

GROUP 42C

WIRELESS CONTROL MODULE (WCM)

CONTENTS

<p>GENERAL INFORMATION..... 42C-4</p> <p>SERVICE SPECIFICATION..... 42C-6</p> <p>DIAGNOSIS..... 42C-6</p> <p style="padding-left: 20px;">STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING..... 42C-6</p> <p style="padding-left: 20px;">DIAGNOSTIC FUNCTION..... 42C-7</p> <p style="padding-left: 20px;">ID CODES REGISTRATION JUDGMENT TABLE 42C-8</p> <p style="padding-left: 20px;">DIAGNOSTIC TROUBLE CODE CHART 42C-11</p> <p style="padding-left: 20px;">DIAGNOSTIC TROUBLE CODE PROCEDURES 42C-13</p> <p style="padding-left: 40px;">DTC B1731: Engine control module communication timeout..... 42C-13</p> <p style="padding-left: 40px;">DTC B1761: VIN code not programmed 42C-15</p> <p style="padding-left: 40px;">Code No. B1A08 Keyless/KOS key1 performance..... 42C-16</p> <p style="padding-left: 40px;">Code No. B1A10 Keyless/KOS key 1 low battery..... 42C-17</p> <p style="padding-left: 40px;">DTC B1A24: Transponder ID not registered..... 42C-18</p> <p style="padding-left: 40px;">DTC B1A25: Transponder ID unmatched 42C-20</p> <p style="padding-left: 40px;">DTC B1A28: Engine control module authenticate error..... 42C-22</p> <p style="padding-left: 40px;">DTC B1A35: Transponder read error 42C-23</p>	<p style="padding-left: 40px;">DTC B2101: IG SW start POS.circuit lowDTC B2102: IG SW start POS.circuit high..... 42C-25</p> <p style="padding-left: 40px;">DTC B2204: Coding data mismatch 42C-28</p> <p style="padding-left: 40px;">DTC B2206: VIN mismatch..... 42C-30</p> <p style="padding-left: 40px;">DTC B2352: Antenna fail..... 42C-31</p> <p style="padding-left: 40px;">DTC B2401: Keyless/KOS key ID not register..... 42C-32</p> <p style="padding-left: 40px;">DTC B2416: ECU internal error 42C-33</p> <p style="padding-left: 40px;">DTC C1608: EEPROM Error..... 42C-34</p> <p style="padding-left: 40px;">DTC C1900: No Registration..... 42C-35</p> <p style="padding-left: 40px;">DTC C1901: Vehicle Speed Information Abnormality..... 42C-37</p> <p style="padding-left: 40px;">DTC C1910: Transmitter Low Battery Voltage Abnormality 1DTC C1920: Transmitter Low Battery Voltage Abnormality 2DTC C1930: Transmitter Low Battery Voltage Abnormality 3DTC C1940: Transmitter Low Battery Voltage Abnormality 4..... 42C-39</p> <p style="padding-left: 40px;">DTC C1911: Reception Abnormality 1DTC C1921: Reception Abnormality 2DTC C1931: Reception Abnormality 3DTC C1941: Reception Abnormality 4 42C-40</p>
--	--

Continued on next page

DTC C1912: Tire Inflation pressure Warning 1	DTC C1922: Tire Inflation pressure Warning 2	DTC C1932: Tire Inflation pressure Warning 3	DTC C1942: Tire Inflation pressure Warning 4	.....	42C-41
DTC C1913: Acceleration Sensor Abnormality 1	DTC C1923: Acceleration Sensor Abnormality 2	DTC C1933: Acceleration Sensor Abnormality 3	DTC C1943: Acceleration Sensor Abnormality 4	.....	42C-43
DTC C1914: Pressure Sensor Abnormality 1	DTC C1924: Pressure Sensor Abnormality 2	DTC C1934: Pressure Sensor Abnormality 3	DTC C1944: Pressure Sensor Abnormality 4	.....	42C-45
DTC U0019: Bus off (CAN-B)	.....	42C-46			
DTC U0141: ETACS-ECU CAN timeout	.....	42C-47			
DTC U0151: SRS-ECU CAN timeout	.....	42C-49			
DTC U0154: Occupant classification-ECU CAN timeout	.....	42C-50			
DTC U0155: Combination meter CAN timeout	.....	42C-52			
DTC U0164: A/C-ECU CAN timeout	.....	42C-53			
DTC U0184: Audio CAN timeout	.....	42C-55			
DTC U0195: Satellite radio tuner CAN timeout	.....	42C-56			
DTC U0197: Hands free module CAN timeout	.....	42C-58			
DTC U0245: Audio visual navigation unit CAN timeout	.....	42C-60			
DTC U1412: Implausible Vehicle Speed Signal Received	.....	42C-61			
DTC U1415: Coding not completed/Data fail	.....	42C-62			
Code No. U1417 Implausible coding data	.....	42C-64			
TRouble SYMPTOM CHART	.....	42C-66			
SYMPTOM PROCEDURES	.....	42C-66			
Inspection Procedure 1: Scan tool cannot communicate with WCM	.....	42C-66			
Inspection Procedure 2: The ignition key cannot be registered using scan tool	.....	42C-68			
Inspection Procedure 3: Engine does not start	.....	42C-69			
Inspection Procedure 4: Check the WCM power supply and ground circuits	.....	42C-71			
INSPECTION PROCEDURE 5: Keyless Entry System does not Work	.....	42C-73			
INSPECTION PROCEDURE 6: The Dome Light, The Turn-signal Lights The Horn do not Operate through The Answerback Function	.....	42C-78			
INSPECTION PROCEDURE 7: The Timer Lock Function does not Work after The Doors have been Unlocked by The Keyless Entry System	.....	42C-79			
INPUT SIGNAL CHART	.....	42C-80			
INPUT SIGNAL PROCEDURES	.....	42C-80			
Signals from transmitter switches are not received	.....	42C-80			
DATA LIST REFERENCE TABLE	.....	42C-82			
CHECK AT ECU TERMINALS	.....	42C-83			
SPECIAL TOOLS	.....	42C-84			
ON-VEHICLE SERVICE	.....	42C-85			
ID CODES REGISTRATION PROCEDURE	.....	42C-85			
KEYLESS ENTRY SYSTEM CHECK	.....	42C-91			
INSPECTION OF KEYLESS ENTRY TIMER LOCK FUNCTION	.....	42C-91			
CONFIGURATION FUNCTION	.....	42C-91			
TIRE PRESSURE SENSOR ID REGISTRATION	.....	42C-92			
TIRE PRESSURE SENSOR CHECK	.....	42C-94			
TIRE PRESSURE SENSOR ID CHECK	.....	42C-94			
WCM	.....	42C-95			

Continued on next page

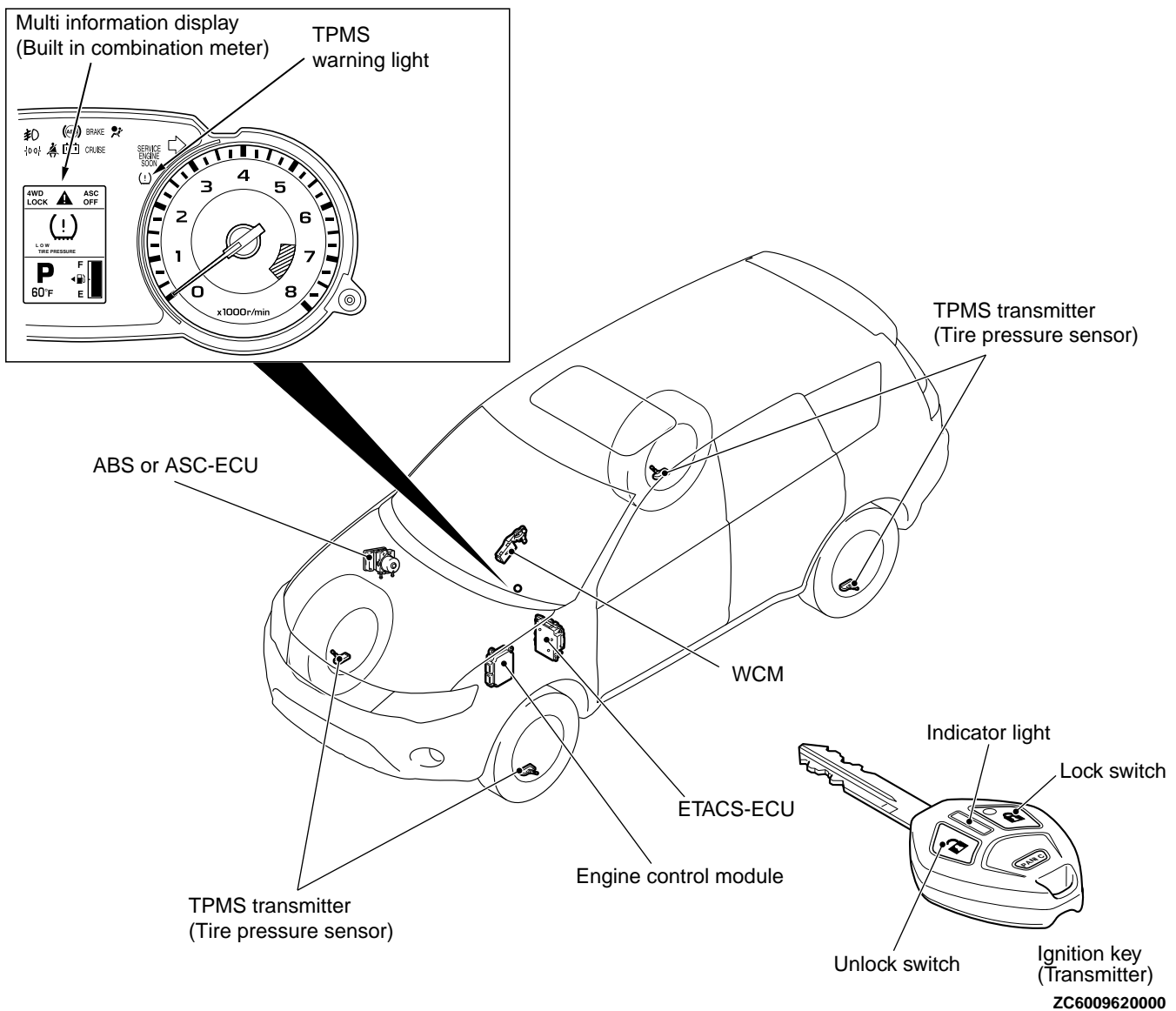
REMOVAL AND INSTALLATION.	42C-95
TRANSMITTER.	42C-96
DISASSEMBLY AND ASSEMBLY.	42C-96
INSPECTION.	42C-99
TPMS TRANSMITTER.	42C-99
REMOVAL AND INSTALLATION.	42C-99

GENERAL INFORMATION

The wireless control module (WCM) is a system that integrates the keyless entry function, immobilizer function, and the TPMS function, and it has the following features:

- The ignition key (transmitter) incorporates a lock/unlock switch and a panic alarm switch, and can be operated by remote control. The ignition key also incorporates an indicator light that enables the driver to check if the signal is transmitted correctly or if the battery in the key is discharged.
- The incorporated TPMS function monitors the air pressure of all the tires.
- Each vehicle is provided with two ignition keys (transmitter). Up to eight ignition keys can be registered.
- Settings of the keyless entry function can be adjusted using a customization function.

