repair the connector(s) or wiring harness.

STEP 16. Check of short and open circuit in power supply line between the junction block connector and the IG1 relay connector.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 17. Voltage measurement at ETACS-ECU connector (IG1 line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (3) Measure the voltage between the ETACS-ECU connector (IG1 line) and the body ground.

OK: System voltage

- (4) Turn the power supply mode of the engine switch from ON position to LOCK (OFF) position.
- (5) Measure the voltage between the ETACS-ECU connector (IG1 line) and the body ground.

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 25.

NO : Repair the wiring harness, IG1 line between the ETACS-ECU connector and the fusible link.

STEP 18. IG2 relay check.

Check that the IG2 relay works normally (Refer to [P.42B-129](#)).

Q: Is the check result normal?

YES : Go to Step 19.

NO : Replace the IG2 relay.

STEP 19. Resistance measurement at IG2 relay connector (ground line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the IG2 relay connector (ground line) and the body ground.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 21.

NO : Go to Step 20.

STEP 20. Check of open circuit in ground line between the IG2 relay connector and the body ground.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 21. Voltage measurement at IG2 relay connector (IG2 line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the voltage between the IG1 relay connector (power supply line) and the body ground.

OK: System voltage

- (3) Turn the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (4) Measure the voltage between the IG2 relay connector (IG2 line) and the body ground.

OK: System voltage

- (5) Turn the power supply mode of the engine switch from ON position to LOCK (OFF) position.
- (6) Measure the voltage between the IG2 relay connector (IG2 line) and the body ground.

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 24.

NO : Go to Step 22.

STEP 22. Check of short and open circuit in IG2 line between the KOS&OSS-ECU connector and the IG2 relay connector.

Q: Is the check result normal?

YES : Go to Step 23.

NO : Repair the connector(s) or wiring harness.

STEP 23. Check of short and open circuit in power supply line between the junction block connector and the IG2 relay connector.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 24. Voltage measurement at ETACS-ECU connector (IG2 line).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (3) Measure the voltage between the ETACS-ECU connector (IG2 line) and the body ground.

OK: System voltage

- (4) Turn the power supply mode of the engine switch from ON position to LOCK (OFF) position.
- (5) Measure the voltage between the ETACS-ECU connector (IG2 line) and the body ground.

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 25.

NO : Repair the wiring harness, IG2 line between the ETACS-ECU connector and the fusible link.

STEP 25. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the OFF position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to OFF.
- (3) Operate the engine switch to change the power supply mode, and check that the data list display of ETACS-ECU is changed.

- When power supply mode is OFF.

ETACS-ECU data list		
Item No.	Item name	Normal condition
29	Ignition switch(ACC)	OFF
30	Ignition switch(IG1)	OFF
44	Ignition switch(IG2)	OFF

- When power supply mode is ACC.

ETACS-ECU data list		
Item No.	Item name	Normal condition
29	Ignition switch(ACC)	ON
30	Ignition switch(IG1)	OFF
44	Ignition switch(IG2)	OFF

- When power supply mode is ON.

ETACS-ECU data list		
Item No.	Item name	Normal condition
29	Ignition switch(ACC)	ON
30	Ignition switch(IG1)	ON
44	Ignition switch(IG2)	ON

OK: Normal conditions are displayed for all the items.

Q: Are the check result normal?

YES (Normal conditions are displayed for all the items) :

Go to Step 26.

NO (Normal condition is not displayed for item No. 29) :

Go to Step 27.

NO (Normal condition is not displayed for item No. 30) :

Go to Step 27.

NO (Normal condition is not displayed for item No. 44) :
Go to Step 27.

STEP 26. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (3) On completion, check that the DTC is set again.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : Intermittent malfunction is suspected (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

STEP 27. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from LOCK (OFF) position to ON position.
- (3) On completion, check that the DTC is not set again.

Q: Is the diagnostic trouble code set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

DTC B1131: Starter setting circuit fail

 CAUTION

- When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When a short circuit of starter setting circuit system is detected, KOS&OSS-ECU stores DTC B1131. At the same time, KOS&OSS-ECU displays the power supply system error warning to the combination meter, and flashes the indicator of engine switch in orange.

DTC SET CONDITION

Check Conditions

- After KOS&OSS-ECU activation

Judgment Criterion

- Starter setting circuit system is detected

TROUBLESHOOTING HINTS

- Damaged wiring harness or connector (short to ground or short to power supply in ST line)
- Malfunction of KOS&OSS-ECU
- Malfunction of engine control module

DIAGNOSIS

STEP 1. Check of short or open circuit in ST line between KOS&OSS-ECU connector and engine control module connector.**Q: Is the check result normal?****YES :** Go to Step 2.**NO :** Repair the connector(s) or wiring harness.

STEP 2. Voltage measurement at engine control module connector (STO terminal).

- (1) Disconnect the engine control module connector, and measure at the wiring harness side.
- (2) Using the scan tool MB991958, set the forced power supply output to other than "IG-ST" (Refer to [P.52B-229](#)).
- (3) Measure the voltage between the engine control module connector (STO terminal) and body ground.

OK: 1 V or less

- (4) Using the scan tool MB991958, set the forced power supply output to "IG-ST" (Refer to [P.15-5](#)).
- (5) Measure the voltage between the engine control module connector (STO terminal) and body ground.

OK: System voltage**Q: Is the check result normal?****YES :** Go to Step 3.**NO :** Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 3. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?**YES :** Replace the engine control module and register the VIN and key codes (Refer to GROUP 00 – How to Perform VIN Writing [P.00-26](#)).**NO :** Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1132: Starter circuit fail

CAUTION

When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When the engine starting circuit system "ON" status is received while the starter setting circuit system is "OFF", the starter setting circuit system determines that the system is detected and the KOS&OSS-ECU sets DTC B1132. At the same time, KOS&OSS-ECU displays the power supply system error warning to the combination meter.

DTC SET CONDITION

Check Conditions

- After KOS&OSS-ECU activation

Judgment Criterion

- When the starter setting signal is "OFF", the cranking signal is received from engine control module.

TROUBLESHOOTING HINTS

- Damaged wiring harness or connector (short to power supply in ST line)
- Malfunction of engine control module
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Check of short or open circuit in ST line between KOS&OSS-ECU connector and engine control module connector.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. Using scan tool MB991958, check other system data list.

CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Check the engine control module data list.
 - Item No. 79: Cranking signal (Refer to GROUP 13A – Troubleshooting, Service Data Reference Table [P.13A-599](#)).
- (3) Turn the power supply mode of the engine switch to "OFF".

Q: Is the check result normal?

YES : Go to Step 3.

NO : Carry out the troubleshooting for the DTC B1131 (Refer to diagnostic trouble code chart [P.42B-13](#)).

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) On completion, check that the DTC is not set, after 10 seconds or more have elapsed since the engine switch "ON".
- (4) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the engine control module and register the VIN and key codes (Refer to GROUP 00 – How to Perform VIN Writing [P.00-26](#)), and go to Step 4.

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 4 Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) On completion, check that the DTC is not set, after 10 seconds or more have elapsed since the engine switch "START".
- (4) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the engine control module and register the VIN and key codes (Refer to GROUP 00 – How to Perform VIN Writing [P.00-26](#)), and go to Step 5.

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 5 Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1133: IG1 setting circuit fail

 CAUTION

When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When a short circuit of IG1 setting circuit system is detected, KOS&OSS-ECU stores DTC B1133. At the same time, KOS&OSS-ECU displays the power supply system error warning to the combination meter, and flashes the indicator of engine switch in orange.

DTC SET CONDITION**Check Conditions**

- After KOS&OSS-ECU activation

Judgment Criterion

- IG1 setting circuit system is detected.

TROUBLESHOOTING HINTS

- Damaged wiring harness or connector (short to ground or short to power supply in IG1 line)
- Malfunction of IG1 relay
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Check of short circuit in IG1 line between KOS&OSS-ECU connector and IG1 relay connector.**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. IG1 relay check.

Check that the IG1 relay works normally (Refer to [P.42B-129](#)).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the IG1 relay.

STEP 3. Voltage measurement at IG1 relay connector (IG1 terminal).

- (1) Remove the IG1 relay and check at its energized side.
- (2) Using the scan tool MB991958, set the forced power supply output to other than IG-ON (Refer to [P.42B-8](#)).
- (3) Measure the voltage between the IG1 relay connector (IG1 terminal) and body ground.

OK: 1 V or less

- (4) Using the scan tool MB991958, set the forced power supply output to "IG-ON" (Refer to [P.42B-8](#)).
- (5) Measure the voltage between the IG1 relay connector (IG1 terminal) and body ground.

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 4. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.

Item No.	Check item	Power supply mode	Display
25	IG1 output (monitor)	ON (including START)	ON
		Other than ON	OFF

OK: Depending on the state of power supply mode, the display is turned ON/OFF.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 5. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1134: ECU power supply

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When an open circuit is detected in one of the two systems of power supply, KOS&OSS-ECU stores DTC B1134. At the same time, KOS&OSS-ECU displays the power supply system error warning to the combination meter, and flashes the indicator of engine switch in orange.

DTC SET CONDITION

Check Conditions

- After KOS&OSS-ECU activation

Judgment Criterion

- When the following conditions are met, and 1 second or more has elapsed.

- a. IOD is detected to be "ON" and +B is detected to be "OFF".
- b. "ACC-ON" signal is received from the ETACS-ECU when IOD is "OFF" and +B is "ON"

TROUBLESHOOTING HINTS

- Malfunction of ETACS-ECU battery power supply system
- Damaged wiring harness or connector (open circuit in +B line)
- Blown out fuse
- Malfunction of KOS&OSS-ECU

NOTE: If the fuse No.F13 (7.5 A) is blown, there may be a short to ground between the fuse and KOS&OSS-ECU. However, because the fuse No.F13 is branched off, determine the root cause while referring to the Electrical Wiring Manual.

DIAGNOSIS

STEP 1. Check the battery power supply circuit to the ETACS-ECU.

Refer to GROUP 54A – ETACS – Inspection Procedure 1
Check the battery power supply circuit to the ETACS-ECU
[P.54A-237](#).

Q: Is the DTC set?

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.

Item No.	Check item	Normal condition
28	+B1 Power supply voltage (AD)	System voltage
29	+B2 Power supply voltage (AD)	System voltage

OK: Normal values are displayed for all the items

Q: Are the check result normal?

YES (Normal conditions are displayed for all the items) :

Go to Step 5.

NO (Normal condition is not displayed for item No. 28) :

Go to Step 3.

NO (Normal condition is not displayed for item No. 29) :

Go to Step 4.

STEP 3. Check of open circuit in IOD line between KOS&OSS-ECU connector and fusible link.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in +B line between KOS&OSS-ECU connector and fusible link.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

STEP 5. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1135: Engine switch

** CAUTION**

When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When an abnormality is detected for 3 seconds or more with either of the SW1 or SW2 of engine switch, KOS&OSS-ECU stores DTC B1135, and displays the power supply system error warning to the combination meter, and flashes the indicator of engine switch in orange.

DTC SET CONDITION**Check Conditions**

- After KOS&OSS-ECU activation

Judgment Criterion

- 3 seconds or more have elapsed since the unmatched between the SW1 and SW2 of engine switch is detected

TROUBLESHOOTING HINTS

- Engine switch malfunction (ON/OFF seizure of SW1 or SW2)
- Damaged wiring harness or connector (short to power supply, short to ground, or open circuit in SW1 or SW2 line)
- Blown out fuse
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Engine switch check.

Refer to [P.42B-142](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the engine switch.

STEP 2. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.
 - Operate the engine switch.

Item No.	Check item	Operation state	Display
20	Engine switch(1)	When the engine switch is pressed	ON
21	Engine switch(2)		ON
20	Engine switch(1)	When the engine switch is not pressed	OFF
21	Engine switch(2)		OFF

OK: Normal values are displayed for all the items

Q: Are the check result normal?

YES (Normal conditions are displayed for all the items) :

Go to Step 7.

NO (Normal condition is not displayed for item No. 20) :

Go to Step 3.

NO (Normal condition is not displayed for item No. 21) :

Go to Step 6.

STEP 3. Check of short to power supply, short to ground, and open circuit in SW1 line between KOS&OSS-ECU connector and engine switch connector.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

STEP 4. Check of short to ground or open circuit between relay box (fuse) connector and engine switch connector.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s), wiring harness or fuse.

STEP 5. Check of open circuit between engine switch connector and body ground.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

STEP 6. Check of short and open circuit in SW2 line between KOS&OSS-ECU connector and engine switch connector.

NOTE: Because the conformity cannot be determined even when the digital tester is used to measure the voltage of SW2 line between the KOS&OSS-ECU connector and engine switch connector, be sure to use the oscilloscope (Outputs the saw-tooth waveform of 0 to 5 V with intervals of 10 ms).

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

STEP 7. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1136: Stop light switch

 CAUTION

When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When the stop light switch status is different from the brake switch information received from ETACS-ECU via CAN, KOS&OSS-ECU stores DTC B1136, and displays the power supply system error warning the combination meter, and flashes the indicator of engine switch in orange.

DTC SET CONDITION**Check Conditions**

- After KOS&OSS-ECU activation

Judgment Criterion

- The difference between the stop light switch condition and the stop light switch information has been detected.
- The stop light switch information from the ETACS-ECU cannot be received via CAN communication.

TROUBLESHOOTING HINTS

- CAN bus line malfunction
- Damaged wiring harness or connector (short to ground or open circuit between stop light switch and KOS&OSS-ECU or between stop light switch and ETACS-ECU)
- ETACS-ECU malfunction
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Check of short to ground and open circuit in STP1 line between stop light switch connector and KOS&OSS-ECU connector

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector(s) or wiring harness.

STEP 3. Check of short to ground and open circuit in BKLP line between stop light switch connector and ETACS-ECU connector

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

STEP 4. Using scan tool MB991958, check other system data list.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the OFF position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) After performing the forced power supply output (refer to forced power supply output procedure [P.42B-8](#)) "IG-ON".
- (3) Check the ETACS-ECU data list.
 - Item No.108: Stop light switch (Refer to GROUP 54A – ETACS, Service Data Reference Table [P.54A-233](#)).
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the check result normal?

YES : Go to Step 5.

NO : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS, Trouble Symptom Chart for Input Signal [P.54A-239](#)).

STEP 5. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool MB991958 [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.
 - Operate the brake pedal.

Item No.	Check item	Operation state	Display
22	Stop light switch	Brake pedal is depressed	ON
		Brake pedal released	OFF

OK: Operation state and data list display agree with each other.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 6. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1137: P range detect SW

** CAUTION**

When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

If an error is detected in the P range detection switch circuit system, KOS&OSS-ECU stores DTC B1137, and displays the immobilizer certification system inspection warning the combination meter.

DTC SET CONDITION**Check Conditions**

- Power supply mode: ON

Judgment Criterion

- When the vehicle speed is 10 km/h or more, 1 second or more has elapsed since the P range detection switch is detected to be "OFF" (selector lever is in P position).
- When the P range detection switch is "OFF", the signal other than selector lever P position is received for 2 seconds or more.

TROUBLESHOOTING HINTS

- Damaged wiring harness or connector (short to power supply or open circuit in PDSW line)
- Selector lever assembly malfunction (OFF seizure of P range detection switch)
- Malfunction of the ASC-ECU
- Malfunction of the engine control module
- Malfunction of the CVT-ECU
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Check of selector lever assembly (P range detection switch)

Disconnect the selector lever assembly connector, and check the continuity at the equipment side.

Check item	Terminal No.	Normal value
Selector lever: P position	4 – 6	No continuity
Selector lever: Other than P position		Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the selector lever assembly.

STEP 2. Using scan tool MB991958, read other system diagnostic trouble code**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) After performing the forced power supply output (refer to forced power supply output procedure [P.42B-8](#)) "IG-ON".
- (3) Check the diagnostic trouble code of engine control module, ASC-ECU or CVT-ECU.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES <Stored in engine control module> : Troubleshoot the engine control module (Refer to GROUP 13A – Troubleshooting [P.13A-47](#)).

YES <Stored in ASC-ECU> : Troubleshoot the ASC-ECU (Refer to GROUP 35C – Troubleshooting [P.35C-16](#)).

YES <Stored in CVT-ECU> : Troubleshoot the CVT-ECU (Refer to GROUP 23A – Troubleshooting [P.23A-16](#)).

NO : Go to Step 3.

STEP 3. Check of short to power supply and open circuit in PDSW line between selector lever assembly connector and KOS&OSS-ECU connector

NOTE: Because the conformity cannot be determined even when the digital tester is used to measure the voltage of PDSW line between the selector lever assembly connector and KOS&OSS-ECU connector, be sure to use the oscilloscope (Outputs the saw tooth waveform of 0 to 5 V with intervals of 10 ms).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

STEP 4. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.
 - Operate the selector lever.

Item No.	Check item	Operation state	Display
24	P range detect SW	Selector lever: P position	Park position
		Selector lever: Other than P position	Other than Park position

OK: Operation state and data list display agree with each other.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 5. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1157: EEPROM fail

DTC B1158: ECU internal error

TECHNICAL DESCRIPTION (COMMENT)

- When an EEPROM writing/reading error of KOS&OSS-ECU is detected, KOS&OSS-ECU stores DTC B1157, and flashes the indicator of engine switch in orange.
- When an error is detected to the microcomputer in KOS&OSS-ECU stores DTC B1158, and flashes the indicator of engine switch in orange.

DTC SET CONDITION

Check Conditions

- After KOS&OSS-ECU activation

Judgment Criterion

- When the following conditions are met:
 - a. EEPROM writing/reading error is detected.
 - b. ECU internal circuit error is detected.