CONSTRUCTION DIAGRAM



Main components and functions

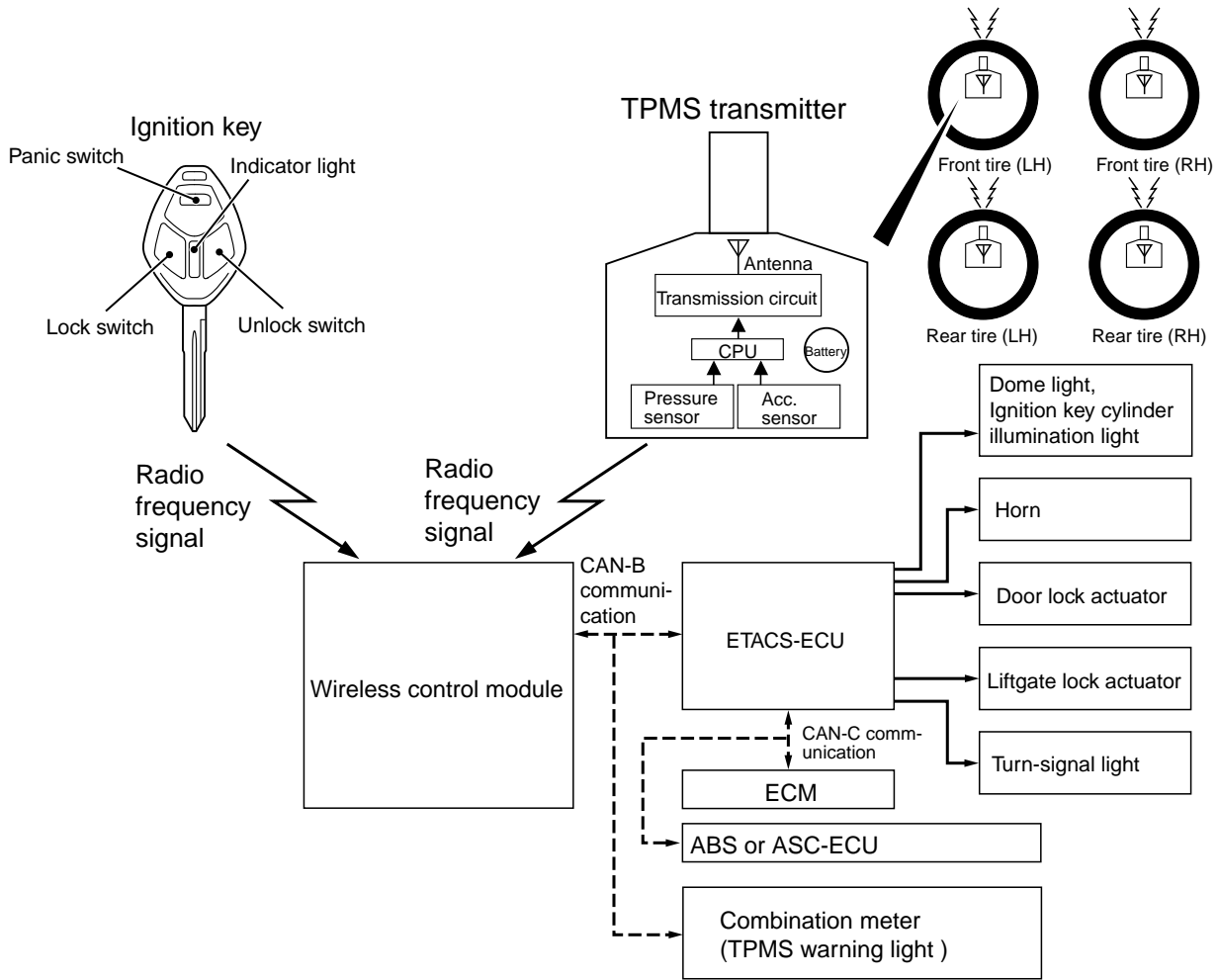
Parts name	Functional description
WCM	Controls the keyless entry functions, TPMS functions and starting of the engine by using the following communications. <ul style="list-style-type: none"> ▪ Communications with ETACS-ECU, ECK, ABS or ASC-ECU and combination meter via CAN ▪ Wireless communication with the ignition key (transmitter) ▪ Wireless communication with the TPMS transmitter
Ignition key (transmitter)	The ignition key (transmitter) receives signals sent from WCM, certifies the transponder ID code, calculates the encrypted code, and sends the reply data signal to WCM. The ignition key (transmitter) also sends signals to WCM when the lock/unlock switches on it are operated. Warning symbol and message is additionally displayed on the Multi information display.
Combination meter (Multi information display, TPMS warning light)	Communicates with WCM via CAN. Send ignition switch status. Receives the warning request or warning information from WCM, activates* the TPMS warning light.
ETACS-ECU	Communicates with WCM via CAN. Receives the door lock/unlock request from WCM, outputs the lock/unlock signal and flashes the turn signal light to inform the driver that the doors are locked/unlocked.
ABS or ASC-ECU	Communicates with WCM via CAN. Sends the vehicle speed data.
ECM	Communication with WCM via CAN. Send atmospheric pressure data.
TPMS transmitter	Measure tire pressure directly, then send radio frequency signal to WCM.

NOTE: *:

**Illuminates for tire pressure warning.*

**Flashes for about 1 minute and then continuously illuminated for TPMS malfunction warning.*

System configuration



ZC6009490001

NOTE: In case of replacement of WCM, all keyless re-registered using scan tool MB991958 (M. U. T. - ID, key ID and tire pressure sensor ID should be III sub-assembly).

SERVICE SPECIFICATION

M14209200002USA0000010000

Item	Standard value
Voltage of transmitter battery V	2.5 - 3.2

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M14209200005USA0000010000

Refer to GROUP 00 - Contents of troubleshooting P. 00-6.

DIAGNOSTIC FUNCTION

M14209200006USA0000010000

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

Required Special Tools:

- 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 (Vehicles with CAN communication system)

CAUTION

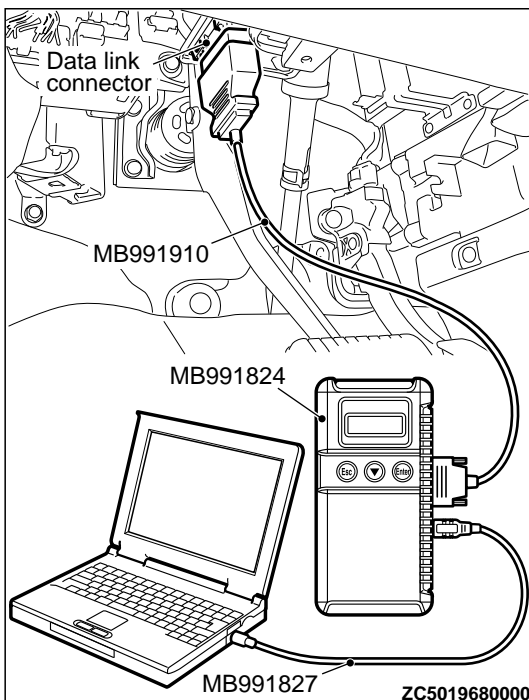
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

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 MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.



HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- 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 (Vehicles with CAN communication system)

CAUTION

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

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.

2. Turn the ignition switch to the "ON" position.
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 "WCM" 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."
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

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.00-15).

When detecting fault and storing the DTC, the ECU connected to CAN bus line obtains the data before the

determination of the DTC and the data when the DTC is determined, and then stores the ECU status of that time. By analyzing each data from scan 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
01	Odometer	Total driving distance after the diagnosis code is generated	km *
02	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
04	Current trouble accumulative time	Cumulative time for current malfunction of diagnosis code	min

*NOTE: *: If a failure occurs to both the ABS-ECU and ETACS-ECU, 0000 km or FFFF km is displayed to the scan tool MB991958.*

ID CODES REGISTRATION JUDGMENT TABLE

M14209200007USA0000010000

CAUTION

Do not replace the engine control module (ECM) and WCM at the same time. When replacing several ECUs, always replace one ECU at a time, register the necessary IDs in it, and then replace the next ECU.

The transponder (a small transmitter) in the ignition key, WCM, and the ECM have their own ID codes

stored in them. When the cases listed in the table below occur, the ID codes must be registered in the WCM or ECM again.

NOTE: Up to eight ignition keys (key ID and keyless entry secret code) can be stored in the memory of WCM.

Item	Operation contents and procedure	Reference page for registration contents
When the ECM is replaced	Registration of Key codes	Key code registration (Refer to GROUP 00 - Precautions before Service - How to Perform VIN Writing P.00-26.)



**WIRELESS CONTROL MODULE (WCM)
DIAGNOSIS**

42C-9

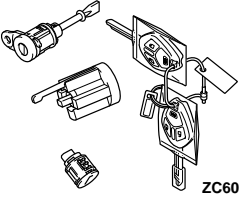
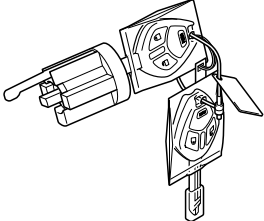
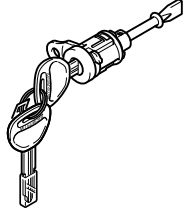

Item	Operation contents and procedure	Reference page for registration contents
When WCM is replaced	<ol style="list-style-type: none"> 1. VIN programmed 2. Register all the ignition keys again. 3. Register the keyless entry secret code for all the ignition keys again (keys with transmitters only). 4. Register the TPMS transmitters 	<ul style="list-style-type: none"> *Write the VIN (Refer to GROUP 00 - Precautions before Service - How to Perform VIN Writing P. 00-26). *Registering keys and keyless IDs. (Refer to P.42C-85.) *Registering tire pressure sensor ID. (Refer to P.42C-92.)
When the ignition key is added as a single unit	<ol style="list-style-type: none"> 1. Register all the ignition keys again. 2. Register the keyless entry secret code for all the ignition keys again (keys with transmitters only). 	Key Registration and Keyless ID Registration (Refer to P.42C-85)
When the ignition key is lost as a single unit	<ol style="list-style-type: none"> 1. Register all the ignition keys other than the lost one again. 2. Register the keyless entry secret code for all ignition key other than the lost ignition key again 	
When the ignition key is replaced by the full service key set or the handle lock service key set is replaced by the piece.	<ol style="list-style-type: none"> 1. Register all ignition keys again input barcode No. 2. Register the keyless entry secret code for all the ignition keys again (set supply only). 	Key Registration (Barcode No.) and Keyless ID Registration (Refer to P. 42C-85)
When the blank key* is replaced by the door service key set or glove box service key set is added by the piece.	Operation is not needed	-
When TPMS transmitter is replaced	Register the TPMS transmitter	Registering tire pressure sensor ID. (Refer to P.42C-92.)

NOTE: *: Blank key (the key that can be used to lock/unlock the door, back door or glove box only)

SUPPLY UNIT LIST FOR INDIVIDUAL KEY

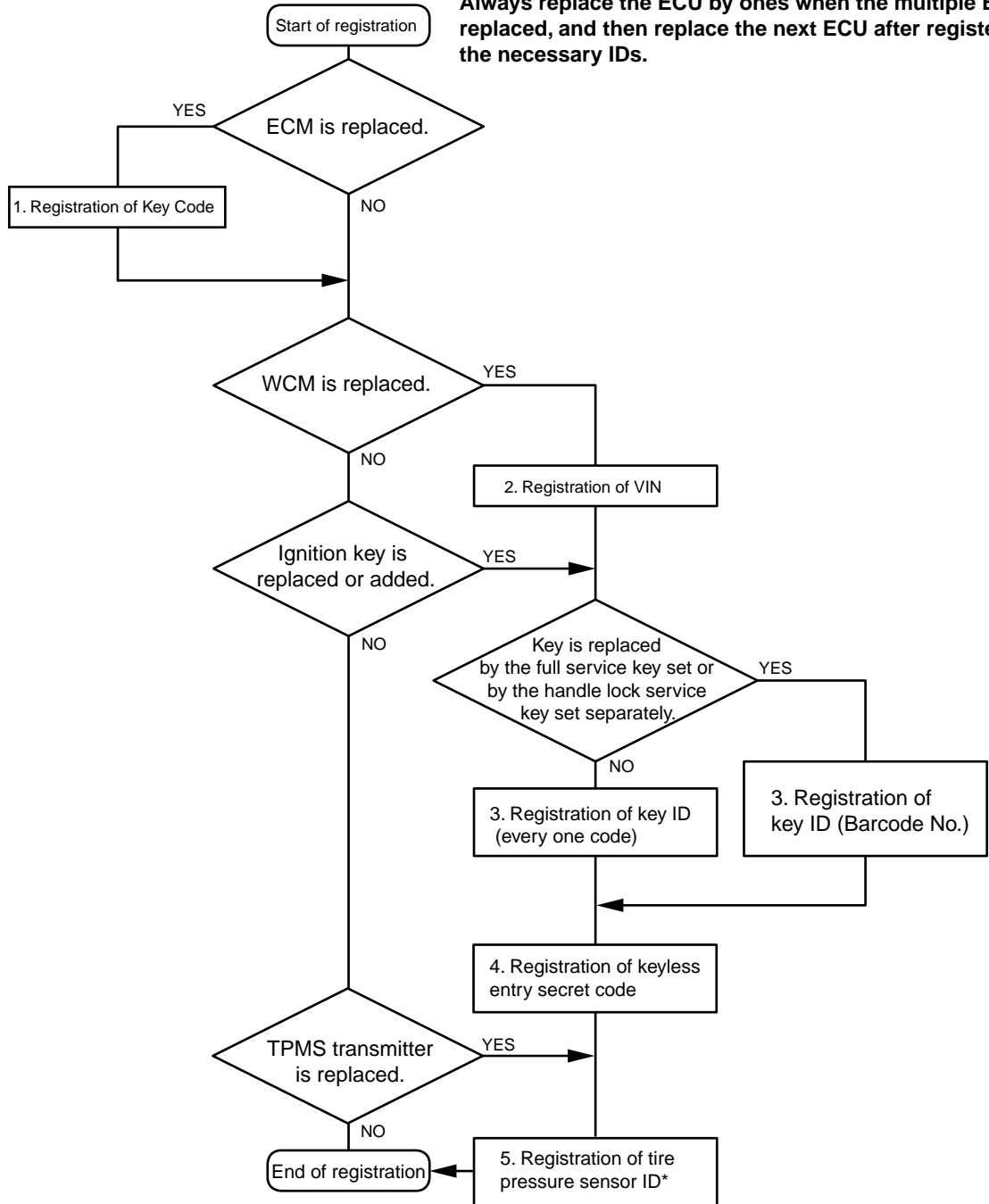
Ignition key (with transmitter)	NOTE: Blank key (It is the key that comes with the door service key set and the glove box service key set. It can only be used for locking and unlocking, and it cannot start the engine.)
 ZC6037530000	Blank key  ZC6044010001

KEY SUPPLY UNIT LIST FOR OTHER THAN INDIVIDUAL KEY

Full service key set	Handle lock service key set	Door service key set	Glove box service key set
 <p>ZC6045380000</p>	 <p>ZC6045400000</p>	 <p>ZC6045500000</p>	 <p>ZC6045390000</p>

Registration flow chart

Caution:
Do not replace the ECM and the WCM simultaneously.
Always replace the ECU by ones when the multiple ECU is replaced, and then replace the next ECU after registering the necessary IDs.



NOTE
*: When WCM or TPMS transmitter is replaced.

ZC6037490000

DIAGNOSTIC TROUBLE CODE CHART

CAUTION

During diagnosis, a DTC associated with other system may be set when the ignition switch is

turned on with connector(s) disconnected. On completion, check all systems for diagnostic trouble code(s). If DTC(s) are set, erase them all.

M14209200008USA0000010000

WIRELESS CONTROL MODULE (WCM)
DIAGNOSIS

Diagnostic trouble code No.	Diagnostic item	Reference page
B1731	Engine control module communication timeout	P.42C-13
B1761	VIN code not programmed	P.42C-15
B1A08	Keyless/KOS key1 performance	P.42C-16
B1A09	Keyless/KOS key2 performance	
B1A0A	Keyless/KOS key3 performance	
B1A0B	Keyless/KOS key4 performance	
B1A0C	Keyless key 5 performance	
B1A0D	Keyless key 6 performance	
B1A0E	Keyless key 7 performance	
B1A0F	Keyless key 8 performance	
B1A10	Keyless/KOS key 1 low battery	P.42C-17
B1A11	Keyless/KOS key 2 low battery	
B1A12	Keyless/KOS key 3 low battery	
B1A13	Keyless/KOS key 4 low battery	
B1A14	Keyless key 5 low battery	
B1A15	Keyless key 6 low battery	
B1A16	Keyless key 7 low battery	
B1A17	Keyless key 8 low battery	
B1A24	Transponder ID not registered	P.42C-18
B1A25	Transponder ID unmatched	P.42C-20
B1A28	Engine control module authenticate error	P.42C-22
B1A35	Transponder read error	P.42C-23
B2101	IG SW start POS.circuit low	P.42C-25
B2102	IG SW start POS.circuit high	
B2204	Coding data mismatch	P.42C-28
B2206	VIN mismatch	P.42C-30
B2352	Antenna fail	P.42C-31
B2401	Keyless/KOS key ID not register	P.42C-32
B2416	ECU internal error	P.42C-33
C1608	EEPROM error	P.42C-34
C1900	No registration	P.42C-35
C1901	Vehicle speed information abnormality	P.42C-37
C1910	Transmitter low battery voltage abnormality 1	P.42C-39
C1920	Transmitter low battery voltage abnormality 2	
C1930	Transmitter low battery voltage abnormality 3	
C1940	Transmitter low battery voltage abnormality 4	
C1911	Reception abnormality 1	P.42C-40
C1921	Reception abnormality 2	

Diagnostic trouble code No.	Diagnostic item	Reference page
C1931	Reception abnormality 3	
C1941	Reception abnormality 4	
C1912	Tire inflation pressure warning 1	P.42C-41
C1922	Tire inflation pressure warning 2	
C1932	Tire inflation pressure warning 3	
C1942	Tire inflation pressure warning 4	
C1913	Acceleration sensor abnormality 1	P.42C-43
C1923	Acceleration sensor abnormality 2	
C1933	Acceleration sensor abnormality 3	
C1943	Acceleration sensor abnormality 4	
C1914	Pressure sensor abnormality 1	P.42C-55
C1924	Pressure sensor abnormality 2	
C1934	Pressure sensor abnormality 3	
C1944	Pressure sensor abnormality 4	
U0019	Bus off(CAN-B)	P.42C-46
U0141	ETACS-ECU CAN timeout	P.42C-47
U0151	SRS-ECU CAN timeout	P.42C-49
U0154	Occupant classification-ECU CAN timeout	P.42C-50
U0155	Combination meter CAN timeout	P.42C-52
U0164	A/C-ECU CAN timeout	P.42C-53
U0184	Audio CAN timeout	P.42C-55
U0195	Satellite radio tuner CAN timeout	P.42C-56
U0197	Hands free module CAN timeout	P.42C-58
U0245	Audio visual navigation unit CAN timeout	P.42C-60
U1412	Implausible vehicle speed signal received	P.42C-61
U1415	Coding not completed/Data fail	P.42C-62
U1417	Implausible coding data	P.42C-64

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B1731: Engine control module communication timeout

M14209200010USA0000010000

⚠ CAUTION

- When the 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

WCM checks that the engine control module data has been received via the CAN bus lines, and if not, sets the DTC No. B1731.

TECHNICAL DESCRIPTION (COMMENT)

If no data [ETACS transmits engine random number data to WCM via the CAN bus lines] is received from the engine control module via the CAN bus lines when the ignition switch is turned to ON position, it is judged as abnormal.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Malfunction of WCM
- Malfunction of engine control module
- Damaged wiring harness and connectors

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

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

CAUTION

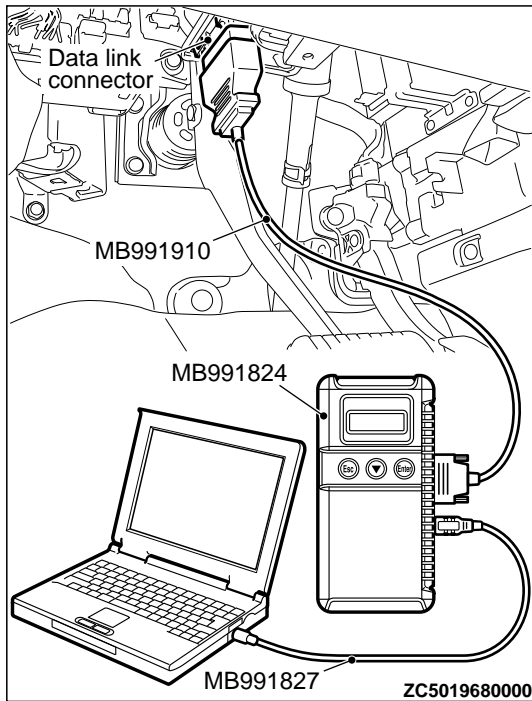
To prevent damage to scan tool (MB991958), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (MB991958).

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



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

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

Q: Is the DTC set?

YES: Troubleshoot the MFI system (Refer to GROUP 13Ab, Diagnostic trouble code chart P.13Ab-44).

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.

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

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P. 00-15).

DTC B1761: VIN code not programmed

M14209200011USA0000010000

CAUTION

- When the DTC No. B1761 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

WCM sets DTC B1761 when no VIN is recorded in it.

TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present when no VIN is recorded in it.

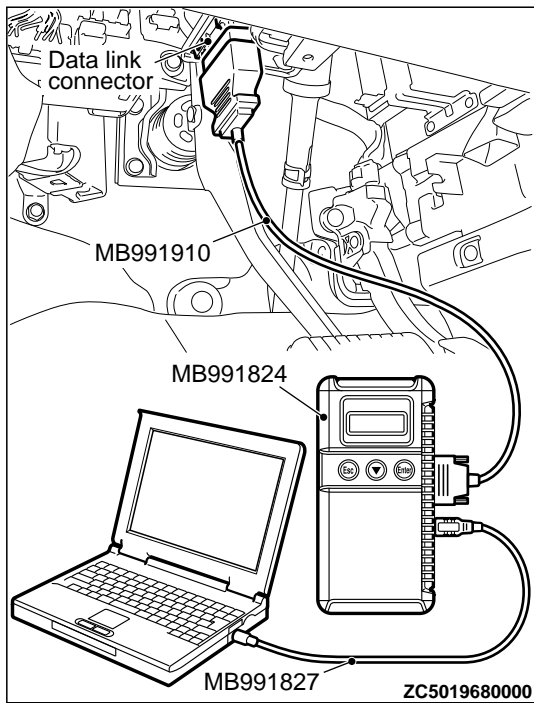
TROUBLESHOOTING HINTS

- VIN not programmed
- Malfunction of the WCM

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

STEP 2. Register the VIN and recheck the diagnostic trouble code.

Register VIN in WCM (Refer to GROUP 00 - How to Perform Vehicle Identification Number (VIN) Writing P.00-26) and recheck if the DTC is set.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The procedure is complete.

Code No.B1A08 Keyless/KOS key1 performance

M14209200012USA0000010000

- Code No.B1A09 Keyless/KOS key2 performance
- Code No.B1A0A Keyless/KOS key3 performance
- Code No.B1A0B Keyless/KOS key4 performance
- Code No.B1A0C Keyless key 5 performance
- Code No.B1A0D Keyless key 6 performance
- Code No.B1A0E Keyless key 7 performance
- Code No.B1A0F Keyless key 8 performance

⚠ CAUTION

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

DIAGNOSTIC FUNCTION

The door locking/unlocking code is automatically updated every time the doors are locked (rolling code). WCM stores diagnostic trouble code No. B1A08, B1A09, B1A0A, B1A0B, B1A0C, B1A0D, B1A0E, or B1A0F when it receives wrong signal (rolling code out of synchronization) from the transmitter.

JUDGEMENT CRITERIA

- B1A08: WCM determines that the abnormality is present when the rolling code received from the transmitter 1 (the first transmitter registered in WCM) greatly differs from the rolling code stored in WCM.
- B1A09: WCM determines that the abnormality is present when the rolling code received from the transmitter 2 (the second transmitter registered in WCM) greatly differs from the rolling code stored in WCM.
- B1A0A: WCM determines that the abnormality is present when the rolling code received from the transmitter 3 (the third transmitter registered in WCM) greatly differs from the rolling code stored in WCM.
- B1A0B: WCM determines that the abnormality is present when the rolling code received from the transmitter 4 (the fourth transmitter registered in WCM) greatly differs from the rolling code stored in WCM.
- B1A0C: WCM determines that the abnormality is present when the rolling code received from the transmitter 5 (the fifth transmitter registered in WCM) greatly differs from the rolling code stored in WCM.
- B1A0D: WCM determines that the abnormality is present when the rolling code received from the transmitter 6 (the sixth transmitter registered in WCM) greatly differs from the rolling code stored in WCM.
- B1A0E: WCM determines that the abnormality is present when the rolling code received from the transmitter 7 (the seventh transmitter registered in WCM) greatly differs from the rolling code stored in WCM.
- B1A0F: WCM determines that the abnormality is present when the rolling code received from the transmitter 8 (the eighth transmitter registered in WCM) greatly differs from the rolling code stored in WCM.

PROBABLE CAUSES

- Rolling code out of synchronization
- Malfunction of the transmitter
- Malfunction of the WCM

DIAGNOSTIC PROCEDURE

STEP 1. Synchronize the rolling code and recheck the diagnostic trouble code.

(1) Synchronize the rolling code. Use either way to synchronize the rolling code:

- Push the transmitter switches twice or more.
- Register the keyless entry secret code of. (Refer to P.00-15.)

*NOTE: *: Name of the signals to be registered.*

(2) Recheck if the diagnostic trouble code is set.

Erase the diagnostic trouble code.

Push the lock switch or unlock switch of transmitter.

Check if the diagnostic trouble code is set.

Q:Is the diagnostic trouble code set?

YES: Go to Step 2.

NO: The procedure is complete.

STEP 2. Check whether the diagnostic trouble code is reset.

Replace the transmitter with a new one, register the encrypted code and the keyless entry secret code (Refer to P.00-15.), and recheck if the diagnostic trouble code is set.

(1) Erase the diagnostic trouble code.

(2) Push the lock switch or unlock switch of transmitter.

(3) Check if the diagnostic trouble code is set.

Q:Is the diagnostic trouble code set?

YES: Replace WCM and register the ID codes. (Refer to P.00-15.)

NO: The procedure is complete.

Code No.B1A10 Keyless/KOS key 1 low battery

- Code No.B1A11 Keyless/KOS key 2 low battery
- Code No.B1A12 Keyless/KOS key 3 low battery
- Code No.B1A13 Keyless/KOS key 4 low battery
- Code No.B1A14 Keyless key 5 low battery
- Code No.B1A15 Keyless key 6 low battery
- Code No.B1A16 Keyless key 7 low battery

Code No.B1A17 Keyless key 8 low battery



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

DIAGNOSTIC FUNCTION

WCM sets the diagnostic trouble code No. B1A10, B1A11, B1A12, B1A13, B1A14, B1A15, B1A16, or B1A17 when it receives low battery voltage signal from the transmitter.