TROUBLESHOOTING HINT

- Malfunction of KOS&OSS-ECU

DIAGNOSIS

Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1160: Key code not programmed
DTC U1199: VIN not programmed

⚠ CAUTION

- When DTC B1160 or U1199 is set, be sure to diagnose the CAN bus line.
- Before replacing ECU, ensure that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

- KOS&OSS-ECU stores DTC B1160 when the key code is not written.
- KOS&OSS-ECU stores DTC U1199 when no VIN is recorded in it.

NOTE: When KOS&OSS-ECU is new, DTC B1160 and U1199 are set simultaneously.

DTC SET CONDITION

Judgment Criterion

- VIN or key code has the initial value (not written)

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- VIN not written
- Key code not written
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

1. Using scan tool MB991958, diagnose the CAN bus line.
2. VIN registration

DTC B1161: VIN mismatch

⚠ CAUTION

- When diagnosis trouble code No.B1161 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When the VIN registered in KOS&OSS-ECU is different from the VIN transmitted by engine control module on the CAN bus line, KOS&OSS-ECU sets DTC B1161.

DTC SET CONDITION

Check Conditions

- When all the following conditions are met.
 - a. Power supply mode: "ON"
 - b. VIN written in KOS&OSS-ECU

Judgment Criterion

- The VIN received via CAN communication is different from the VIN written in KOS&OSS-ECU.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- Writing error of VIN to engine control module (engine control module has been interchanged between two vehicles, or VIN has not been written after engine control module replacement)
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

1. Using scan tool MB991958, diagnose the CAN bus line.
2. Check of VIN in engine control module
3. KOS&OSS-ECU diagnostic trouble code recheck

DTC B1163: Coding data mismatch

⚠ CAUTION

- When DTC B1163 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When the coding data registered in KOS&OSS-ECU is different from the coding data transmitted on the CAN bus, KOS&OSS-ECU stores DTC B1163. At the same time, KOS&OSS-ECU displays the power supply system error warning to the combination meter, and flashes the indicator of engine switch in orange.

DTC SET CONDITION**Judgment Criterion**

- A coding data is received which is different from the current coding status.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- ETACS-ECU malfunction

- ETACS-ECU has been interchanged between two vehicles
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

1. Using scan tool MB991958, diagnose the CAN bus line.
2. ETACS-ECU diagnostic trouble code check
3. ETACS-ECU coding data check
4. KOS&OSS-ECU diagnostic trouble code recheck

DTC B1166: Special mode**TECHNICAL DESCRIPTION (COMMENT)**

When KOS&OSS-ECU is in the special operation mode (ECU is new), KOS&OSS-ECU stores DTC B1166, and flashes the indicator of engine switch in green.

NOTE: The diagnostic trouble code B1166 will be erased and the system will resume normal functionality when you register the VIN and the keyless operation key code, execute the global coding, and then operate the engine switch to authorize the key.

DTC SET CONDITION**Judgment Criterion**

- During special operation mode

TROUBLESHOOTING HINTS

- VIN not written
- Key code not written
- Malfunction of KOS&OSS-ECU
- Malfunction of keyless operation key

DIAGNOSIS

1. Check the KOS diagnostic trouble code.
2. Check if KOS&OSS-ECU DTC B1160, U1195 or U1199 is set.
3. After operating the engine switch from ON to OFF twice, recheck the diagnostic trouble code of KOS&OSS-ECU.

DTC B1731: PCM authentication timeout**CAUTION**

- When DTC B1731 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If the necessary data cannot be received from engine control module via CAN bus line during the engine starting certification with engine control module, KOS&OSS-ECU determines that a problem has occurred, and stores DTC B1731. At the same time, KOS&OSS-ECU displays the immobilizer certification system inspection warning to the combination meter.

DIAGNOSIS**TECHNICAL DESCRIPTION (COMMENT)****Check Conditions**

- At engine starting certification

Judgment Criterion

- At the engine starting certification with engine control module, necessary data cannot be received from engine control module via CAN bus line.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- Malfunction of engine control module
- Malfunction of KOS&OSS-ECU

1. Using scan tool MB991958, diagnose the CAN bus line.

2. Engine control module diagnostic trouble code check
3. KOS&OSS-ECU diagnostic trouble code recheck

DTC B1A08: F.A.S.T. key1 fail
DTC B1A09: F.A.S.T. key2 fail
DTC B1A0A: F.A.S.T. key3 fail
DTC B1A0B: F.A.S.T. key4 fail

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

TROUBLESHOOTING HINTS

- Malfunction of the keyless operation key
- Malfunction of the KOS&OSS-ECU

DTC SET CONDITION

If KOS&OSS-ECU receives wrong signal from the keyless operation key, KOS&OSS-ECU memorizes DTCs B1A08, B1A09, B1A0A or B1A0B.

DIAGNOSIS**STEP 1. Operate the keyless operation key, and recheck the diagnostic trouble code.**

- (1) Operate the keyless operation key as follows:
 - Push the lock switch or unlock switch of keyless operation key five times or more.
 - When the keyless operation is not recovered after performing the above procedure, register the key again (Refer to [P.42B-123](#)).
- (2) Push the lock switch or unlock switch of keyless operation key.
- (3) Check if the diagnostic trouble code is set.

Q: Is the DTC set?

YES : Perform troubleshooting if KOS&OSS-ECU except DTCs B1A10, B1A11, B1A12 or B1A13 are set. Then go to Step 2.

NO : The diagnosis is complete.

STEP 2. Check whether the diagnostic trouble code is set again.

Replace the keyless operation key by which the diagnostic trouble code is set with a new one, register the key (Refer to [P.42B-123](#)), and recheck if the diagnostic trouble code is set.

- (1) Push the lock button or unlock button of keyless operation key.
- (2) Check if the diagnostic trouble code is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : The diagnosis is complete.

DTC B1A10: F.A.S.T. key 1 low battery
DTC B1A11: F.A.S.T. key 2 low battery
DTC B1A12: F.A.S.T. key 3 low battery
DTC B1A13: F.A.S.T. key 4 low battery

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If KOS&OSS-ECU receives the keyless operation key low battery voltage signal, KOS&OSS-ECU stores DTCs No. B1A10, B1A11, B1A12, or B1A13.

TECHNICAL DESCRIPTION (COMMENT)

- B1A10: If KOS&OSS-ECU receives the keyless operation key 1 (the first keyless operation key registered with KOS&OSS-ECU) low battery voltage signal in five consecutive times, it is judged as abnormal.
- B1A11: If KOS&OSS-ECU receives the keyless operation key 2 (the second keyless operation key registered with KOS&OSS-ECU) low battery voltage signal in five consecutive times, it is judged as abnormal.
- B1A12: If KOS&OSS-ECU receives the keyless operation key 3 (the third keyless operation key registered with KOS&OSS-ECU) low battery voltage signal in five consecutive times, it is judged as abnormal.
- B1A13: If KOS&OSS-ECU receives the keyless operation key 4 (the fourth keyless operation key registered with KOS&OSS-ECU) low battery voltage signal in five consecutive times, it is judged as abnormal.

TROUBLESHOOTING HINTS

- Malfunction of the keyless operation key battery
- Malfunction of the keyless operation key
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Replace the battery in the keyless operation key and recheck the diagnostic trouble code.

Replace the battery of the keyless operation key for which the DTC is set, and check whether the DTC is set again.

- (1) Replace the battery of the keyless operation key for which the DTC is set.
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch from OFF to ON.
- (4) Lock or unlock the keyless operation key.
- (5) Check if the DTC is set.

Q: Is the DTC set?

YES : Perform troubleshooting if KOS&OSS-ECU except DTCs B1A10, B1A11, B1A12 or B1A13 are set. Then go to Step 2.

NO : The diagnosis is complete.

STEP 2. Check whether the diagnostic trouble code is set again.

Replace the keyless operation key by which the diagnostic trouble code is set with a new one, register the key (Refer to [P.42B-123](#)), and recheck if the diagnostic trouble code is set.

- (1) Push the lock button or unlock button of keyless operation key.
- (2) Check if the diagnostic trouble code is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : The diagnosis is complete.

DTC B1A24: Transponder ID not registered

⚠ CAUTION

- When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

KOS&OSS-ECU stores DTC B1A24 when the key ID was not registered in it.

TECHNICAL DESCRIPTION (COMMENT)

KOS&OSS-ECU determines that the abnormality is present, if the key ID is not registered in it when the power supply mode of the engine switch is turned "ON".

TROUBLESHOOTING HINTS

- Key ID not registered
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Register the key ID.

Register the key ID and keyless operation key.

Q: Is the key ID registration complete?

YES : Go to Step 2.

NO : Perform troubleshooting (Refer to [P.42B-77](#)).

STEP 2. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : The diagnosis is complete.

DTC B1A25: Transponder ID unmatched

⚠ CAUTION

- When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

KOS&OSS-ECU sets DTC B1A25 when the received key ID is different from the registered one or the key slot cannot communicate with the key correctly.

TECHNICAL DESCRIPTION (COMMENT)

KOS&OSS-ECU determines that the abnormality is present, if the key ID does not match the one registered in the KOS&OSS-ECU.

TROUBLESHOOTING HINTS

- Malfunction of the keyless operation key or spare key
- Key is registered to another vehicle
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. All of the registered keyless operation key and spare key should allow the engine switch to be turned all positions.

- (1) Prepare all of the registered keyless operation key and spare key.
- (2) Remove the batteries from all of the keyless operation keys (Refer to [P.42B-136](#)).
- (3) Insert one of the keyless operation key and spare key into the key slot, after the power supply mode of the engine switch to "LOCK" (OFF) position.
- (4) Check whether the engine switch can be turned from all positions.
- (5) Turn the power supply mode of the engine switch to "LOCK" (OFF) position again.
- (6) Repeat the same procedure for the other keyless operation key and spare key. Check that all of the registered keyless operation key and spare key allow the engine switch to be turned all positions.
- (7) Install the batteries to all the keyless operation keys.

Q: Is the check result normal?

The engine switch can be turned all positions by operating all of the keyless operation key and spare key

- :
- Check if the diagnostic trouble code is set. If the diagnostic trouble code is erased, the diagnosis is complete. If not, go to Step 3.

The engine switch cannot be turned all positions by operating all of the keyless operation key and spare key

- :
- Check whether DTC B2352 is set. If DTC B2352 is set, go to the troubleshooting (Refer to [P.42B-51](#)). Repeat Step 1. If DTC B2352 is not set, go to Step 2.

STEP 2. Register the keyless operation key and spare key which cannot activate the engine switch again.

Register the keyless operation key and spare key which cannot activate the engine switch again (Refer to [P.42B-123](#)).

Q: Is the check result normal?

All of the keyless operation key and spare key can be registered again : Go to Step 3.

All of the keyless operation key and spare key cannot be registered again : The keyless operation key and spare key, which cannot be registered, is defective. Put it aside. Go to Step 3.

STEP 3. It should allow the engine switch to be turned all positions, after register all of the keyless operation key and spare key again.

- (1) Remove the batteries from all of the keyless operation keys (Refer to [P.42B-136](#)).
- (2) Insert one of the keyless operation key and spare key into the key slot, after the engine switch to "LOCK" (OFF) position.
- (3) Check whether the engine switch can be turned all positions.
- (4) Turn the power supply mode of the engine switch to "LOCK" (OFF) position again.
- (5) Repeat the same procedure for the other keyless operation key and spare key. Check that all of the registered keyless operation key and spare key allow the engine switch to be turned all positions.
- (6) Install the batteries to all the keyless operation keys.

Q: Is the check result normal?

The engine switch can be turned all positions by operating all of the keyless operation key and spare key : Check if the diagnostic trouble code is set. If the diagnostic trouble code is erased, the diagnosis is complete. If not, go to Step 5.

The engine switch cannot be turned all positions by operating all of the keyless operation key and spare key : Go to Step 4.

STEP 4. Replace the keyless operation key and spare key which cannot activate the engine switch with a new one.

- (1) Replace the keyless operation key and spare key which cannot activate the engine switch with a new one.

NOTE: Exclude the keyless operation key and spare key which you put aside on Step 2.

- (2) Register a new keyless operation key and spare key (Refer to [P.42B-123](#)).
- (3) Check that all of the registered keyless operation key and spare key allow the engine switch to be turned all positions.
- Remove the batteries from all of the keyless operation keys (Refer to [P.42B-136](#)).
 - Insert one of the keyless operation key and spare key into the key slot, after the power supply mode of the engine switch to "LOCK" (OFF) position.
 - Check whether the engine switch can be turned all positions.
 - Turn the power supply mode of the engine switch to "LOCK" (OFF) position again.
 - Repeat the same procedure for the other keyless operation key and spare key. Check that all of the registered keyless operation key and spare key allow the engine switch to be turned all positions.
 - Install the batteries to all the keyless operation keys.

Q: Is the check result normal?

The engine switch can be turned all positions by operating all of the keyless operation key and spare key

- : Check if the diagnostic trouble code is set. If the diagnostic trouble code is erased, the diagnosis is complete. If not, go to Step 5.

The engine switch cannot be turned all positions by operating all of the keyless operation key and spare key

- : Go to Step 5.

STEP 5. It should allow the engine switch to be turned all positions, after replace the KOS&OSS-ECU, and then register all of the keyless operation key and spare key again.

- (1) Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).
- (2) Register all of the keyless operation key and spare key again (Refer to [P.42B-123](#)).

NOTE: Exclude the keyless operation key and spare key which you put aside on Step 2.

- (3) Check that all of the registered keyless operation key and spare key allow the engine switch to be turned all positions.
 - a. Remove the batteries from all of the keyless operation keys (Refer to [P.42B-136](#)).
 - b. Insert one of the keyless operation key and spare key into the key slot, after the power supply mode of the engine switch to "LOCK" (OFF) position.
 - c. Check whether the engine switch can be turned all positions.
 - d. Turn the power supply mode of the engine switch to "LOCK" (OFF) position again.
 - e. Repeat the same procedure for the other keyless operation key and spare key. Check that all of the registered keyless operation key and spare key allow the engine switch to be turned all positions.
 - f. Install the batteries to all the keyless operation keys.

Q: Is the check result normal?

The engine switch can be turned all positions by operating all of the keyless operation key and spare key

: Go to Step 6.

The engine switch cannot be turned all positions by operating all of the keyless operation key and spare key

: Go to Step 1.

STEP 6. Recheck for diagnostic trouble code.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Go to Step 1.

NO : The procedure is complete.

DTC B1A28: PCM authentication error

⚠ CAUTION

- If DTC B1A28 is set, diagnose the CAN bus lines.
- When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

When the KOS&OSS-ECU certification result is different from the engine status after the completion of engine starting permission communication, KOS&OSS-ECU determines that a problem has occurred, and stores DTC B1A28. At the same time, KOS&OSS-ECU displays the immobilizer certification system inspection warning to the combination meter.

DTC SET CONDITION**Check Conditions**

- At engine starting certification

Judgment Criterion

- Certification result unmatched is received from engine control module.

TROUBLESHOOTING HINTS

- Writing error of VIN to engine control module (engine control module has been interchanged between two vehicles, or VIN has not been written after engine control module replacement)
- Malfunction of the CAN bus line
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

1. Using scan tool MB991958, diagnose the CAN bus line.
2. Checking whether KOS&OSS-ECU DTC B1161 is set.
3. Engine control module diagnostic trouble code check
4. KOS&OSS-ECU diagnostic trouble code recheck

DTC B2352: Antenna fail

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If an open circuit or short to ground occurs in the key slot, KOS&OSS-ECU stores DTC B2352.

TECHNICAL DESCRIPTION (COMMENT)

When the key slot and the KOS&OSS-ECU are communicating, the KOS&OSS-ECU will send a signal to the key slot. Then the key slot will send a code to the keyless operation key via its antenna. If the KOS&OSS-ECU detects open circuit or short circuit to ground consecutively four times during the operation above, the ECU will store this diagnostic trouble code.

TROUBLESHOOTING HINTS

- Malfunction of the key slot
- Damaged wiring harness and connectors
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Key slot check.

Check that the key slot is normal (Refer to [P.42B-141](#)).

Q: Is the key slot normal?

YES : Go to Step 2.

NO : Replace the key slot

STEP 2. Check of short to power supply, short to ground, and open circuit in ANTP, ANTG line between the key slot connector and the KOS&OSS-ECU connector.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the wiring harness.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

(1) Open the driver's door.

(2) Erase the DTC.

(3) Turn the power supply mode of the engine switch from OFF to ON.

(4) Check if DTC is set.

(5) Turn the power supply mode of the engine switch to OFF.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : The diagnosis is complete.

DTC B2400: F.A.S.T. key registration fail

CAUTION

- Keyless operation key or spare key is registered to another vehicle.
- If commercial electric products are connected, communication with the keyless operation key or spare key cannot be performed normally, and the key registration may fail. When performing the registration, disconnect all the commercial electric products.
- If DTC B2400 is set, diagnose the CAN bus lines.
- When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If the registration of the keyless operation key ID to KOS&OSS-ECU fails, KOS&OSS-ECU stores DTC B2400.

TECHNICAL DESCRIPTION (COMMENT)

If the registration of the keyless operation key ID fails, KOS&OSS-ECU determines that there is a problem.

TROUBLESHOOTING HINTS

- Keyless operation key or spare key is registered to another vehicle
- At the registration, there is an object near the keyless operation key which interferes with the communication.
- Wrong keyless operation key registration method
- Failure of keyless operation key code registration
- Battery drain of keyless operation key
- Malfunction of the keyless operation key
- Malfunction of CAN bus line
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Interference check at keyless operation key registration.