JUDGEMENT CRITERIA

- B1A10: WCM determines that the abnormality is present when it receives low battery voltage signal from the transmitter 1 (the first transmitter registered in WCM) five consecutive times.
- B1A11: WCM determines that the abnormality is present when it receives low battery voltage signal from the transmitter 2 (the second transmitter registered in WCM) five consecutive times.
- B1A12: WCM determines that the abnormality is present when it receives low battery voltage signal from the transmitter 3 (the third transmitter registered in WCM) five consecutive times.
- B1A13: WCM determines that the abnormality is present when it receives low battery voltage signal from the transmitter 4 (the fourth transmitter registered in WCM) five consecutive times.
- B1A14: WCM determines that the abnormality is present when it receives low battery voltage signal from the transmitter 5 (the fifth transmitter registered in WCM) five consecutive times.
- B1A15: WCM determines that the abnormality is present when it receives low battery voltage signal from the transmitter 6 (the sixth transmitter registered in WCM) five consecutive times.
- B1A16: WCM determines that the abnormality is present when it receives low battery voltage signal from the transmitter 7 (the seventh transmitter registered in WCM) five consecutive times.
- B1A17: WCM determines that the abnormality is present when it receives low battery voltage signal

from the transmitter 8 (the eighth transmitter registered in WCM) five consecutive times.

PROBABLE CAUSES

- Battery failure in the transmitter
- Malfunction of the transmitter
- Malfunction of WCM

DIAGNOSTIC PROCEDURE**STEP 1. Replace the battery in the transmitter and recheck the diagnostic trouble code.**

Replace the battery in the transmitter with a new one, and recheck if the diagnostic trouble code is set.

- (1) Replace the battery in the transmitter.
- (2) Use the transmitter to lock/unlock the doors.
- (3) Check if the diagnostic trouble code is set.

Q:Is the diagnostic trouble code set?

YES: Go to Step 2.

NO: The procedure is complete. (Discharged battery)

STEP 2. Replace the transmitter and recheck the diagnostic trouble code.

Replace the transmitter with a new one, register the encrypted code and the keyless entry secret code (Refer to P.00-15.), and recheck if the diagnostic trouble code is set.

- (1) Use the transmitter to lock/unlock the doors.
- (2) Check if the diagnostic trouble code is set.

Q:Is the diagnostic trouble code set?

YES: Replace WCM and register the ID codes. (Refer to P.00-15.)

NO: The procedure is complete.

DTC B1A24: Transponder ID not registered

M14209200014USA0000010000

DTC SET CONDITION

WCM sets DTC B1A24 when the encrypted code was not registered in it.

TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present, if the ignition key's encrypted code is not registered in WCM when the ignition switch is turned ON.

TROUBLESHOOTING HINTS

- Encrypted code not registered
- Malfunction of the ignition key
- Malfunction of WCM

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

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

CAUTION

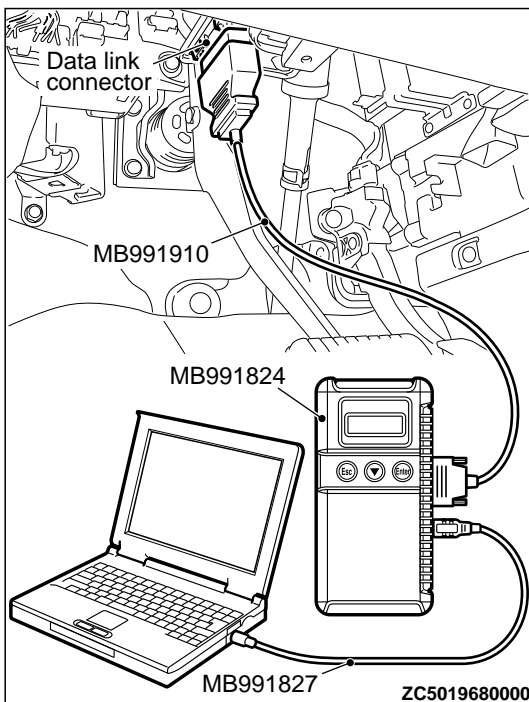
To prevent damage to scan tool (MB991958), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (MB991958).

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



STEP 2. Register the encrypted code and recheck the diagnostic trouble code.

Register the encrypted code of the ignition key (refer to P. 42C-85), and recheck if the DTC is set.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if the DTC is set.

Q:Is the DTC set?

YES: Go to Step 3.

NO: The procedure is complete.

STEP 3. Replace the ignition key and recheck the diagnostic trouble code.

Replace the ignition key with a new one, register the encrypted code of the new key, (refer to P.42C-85), and recheck if the DTC is set.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if the DTC is set.

Q:Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The procedure is complete.

DTC B1A25: Transponder ID unmatched

M14209200015USA0000010000

DTC SET CONDITION

WCM sets the DTC B1A25 when the received transponder ID is different from the one registered in it.

TECHNICAL DESCRIPTION (COMMENT)

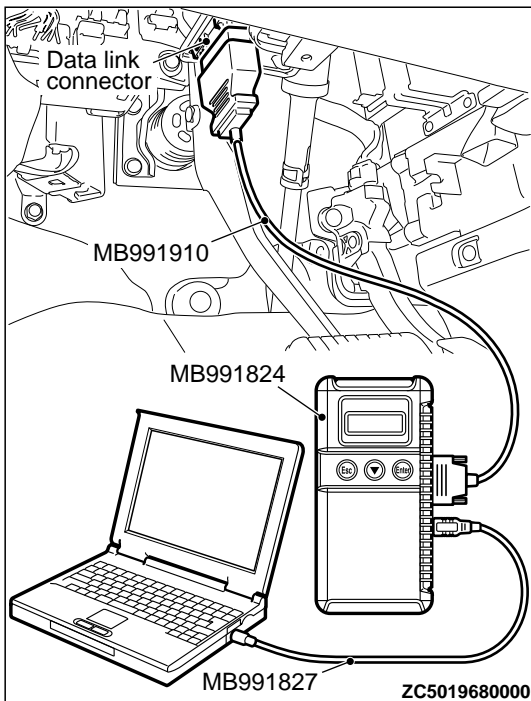
WCM determines that the abnormality is present, if the encrypted code for the ignition key does not match the one registered in WCM when the ignition switch is turned ON.

TROUBLESHOOTING HINTS

- Malfunction of the ignition key
- Malfunction of WCM
- Key not registered
- WCM not registered
- Key is registered to another vehicle

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P. 54D-17).

STEP 2. Register the encrypted code and recheck the diagnostic trouble code.

Register the encrypted code of the ignition key (refer to P. 42C-85), and recheck if the DTC is set.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if the DTC is set.

Q: Is the DTC set?

YES: Go to Step 3.

NO: The procedure is complete.

STEP 3. Replace the ignition key and recheck the diagnostic trouble code.

Replace the ignition key with a new one, register the encrypted code of the new key, (refer to P. 42C-8), and recheck if the DTC is set.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if the DTC is set.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The procedure is complete.

DTC B1A28: Engine control module authenticate error

M14209200016USA0000010000

CAUTION

- When the DTC B1A28 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

WCM sets DTC B1A28 when the ignition key certification result and the engine control module starting condition do not match.

TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present, if the key certification result and the engine control module

starting condition do not match after the engine start permission communication is completed.

TROUBLESHOOTING HINTS

- Malfunction of WCM
- Engine control module malfunction
- VIN registered in engine control module unmatched

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

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

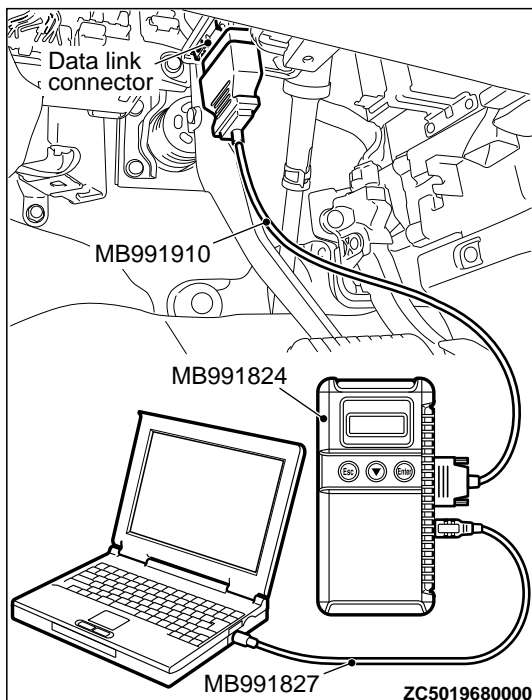
To prevent damage to scan tool (MB991958), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (MB991958).

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



STEP 2. Check if VIN registered in the engine control module matches with the vehicle's VIN.

Check if VIN registered in the engine control module matches with the vehicle's VIN.

Q:Does the VIN registered in the engine control module match the vehicle's VIN?

YES: Go to Step 3.

NO: Replace the engine ECU and record VIN (Refer to GROUP 00 - How to Perform Vehicle Identification Number (VIN) Writing P.00-26). Record VIN and go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if the DTC is set.

Q:Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: Intermittent malfunction is suspected. (Refer to GROUP 00 - How to Use Troubleshooting/Inspection Service Points - How to Deal with Intermittent Malfunction P. 00-15.)

DTC B1A35: Transponder read error

M14209200017USA0000010000

CAUTION

- When DTC B1A35 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLESHOOTING HINTS

- Malfunction of the ignition key
- Malfunction of WCM
- Interference of the encrypted code

DTC SET CONDITION

WCM sets DTC B1A35 when it cannot receive data from the transponder.

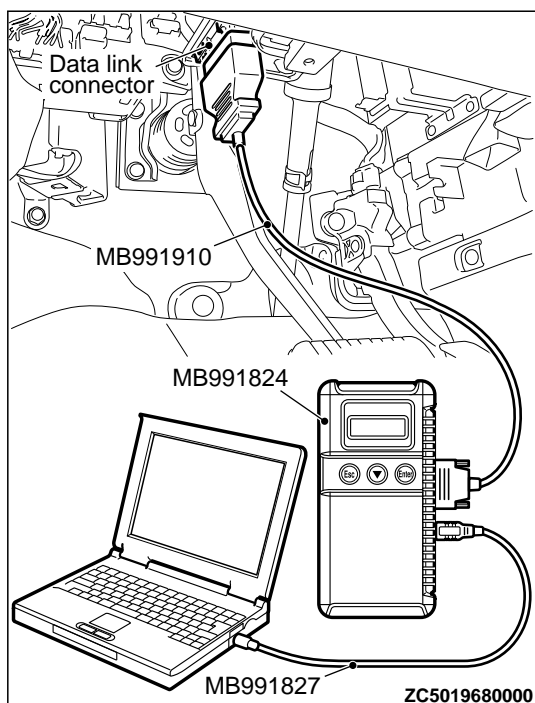
TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present, if it cannot receive the encrypted code for the ignition key when the ignition switch is turned ON.

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

STEP 2. Check the ignition key inserted in the key cylinder for interference.

Q: Are there other ignition keys or anything that interferes with the communication (things that generate radio waves such as magnets or air-cleaning device that has a power plug) near the ignition key inserted in the key cylinder?

YES: Move away or remove other ignition keys or anything that interferes with the communication, and go to Step 3.

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if the DTC is set.

Q: Is the DTC set?

YES: Go to Step 4.

NO: The procedure is complete.

STEP 4. Replace the ignition key and recheck the diagnostic trouble code.

Replace the ignition key by which the DTC is set with a new one, register the encrypted code of the new key, (refer to P.42C-8), and recheck if the DTC is set.

- (1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (2) Check if the DTC is set.

Q: Is the diagnostic trouble code set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)
NO: The procedure is complete.