At the keyless operation key registration, check if there is another key nearby or anything that interferes with the communication (magnets or objects that generate radio waves such as air-cleaning devices with a power plug).

Q: Are there other keys or anything that interferes with the communication?

YES : Move away or remove other keys or anything that interferes with the communication.

NO : Go to Step 2.

STEP 2. Check of keyless operation key registration method.

Check that the correct method was used at the registration of keyless operation key.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Register the keyless operation key (Refer to [P.42B-123](#)).

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

CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 4.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 4. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if any DTC is set in the KOS&OSS-ECU.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 5.

STEP 5. Replace the keyless operation key and recheck the diagnostic trouble code.

- (1) Replace the keyless operation key again.
- (2) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : The procedure is complete.

DTC B2401: F.A.S.T. key ID not registered

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If no keyless operation key ID or spare key ID is registered with KOS&OSS-ECU or a keyless operation key or a spare key with unregistered ID is used, the KOS&OSS-ECU stores DTC B2401.

TECHNICAL DESCRIPTION (COMMENT)

If the number of the registered keyless operation keys is 0, or the registration of a keyless operation key or spare key fails when the number of the registered keyless operation keys or spare key is 0, it is judged as abnormal.

TROUBLESHOOTING HINTS

- The registration of a keyless operation key ID fails when no keyless operation key ID is registered.
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Register the key ID.

Register the key ID and keyless operation key.

Q: Is the key ID registration complete?

YES : Go to Step 2.

NO : Perform troubleshooting DTC B2400 is set (Refer to [P.42B-52](#)).

STEP 2. Check whether the diagnostic trouble code is set again.

Replace the keyless operation key by which the diagnostic trouble code is set with a new one, register the key (Refer to [P.42B-123](#)), and recheck if the diagnostic trouble code is set.

- (1) Push the lock button or unlock button of keyless operation key.
- (2) Check if the diagnostic trouble code is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : The procedure is complete.

DTC B240A: DR side antenna (outdoor) open

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If an open or short to ground circuit is detected in the outside transmission antenna assembly (driver's side), the DTC is set.

TECHNICAL DESCRIPTION (COMMENT)

An open circuit or short to ground is detected consecutively five times when radio waves are sent from the outside transmission antenna assembly (driver's side).

TROUBLESHOOTING HINTS

- Malfunction of the outside transmission antenna assembly (driver's side)
- Malfunction of the KOS&OSS-ECU
- Damaged wiring harness and connectors

DIAGNOSIS

STEP 1. Check of short to power supply, short to ground, and open circuit in EDRP, EDRG line between the outside transmission antenna assembly (driver's side) connector and the KOS&OSS-ECU connector.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. Keyless operation system communication test.

Check that the communication with the outside transmission antenna assembly (driver's side) is normal (Refer to Antenna Test [P.42B-124](#)).

- Front antenna (outdoor)

OK: Normal is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the outside transmission antenna assembly (driver's side).

STEP 3. Check whether the diagnosis trouble code is set again.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Close all the doors and press the driver's door lock/unlock switch to lock and unlock the door several times.
- (4) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).

DTC B240B: PS side antenna (outdoor) open

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If an open or short to ground circuit is detected in the outside transmission antenna assembly (passenger's side), the DTC is set.

TECHNICAL DESCRIPTION (COMMENT)

An open circuit or short to ground is detected consecutively five times when radio waves are sent from the outside transmission antenna assembly (passenger's side).

TROUBLESHOOTING HINTS

- Malfunction of the outside transmission antenna assembly (passenger's side)
- Malfunction of the KOS&OSS-ECU
- Damaged wiring harness and connectors

DIAGNOSIS

STEP 1. Check of short to power supply, short to ground, and open circuit in EASP, EASG line between the outside transmission antenna assembly (passenger's side) connector and the KOS&OSS-ECU connector.**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. Keyless operation system communication test.

Check that the communication with the outside transmission antenna assembly (passenger's side) is normal (Refer to Antenna Test [P.42B-124](#)).

- Front side antenna (outdoor)

OK: Normal is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the outside transmission antenna assembly (passenger's side).

STEP 3. Check whether the diagnosis trouble code is set again.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Close all the doors and press the driver's door lock/unlock switch to lock and unlock the door several times.
- (4) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).

DTC B240C: Tail gate antenna (outdoor) open

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If an open or short to ground circuit is detected in the outside transmission antenna assembly (liftgate), the DTC is set.

TECHNICAL DESCRIPTION (COMMENT)

An open circuit or short to ground is detected consecutively five times when radio waves are sent from the outside transmission antenna assembly (liftgate).

TROUBLESHOOTING HINTS

- Malfunction of the outside transmission antenna assembly (liftgate)
- Malfunction of the KOS&OSS-ECU
- Damaged wiring harness and connectors

DIAGNOSIS

STEP 1. Check of short to power supply, short to ground, and open circuit in EGTP, EGTG line between the outside transmission antenna assembly (liftgate) connector and the KOS&OSS-ECU connector.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. Keyless operation system communication test.

Check that the communication with the outside transmission antenna assembly (liftgate) is normal (Refer to Antenna Test [P.42B-124](#)).

- Liftgate antenna (outdoor)

OK: Normal is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the outside transmission antenna assembly (liftgate).

STEP 3. Check whether the diagnostic trouble code is set again.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Close all the doors and press the liftgate lock/unlock switch to lock and unlock the door several times.
- (4) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).

DTC B240D: Front antenna (indoor) open

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If an open or short to ground circuit is detected in the inside transmission antenna (front), the DTC is set.

TECHNICAL DESCRIPTION (COMMENT)

An open circuit or short to ground is detected consecutively five times when radio waves are sent from the inside transmission antenna (front).

TROUBLESHOOTING HINTS

- Malfunction of the inside transmission antenna assembly (front)
- Malfunction of the KOS&OSS-ECU
- Damaged wiring harness and connectors

DIAGNOSIS

STEP 1. Check of short to power supply, short to ground, and open circuit in INFP, INFG line between the inside transmission antenna assembly (front) connector and the KOS&OSS-ECU connector.**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. Keyless operation system communication test.

Check that the communication with the inside transmission antenna assembly (front) is normal (Refer to Antenna Test [P.42B-124](#)).

- Front antenna (indoor)

OK: Normal is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the inside transmission antenna assembly (front).

STEP 3. Check whether the diagnosis trouble code is set again.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Close all the doors and press the driver's door lock/unlock switch to lock and unlock the door several times.
- (4) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).

DTC B240E: RR antenna (indoor) open

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If an open or short to ground circuit is detected in the inside transmission antenna (rear), the DTC is set.

TECHNICAL DESCRIPTION (COMMENT)

An open circuit or short to ground is detected consecutively five times when radio waves are sent from the inside transmission antenna (rear).

TROUBLESHOOTING HINTS

- Malfunction of the inside transmission antenna assembly (rear)
- Malfunction of the KOS&OSS-ECU
- Damaged wiring harness and connectors

DIAGNOSIS

STEP 1. Check of short to power supply, short to ground, and open circuit in INRP, INRG line between the inside transmission antenna assembly (rear) connector and the KOS&OSS-ECU connector.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

STEP 2. Keyless operation system communication test.

Check that the communication with the inside transmission antenna assembly (rear) is normal (Refer to Antenna Test [P.42B-124](#)).

Rear antenna (indoor)

OK: Normal is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the inside transmission antenna assembly (rear).

STEP 3. Check whether the diagnostic trouble code is set again.

- (1) Erase the diagnostic trouble code.
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Close all the doors and press the liftgate lock/unlock switch to lock and unlock the door several times.
- (4) Check if the diagnostic trouble code is set.

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).

DTC U0100: Engine CAN timeout

⚠ CAUTION

- If DTC U0100 is set, be sure to diagnose the CAN bus line.
- Before replacing ECU, ensure that the communication circuit is normal.

DTC SET CONDITION

When the signal from the engine control module cannot be received, KOS&OSS-ECU stores DTC U0100.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- Engine control module malfunction
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check again if the DTC is set in the engine control module.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for the engine control module (Refer to GROUP 13A, Troubleshooting [P.13A-47](#)). On completion, go to Step 3.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC U0100 is set in the combination meter.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the engine control module.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the engine control module and the KOS&OSS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the engine control module and the KOS&OSS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

DTC U0101: T/M CAN timeout

 CAUTION

- If DTC U0101 is set, be sure to diagnose the CAN bus line.
- Before replacing ECU, ensure that the communication circuit is normal.

DTC SET CONDITION

When the signal from the CVT-ECU cannot be received, KOS&OSS-ECU stores DTC U0101.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- CVT-ECU malfunction
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC is set in the CVT-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Diagnose the CAN bus line.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Diagnose the CVT-ECU (Refer to GROUP 23A, Troubleshooting [P.23A-16](#)). Then go to Step 3.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC U0100 is set in the combination meter.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC U0101 is set in the combination meter.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the CVT-ECU.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the CVT-ECU and the KOS&OSS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the CVT-ECU and the KOS&OSS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

DTC U0141: ETACS CAN timeout

 CAUTION

- If DTC U0141 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

If no signal from ETACS can be received, KOS&OSS-ECU stores DTC U0141.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Malfunction of KOS&OSS-ECU
- Malfunction of ETACS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the OFF position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC is set in the ETACS-ECU.

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for ETACS (Refer to GROUP 54A, ETACS – Troubleshooting [P.54A-218](#)). Then go to Step 3.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC U0100 is set in the combination meter.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC U0141 is set in the combination meter.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the ETACS-ECU and the KOS&OSS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the ETACS-ECU and the KOS&OSS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to cope with Intermittent Malfunction [P.00-13](#)).

DTC U0155: Meter CAN timeout

 CAUTION

- If diagnostic trouble code No. U0155 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLE JUDGMENT

If no signal from the combination meter can be received, KOS&OSS-ECU stores DTC U0155.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Combination meter malfunction
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if DTC is set in the combination meter.

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the DTC.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Troubleshoot the combination meter (Refer to GROUP 54A, Diagnosis [P.54A-18](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC U0155 is set in the engine control module.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the combination meter.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the combination meter and the KOS&OSS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the combination meter and the KOS&OSS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC U0164: A/C-ECU CAN timeout

 CAUTION

- If DTC U0164 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from A/C-ECU cannot be received, the KOS&OSS-ECU stores DTC U0164.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Malfunction of A/C-ECU
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the OFF position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check again if the DTC is set in the A/C-ECU.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the OFF position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for the A/C-ECU (Refer to GROUP 55B, Auto A/C Diagnosis [P.55B-8](#)). On completion, go to Step 3.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC U0164 is set in the engine control module.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the A/C-ECU.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the A/C-ECU and the KOS&OSS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the A/C-ECU and the KOS&OSS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#)).

DTC U1190: No receive fault detect signal

 CAUTION

- If DTC U1190 is set, diagnose the CAN bus lines.
- When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

When the signal from the ETACS-ECU cannot be received, KOS&OSS-ECU stores DTC No.U1190.

TECHNICAL DESCRIPTION (COMMENT)

Check Conditions

- When all the following conditions are met.

a. Power supply mode: "ON"

b. ETACS-ECU system voltage is at 10 to 16 V.

Judgment Criterion

- After the following condition is met, 5,000 ms or more have elapsed.
 - a. CAN signal from the ETACS-ECU cannot be received.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line
- Malfunction of ETACS-ECU
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC is set in the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for ETACS (Refer to GROUP 54A, ETACS – Troubleshooting [P.54A-218](#)). Then go to Step 3.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check again if DTC U0155 is set in the SRS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : Go to Step 4.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to cope with Intermittent Malfunction [P.00-13](#)).

DTC U1195: Coding not completed**⚠ CAUTION**

- If DTC U1195 is set, diagnose the CAN bus lines.
- When replacing the ECU, always check that the communication circuit is normal.

DTC SET CONDITION

When the coding data is not registered, KOS&OSS-ECU sets diagnostic trouble code No.U1195.

NOTE: When KOS&OSS-ECU is new, DTC No.U1195 are set simultaneously.

- Variant coding for ETACS-ECU has not been

TECHNICAL DESCRIPTION (COMMENT)**Check Conditions**

- When all the following conditions are met.
 - a. Coding is not completed.
 - b. For 5 seconds since the start of the reception of ignition status signal (ON or during cranking) transmitted from ETACS-ECU.

Judgment Criterion

- Any of the coding is not completed normally.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus line implemented.

- Malfunction of KOS&OSS-ECU

- ETACS-ECU malfunction

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check again if the DTC is set in the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Erase the DTC.
- (3) Turn the power supply mode of the engine switch to "ON".
- (4) Check if DTC is set.
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for ETACS (Refer to GROUP 54A, ETACS – Troubleshooting [P.54A-218](#)). Then go to Step 3.

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set in the KOS&OSS-ECU.

- (1) Erase the DTC.
- (2) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to cope with Intermittent Malfunction [P.00-13](#)).

DATA LIST REFERENCE TABLE

M1429605000471

**Vehicles with Keyless Operation System(KOS)
and One-touch Start System(OSS)**

Item No.	Check item	Check condition	Normal condition
1 ^{*1}	Received F.A.S.T.-key data(ID)	–	Memorized keyless operation key ID
2	Received F.A.S.T.-key (button)	–	Switch display of the keyless operation key
3	Driver's door lock/unlock SW	Driver's door lock/unlock switch: "ON"	ON
		Driver's door lock/unlock switch: "OFF"	OFF
5 ^{*1}	Passenger's door lock/unlock SW	–	ON
		–	OFF
7	Gate (LOCK/UNLOCK) / Trunk OPEN SW	Liftgate lock/unlock switch: "ON"	ON
		Liftgate lock/unlock switch: "OFF"	OFF
14	Memorized F.A.S.T.-keys	–	Number of the keyless operation keys memorized
15	Memorized emergency F.A.S.T.-keys	–	Number of the spare keys memorized
20	Engine switch(1)	When the engine switch is pressed	ON
		When the engine switch is not pressed	OFF
21	Engine switch(2)	When the engine switch is pressed	ON
		When the engine switch is not pressed	OFF
22 ^{*2}	Stoplight switch	When the brake pedal is depressed	ON
		When the brake pedal is released	OFF
23 ^{*3}	Clutch monitoring switch	When the clutch pedal is depressed	ON
		When the clutch pedal is released	OFF
24	P range detect SW	Shift the selector lever to the position other than the P position.	Outside park
		Shift the selector lever to the P position.	Park

Item No.	Check item	Check condition	Normal condition
25	IG1 output (monitor)	Power supply mode is turned "ON" or the engine is being started by the pressing of engine switch.	ON
		Other than above	OFF
26	IG2 output (monitor)	Power supply mode is turned "ON".	ON
		Other than above	OFF
27	OSS power supply status	Power supply mode is abnormal.	Default or SNA
		Power supply mode is OFF.	IG OFF
		Power supply mode is ACC.	IG ACC
		Power supply mode is ON.	IG ON
		Ignition switch: "ON"	IG START
		Ignition switch: "ON"	IG RUN(judging)
28	+B1 Power supply voltage (AD)	Always	System voltage
29	+B2 Power supply voltage (AD)	Always	System voltage

NOTE:

- *1 shows that it is displayed but not used.
- *2: Indicates that the output is performed with CVT vehicles only.

- *3: Indicates that the output is performed with M/T vehicles only.
- Refer to data list reference table of Tire Pressure Monitoring System(TPMS) (GROUP 31 – Data List Reference Table [P.31-38](#)).

ACTUATOR TEST TABLE

M1429605100207

Item No.	Check item	Driven component
3	Engine switch(LED ON)	Indicator or character of engine switch is illuminated.

SPECIAL FUNCTION TABLE

M1429627900074

ECU INFORMATION

Function name [scan tool (M.U.T.-III) display]	Contents
ECU Information	Displays the Chassis Number/VIN (Original) and Chassis Number/VIN (Current).

FORCED POWER SUPPLY OUTPUT

Function name [scan tool (M.U.T.-III) display]	Contents
Forced power supply output	Performs the forced power supply output ("IG-ACC", "IG-ON", or "IG-ST").

FORCED POWER SUPPLY OUTPUT (STOP)

Function name [scan tool (M.U.T.-III) display]	Contents
Forced power supply output(stop)	Stops the forced power supply output.

ENGINE SWITCH CONTROL

Function name (M.U.T.-III display)	Contents
Engine switch control	Sends a signal that simulates an once-pressed engine switch. This simulation allows the vehicle system to function as if the engine switch were pressed.

TROUBLE SYMPTOM CHART

M1429604501302

Trouble symptom	Inspection procedure number	Reference page
Cannot communicate with KOS&OSS-ECU using the scan tool	1	P.42B-78
The keyless operation key cannot be registered using the scan tool	2	P.42B-78
Abnormality in KOS&OSS-ECU power supply and ground circuits	3	P.42B-80
Keyless operation warning display does not disappear	4	P.42B-82
No door will be locked or unlocked by operating a lock/unlock switch on any door	5	P.42B-83
Driver's door lock/unlock switch does not work	6	P.42B-87
Liftgate lock/unlock switch does not work	7	P.42B-89
Keyless entry function does not work	8	P.42B-91
KOS timer lock function does not work	9	P.42B-94
Keyless entry hazard answer back function or the dome light answer back function does not work normally	10	P.42B-95
Outer buzzer does not sound	11	P.42B-98
Power door locks with selective unlocking does not work	12	P.42B-100
Vehicle power does not turn "ON" (not possible with both of power supply mode "ACC" and "ON")	13	P.42B-102
Engine does not start (cranking is not performed)	14	P.42B-106
Vehicle power cannot be turned "OFF" when the shift position is in "P" (Power supply mode "ON" to "ACC" is possible)	15	P.42B-110
ACC power auto cut function does not work normally	16	P.42B-112
Vehicle power cannot be turned "OFF"	17	P.42B-116
The TPMS warning light stays on	—	Refer to GROUP 31, Trouble Symptom Chart P.31-34.
The TPMS warning light flash for about 1 minute and then remain illuminated	—	

SYMPTOM PROCEDURES

Inspection Procedure 1: Cannot communicate with KOS&OSS-ECU using the scan tool

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

KOS&OSS-ECU is communicating with scan tool via CAN. Therefore, communication error of KOS&OSS-ECU is suspected.