DTC B2101: IG SW start POS.circuit low

DTC B2102: IG SW start POS.circuit high

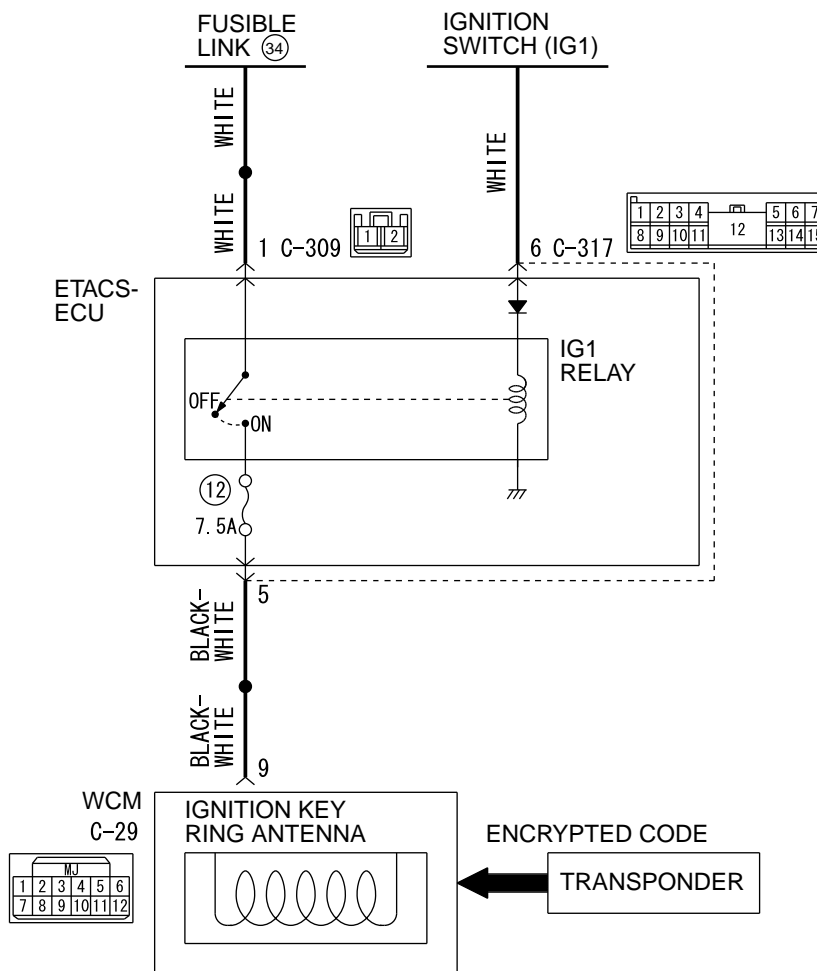
M14209200018USA0000010000

CAUTION

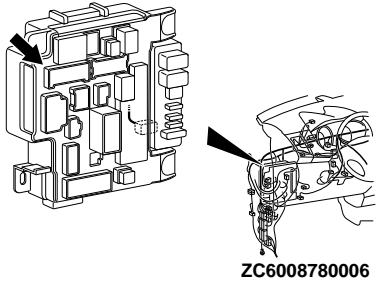
•If DTC B2101 or B2102 is set, be sure to diagnose the CAN bus line.

•Before replacing the ECU, ensure that the communication circuit is normal.

WCM Communication Circuit

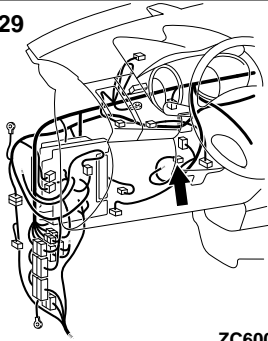


Connector: C-317



ZC6008780006

Connector: C-29



ZC6008750033

DTC SET CONDITION

WCM sets DTC B2101 or B2102 when the actual state of the ignition switch and the ignition switch position information received from ETACS-ECU via CAN do not match.

TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present, if it has detected discrepancy in the ignition switch level shown below ten consecutive times when WCM has received the CAN message (ignition switch position information) from ETACS-ECU with the ignition switch turned to the ON or START position.

B2101

- Status of ignition switch: OFF position
- Ignition switch position information from the ETACS-ECU: ON

B2102

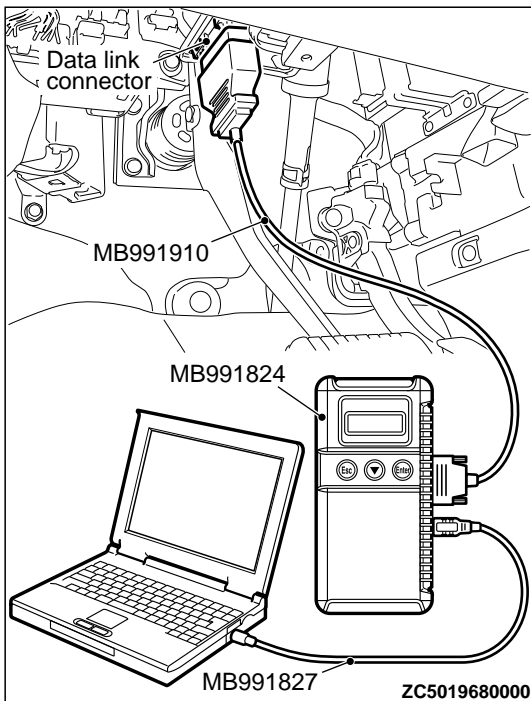
- Status of ignition switch: ON position
- Ignition switch position information from the ETACS-ECU: OFF

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Malfunction of the WCM
- Malfunction of the ignition switch
- Damaged wiring harness and connectors
- Malfunction of ETACS-ECU

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

STEP 2. Check ETACS-ECU connector C-317 and WCM connector C-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 and WCM connector C-29 in good condition?

YES: Go to Step 3.

NO: Repair the defective connector.

STEP 3. Check the wiring harness between WCM connector C-29 (terminal No.9) and ETACS-ECU connector C-317 (terminal No.5).

*Check the power supply line for open circuit.

Q: Is the wiring harness between WCM connector C-29 (terminal No. 9) and ETACS-ECU connector C-317 (terminal No. 5) in good condition?

YES: Go to Step 4.

NO: The wiring harness may be damaged or the connector (s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

Use the ETACS-ECU data list to check the signals related to the ignition voltage.

Item No.	Item name	Normal conditions
Item 254	IG voltage	Battery voltage

Q: Does scan tool MB991958 display the item "IG voltage" as normal condition?

YES: Go to Step 5.

NO: Diagnose the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis P. 54Ad-8.

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P. 00-15).

DTC B2204: Coding data mismatch

M14209200019USA0000010000

DTC SET CONDITION

WCM sets the DTC B2204 when the vehicle information data on the CAN line does not match the vehicle information data registered in WCM.

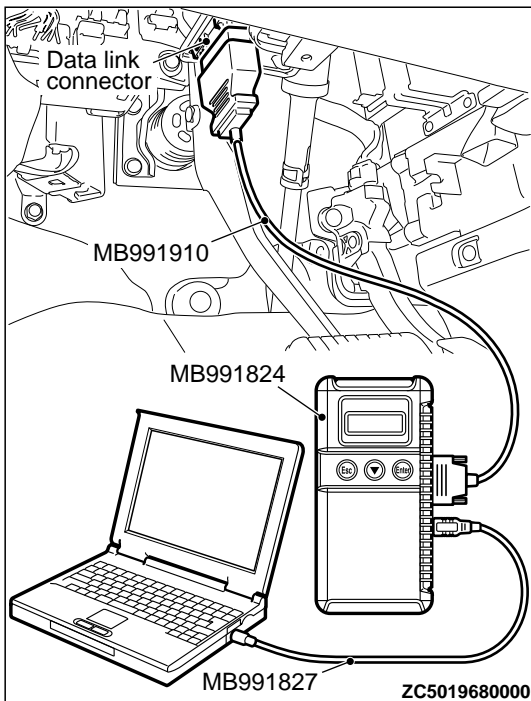
TROUBLESHOOTING HINTS

- Malfunction of WCM
- Malfunction of ETACS-ECU

TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present when the vehicle information registered in it does not match the vehicle information data.

DIAGNOSTIC PROCEDURE



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

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

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

Q: Is the DTC set?

YES: Troubleshoot the ETACS. (Refer to GROUP 54Ad, Diagnosis P.54Ad-8.)

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

DTC B2206: VIN mismatch

M14209200020USA0000010000

DTC SET CONDITION

WCM sets DTC B2206 when chassis number registered in it and the VIN that has been transmitted on the CAN bus do not match.

TROUBLESHOOTING HINTS

- Malfunction of WCM
- VIN registered in engine ECU unmatched
- WCM being registered to another vehicle

TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present when VIN registered in it and the one that has been transmitted on the CAN bus do not match.

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

STEP 1. Check the VIN registered in engine control module.

Check if VIN registered in the engine control module matches with the vehicle's VIN.

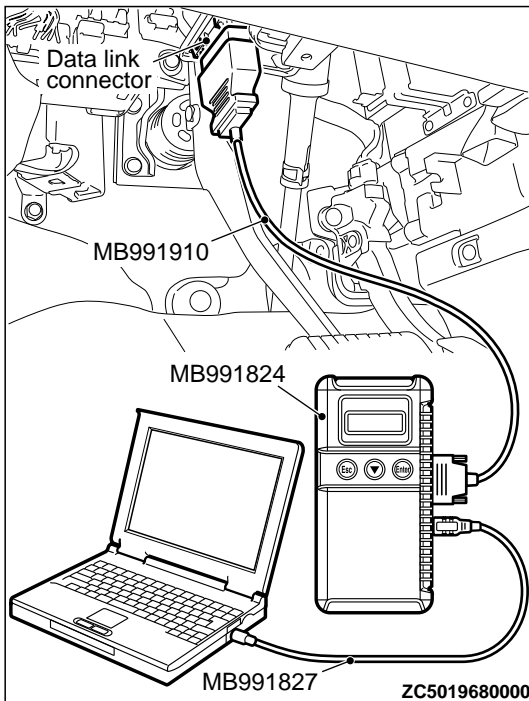
Q:Do VIN registered in the engine control module and the vehicle's VIN match?

YES: Go to Step 2.

NO: Replace the engine control module and record VIN (Refer to GROUP 00 – How to Perform Vehicle Identification Number (VIN) Writing P.00-26). Record VIN and go to Step 2.

STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.



CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The procedure is complete.

DTC B2352: Antenna fail

M14209200021USA0000010000

DTC SET CONDITION

WCM sets the DTC B2352 when open or short circuit to the ground in the antenna is detected.

faulty, WCM determines that the abnormality is present.

TECHNICAL DESCRIPTION (COMMENT)

When the ignition switch is turned ON, WCM transmits signal to the antenna. When the antenna is found

TROUBLESHOOTING HINT

Malfunction of WCM (Open circuit in antenna)

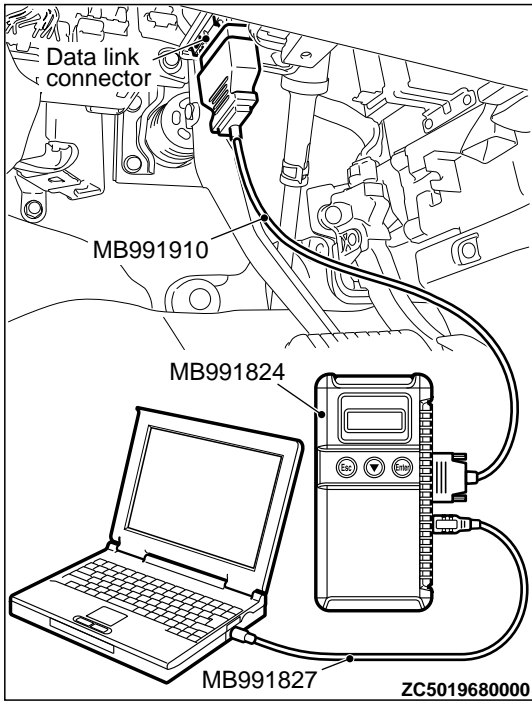
DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

**CAUTION**

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

- (1) Connect scan tool MB991958 to the data link connector.
Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The procedure is complete.

DTC B2401: Keyless/KOS key ID not register

M14209200022USA0000010000

CAUTION

- If the DTC B2401 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

WCM sets the DTC B2401 when no transmitter is registered in it.

TECHNICAL DESCRIPTION (COMMENT)

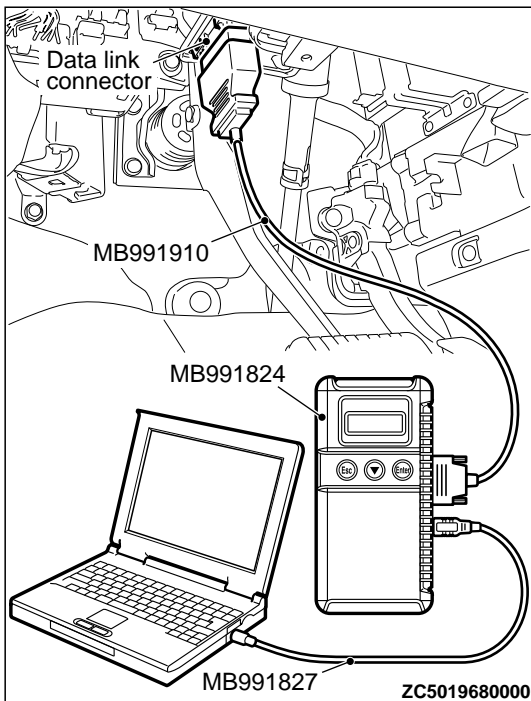
WCM determines that the abnormality is present when the number of the transmitters registered in it is 0.

TROUBLESHOOTING HINTS

- Failure of transmitter registration process
- Malfunction of WCM

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

STEP 2. Register the transmitter and recheck the diagnostic trouble code.

Register the keyless entry secret code (Refer to P.42C-85.), and recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (3) Check if the DTC is set.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P.42C-8.)

NO: The procedure is complete.

DTC B2416: ECU internal error

DTC SET CONDITION

WCM sets DTC B2416 when it determines an abnormal status within itself.