TROUBLESHOOTING HINTS

- Malfunction of the power supply and the ground of KOS&OSS-ECU
- Malfunction of CAN bus line

DIAGNOSIS

1. Using scan tool MB991958, diagnose the CAN bus line.
2. Check the power supply circuit and the ground circuit to KOS&OSS-ECU.
3. Retest the system.

Inspection Procedure 2: The keyless operation key cannot be registered using the scan tool

⚠ CAUTION

- Keyless operation key or spare key is registered to another vehicle.
- If commercial electric products are connected, communication with the keyless operation key or spare key cannot be performed normally, and the key registration may fail. When performing the registration, disconnect all the commercial electric products.
- Before replacing the ECU, ensure that the communication circuit is normal.

TECHNICAL DESCRIPTION (COMMENT)

If only some keyless operation keys cannot be registered, the keyless operation key itself may be faulty. If no keyless operation key can be registered, the key assembly may have already been registered for another vehicle, or the KOS&OSS-ECU may be faulty.

TROUBLESHOOTING HINTS

- Keyless operation key or spare key is registered to another vehicle
- Insufficient insertion of keyless operation key into key slot
- When registering the keyless operation key, commercial electric products are connected or there is something that interferes with the communication.
- Malfunction of the keyless operation key or spare key
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Sufficiently insert the keyless operation key or spare key into the key slot, and then check the trouble symptom.

Insert the keyless operation key or spare key into the key slot again, and check whether the keyless operation key can be registered.

Q: Is the check result normal?

YES : The procedure is complete.

NO : Go to Step 2.

STEP 2. Interference check of keyless operation key or spare key when it is inserted in the key slot.

Check if there is another keyless operation key or spare key nearby or anything that interferes with the communication (magnets or objects that generate radio waves such as air-cleaning devices with a power plug).

Q: Are there other keys or anything that interferes with the communication?

YES : Move away or remove other keyless operation keys or spare keys or anything that interferes with the communication. Then, go to Step 3.

NO : Go to Step 4.

STEP 3. Retest the system.

Check that the keyless operation key or spare key can be registered.

Q: Is the check result normal?

YES : The procedure is complete.

NO : Go to Step 4.

STEP 4. Using scan tool MB991958, read the diagnostic trouble code.

Check whether the DTC is set in the KOS&OSS-ECU.

CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 5.

STEP 5. Check which keyless operation key or spare key cannot be registered.

Q: Can any one of the keyless operation keys or spare keys be registered?

YES (Only some keys) : Replace the key that cannot be registered and register the ID codes (Refer to [P.42B-123](#)). After registering the ID codes, go to Step 7.

NO (All keys) : Go to Step 6.

STEP 6. Retest the system

Check the scan tool (M.U.T.-III) screen when the key was not able to be registered.

Q: Is the error message of scan tool (M.U.T.-III) screen "Abnormality in key"?

YES (Abnormality in key) : Carry out diagnostic trouble code B1A25: Transponder ID unmatched (Refer to [P.42B-13](#)). Then go to Step 7.

NO (ECU internal error) : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

STEP 7. Retest the system

Check that the keyless operation key can be registered.

Q: Is the check result normal?

YES : The procedure is complete.

NO : Go to Step 8.

STEP 8. Check for diagnostic trouble code.

- (1) Turn the power supply mode of the engine switch from "OFF" to "ON".
- (2) Check if DTC is set.
- (3) Turn the power supply mode of the engine switch from "ON" to "OFF".

Q: Is the DTC set?

YES : Replace the KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

NO : The procedure is complete.

Inspection Procedure 3: Abnormality in KOS&OSS-ECU power supply and ground circuits

CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the KOS does not work at all or the KOS&OSS-ECU cannot communicate with the scan tool, the KOS&OSS-ECU power supply or the ground circuit may be defective.

TROUBLESHOOTING HINTS

- Damaged wiring harness and connectors
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Resistance measurement at KOS&OSS-ECU connector (PGND, SGND terminal)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the KOS&OSS-ECU connector (PGND, SGND terminal) and body ground.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 3.

NO : Go to Step 2.

STEP 2. Check of open circuit in PGND, SGND line between KOS&OSS-ECU connector and body ground

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 3. Voltage measurement at KOS&OSS-ECU connector (+B, IOD terminal)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the voltage between the KOS&OSS-ECU connector (+B, IOD terminal) and body ground.

OK: System voltage

Q: Is the check result normal?

YES : Replace the KOS&OSS-ECU and register the chassis number (Refer to [P.42B-127](#)).

NO : Go to Step 4.

STEP 4. Check of short to power supply, short to ground, and open circuit in +B, IOD line between fusible link and KOS&OSS-ECU connector

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

Inspection Procedure 4: Keyless operation warning display does not disappear

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Malfunction of combination meter
- Malfunction of the KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if any DTC is set in the combination meter.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for the combination meter (Refer to GROUP 54A – Combination Meter – Troubleshooting [P.54A-18](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the KOS&OSS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)"]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 4.

STEP 4. Retest the system.

Check that the keyless operation warning light turns "OFF" unless the flashing or illumination conditions are met.

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

Inspection Procedure 5: No door will be locked or unlocked by operating a lock/unlock switch on any door

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TROUBLESHOOTING HINTS

- Malfunction of the CAN bus lines
- Malfunction of the central door locking system
- Malfunction of the keyless operation key
- Damaged wiring harness and connectors
- Keyless operation key not registered
- Malfunction of the KOS&OSS-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the outside transmission antenna assembly
- Function setting error or no setting with a customization
- An ambient electric device or noise source interferes with this system when the lock/unlock switch is operated.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the KOS&OSS-ECU.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if any diagnosis code is set in the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for the ETACS (Refer to GROUP 54A – ETACS – Troubleshooting [P.54A-218](#)).

NO : Go to Step 4.

STEP 4. Check the central door locking system operation.

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Perform troubleshooting for the central door locking system (Refer to GROUP 42A – Troubleshooting [P.42A-28](#)).

STEP 5. Check the customization function.

Check that either of the followings other than "ENG start enable" or "Both disabled" are set for "F.A.S.T. feature" with the customization function.

- Both enable
- Door Entry enable

Q: Is the check result normal?

YES : Go to Step 6.

NO : Set either of the followings other than ENG start enable or Both disabled for F.A.S.T. feature with the customization function (Refer to [P.42B-130](#)).

STEP 6. Keyless operation system communication test.

Using scan tool MB991958, perform the antenna communication test to check that the outside transmission antenna assembly communicates normally (Refer to [P.42B-124](#)).

- Outside transmission antenna assembly (LH)
- Outside transmission antenna assembly (RH)
- Outside transmission antenna assembly (liftgate)

OK: Normal values are displayed for all the items

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

STEP 7. Check with another registered keyless operation key.

Using another registered keyless operation key, check whether the doors and the liftgate can be locked and unlocked for twice or more consecutively.

Q: Can they be operated?

They can be operated. : Go to Step 10.

They cannot be operated. : Go to Step 8.

There is no other registered keyless operation key. : Go to Step 10.

STEP 8. Connection check of commercial electric products.

Check whether commercial electric products are connected.

Q: Are commercial electric products connected?

YES : Disconnect the commercial electric products as they may be interfering with communication. Then go to Step 9.

NO : Go to Step 9.

STEP 9. Check of the troubles.

Operate the lock/unlock switch to check that the door can be locked and unlocked.

Q: Is the check result normal?

YES : The diagnosis is complete.

NO : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

STEP 10. Keyless operation key battery charged level check.

Check whether the LED illuminates when the lock/unlock switch on the keyless operation key that does not work is pressed.

Q: Is the check result normal?

YES : Go to Step 11.

NO : Replace the battery in the keyless operation key.

STEP 11. Keyless operation key check.

Check whether the registered keyless operation key is used.

Q: Is the registered keyless operation key used?

Used. : Register the key ID and keyless operation key ID of the keyless operation key. Then go to Step 12.

Not used (The keyless operation key is not registered or the keyless operation key is also used for another vehicle). : Refer to the key ID registration procedure manual to register the key ID. If the key ID cannot be registered, replace the keyless operation key and register the key ID.

STEP 12. Check of the trouble.

Operate the lock/unlock switch to check that the door can be locked and unlocked.

Q: Is the check result normal?

YES : The diagnosis is complete.

NO : Replace the keyless operation key, and register the ID codes (Refer to [P.42B-123](#)).

Inspection Procedure 6: Driver's door lock/unlock switch does not work

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TROUBLESHOOTING HINTS

- Malfunction of the outside transmission antenna assembly (driver's side)
- Malfunction of the lock/unlock switch (driver's side)
- Damaged wiring harness and connectors
- Malfunction of the KOS&OSS-ECU
- An ambient electric device or noise source interferes with this system when the lock/unlock switch is operated.

DIAGNOSIS

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the KOS&OSS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 2.

STEP 2. Check the lock/unlock switch (driver's side).

Check that the lock/unlock switch (driver's side) is normal (Refer to GROUP 42A – Door Latch Assembly Inspection [P.42A-58](#)).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the lock/unlock switch (driver's side).

STEP 3. Resistance measurement at lock/unlock switch (driver's side) connector (ground line)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the lock/unlock switch (driver's side) connector (ground line) and body ground.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Check of open circuit in ground line between the lock/unlock switch (driver's side) connector and the body ground.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness.

STEP 5. Check of short to power supply, short to ground, and open circuit in DRRQ line between the KOS&OSS-ECU connector and the lock/unlock switch (driver's side) connector.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness.

STEP 6. KOS communication test

Using scan tool (M.U.T.-III), perform the antenna communication test to check that the outside transmission antenna assembly (driver's side) communicates normally (Refer to [P.42B-124](#)).

OK: Normal values are displayed for all the items

Q: Is the check result normal?

YES : Go to Step 7.

NO : Perform troubleshooting for DTC B240A (Refer to [P.42B-13](#)).

STEP 7. Connection check of commercial electric products
Check whether commercial electric products are connected.

Q: Are commercial electric products connected?

YES : Disconnect the commercial electric products as they may be interfering with communication. Then go to Step 8.

NO : Go to Step 8.

STEP 8. Check of the troubles

Operate the lock/unlock switch (driver's side) and check that the doors can be locked and unlocked.

Q: Is the check result normal?

- YES** : Aggravation of radio wave condition caused by commercial electric products or intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).
- NO** : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

Inspection Procedure 7: Liftgate lock/unlock switch does not work

CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TROUBLESHOOTING HINTS

- Malfunction of the outside transmission antenna assembly (liftgate)

- Malfunction of the lock/unlock switch (liftgate)
- Damaged wiring harness and connectors
- Malfunction of the KOS&OSS-ECU
- An ambient electric device or noise source interferes with this system when the lock/unlock switch is operated.

DIAGNOSIS

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the KOS&OSS-ECU.

CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

- YES** : Refer to diagnostic trouble code chart [P.42B-13](#).
- NO** : Go to Step 2.

STEP 2. Check the lock/unlock switch (liftgate).

Check that the lock/unlock switch (liftgate) is normal (Refer to [P.42B-140](#)).

Q: Is the lock/unlock switch (liftgate) normal?

- YES** : Go to Step 3.
- NO** : Replace the lock/unlock switch (liftgate).

STEP 3. Resistance measurement at lock/unlock switch (liftgate) connector (ground line)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the lock/unlock switch (liftgate) connector (ground line) and body ground.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Check of open circuit in ground line between the lock/unlock switch (liftgate) connector and the body ground.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness.

STEP 5. Check of short to power supply, short to ground, and open circuit in GTRQ line between the KOS&OSS-ECU connector and the lock/unlock switch (liftgate) connector.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness.

STEP 6. KOS communication test

Using scan tool MB991958, perform the antenna communication test to check that the outside transmission antenna assembly (liftgate) communicates normally (Refer to [P.42B-124](#)).

OK: Normal values are displayed for all the items

Q: Is the check result normal?

YES : Go to Step 7.

NO : Perform troubleshooting for DTC B240C (Refer to [P.42B-13](#)).

STEP 7. Connection check of commercial electric products

Check whether commercial electric products are connected.

Q: Are commercial electric products connected?

YES : Disconnect the commercial electric products as they may be interfering with communication. Then go to Step 8.

NO : Go to Step 8.

STEP 8. Check of the troubles

Operate the lock/unlock switch (liftgate) and check that the doors can be locked and unlocked.

Q: Is the check result normal?

- YES** : Aggravation of radio wave condition caused by commercial electric products or intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).
- NO** : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

Inspection Procedure 8: Keyless entry function does not work

** CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the keyless entry function according to the signals of all door switches and the lock/unlock signal of the keyless operation key which is sent through the KOS&OSS-ECU.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Malfunction of the door switches
- Malfunction of the keyless operation key
- Damaged wiring harness and connectors
- Malfunction of the KOS&OSS-ECU
- Malfunction of ETACS-ECU

DIAGNOSIS

STEP 1. ETACS-ECU coding data check

- (1) Use scan tool MB991958 to read out the option coding information in ETACS-ECU (Refer to GROUP 00 – Precautions before Service - Coding Reference Table [P.00-33](#)).
- (2) Check if the "Keyless entry" is "Enabled".

Q: Is the check result normal?

- YES** : Go to Step 2.
- NO** : Operate the M.U.T.-III to set the option coding "Keyless entry" to "Enabled", and check the trouble symptom.

STEP 2. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 3. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the KOS&OSS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 4.

STEP 4. Check the power supply system

With the engine switch in the LOCK (OFF) position, check if the following function operates normally:

- Hazard warning light

Q: Is the check result normal?

YES : Go to Step 5.

NO : Refer to GROUP 54A – ETACS, Power Supply Circuit [P.54A-237](#).

STEP 5. Check the operation of the central door locking system.

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Refer to GROUP 42A, Troubleshooting [P.42A-28](#).

STEP 6. Using scan tool MB991958, check data list.

Check the signals related to the keyless entry function operation.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the ETACS-ECU service data relevant to the operation of keyless entry function.
 - a. Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
19	Driver's door switch	ON
48	Passenger's door switch	ON

- b. Open the rear door (RH) after the all doors and liftgate close.

Item No.	Item name	Normal condition
49	Rear door switch or liftgate latch switch	ON

- c. Open the rear door (LH) after the all doors and liftgate close.

Item No.	Item name	Normal condition
49	Rear door switch or liftgate latch switch	ON

- d. Open the liftgate after the all doors and liftgate close.

Item No.	Item name	Normal condition
49	Rear door switch or liftgate latch switch	ON

OK: Normal condition are displayed.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Perform troubleshooting for the ETACS-ECU (Refer to GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)).

STEP 7. Check with another registered keyless operation key.

Check that the keyless entry function can be used with another keyless operation key.

Q: Can the keyless entry function be used?

YES : Replace the keyless operation key concerned and register the ID codes (Refer to [P.42B-123](#)).

NO : Go to Step 8.

STEP 8. Check of the troubles

Replace ETACS-ECU. After the replacement, perform the coding, and check that the keyless entry function operates normally.

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

Inspection Procedure 9: KOS timer lock function does not work

** CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

After the door is unlocked using the keyless entry function or the door entry function, if no operation is performed, the door is locked when the time specified by a customization function has elapsed. However, when an open signal of any of the doors is received by ETACS-ECU or when the engine switch power supply mode is "ON", the KOS timer lock function will not be activated.

TROUBLESHOOTING HINTS

- Malfunction of ETACS-ECU

DIAGNOSIS

STEP 1. Check the keyless entry function operation

Check that the keyless entry function operation normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 8: "Keyless entry function does not work [P.42B-91](#)".

STEP 2. Check the door entry function operation

Check that the door entry function operation normally.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to trouble symptom chart [P.42B-77](#).

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if any DTC is set in the ETACS-ECU.

** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for ETACS-ECU (Refer to GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)).

NO : Go to Step 4.

STEP 4. Check of the troubles

Check that the KOS timer lock function operates.

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points [P.00-13](#)).

NO : Replace ETACS-ECU.

Inspection Procedure 10: Keyless entry hazard answer back function or the dome light answer back function does not work normally.

** CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the keyless entry function is used, the keyless entry hazard answer back function or dome light answer back function operate as set by ETACS customization function (If the flashing count is set to 0 with a customization function, no answer back function is performed).

TROUBLESHOOTING HINTS

- Function setting error or no setting with a customization
- Malfunction of the turn signal light
- Malfunction of the dome light
- Malfunction of ETACS-ECU

DIAGNOSIS

STEP 1. Check the hazard warning light

Check that the hazard warning light illuminate normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to GROUP 54A – Hazard Warning Light switch, Inspection Procedure 1: The hazard warning lights do not illuminate [P.54A-138](#).

STEP 2. Check the dome lights operation

Check that the dome lights illuminate normally.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to GROUP 54A – Dome Light, The front dome light does not illuminate normally [P.54A-125](#).

STEP 3. Check the keyless entry function operation

Check that the keyless entry function operation normally.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to Inspection Procedure 8: Keyless entry function does not work [P.42B-91](#).

STEP 4. Check the customization

Check that any one of the followings other than Lock: 0, Unlock: 0 is set for Hazard answer back with a customization function.