TECHNICAL DESCRIPTION (COMMENT)

WCM determines that the abnormality is present, if the data abnormality is found when the ignition switch is turned ON and then EEPROM is written.

TROUBLESHOOTING HINTS

Malfunction of WCM

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

CAUTION

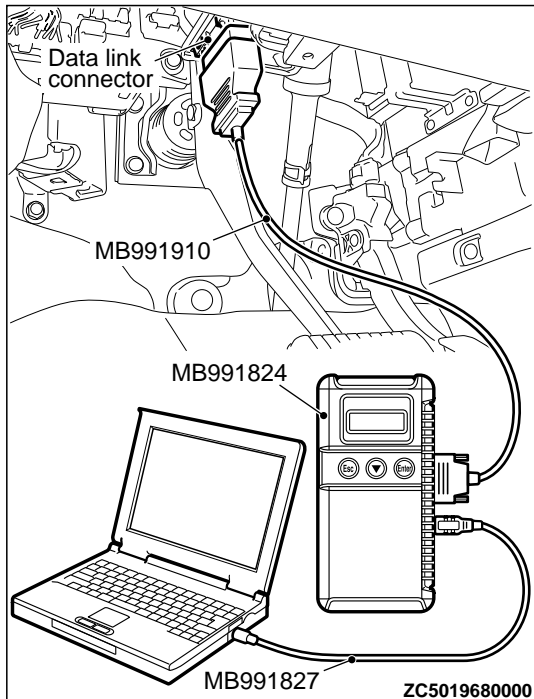
To prevent damage to scan tool (MB991958), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (MB991958).

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Erase the DTC.
- (3) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (4) Check if DTC is set.
- (5) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

**DTC C1608: EEPROM Error**

M14209200058USA0000010000

CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

WCM incorporates the EEPROM (nonvolatile memory). The EEPROM stores the TPMS information. If the data in EEPROM fails, this code is set.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Damaged wiring harness and connector

*Malfunction of WCM

DIAGNOSIS

Required Special Tools:

- *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

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q:Is the check result normal?

YES: Go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D - CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines.

- (1) Turn the ignition switch to the "ON" position.
- (2) Erase the DTC.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Turn the ignition switch to the "ON" position.
- (5) Check if the DTC is set.
- (6) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1608 set?

YES: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then go to Step 3.

NO: The procedure is complete.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set.

- (1) Turn the ignition switch to the "ON" position.
- (2) Erase the DTC.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Turn the ignition switch to the "ON" position.
- (5) Check if the DTC is set.
- (6) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1608 reset?

YES: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then start over at Step 1.

NO: The procedure is complete.

DTC C1900: No Registration

⚠ CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

When the ID registration information for the TPMS transmitter is not stored in WCM, this code is set. Also when the forced termination is made while one or more wheels are registered with the ID registration mode, the ID information inside WCM is erased, and this code is set.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Damaged wiring harness and connector
- Malfunction of TPMS transmitter
- Malfunction of WCM

DIAGNOSIS**Required Special Tools:**

- 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

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q:Is the check result normal?

YES: Go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D – CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines.

- (1) Turn the ignition switch to the "ON" position.
- (2) TPMS transmitter ID registration. (Refer to P.42C-92.)
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Turn the ignition switch to the "ON" position.
- (5) Check if the DTC is set.
- (6) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1900 set?

YES: Go to Step 3.

NO: The procedure is complete.

STEP 3. TPMS transmitter ID registration.

Refer to P.42C-92.

Q:Is the TPMS transmitter ID registration completed normally?

YES: Go to Step 5.

NO: Replace the TPMS transmitter whose ID code cannot be registered. Then go to Step 4.

STEP 4. TPMS transmitter ID registration.

Refer to P.42C-92.

Q:Is the TPMS transmitter ID registration completed normally?

YES: Go to Step 5.

NO: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then go to Step 5.

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set.

- (1) Turn the ignition switch to the "ON" position.
- (2) TPMS transmitter ID registration. (Refer to P.42C-92.)
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Turn the ignition switch to the "ON" position.
- (5) Check if the DTC is set.
- (6) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1900 reset?

YES: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then start over at Step 1.

NO: The procedure is complete.

DTC C1901: Vehicle Speed Information Abnormality

M14209200060USA0000010000

⚠ CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

WCM receives the wheel speed information from ABS-ECU or ASC-ECU via the CAN-bus line. If the WCM receives information from the ABS-ECU or ASC-ECU indicating the wheel is not currently rotating and the TPMS transmitter sends information indicating the wheel is currently rotating, this code is set.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Damaged wiring harness and connector
- Malfunction of TPMS transmitter
- Malfunction of WCM
- Malfunction of ABS-ECU or ASC-ECU

DIAGNOSIS**Required Special Tools:**

- 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
-

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q:Is the check result normal?

YES: Go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D – CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines.

- (1) Start the engine and drive the vehicle at 5 km/h or more.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Turn the ignition switch to the "ON" position.
- (4) Check if the DTC is set.
- (5) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1901 set?

YES: Go to Step 3.

NO: The procedure is complete.

STEP 3. Check for other diagnostic trouble code.

Check if the diagnostic trouble code is set from ABS-ECU or ASC-ECU.<Refer to GROUP 35B, diagnostic trouble code chart P.35B-9(vehicles without ASC) or Refer to GROUP 35C, diagnostic trouble code chart P.35C-11(vehicles with ASC)>

Q:Is the check result normal?

YES: Check the registered ID by the transmitter ID check function, and then check the acceleration value of each wheel by the transmitter check function. If the value exceeding 5 g is displayed, replace the relevant TPMS transmitter and register the ID code. If the value exceeding 5 g is not displayed for any TPMS transmitter, replace the WCM and register the ID codes. (Refer to P. 42C-8.) Then go to Step 4.

NO: Carry out the troubleshooting for ABS-ECU or ASC-ECU.<Refer to GROUP 35B, diagnostic trouble code chart P. 35B-9(vehicles without ASC) or Refer to GROUP 35C, diagnostic trouble code chart P. 35C-11(vehicles with ASC) >. Then go to Step 4.

STEP 4. Recheck for diagnostic trouble code.

- (1) Start the engine and drive the vehicle at 5 km/h or more.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Turn the ignition switch to the "ON" position.
- (4) Check if the DTC is set.

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

Q: Is the diagnostic trouble code C1901 set?

YES: Start over at Step 1.

NO: The procedure is complete.

DTC C1910: Transmitter Low Battery Voltage Abnormality 1

DTC C1920: Transmitter Low Battery Voltage Abnormality 2

DTC C1930: Transmitter Low Battery Voltage Abnormality 3

DTC C1940: Transmitter Low Battery Voltage Abnormality 4

M14209200061USA0000010000

⚠ CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

When the voltage of the battery incorporated into the TPMS transmitter becomes low, this code is set.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Low battery that is incorporated into the TPMS transmitter
- Damaged wiring harness and connector
- Malfunction of TPMS transmitter

DIAGNOSIS

Required Special Tools:

- 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

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q: Is the check result normal?

YES: Check the registered ID by the transmitter ID check function, and detect the wheel to which the DTC is set by the transmitter check function. Then, replace the TPMS transmitter, and register the ID codes. (refer to P. 42C-8.) Then go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D – CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines

- (1) Turn the ignition switch to the "ON" position.
- (2) Check if the DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code C1910, C1920, C1930 or C1940 set?

YES: Start over at Step 1.

NO: The procedure is complete.

STEP 3. Recheck for diagnostic trouble code.

- (1) Turn the ignition switch to the "LOCK" (OFF) position.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code C1910, C1920, C1930 or C1940 set?

YES: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then start over at Step 1.

NO: The procedure is complete.

DTC C1911: Reception Abnormality 1

DTC C1921: Reception Abnormality 2

DTC C1931: Reception Abnormality 3

DTC C1941: Reception Abnormality 4

M14209200062USA0000010000

CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

When WCM cannot receive the signal from the TPMS transmitter normally, this code is set.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Damaged wiring harness and connector
- Malfunction of TPMS transmitter
- Malfunction of WCM

DIAGNOSIS

Required Special Tools:

- 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

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool to diagnose the CAN bus lines.

Q:Is the check result normal?

YES: Check the registered ID by the transmitter ID check function, and detect the wheel to which the DTC is set by the transmitter check function. Then, replace the TPMS transmitter, and register the ID codes. (Refer to P. 42C-8.) If the ID code of replaced TPMS transmitter cannot be registered, replace the WCM and register the ID code. Then go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D – CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines

- (1) Turn the ignition switch to the "ON" position.
- (2) Check if the DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1911, C1921, C1931 or C1941 set?

YES: Start over at Step 1.

NO: The procedure is complete.

STEP 3. Recheck for diagnostic trouble code.

- (1) Turn the ignition switch to the "LOCK" (OFF) position.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1911, C1921, C1931 or C1941 set?

YES: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then start over at Step 1.

NO: The procedure is complete.

DTC C1912: Tire Inflation pressure Warning 1

DTC C1922: Tire Inflation pressure Warning 2

DTC C1932: Tire Inflation pressure Warning 3

DTC C1942: Tire Inflation pressure Warning 4

M14209200063USA0000010000

⚠ CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

When the tire pressure becomes lower than the specified value, the TPMS transmitter sends the signal to WCM, and then WCM sets this code.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set is:

- Drop of the tire pressure
- Loose TPMS transmitter mounting nut
- Flat tire
- TPMS transmitter malfunction
- WCM malfunction
- CAN-bus line malfunction

DIAGNOSIS**Required Special Tools:**

- 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
-

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q:Is the check result normal?

YES: Go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D – CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q:Is DTC C1912, C1922, C1932 or C1942 set?**

YES: Go to Step 3.

NO: The procedure is complete.

STEP 3. Tire pressure check

Check that the pressure of the tire corresponds to the set DTC is normal.

Q:Is the check result normal?

YES: Go to Step 5.

NO: Go to Step 4.

STEP 4. Tire check

Check that there is no abnormality for the items below.

- Flat tire
- Cracked tire
- Air leak from valve
- Loose TPMS transmitter mounting nut (Refer to P.42C-99.)

Q:Is the check result normal?

YES: Go to Step 5.

NO: Replace it. Then go to Step 7.

STEP 5. Tire pressure check by M.U.T.-III

- (1) Check the registered ID code by the transmitter ID check function.
- (2) Check the wheel to which the DTC is set by the transmitter check function.
- (3) Using the M.U.T.-III, check the relevant tire pressure.
- (4) Using the tire pressure gauge, check the tire pressure at the air valve of relevant tire. Then, measure the difference between that checked tire pressure and the tire pressure displayed at the procedure (3).

OK: 20 kPa or less

Q: Is the check result normal?

YES: Go to Step 6.

NO: Replace the TPMS transmitter and register the ID codes. (refer to P. 42C-8.) Then go to Step 7.

STEP 6. Tire pressure check by M.U.T.-III

- (1) Check the registered ID code by the transmitter ID check function.
- (2) Check the wheel to which the DTC is set by the transmitter check function.
- (3) Using the M.U.T.-III, check the relevant tire pressure.
- (4) Using the tire pressure gauge, check the tire pressure at the air valve of relevant tire. Then, measure the difference between that checked tire pressure and the tire pressure displayed at the procedure (3).

OK: 20 kPa or less

Q: Is the check result normal?

YES: Go to Step 7.

NO: Replace the WCM and register the ID codes. (refer to P. 42C-8.) Then go to Step 7.

STEP 7. Recheck for diagnostic trouble code.

- (1) Correct the tire pressure for all wheels.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Turn the ignition switch to the "ON" position.
- (4) Check if the DTC is set.
- (5) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code C1912, C1922, C1932 or C1942 set?

YES: Start over at Step 1.

NO: The procedure is complete.

DTC C1913: Acceleration Sensor Abnormality 1

DTC C1923: Acceleration Sensor Abnormality 2

DTC C1933: Acceleration Sensor Abnormality 3

DTC C1943: Acceleration Sensor Abnormality 4

M14209200064USA0000010000

CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

The TPMS transmitter detects if the wheel is rotated and sends the signals to WCM. When the TPMS transmitter judges that the portion for detecting the wheel rotation is failed, the failure signal is sent to WCM, and WCM sets this code.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Damaged wiring harness and connector
- Malfunction of TPMS transmitter
- Malfunction of WCM

DIAGNOSIS**Required Special Tools:**

- 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

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q:Is the check result normal?

YES: Check the registered ID by the transmitter ID check function, and detect the wheel to which the DTC is set by the transmitter check function. Then, replace the TPMS transmitter, and register the ID codes. (Refer to P. 42C-8.) Then go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D – CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check if the DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the diagnostic trouble code C1913, C1923, C1933 or C1943 set?

YES: Start over at Step 1.

NO: The procedure is complete.

STEP 3. Recheck for diagnostic trouble code.

- (1) Turn the ignition switch to the "LOCK" (OFF) position.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code C1913, C1923, C1933 or C1943 set?

YES: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then start over at Step 1.