- Lock:1, Unlock:2
- Lock:1, Unlock:0
- Lock:0, Unlock:2
- Lock:2, Unlock:1
- Lock:0, Unlock:1
- Lock:2, Unlock:0

NOTE: If Lock: 0 or Unlock: 0 is selected, no answer back function is performed on locking or unlocking.

Q: Is it set to other than Lock: 0, Unlock: 0?

YES : Go to Step 5.

NO : Set Hazard answer back to any one other than Lock: 0, Unlock: 0 with a customization function (Refer to [P.42B-130](#)).

STEP 5. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the KOS&OSS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 6.

STEP 6. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for ETACS-ECU (Refer to GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)).

NO : Go to Step 7.

STEP 7. Check of the troubles

Check that the hazard answer back and dome light answer back functions of the keyless entry operate.

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#).)

NO : Replace ETACS-ECU.

Inspection Procedure 11: Outer buzzer does not sound.

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

The outer buzzer sounds under the following conditions.

- When the door is locked or unlocked with the keyless or keyless operation function
- Door lock does not operate.

- The keyless operation key is brought out of the vehicle.
- Also, with a customization function, "Buzzer answer back" may be set to "Not Sound Buzzer".

TROUBLESHOOTING HINTS

- Malfunction of the outer buzzer
- Malfunction of the KOS&OSS-ECU
- Malfunction of the connector
- Function setting error or no setting with a customization

DIAGNOSIS

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if any DTC is set in the KOS&OSS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 2.

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if any diagnostic trouble code is set in the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Perform troubleshooting for the ETACS-ECU (Refer to GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)).

NO : Go to Step 3.

STEP 3. Check the customization.

Check that either of the followings other than "Not sound buzzer" is set for "Buzzer answer back" with the customization function.

- At F.A.S.T.
- At keyless
- At Both

Q: Is the check result normal?

YES : Go to Step 4.

NO : Set either of the followings other than "Buzzer answer back" with the customization function (Refer to [P.42B-130](#)).

STEP 4. Using scan tool MB991958, read the actuator test.** CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check that the outer buzzer sounds (Refer to [P.42B-76](#)).
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 5.

STEP 5. Resistance measurement at outer buzzer connector (ground terminal).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the outer buzzer connector (ground terminal) and body ground.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check of open circuit in ground line between the outer buzzer connector and the body ground.**Q: Is the check result normal?**

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 7. Check of short to power supply, short to ground, and open circuit in DRV B line between the outer buzzer connector and the KOS&OSS-ECU connector.

Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

STEP 8. Check of the troubles.

Replace outer buzzer. After the replacement, check that the outer buzzer sounds when the outer buzzer sounding conditions are met.

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Deal with Intermittent Malfunction [P.00-13](#)).

NO : Replace KOS&OSS-ECU and register the ID codes (Refer to [P.42B-123](#)).

Inspection Procedure 12: Power door locks with selective unlocking does not work.

 CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the keyless entry function and door entry function operate normally, but there is an error to only the power door locks with selective unlocking, ETACS-ECU may have a problem. In addition, it is possible that the function has been set to "all doors unlock" by the customization function.

TROUBLESHOOTING HINTS

- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSIS

STEP 1. Check the customization.

Q: Are the power door locks with selective unlocking enabled by the customization function?

YES : Go to Step 2.

NO : Set the power door locks with selective unlocking to Dr Door Unlock by using the customization function (Refer to [P.42B-130](#)).

STEP 2. Power door locks with selective unlocking operation check.

Check that the power door locks with selective unlocking operate normally by means of the keyless entry function or door entry function.

Q: Is the check result normal?

YES : Go to Step 5.

NO (Does not work by means of keyless entry function)

: Go to Step 3.

NO (Does not work by means of door entry function) :

Go to Step 4.

NO (Does not work by means of either functions) : Go to Step 5.

STEP 3. Keyless entry function operation check.

Press the unlock switch of the keyless operation key and check that only the driver's door is unlocked. Then, press the unlock switch once again within 2 seconds after that to check that the front passenger's door, rear doors, and liftgate are unlocked.

Q: Does the keyless entry function work normally?

YES : Go to Step 5.

NO (Only the driver's door is not unlocked) : Replace ETACS-ECU.

NO (The driver's door, front passenger's door, rear doors, and liftgate are not unlocked) : Refer to Inspection Procedure 8: Keyless entry function does not work [P.42B-91](#).

STEP 4. Door entry function operation check.

Press the lock/unlock switch (driver's side) and check that only the driver's door is unlocked. Then, press the lock/unlock switch (driver's side) once again within 2 seconds after that to check that the front passenger's door, rear doors, and liftgate are unlocked.

Q: Does the door entry function work normally?

YES : Go to Step 5.

NO (Only the driver's door is not unlocked) : Replace ETACS-ECU.

NO (The driver's door, front passenger's door, rear doors, and liftgate are not unlocked) : Refer to Inspection Procedure 6: Driver's door lock/unlock switch does not work [P.42B-87](#).

STEP 5. Check of the troubles.

Check that the power door locks with selective unlocking works normally.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace ETACS-ECU.

Inspection Procedure 13: Vehicle power does not turn "ON". (not possible with both of power supply mode "ACC" and "ON")

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the vehicle power does not turn "ON" (not possible with both of power supply mode "ACC" and "ON"), the battery, CAN bus line, KOS&OSS-ECU, KOS&OSS-ECU power supply, or ground circuit may have a problem.

NOTE: KOS&OSS-ECU can communicate with the scan tool (M.U.T.-III) even when the engine switch is in the OFF position.

TROUBLESHOOTING HINTS

- Malfunction of battery
- Damaged wiring harness and connectors
- Malfunction of engine switch (poor connector contact, poor engine switch contact)
- Malfunction of the CAN bus line
- Malfunction of KOS&OSS-ECU
- Malfunction of the keyless operation key battery

DIAGNOSIS

NOTE: Prior to diagnosis, read "Troubleshooting procedure when vehicle power does not turn on" [P.42B-8](#).

STEP 1. Battery check.

Perform the battery test to check the battery status (Refer to GROUP 54A – Battery [P.54A-5](#)).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the battery.

STEP 2. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-12](#)).

STEP 3. Using scan tool MB991958, communicates with this system.

Check that the communication with scan tool (M.U.T.-III) is possible.

NOTE: If ETACS-ECU is not active, KOS&OSS-ECU cannot communicate with the scan tool (M.U.T.-III).

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Turn on and off any of the door switches several times, or open any of the doors.
- (4) Check that KOS&OSS-ECU can communicate with the scan tool (M.U.T.-III).
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the check result normal?

YES : Go to Step 4.

NO : Carry out the troubleshooting of "KOS&OSS-ECU power supply or ground circuit malfunction" (Refer to [P.42B-80](#)).

STEP 4. Using scan tool MB991958, read the diagnostic trouble code.

Check if the diagnosis trouble code is set in the KOS&OSS-ECU.

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 5.

STEP 5. Engine switch check.

Continuity check of engine switch (Refer to [P.42B-142](#)).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the engine switch.

**STEP 6. Keyless operation key battery charged level check
<Except spare key>.**

Check whether the LED illuminates when the lock/unlock switch on the keyless operation key is pressed.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Replace the battery in the keyless operation key

STEP 7. Customized contents check.

Use the customization function to check the setting contents of "F.A.S.T. feature" (Refer to [P.42B-130](#)).

NOTE: If the customized contents do not satisfy your intention, customize the system again.

Q: Which content is selected?

Set to "Both enable" or "ENG start enable" : Go to Step 8.

"DoorEntry enable" or "Both disable" : Go to Step 10.

STEP 8. Check of the troubles.

Check the condition of the keyless operation key or spare key when the vehicle power does not turn "ON".

Q: What kinds of circumstances cause the vehicle power supply to remain off?

When the keyless operation key is inside the vehicle :
Go to Step 9.

**When the spare key or the keyless operation key
(discharged battery) is inserted into the key box** : Go to
Step 10.

STEP 9. Keyless operation system communication test.

Using scan tool (M.U.T.-III), perform the antenna communication test to check that the outside transmission antenna assembly communicates normally (Refer to [P.42B-124](#)).

- Inside transmission antenna assembly (front)
- Inside transmission antenna assembly (rear)

OK: Normal values are displayed for all the items

Q: Is the check result normal?

YES : Go to Step 11.

NO : Go to Step 10.

STEP 10. Check with another registered keyless operation key.

Check whether the power supply mode can be switched by another registered keyless operation key.

Q: Can the power supply mode be switched?

It can be switched : Go to Step 12.

It cannot be switched : Go to Step 11.

There is no other registered keyless operation key : Go
to Step 12.

STEP 11. Connection check of commercial electric products.

Check whether commercial electric products are connected.

Q: Is commercial electric products connected?

YES : Disconnect the commercial electric products as they may be interfering with communication. Then go to Step 14.

NO : Go to Step 14.

STEP 12. Keyless operation key check.

Check whether the registered keyless operation key is used.

Q: Is the registered keyless operation key used?

Used : Register the key ID and keyless operation key ID of the keyless operation key. Then go to Step 13.

Not used (The keyless operation key is not registered or the keyless operation key is also used for another vehicle) : Refer to the key ID registration procedure manual to register the key ID. If the key ID cannot be registered, replace the keyless operation key and register the key ID.

STEP 13. Check of the troubles.

Check that the vehicle power can be turned "ON".

Q: Is the check result normal?

YES : This diagnosis is complete.

NO : Go to Step 14.

STEP 14. Check of the troubles.

Check that the vehicle power can be turned "ON".

Q: Is the check result normal?

YES : Aggravation of radio wave condition caused by commercial electric products or intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Go to Step 15.

STEP 15. Check of the troubles.

Check that the vehicle power can be turned "ON" or the indicator of engine switch in orange, green.

Q: Is the check result normal?

YES : Go to Step 16.

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 16. Using scan tool MB991958, read the diagnostic trouble code.

Check if the diagnosis trouble code is set in the KOS&OSS-ECU.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : This diagnosis is complete.

Inspection Procedure 14: Engine does not start (cranking is not performed).

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the engine does not start (cranking is not performed), the battery malfunction, stop light switch malfunction, engine starting circuit malfunction, or KOS&OSS-ECU malfunction may be present.

TROUBLESHOOTING HINTS

- Malfunction of battery
- Damaged wiring harness or connector (open circuit in ST line)
- Error in engine starting circuit system
- Stop light switch malfunction
- Malfunction of the CAN bus line
- Malfunction of KOS&OSS-ECU
- Engine control module malfunction

DIAGNOSIS

STEP 1. Battery check.

Perform the battery test to check the battery status (Refer to GROUP 54A – Battery [P.54A-5](#)).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the battery.

STEP 2. Using scan tool MB991958, communicates with this system.

Check that the communication with scan tool (M.U.T.-III) is possible.

NOTE: If ETACS-ECU is not active, KOS&OSS-ECU cannot communicate with the scan tool (M.U.T.-III).

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Turn on and off any of the door switches several times, or open any of the doors.
- (4) Check that KOS&OSS-ECU can communicate with the scan tool (M.U.T.-III).
- (5) Turn the power supply mode of the engine switch to "OFF".

Q: Is the check result normal?

YES : Go to Step 3.

NO : Carry out the troubleshooting of KOS&OSS-ECU power supply or ground circuit malfunction (Refer to [P.42B-80](#)).

STEP 3. Using scan tool MB991958, read the diagnostic trouble code.

 CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if the diagnosis trouble code is set in the KOS&OSS-ECU.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 4.

STEP 4. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (MB991958).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"]
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.
 - Operate the brake pedal.

Item No.	Check item	Operation state	Display
22	Stop light switch	Brake pedal is depressed	ON
		Brake pedal released	OFF

OK: Operation state and data list display agree with each other.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Stop Light Switch Check

Remove the stop light switch (Refer to GROUP 35A – Brake Pedal [P.35A-25](#)).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the stop light switch.

STEP 6. Using scan tool MB991958, other system data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (MB991958).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Using the scan tool (M.U.T.-III), set the forced power supply output to "IG-ST" (Refer to [P.42B-8](#)).
- (4) Check the engine control module data list.

Item No.	Check item	Display
79	Cranking signal (Ignition switch-ST)	ON

OK: Operation state and data list display agree with each other.

- (5) Using the scan tool MB991958, set the forced power supply output to other than "IG-ST" (Refer to [P.42B-8](#)).
- (6) Check the engine control module data list.

Item No.	Check item	Display
79	Cranking signal (Ignition switch-ST)	OFF

OK: Operation state and data list display agree with each other.

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

STEP 7. Check of short to power supply, short to ground, and open circuit in ST line between KOS&OSS-ECU connector and engine control module connector

Q: Is the check result normal?

YES : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

NO : Repair the connector(s) or wiring harness.

STEP 8. Check of the troubles

Check whether the engine is started (cranking is performed).

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : There is a problem with the engine starting circuit system of engine control module. Carry out the troubleshooting relevant to the engine starting circuit system (Refer to GROUP 13A – Troubleshooting [P.13A-47](#)).

Inspection Procedure 15: Vehicle power cannot be turned "OFF" when the shift position is in "P" (Power supply mode "ON" to "ACC" is possible)

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the shift position is judged to be in the P position based on the input of P range detection switch, KOS&OSS-ECU can turn "OFF" the vehicle power supply. If the vehicle power cannot be turned "OFF" (power supply mode ON to ACC is possible) when the shift is in P position, the P range detection switch or KOS&OSS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Damaged wiring harness or connector (short to ground in PDSW line)
- Malfunction of selector lever assembly (ON seizure of P range detection switch)
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if the DTC is set in the KOS&OSS-ECU.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 2.

STEP 2. Check of short to ground in PDSW line between selector lever assembly connector and KOS&OSS-ECU connector.

NOTE: Because the conformity cannot be determined even when the digital tester is used to measure the voltage of PDSW line between the selector lever assembly connector and KOS&OSS-ECU connector, be sure to use the oscilloscope (Outputs the sawtooth waveform of 0 to 5 V with intervals of 10 ms).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector(s) or wiring harness.

STEP 3. Check of selector lever assembly (P range detection switch).

Disconnect the selector lever assembly connector, and check the continuity at the equipment side.

Operation state	Terminal No.	Normal conditions
Selector lever: P position	4 – 6	No continuity
Selector lever: Other than P position		Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the selector lever assembly.

STEP 4. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.
 - Operate the selector lever.

Item No.	Check item	Operation state	Display
24	P range detect SW	Selector lever: P position	Outside park
		Selector lever: Other than P position	Park

OK: Operation state and data list display agree with each other.

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

Inspection Procedure 16: ACC power auto cut function does not work normally.**⚠ CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

The KOS&OSS-ECU will evaluate the signals from the power supply mode (ACC) and the driver's door switch to determine whether the ACC power supply is shut down or not. If this function does not work normally, the input signal or the KOS&OSS-ECU may be defective. Also, "ACC automatic cut timer (OSS)" may be set to "Disable" through customization.

TROUBLESHOOTING HINTS

- Malfunction of KOS&OSS-ECU
- Malfunction of the driver's door switch
- External noise interruption in input signal
- Malfunction of selector lever assembly (ON seizure of P range detection switch)

DIAGNOSIS

STEP 1. Check of customization.

Use the ETACS-ECU customization function to check whether "ACC automatic cut timer (OSS)" is set to 30 min or 60 min.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Using the ETACS-ECU customization function, set "ACC automatic cut timer (OSS)" to 30 min or 60 min (Refer to [P.42B-130](#)).

STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if the DTC is set in the KOS&OSS-ECU.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Refer to diagnostic trouble code chart [P.42B-13](#).

NO : Go to Step 3.

STEP 3. Check of short to ground in PDSW line between selector lever assembly connector and KOS&OSS-ECU connector.

NOTE: Because the conformity cannot be determined even when the digital tester is used to measure the voltage of PDSW line between the selector lever assembly connector and KOS&OSS-ECU connector, be sure to use the oscilloscope (Outputs the sawtooth waveform of 0 to 5 V with intervals of 10 ms).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

STEP 4. Check of selector lever assembly (P range detection switch).

Disconnect the selector lever assembly connector, and check the continuity at the equipment side.

Operation state	Terminal No.	Normal conditions
Selector lever: P position	4 – 6	No continuity
Selector lever: Other than P position		Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the selector lever assembly.

STEP 5. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.
 - Operate the selector lever.

Item No.	Check item	Operation state	Display
24	P range detect SW	Selector lever: P position	Outside park
		Selector lever: Other than P position	Park

OK: Operation state and data list display agree with each other.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the KOS&OSS-ECU and register the chassis number (Refer to [P.42B-127](#)).

STEP 6. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the ETACS-ECU service data relevant to the signal from the driver's door.
 - a. Open the driver's door.

Item No.	Check item	Normal conditions
19	Driver's door switch	ON

OK: Normal conditions are displayed.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Perform input signal check for the ETACS (Refer to GROUP 54A – ETACS – Input signal check [P.54A-239](#)).

STEP 7. Voltage measurement at KOS&OSS-ECU connector.

Check the voltage measurement at KOS&OSS-ECU connector (Refer to [P.42B-120](#)).

Terminals to be checked

- STP1
- SW1
- PDSW
- SW2

Q: Is the check result normal?

YES : Go to Step 8.

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 8. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the KOS&OSS-ECU data list.
 - Turn the power supply mode to ACC.

Item No.	Check item	Normal conditions
27	OSS power supply status	IG ACC

OK: Normal conditions are displayed.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

STEP 9. Check of the troubles.

Check whether the ACC power auto cut function works normally.

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the KOS&OSS-ECU and register the VIN (Refer to [P.42B-127](#)).