NO: The procedure is complete.

DTC C1914: Pressure Sensor Abnormality 1

DTC C1924: Pressure Sensor Abnormality 2

DTC C1934: Pressure Sensor Abnormality 3

DTC C1944: Pressure Sensor Abnormality 4

M14209200065USA0000010000

⚠ CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

The TPMS transmitter detects if the tire pressure is normal and sends the signal to WCM. When the TPMS transmitter judges that the portion for detecting the tire pressure is failed, the failure signal is sent to WCM, and WCM sets this code.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Damaged wiring harness and connector
- Malfunction of TPMS transmitter
- Malfunction of WCM

DIAGNOSIS**Required Special Tools:**

- 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
-

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q: Is the check result normal?

YES: Check the registered ID by the transmitter ID check function, and detect the wheel to which the DTC is set by

the transmitter check function. Then, replace the TPMS transmitter, and register the ID codes. (Refer to P. 42C-8.) Then go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D - CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check if the DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code C1914, C1924, C1934 or C1944 set?

YES: Start over at Step 1.

NO: The procedure is complete.

STEP 3. Recheck for diagnostic trouble code.

- (1) Turn the ignition switch to the "LOCK" (OFF) position.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code C1914, C1924, C1934 or C1944 set?

YES: Replace the WCM and register the ID codes. (refer to P.42C-8.) Then start over at Step 1.

NO: The procedure is complete.

DTC U0019: Bus off(CAN-B)

M14209200024USA0000010000

⚠ CAUTION

- If DTC U0019 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)

If WCM cannot perform the data transmission in normal conditions due to a malfunction of the CAN-B bus circuit, WCM determines that there is a problem.

DTC SET CONDITION

If the CAN-B circuit malfunctions, the WCM sets DTC U0019.

TROUBLESHOOTING HINT

The CAN bus line may be defective

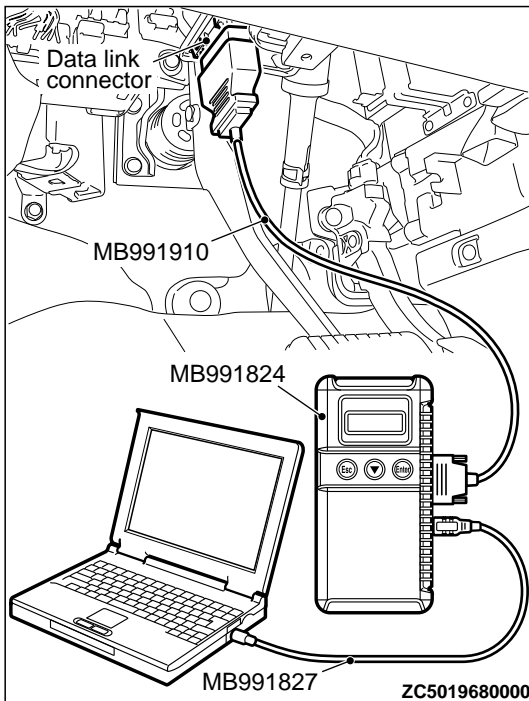
DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

STEP 1.Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.



CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES: Go to Step 2.

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

STEP 2. Using scan tool MB991958, diagnose the CAN bus line.

- (1) Turn the ignition switch to the "ON" position.
- (2) Diagnose the CAN bus line.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

DTC U0141: ETACS-ECU CAN timeout

M14209200025USA0000010000

CAUTION

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

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Malfunction of WCM
- Malfunction of ETACS-ECU

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the WCM sets DTC U0141.

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

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

⚠ CAUTION

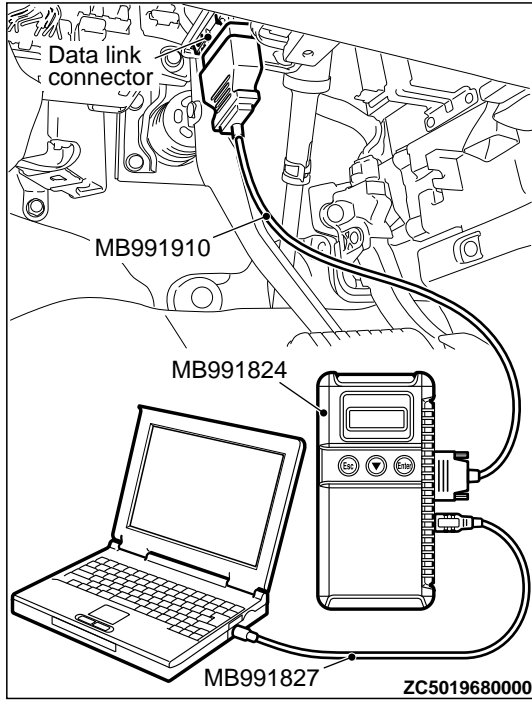
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



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

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

Q: Is the DTC set?

YES: Diagnose the ETACS-ECU (Refer to GROUP 54Ad - P.54Ad-8).

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P.42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

DTC U0151: SRS-ECU CAN timeout

M14209200026USA0000010000

CAUTION

- If the DTC U0151 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If no signal from SRS-ECU can be received, WCM sets diagnostic trouble code U0151.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The SRS-ECU may be defective
- Malfunction of WCM

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

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

CAUTION

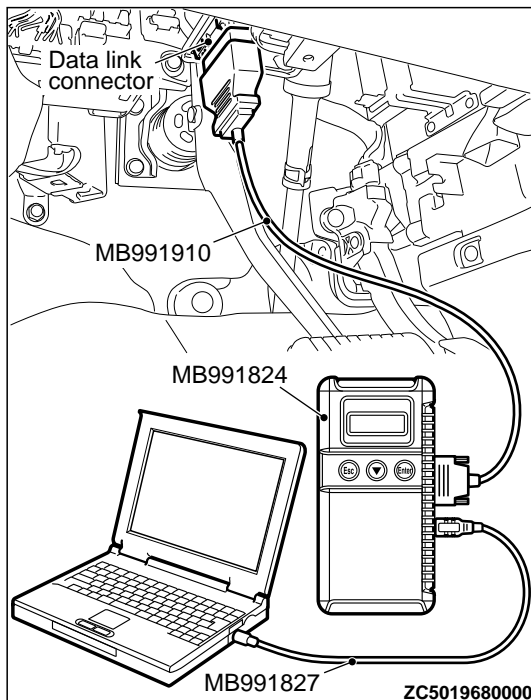
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



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

Check again if the DTC is set to the SRS-ECU.

Q:Is the DTC set?

YES: Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-33).

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

DTC U0154: Occupant classification-ECU CAN timeout

M14209200073USA0000010000

CAUTION

- If DTC U0154 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The WCM may be defective.
- The occupant classification-ECU may be defective.

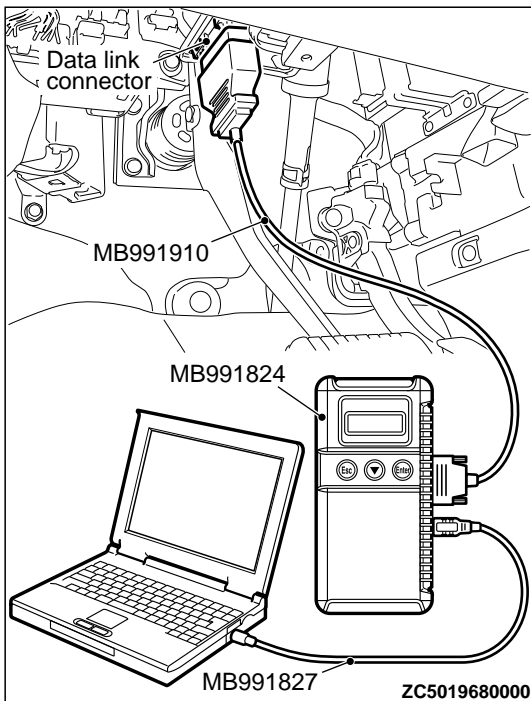
DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the WCM sets DTC U0154.

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)



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

CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

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

Check if DTC is set to the SRS-ECU.

Q: Is the DTC set?

YES: Troubleshoot the SRS. (Refer to GROUP 52B, Diagnosis P.52B-33.)

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P.42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

DTC U0155: Combination meter CAN timeout

M14209200027USA0000010000

CAUTION

- If the diagnostic trouble code U0155 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line
- Combination meter malfunction
- Malfunction of WCM

TROUBLE JUDGMENT

If no signal from the combination meter can be received, WCM sets DTC U0155.

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

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

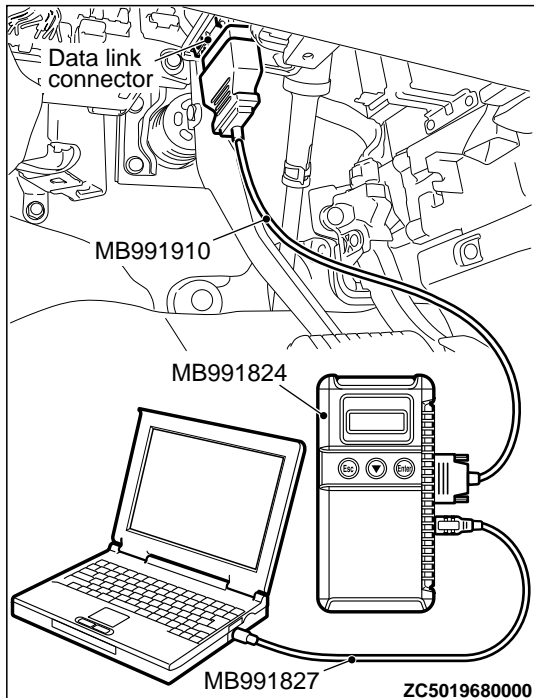
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

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

Check if DTC is set to the combination meter.

Q:Is the DTC set?

YES: Troubleshoot the combination meter. (Refer to GROUP 54Ab, Diagnosis P.54Ab-7.)

NO: Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

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 to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace the combination meter.

NO: The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the WCM. (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-15)

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the WCM. (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-15)

DTC U0164: A/C-ECU CAN timeout

M14209200028USA0000010000

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.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The WCM may be defective.

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the WCM sets DTC U0164.

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

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

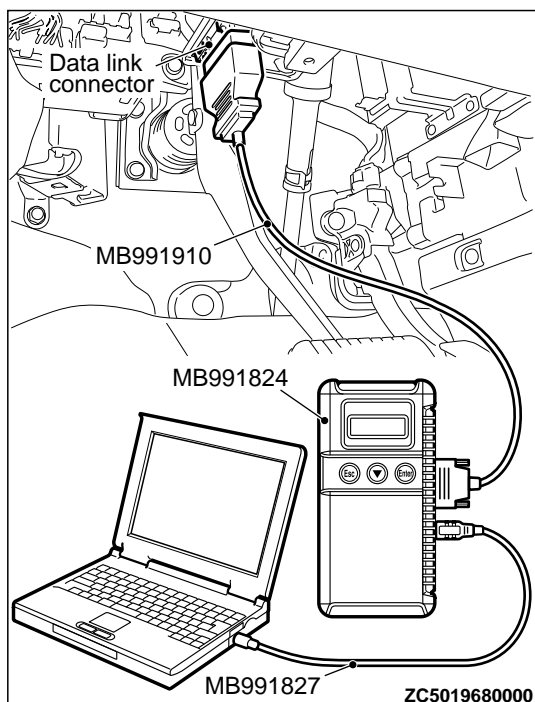
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

**STEP 2. Using scan tool MB991958, read the A/C diagnostic trouble code**

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

Q:Is the DTC set?

YES: Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8or GROUP 55B, Auto A/C Diagnosis P.55B-7).

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P.42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

DTC U0184: Audio CAN timeout

M14209200029USA0000010000

CAUTION

- If DTC U0184 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The WCM may be defective.
- The radio and CD player or CD changer may be defective.

DIAGNOSTIC FUNCTION

When the signals from radio and CD player or CD changer cannot be received, the WCM sets DTC U0184.

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

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

CAUTION

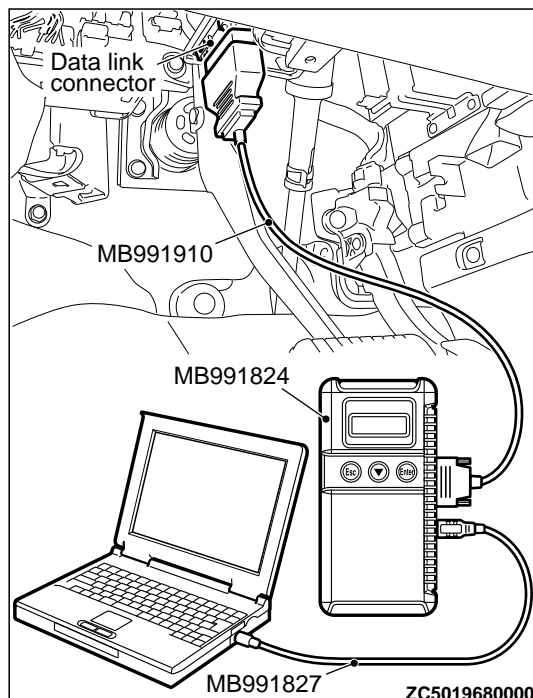
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



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

Check again if the DTC is set to the audio.