Inspection Procedure 17: Vehicle power cannot be turned OFF.**⚠ CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

COMMENTS ON TROUBLE SYMPTOM

If the power supply cannot be shut down by pressing the engine switch, the system may not receive any correct vehicle speed information via CAN or the "IG1" power supply system may be defective.

PROBABLE CAUSES

- Incorrect vehicle speed information (CAN signal)
- Damaged wiring harness or connector (short to ground or short to power supply in IG1 line)
- Malfunction of IG1 relay
- Malfunction of engine switch
- Malfunction of KOS&OSS-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Diagnose the CAN bus line.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check whether the engine control module sets a diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect scan tool (M.U.T.-III) [P.42B-5](#)".]
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Check if DTC is set.
- (4) Turn the power supply mode of the engine switch to "OFF".

Q: Is the DTC set?

YES : Diagnose the engine control module (Refer to GROUP 13A, Troubleshooting [P.13A-47](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

- (1) Connect scan tool (M.U.T.-III) [Refer to "How to connect the Scan Tool (M.U.T.-III) [P.42B-5](#)"].
- (2) Turn the power supply mode of the engine switch to "OFF".
- (3) Check the engine control module data list.

Item No.	Item name	Normal condition
4	Vehicle speed	Approximately 40 km/h (25 mph)

OK: Normal condition are displayed.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Perform troubleshooting for engine control module (Refer to GROUP 13A, Troubleshooting [P.13A-47](#)).

STEP 4. IG1 relay check.

Check that the IG1 relay works normally (Refer to [P.42B-129](#)).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the IG1 relay.

STEP 5. Voltage measurement at IG1 relay connector (IG1 terminal)

- (1) Remove the IG1 relay , and measure at the wiring harness side.
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Measure the voltage between the IG1 relay connector (IG1 terminal) and body ground.

OK: System voltage

- (4) Turn the power supply mode of the engine switch to "OFF".
- (5) Measure the voltage between the IG1 relay connector (IG1 terminal) and body ground.

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check of short to power supply, short to ground or open circuit in IG1 line between the KOS&OSS-ECU connector and the IG1 relay connector

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 7. Check of open circuit in ground line between the IG1 relay connector and the body ground

Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the wiring harness.

STEP 8. Voltage measurement at IG1 relay connector (IG1 line and power supply line)

(1) Remove the IG1 relay , and measure at the wiring harness side.

(2) Measure the voltage between the IG1 relay connector (power supply line) and the body ground.

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check of short to power supply, short to ground or open circuit in power supply line between the fusible link connector and the IG1 relay connector

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the connector(s) or wiring harness.

STEP 10. Voltage measurement at ETACS-ECU connector (IG1 line)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the power supply mode of the engine switch to "ON".
- (3) Measure the voltage between the ETACS-ECU connector (IG1 line) and the body ground.

OK: System voltage

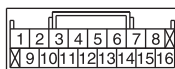
- (4) Turn the power supply mode of the engine switch to "OFF".
- (5) Measure the voltage between the ETACS-ECU connector (IG1 line) and the body ground.

OK: 1 V or less**Q: Is the check result normal?****YES :** Go to Step 11.**NO :** Repair the wiring harness, IG1 line between the ETACS-ECU connector and the fusible link.**STEP 11. Engine switch check**Continuity check of engine switch (Refer to [P.42B-142](#)).**Q: Is the check result normal?****YES :** Go to Step 12.**NO :** Replace the engine switch.**STEP 12. Check of the troubles**

Check whether the engine is started (cranking is performed).

Q: Is the check result normal?**YES :** Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-13](#)).**NO :** Replace the KOS&OSS-ECU and register the chassis number (Refer to [P.42B-127](#)).**TERMINAL VOLTAGE REFERENCE CHART**

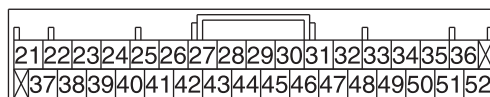
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Terminal number	Terminal code	Check item	Check condition	Normal condition
1	ANTG	Immobilizer antenna output (-)	When communicating with the keyless operation key (discharged battery) in the key slot	0 to 5 V (pulse signal)
2	LEDG	Engine switch LED (green) ON signal	Power supply mode: "ON"	System voltage

Terminal number	Terminal code	Check item	Check condition	Normal condition
3	LEDW	Engine switch LED (character illumination) ON signal	Always	System voltage
4	EDRP	Outside transmission antenna assembly (driver's side) power supply	- At the door switch operation - At the engine switch operation - At door open/close	0 to 8 V (pulse signal)
5	INFP	Inside transmission antenna assembly (front) power supply	- At the door switch operation - At the engine switch operation - At door open/close	0 to 8 V (pulse signal)
6	EASP	Outside transmission antenna assembly (passenger's side) power supply	- At the door switch operation - At the engine switch operation - At door open/close	0 to 8 V (pulse signal)
7	INRP	Inside transmission antenna assembly (rear) power supply	- At the door switch operation - At the engine switch operation - At door open/close	0 to 8 V (pulse signal)
8	EGTP	Outside transmission antenna assembly (tailgate) power supply	- At the door switch operation - At the engine switch operation - At door open/close	0 to 8 V (pulse signal)
9	ANTP	Immobilizer antenna output (+)	When communicating with the keyless operation key (discharged battery) in the key slot	0 to 5 V (pulse signal)
10	LEDA	Engine switch LED (orange) ON signal	Power supply mode: "ACC"	System voltage
11	PGND	Ground (for CPU)	Always	1 V or less
12	EDRG	Outside transmission antenna assembly (driver's side) ground	Always	1 V or less
13	INFG	Inside transmission antenna assembly (front) ground	Always	1 V or less
14	EASG	Outside transmission antenna assembly (passenger's side) ground	Always	1 V or less
15	INRG	Inside transmission antenna assembly (rear) ground	Always	1 V or less
16	EGTG	Outside transmission antenna assembly (tailgate) ground	Always	1 V or less



Terminal number	Terminal code	Check item	Check condition	Normal condition
21	+B	Battery power supply	Always	System voltage
22	—	—	—	—
23	SGND	Ground (for signal)	Always	1 V or less
24	—	—	—	—
25	STO	Starter output signal	Cranking	System voltage
			Other than above	1 V or less
26	—	—	—	—
27	IG2	IG2 output signal	Power supply mode: "ON" (Without cranking)	System voltage
			Power supply mode: Other than "ON"	1 V or less
28	—	—	—	—
29	DRVB	Output to buzzer (+)	Tone alarm is sounding	10 to 12 V (pulse signal)
30	DRRQ	Lock/unlock switch (driver's side) output	Lock/unlock switch: "ON"	1 V or less
31	CLMS	Clutch interlock switch ON/OFF detection signal	When the clutch pedal is depressed	System voltage
			When the clutch pedal is released	1 V or less (pulse signal)
32	STP1	Stop lamp switch ON/OFF detection signal	When the brake pedal is depressed	System voltage
			When the brake pedal is released	1 V or less (pulse signal)
33 – 34	—	—	—	—
35	CANH	CAN H	—	—
36	—	—	—	—
37	IOD	Power supply	While the power supply fuse (IOD fuse) is removed, when the engine switch is pressed from the engine switch power supply mode "OFF"	System voltage
38	—	—	—	—
39	—	—	—	—
40 – 41	—	—	—	—
42	ACC	ACC output signal	Power supply mode: "ACC"	System voltage
			Power supply mode: Other than "ACC"	1 V or less
43	—	—	—	—
44	IG1	IG1 output signal	Power supply mode: "ON"	System voltage
			Power supply mode: Other than "ON"	1 V or less

Terminal number	Terminal code	Check item	Check condition	Normal condition
45	SW1	Engine switch ON/OFF detection signal	When the engine switch is pressed	System voltage
			When the engine switch is not pressed	1 V or less
46	PDSW	P position detection signal	Selector lever: P position	0 to 5 V (pulse signal)
			Selector lever: Other than P position	1 V or less
47	–	–	–	–
48	GTRQ	Lock/unlock switch (tailgate) output	Lock/unlock switch: "ON"	1 V or less
49	SW2	Engine switch ON/OFF detection signal	When the engine switch is pressed	1 V or less
			When the engine switch is not pressed	0 to 5 V (pulse signal)
50	–	–	–	–
51	CANL	CAN L	–	–
52	–	–	–	–

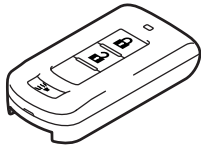
ON-VEHICLE SERVICE

ID CODES REGISTRATION PROCEDURES

M1429611700952

For the details of key registration procedure, refer to the ID registration procedure manual.

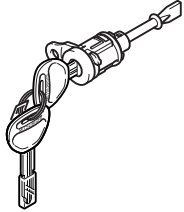
KEY SUPPLY UNIT

KOS key set	KOS emergency key
 AC705756	 AC610642

KEY SUPPLY UNIT LIST FOR OTHER THAN INDIVIDUAL KEY

Door service key set

NOTE: It is the key that comes with the door service key set. It can only be used for locking and unlocking, and it cannot start the engine.



AC608188

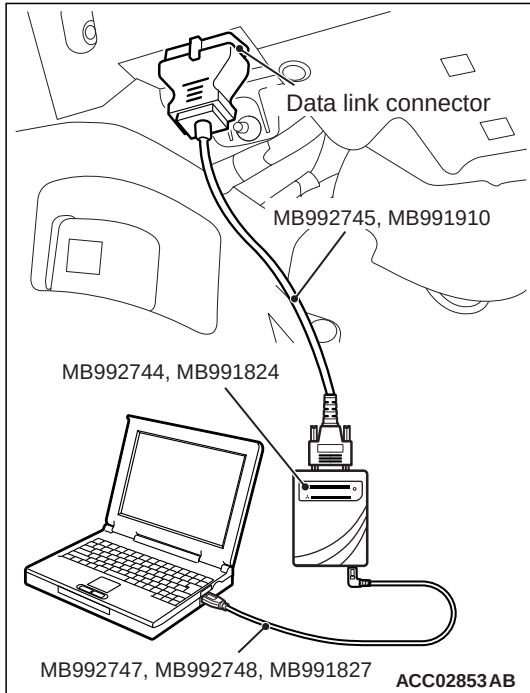
ANTENNA COMMUNICATION TEST

M1429606400278

Through the operations on the scan tool (M.U.T.-III) screen, the antenna communication tests can be performed.

Required Special Tools:

- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A (for vehicles with CAN communication)
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



CAUTION

To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the "OFF" position before connecting or disconnecting scan tool (M.U.T.-III).

Connect the scan tool (M.U.T.-III) to the 16-pin data link connector as follows.

NOTE: For details on how to use the scan tool, refer to the "M.U.T.-III User's Manual."

1. Start the scan tool (M.U.T.-III) system on the personal computer and turn the power supply mode of the engine switch to "ON".
2. Select "F.A.S.T./OSS/IMMO/Keyless/TPMS" button from the "System Select" screen. Then, select the applicable option code item and push the "OK" button.
3. Select "Special Function" on the next screen.
4. Select the button of the operation to be performed from the "Special Function" screen.
5. Select the antenna to be tested on "Comm. Test" screen, and press the "OK" button with the keyless operation key placed within the communication operational area.
6. Push the "OK" button after "Communication is normal." is displayed.

KEYLESS ENTRY FUNCTION CHECK

M1429611800216

Check the keyless entry function as described below. If it does not work, perform troubleshooting (Refer to [P.42B-77](#)).

- Operate the keyless operation key to check that the doors and liftgate can be locked and unlocked.
- Operate the keyless operation key to check that the answerback function works in response to door and liftgate locking/unlocking.

NOTE: The hazard answerback setting can be changed using the customization function. Confirm which setting is activated before performing these checks (Refer to [P.42B-130](#)).

INSPECTION OF KEYLESS ENTRY TIMER LOCK FUNCTION

M1429612200239

Attempt to unlock the doors by using the keyless operation key. If the doors are not locked within 30 seconds, carry out troubleshooting. Note that the doors will not be locked if the ignition key is inserted within the 30-second period, one of the doors is opened is triggered. Refer to [P.42B-77](#).

NOTE: The operation time of the keyless entry timer lock function can be set using the customization function. Confirm the operation time before performing the diagnosis. Refer to [P.42B-130](#).

POWER SUPPLY MODE BY ENGINE SWITCH OPERATION

M1429627000026

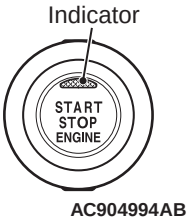
When the engine switch is pressed, the power supply mode changes according to the shift position and brake pedal operation state.

Shift position	Brake pedal operation	Power supply mode at engine switch operation
P position	Released	Every time the switch is pressed, the power supply mode changes from "OFF" to "ACC" to "ON" to "OFF".
	Depressed	While the power supply mode is "OFF", the engine is started when the switch is pressed.
		While the power supply mode is "ACC", the engine is started when the switch is pressed.
		While the power supply mode is "ON", the engine is started when the switch is pressed.
	Depressed or released	When the switch is pressed after the engine is started, the power supply mode is turned "OFF" (the engine stops).
Other than P position	Depressed or released	When the switch is pressed while the power supply mode is ACC, the power supply mode is turned "ON".
		When the switch is pressed while the power supply mode is ON, the power supply mode is turned to "ACC".
		When the switch is pressed after the engine is started, the power supply mode is turned to "ACC".

CHECK OF ENGINE SWITCH INDICATOR FUNCTION

M1429627100067

Check that the engine switch indicator is switched as follows in each power supply mode and when an error is detected.

INDICATOR	Power supply mode and at error detection	INDICATOR
 Indicator AC904994AB	OFF	Extinguished
	ACC	Illuminated in orange
	ON	Illuminated in green
	ON (after engine start)	Extinguished at 3 seconds after the engine is started
	System error	Flashes in orange
	Special operation mode *	Flashes in green (when ACC and ON only)

NOTE: *: The special operation mode indicates that KOS&OSS-ECU is brand new.

CHECK OF ENGINE SWITCH REMINDER TONE ALARM

M1429620300026

1. With the driver's door kept closed, and then turn the power supply mode to ACC or ON.
2. Open the driver's door.
3. Check that the tone alarm sounds normally.
4. If there is a malfunction, troubleshoot the combination meter (Refer to GROUP 54A – Combination Meter, Trouble Symptom Chart [P.54A-35](#)).

REGISTRATION WHEN REPLACING KOS&OSS-ECU

M1429627200097

⚠ CAUTION

- When KOS&OSS-ECU is replaced, all the registrations that need to be performed at KOS&OSS-ECU replacement must be completed before the registration of KOS&OSS-ECU.
- Be sure to check that DTC B1157 EEPROM fail is not set. If DTC B1157 "EEPROM fail" is set, the VIN cannot be stored in memory even when it is written. Therefore, when this DTC is set, be sure to carry out the troubleshooting first to repair the trouble, and then write the VIN to KOS&OSS-ECU.

Required Special Tools:

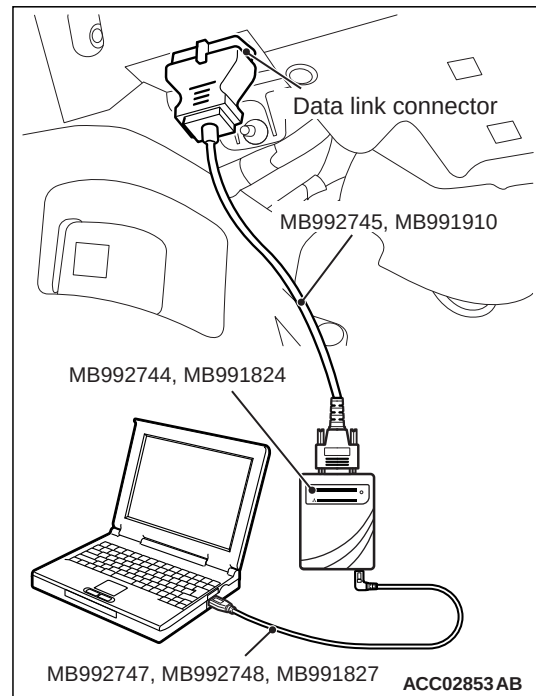
- MB992744: Vehicle communication interface-Lite (V.C.I.-Lite)
- MB992745: V.C.I.-Lite main harness A (for vehicles with CAN communication)
- MB992747: V.C.I.-Lite USB cable short
- MB992748: V.C.I.-Lite USB cable long
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827 M.U.T.-III USB Cable
 - MB991910 M.U.T.-III Main Harness A

When KOS&OSS-ECU is replaced, the VIN needs to be registered to the replaced ECU.

VIN REGISTRATION PROCEDURE

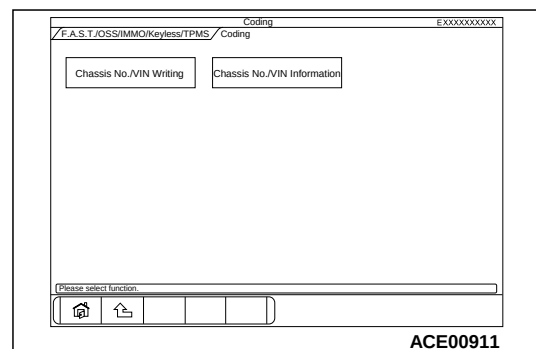
1. Replace the KOS&OSS-ECU.

⚠ CAUTION

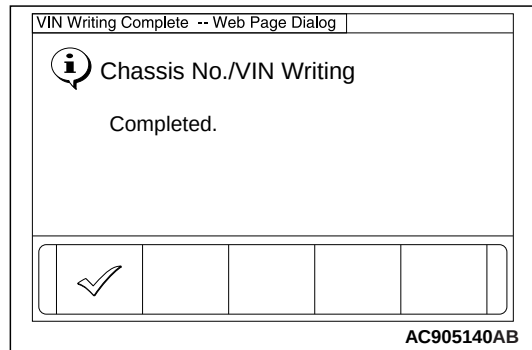
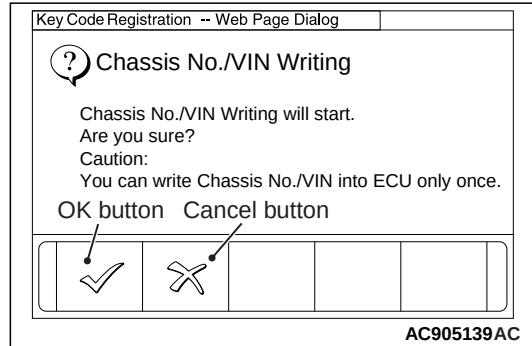
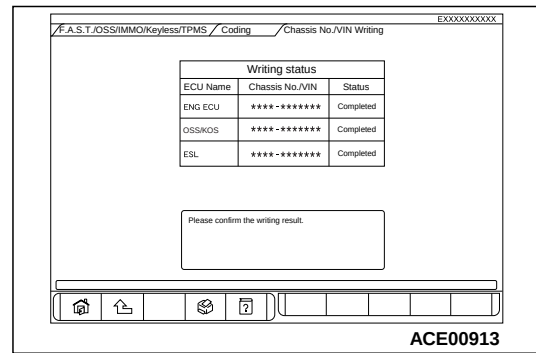
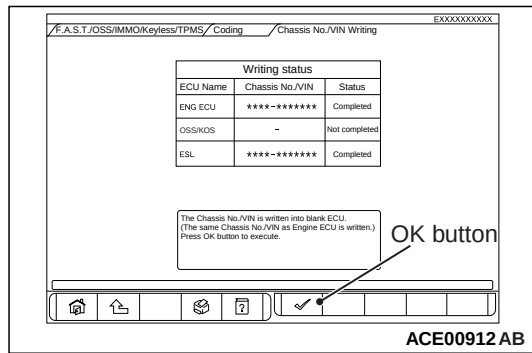


To prevent damage to scan tool (M.U.T.-III), always turn the power supply mode of the engine switch to the OFF position before connecting or disconnecting scan tool (M.U.T.-III).

2. Connect scan tool (M.U.T.-III) to the data link connector.
3. From the system selection screen of scan tool (M.U.T.-III), select "F.A.S.T./OSS/IMMO/Keyless/TPMS".
4. From the F.A.S.T./OSS/IMMO/Keyless/TPMS function menu screen, select "Coding".



5. From the coding menu screen, select "Chassis No./VIN Writing."

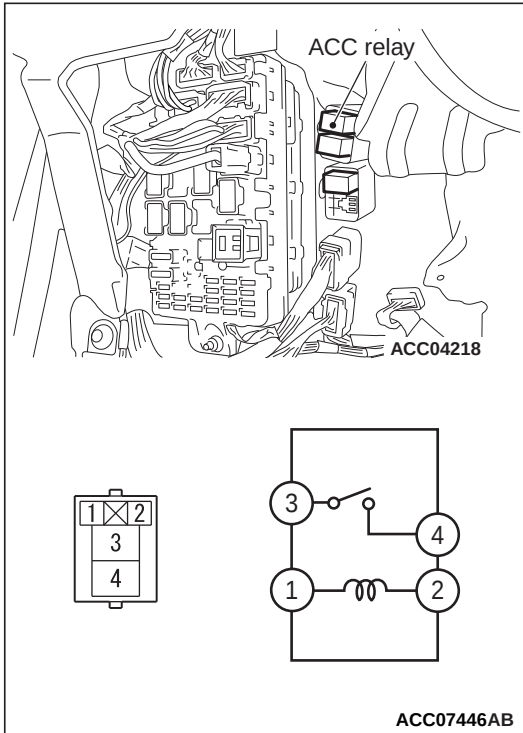


6. Following the instruction on the screen, press the "OK" button to execute the VIN writing. (scan tool (M.U.T-III) screen above indicates when KOS&OSS-ECU is replaced.)

7. On the writing result confirmation screen, check that the VIN is written, and finish the registration.
8. Operate the engine switch to turn "OFF" the power supply.
NOTE: After the scan tool (M.U.T-III) has executed the VIN writing, it will turn the engine switch on forcibly. Therefore, after completion, turn the engine switch off.
9. Set the driver's door from open to close or from close to open.
10. Carrying the keyless operation key, perform the engine switch operation to turn the power from "OFF" to "ON" twice.
11. Check that the KOS&OSS-ECU DTC (B1160, B1166 or U1199) is not set, and finish the registration.

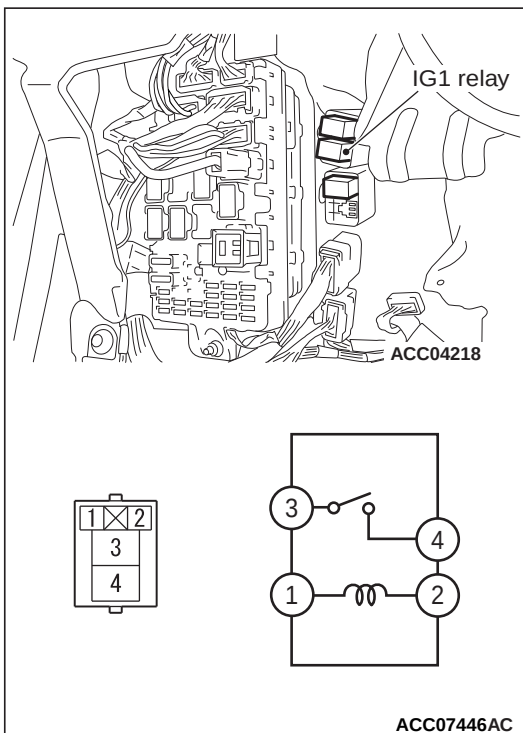
RELAY INSPECTION

ACC relay inspection



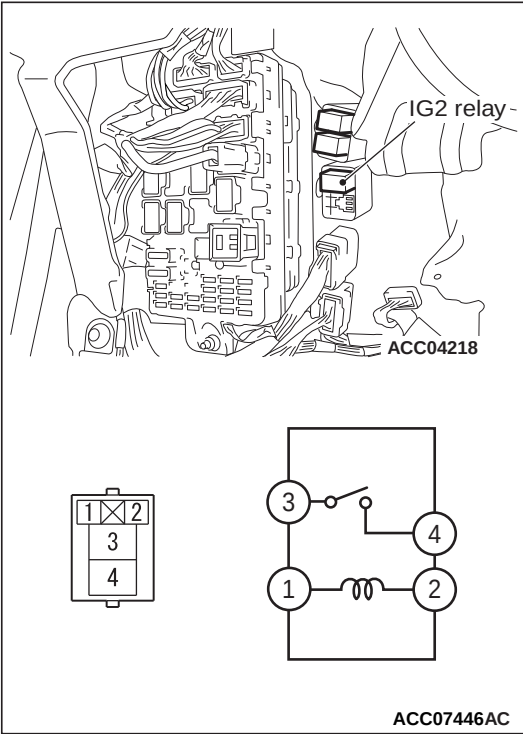
Battery voltage	Terminal number	Normal value
No current supply	3 – 4	No continuity
With current supply [terminal 2 (+) – terminal 1 (-)]	3 – 4	Continuity exists (2 Ω or less).

IG1 relay inspection



Battery voltage	Terminal number	Normal value
No current supply	3 – 4	No continuity
With current supply [terminal 2 (+) – terminal 1 (-)]	3 – 4	Continuity exists (2 Ω or less).

IG2 relay inspection



Battery voltage	Terminal number	Normal value
No current supply	3 – 4	No continuity
With current supply [terminal 2 (+) – terminal 1 (-)]	3 – 4	Continuity exists (2 Ω or less).

CUSTOMIZATION FUNCTION

M1429611601174

Using the ETACS system of scan tool (M.U.T.-III), the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjusting content (scan tool display)	Adjusting content
Hazard answer back	Adjustment of the number of keyless hazard warning light answer back flashes	Lock:1, Unlock:2	LOCK: Flashes once, UNLOCK: Flashes twice (Initial condition)
		Lock:1, Unlock:0	LOCK: Flashes once, UNLOCK: No flash
		Lock:0, Unlock:2	LOCK: No flash, UNLOCK: Flash twice
		Lock:2, Unlock:1	LOCK: Flash twice, UNLOCK: Flash once
		Lock:2, Unlock:0	LOCK: Flash twice, UNLOCK: No flash
		Lock:0, Unlock:1	LOCK: No flash, UNLOCK: Flash once
		Lock:0, Unlock:0	No function
Door unlock mode	Adjustment of power door locks with selective unlocking	All Doors Unlock	The first operation of keyless entry system or unlock operation by KOS unlocks all doors.
		Dr Door Unlock	The first operation of keyless entry system or unlock operation by KOS unlocks the driver's door only, and the second unlock operation within 2 seconds after that unlocks all doors. (initial condition)

Adjustment item (scan tool display)	Adjustment item	Adjusting content (scan tool display)	Adjusting content
Door unlock (Shift "P" position)	Adjustment of the auto door unlock (P position) function	Disable	No function (Initial condition)
		Enable	Always with function
Buzzer answer back	Adjusts the buzzer answer back function	Not Sound Buzzer	No function
		At F.A.S.T.	Sounds when KOS is activated. (Initial condition)
		At keyless	Sounds when the keyless entry system is activated.
		At Both	Sounds when the keyless entry system or KOS is activated.
Timer lock timer	Timer lock period adjustment	30 sec.	30 seconds (Initial condition)
		60 sec.	60 seconds
		120 sec.	120 seconds
		180 sec.	180 seconds
Horn chirp by keyless	Horn chirp by keyless entry system	Not sound horn	No horn answerback function
		Lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed once.
		W lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed twice. (initial condition)
F.A.S.T. feature	KOS function adjustment	Both enable	All KOS functions are enabled. (Initial condition)
		Door Entry enable	Only door entry function is enabled.
		ENG start enable	Only engine starting function is enabled.
		Both disable	All KOS functions are disabled.
F.A.S.T. key detect out fm window	With/without KOS key exterior detection function	Disable	No function (Initial condition)
		Enable	With function
Outer buzzer volume	Volume adjustment for the KOS outer buzzer	Volume 1	Quieter than the standard
		Volume 2	Standard volume (Initial condition)
		Volume 3	Louder than the standard
ACC automatic cut timer (OSS)	Disabling or enabling of ACC power auto cut function or adjustment of the time until the ACC power supply is cut off	Disable	No function
		30 min	30 minutes (Initial condition)
		60 min	60 minutes

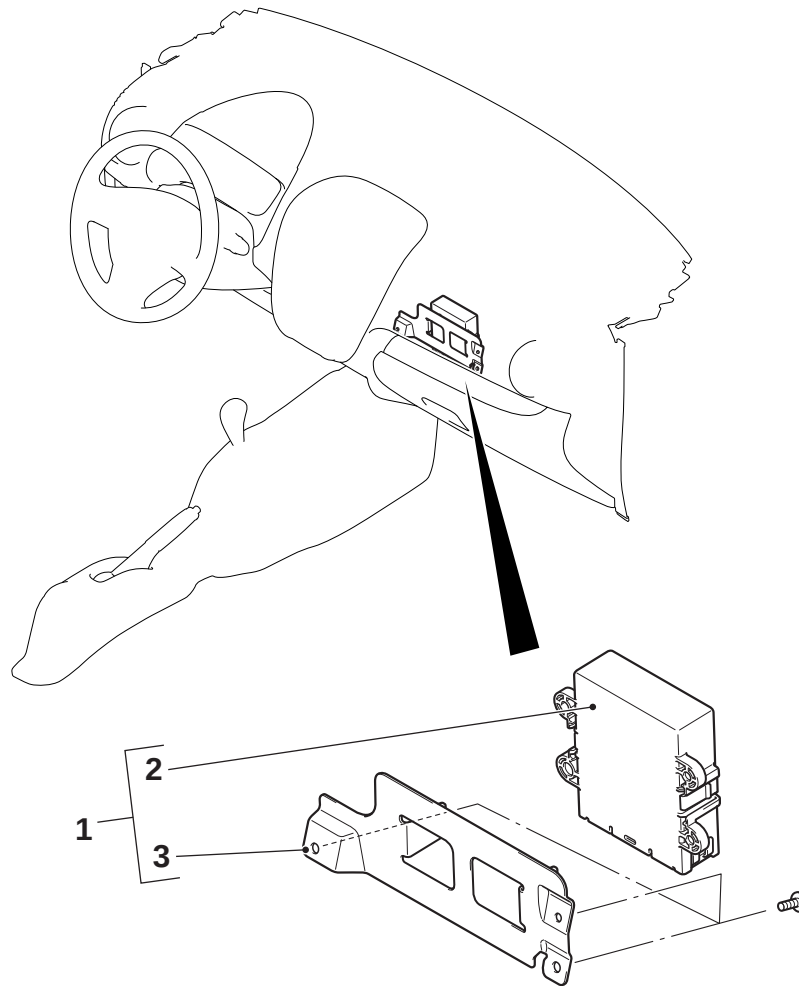
KOS & OSS-ECU

REMOVAL AND INSTALLATION

M1429605900485

CAUTION

If KOS&OSS-ECU is replaced, refer to ID code registration need judgment table [P.42B-123](#) to complete the registration of each ID code.



ACE00011 AB

Removal steps

- Glove box (Refer to GROUP 52A – Glove Box [P.52A-4.](#))
- KOS&OSS-ECU assembly

>>A<<

Removal steps (Continued)

- KOS&OSS-ECU
- Bracket

INSTALLATION SERVICE POINT

>>A<< KOS&OSS-ECU INSTALLATION

When the KOS&OSS-ECU is replaced, the mode is shifted to the special operation mode, and the system works as follows:

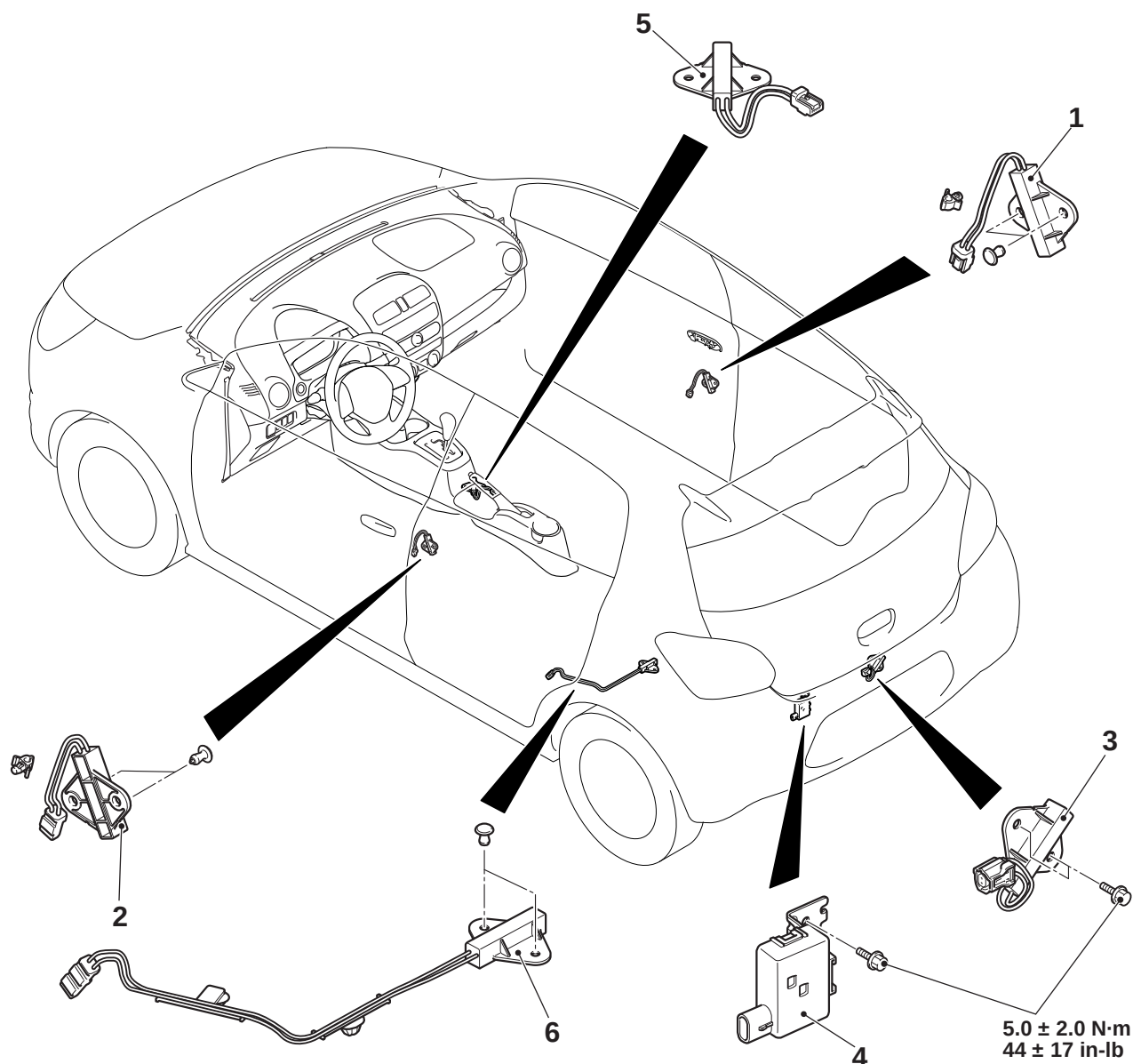
- When the engine switch is pressed, the power supply mode of the vehicle changes without key certification.

- The lock/unlock control of the electric steering lock is not performed.
- The engine cannot be started.
- While turning the vehicle power on, the LED of the engine switch flashes in green.
- After the OSS-related devices including KOS&OSS-ECU are registered and engine start is possible, the special operation mode will be cancelled automatically by operating the engine switch.
- Check that the special operation mode cancellation is completed by checking the diagnostic trouble code, by checking whether the engine switch LED is flashing or not, and by checking whether the engine can be started or not.

OUTSIDE TRANSMISSION ANTENNA ASSEMBLY, INSIDE TRANSMISSION ANTENNA ASSEMBLY

REMOVAL AND INSTALLATION

M1429619300118



ACC03318AB

Outside transmission antenna assembly (RH) removal steps

- Center pillar trim upper (RH) (Refer to GROUP 52A – Interior Trim [P.52A-9.](#))
- Outside transmission antenna assembly (RH)

Outside transmission antenna assembly (LH) removal steps

- Center pillar trim upper (LH) (Refer to GROUP 52A – Interior Trim [P.52A-9.](#))
- Outside transmission antenna assembly (LH)

Outside transmission antenna assembly (liftgate) removal steps

- Rear bumper assembly (Refer to GROUP 51 – Rear Bumper Assembly [P.51-6](#)).
- 3. Outside transmission antenna assembly (liftgate)

Buzzer removal steps

- Rear bumper assembly (Refer to GROUP 51 – Rear Bumper Assembly [P.51-6](#)).
- 4. Buzzer

Inside transmission antenna assembly (front) removal steps

- Floor console panel (Refer to GROUP 52A – Floor Console Assembly [P.52A-7](#).)
- 5. Inside transmission antenna assembly (front)

Inside transmission antenna assembly (rear) removal steps

- Quarter trim lower (LH) (Refer to GROUP 52A – Interior Trim [P.52A-9](#).)
- 6. Inside transmission antenna assembly (rear)

KEYLESS OPERATION KEY

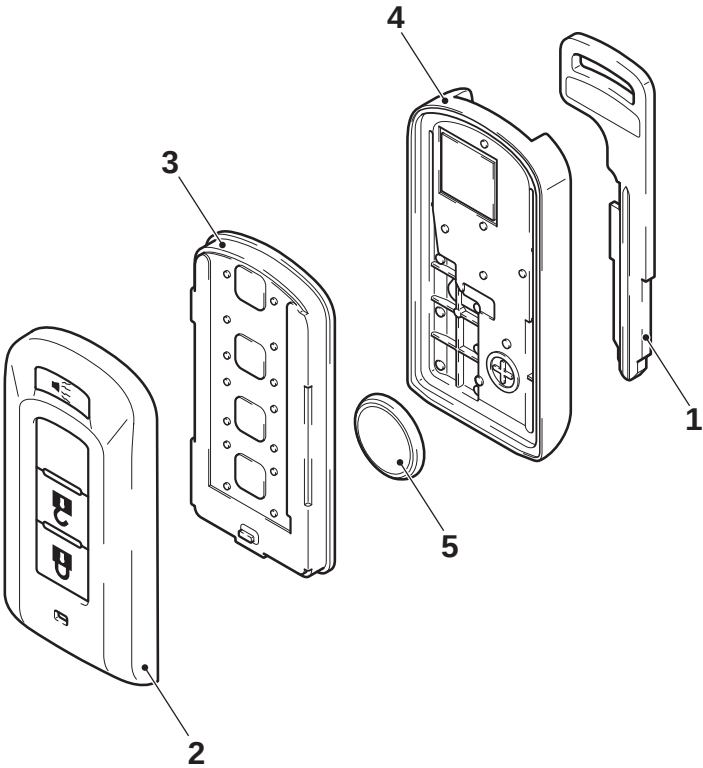
DISASSEMBLY AND REASSEMBLY

M1429604000296

⚠ WARNING

Certain components of this vehicle, such as coin-type lithium battery may contain perchlorate materials. Before deployment and/or disposal of these components, review and comply with all applicable Federal, state and local regulations.

Post-installation operation
Operation check of the keyless operation key



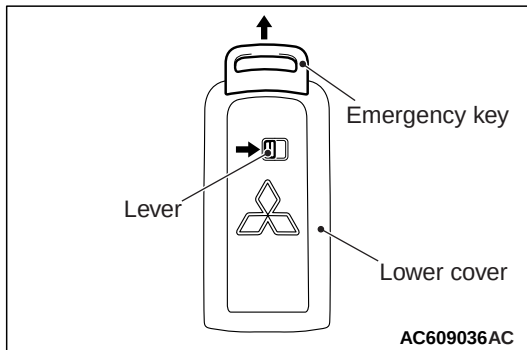
AC609035AE

- | | | | | |
|-------|--------------------------|-------|-------|--------------------------------------|
| <<A>> | Disassembly steps | <> | >>A<< | Disassembly steps (Continued) |
| <> | 1. Emergency key | <> | 4. | Battery |
| <> | 2. Upper cover | | 5. | Lower cover |
| | 3. Transmitter assembly | | | |

DISASSEMBLY SERVICE POINTS

<<A>> EMERGENCY KEY REMOVAL

Move the lever on the lower cover to the direction shown by the arrow to remove the emergency key from the keyless operation key.

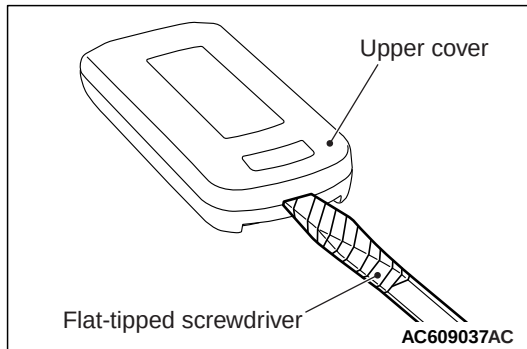


<> UPPER COVER/TRANSMITTER ASSEMBLY/BATTERY/LOWER COVER REMOVAL

⚠ CAUTION

Do not allow water or dust to enter the inside of the transmitter assembly when it is open. Also, do not touch the precision electronic device.

Set a flat-tipped screwdriver wrapped with protective tape as shown in the figure, and pry off the keyless operation key.



REASSEMBLY SERVICE POINT

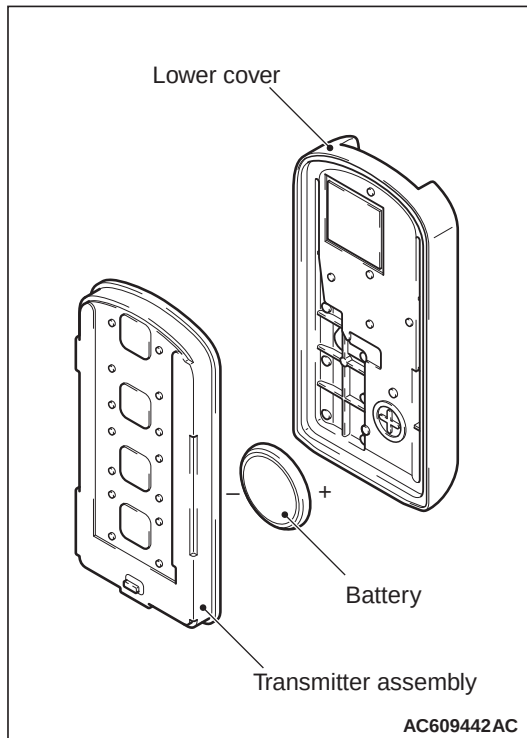
>>A<< BATTERY INSTALLATION

⚠ CAUTION

Do not allow water or dust to enter the inside of the transmitter assembly when it is open. Also, do not touch the precision electronic device.

Install a battery with the positive side facing toward the lower cover.

**Replacement battery: Coin-type lithium battery
CR2032**



TPMS TRANSMITTER

TPMS TRANSMITTER REMOVAL AND INSTALLATION

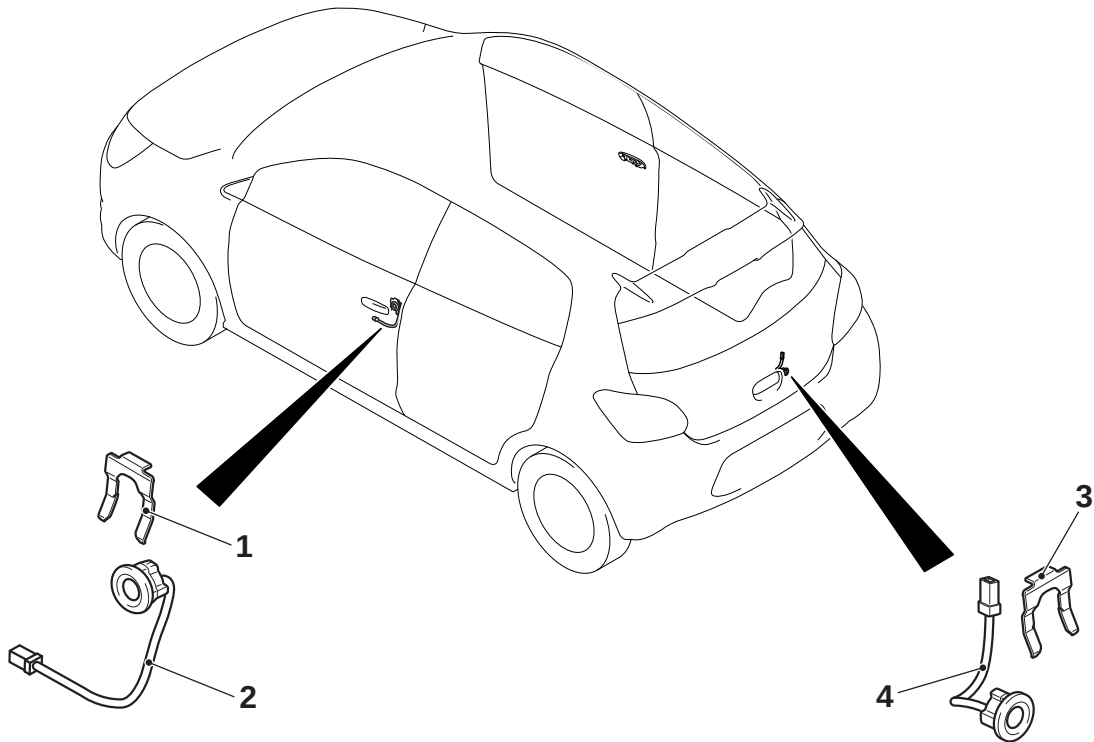
Refer to GROUP 31 – TPMS Transmitter [P.31-47](#).

M1429613000119

LOCK/UNLOCK SWITCH

REMOVAL AND INSTALLATION

M1429628900022



ACC03450AB

Lock/unlock switch <Driver's side> removal steps

- Door trim assembly <Driver's side> (Refer to GROUP 52A – Door Trim [P.52A-11.](#))
- Waterproof film <Driver's side> (Refer to GROUP 42A – Window Glass Runchannel and Door Opening Weatherstrip [P.42A-77.](#))

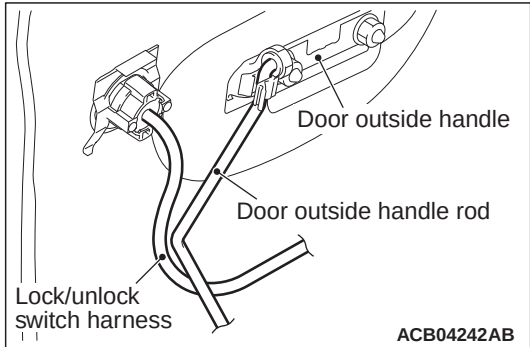
>>A<< Lock/unlock switch <Driver's side> removal steps (Continued)

1. Retainer
 2. Lock/unlock switch <Driver's side>
- #### Lock/unlock switch <Liftgate> removal steps
- Liftgate trim (Refer to GROUP 52A – Liftgate Trim [P.52A-14.](#))
 - 3. Retainer
 - 4. Lock/unlock switch <Liftgate>

INSTALLATION SERVICE POINT

>>A<< LOCK/UNLOCK SWITCH <DRIVER'S SIDE>
INSTALLATION

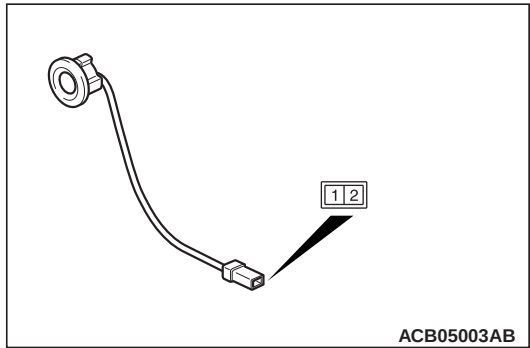
Install the lock/unlock switch harness so that it is away from the door outside handle rod towards the outside of the vehicle.



INSPECTION

M1429638800015

LOCK/UNLOCK SWITCH CHECK

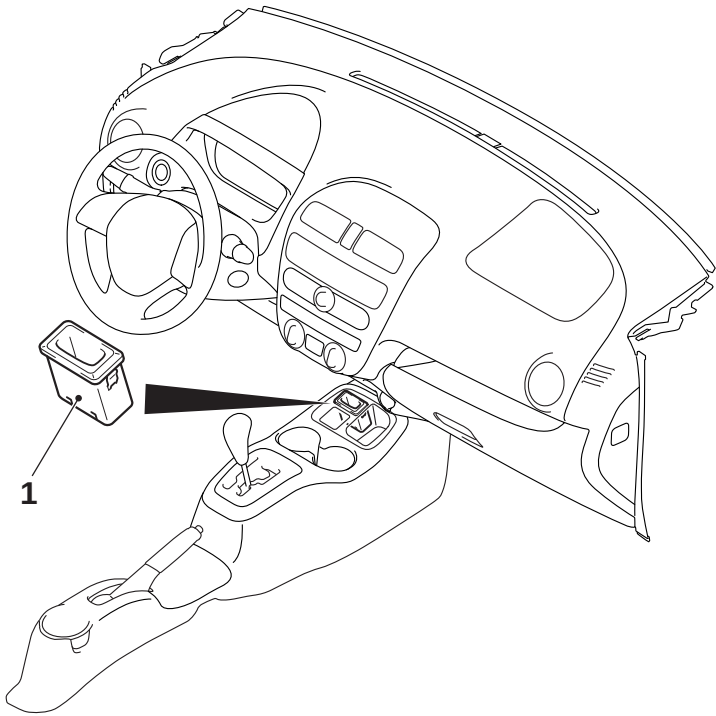


Switch position	Terminal number	Normal value
ON	1 – 2	Continuity exists (2 Ω or less)
OFF	1 – 2	No continuity

KEY SLOT

REMOVAL AND INSTALLATION

M1429620700046



ACC03413AB

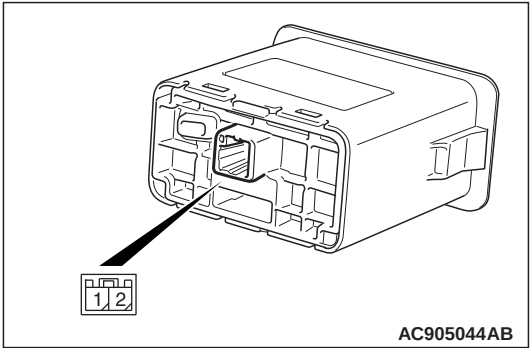
Removal steps

- Floor console tray (Refer to GROUP 52A – Floor Console [P.52A-7.](#))
- Key slot

INSPECTION

M1429620800021

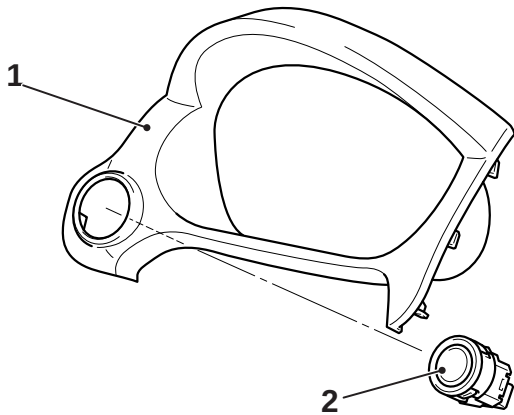
KEY SLOT INSPECTION



Terminal number	Normal value
1 – 2	12 ± 4 Ω

ENGINE SWITCH
REMOVAL AND INSTALLATION

M1429625600044



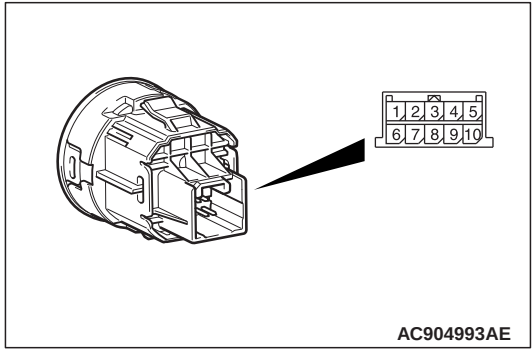
ACC03448AB

Removal steps

- 1. Combination meter bezel (Refer to GROUP 54A – Combination meter [P.54A-61.](#))
- 2. Engine switch

INSPECTION

M1429625700030



Switch operation	Terminal number	Normal value
Press	6 – 2	Continuity exists (2 Ω or less)
	10 – 4	
Release	6 – 2	No continuity
	10 – 4	