Q:Is the DTC set?

YES: Troubleshoot the radio and CD player. Refer to GROUP 54B, Diagnosis <radio and CD player> P.54B-7.

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

DTC U0195: Satellite radio tuner CAN timeout

M14209200074USA0000010000

CAUTION

- If DTC U0195 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLESHOOTING HINTS

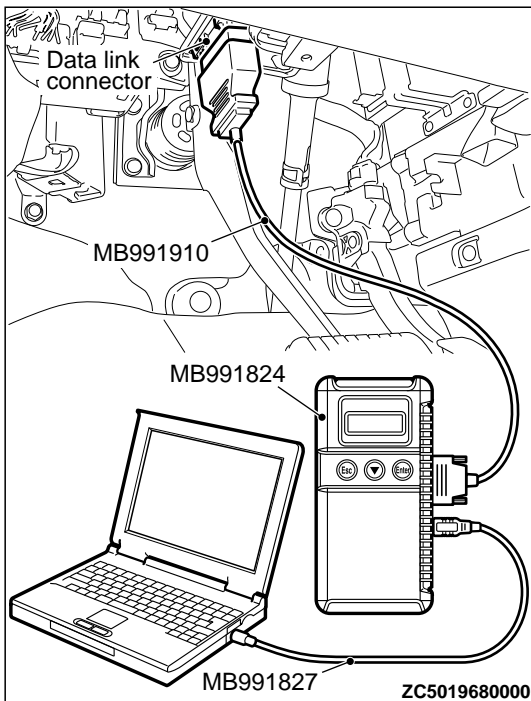
- The satellite radio tuner may be defective.
- The WCM may be defective.
- The CAN bus may be defective.

TROUBLE JUDGMENT

If the signal from satellite radio tuner cannot be received, the WCM sets DTC U0195.

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

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

Check if DTC is set to the satellite radio tuner.

Q: Is the DTC set?

YES: Troubleshoot the satellite radio. (Refer to GROUP 54B, Diagnosis <Satellite radio tuner>.)

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace the satellite radio tuner, then go to Step 4.

NO: The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the WCM. (Refer to GROUP 00, How to Cope with Intermittent Malfunction P. 00-15)

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.

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

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the WCM. (Refer to GROUP 00, How to Cope with Intermittent Malfunction P. 00-15)

DTC U0197: Hands free module CAN timeout

M14209200075USA0000010000

CAUTION

- If DTC U0197 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLESHOOTING HINTS

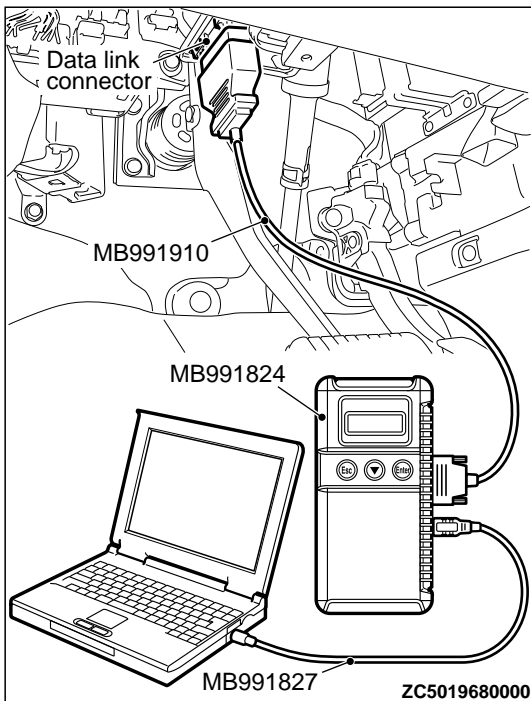
- The CAN bus line may be defective.
- The WCM may be defective.
- The hands free module may be defective.

DIAGNOSTIC FUNCTION

When the signals from hands free module cannot be received, the WCM sets DTC U0197.

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

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

Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES: Troubleshoot the hands-free cellular phone system. Refer to GROUP 54Ae, Diagnosis <hands-free cellular phone system>.

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

DTC U0245: Audio visual navigation unit CAN timeout

M14209200076USA0000010000

CAUTION

- If DTC U0245 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The WCM may be defective.
- The audio visual navigation unit may be defective.

DIAGNOSTIC FUNCTION

When the signals from audio visual navigation unit cannot be received, the WCM sets DTC U0245.

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

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

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54Ab-5."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

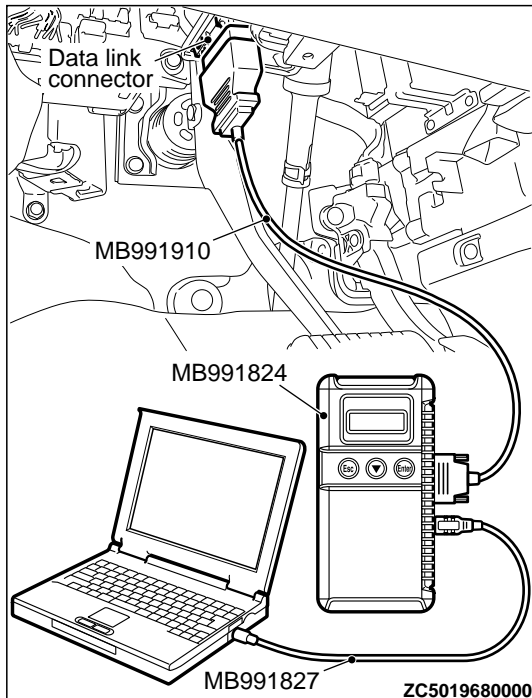
NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

STEP 2. Using scan tool MB991958, read the audio visual navigation unit diagnostic trouble code.

Check if DTC is set to the audio visual navigation unit.

Q:Is the DTC set?

YES: Troubleshoot the MMCS. (Refer to GROUP 54B, Diagnosis <MMCS> P.54B-63.)



NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P. 00-3).

DTC U1412: Implausible Vehicle Speed Signal Received

M14209200067USA0000010000

⚠ CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines. (Refer to GROUP 54D, Trouble code diagnosis P.54D-17).

TPMS DTC SET CONDITION

WCM receives the wheel speed information from ABS-ECU or ASC-ECU via the CAN-bus line. When WCM cannot receive the information about wheel speed sensor from ABS-ECU or ASC-ECU, this code is set.

TROUBLESHOOTING HINTS

The most likely causes for this DTC to set are:

- Damaged wiring harness and connector
- Malfunction of ABS-ECU or ASC-ECU
- Malfunction of WCM

DIAGNOSIS

Required Special Tools:

- 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

STEP 1. M.U.T.-III CAN bus diagnostics

Use scan tool MB991958, diagnose the CAN bus lines.

Q: Is the check result normal?

YES: Go to Step 3.

NO: Repair the CAN bus lines. (Refer to GROUP 54D - CAN Bus Diagnostics table P.54D-17.) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines.

- (1) Turn the ignition switch to the "LOCK" (OFF) position.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code U1412 set?

YES: Go to Step 3.

NO: The procedure is complete.

STEP 3. Check for other diagnostic trouble code.

Check if the diagnostic trouble code is set from ABS-ECU or ASC-ECU. <Refer to GROUP 35B, diagnostic trouble code chart P.35B-9(vehicles without ASC) or Refer to GROUP 35C, diagnostic trouble code chart P.35C-11(vehicles with ASC)>

Q: Is the check result normal?

YES: Replace the WCM. Then go to Step 4.

NO: Carry out the troubleshooting for ABS-ECU or ASC-ECU. <Refer to GROUP 35B, diagnostic trouble code chart P.35B-9(vehicles without ASC) or Refer to GROUP 35C, diagnostic trouble code chart P.35C-11(vehicles with ASC)>. Then go to Step 4.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set.

- (1) Turn the ignition switch to the "LOCK" (OFF) position.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the diagnostic trouble code U1412 reset?

YES: Start over at Step 1.

NO: The procedure is complete.

DTC U1415: Coding not completed/Data fail

M14209200030USA0000010000

CAUTION

- If DTC U1415 is set, diagnose the CAN bus lines.
- When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the vehicle information data is not registered to the combination meter, the WCM sets DTC U1415.

JUDGMENT CRITERIA

With the global coding counter value "0," if all the global coding data (vehicle information) are not stored, the WCM determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The WCM may be defective.
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

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

CAUTION

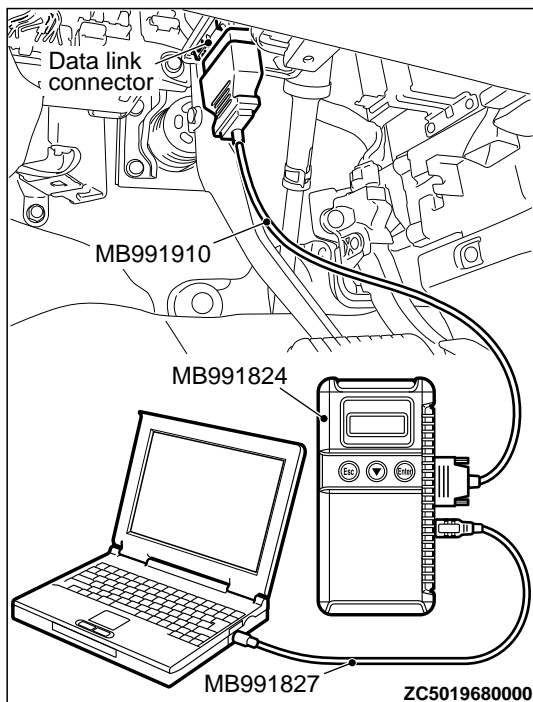
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



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

Check if DTC is set to the ETACS-ECU.

Q:Is the DTC set?

YES: Troubleshoot the ETACS-ECU. Refer to P.54Ad-8.

NO: Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P.42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection

Service Points – How to Cope with Intermittent Malfunction P.00-15).

Code No.U1417 Implausible coding data

M14209200031USA0000010000

⚠ CAUTION

- If diagnostic trouble code U1417 is set in WCM, always diagnose the CAN bus lines. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.
- Before replacing the ECU, ensure that the communication circuit is normal.
- When diagnostic trouble code U1417 is set in WCM, the diagnostic trouble code may also be set in ETACS-ECU. When the diagnostic trouble code is set in ETACS-ECU, carry out the diagnosis of the diagnostic trouble code for ETACS-ECU first.

CIRCUIT OPERATION

WCM receives the vehicle information stored in the ETACS-ECU via CAN bus lines.

DTC SET CONDITIONS

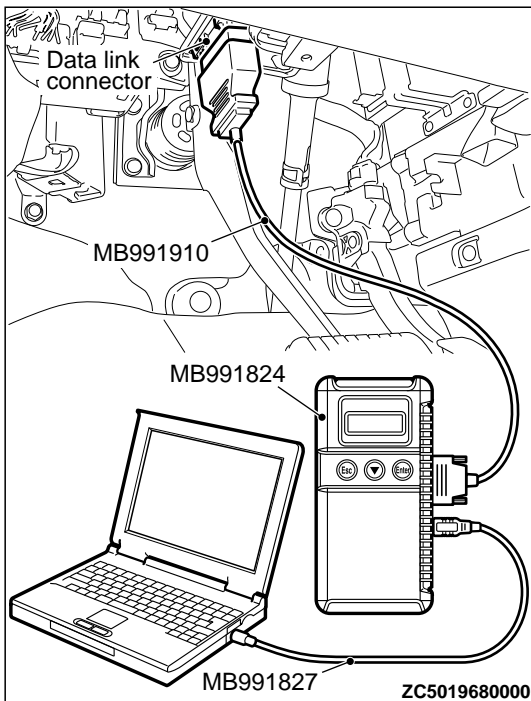
WCM communicates with ETACS-ECU via CAN bus lines. This diagnostic trouble code is set when the vehicle information received from the ETACS-ECU is invalid.

PROBABLE CAUSES

- Malfunction of ETACS-ECU
- Engine control module malfunction
- ETACS-ECUs have been interchanged between two vehicles.
- WCM malfunction
- External noise interference
- WCMs have been interchanged between two vehicles.

DIAGNOSIS**Required Special Tools:**

- 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



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

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

Check if DTC is set to the ETACS-ECU or engine control module.

Q: Is the DTC set?

YES (DTC is set to ETACS-ECU.): Troubleshoot the ETACS. (Refer to GROUP 54Ad, Diagnosis P.54Ad-8.)

YES (DTC is set to the engine control module.): Troubleshoot the MFI system. (Refer to GROUP 13Ab, Diagnosis P.13Ab-44.)

NO: Go to Step 3.

STEP 3. Check part number of ETACS-ECU

Check the part number of ETACS-ECU.

OK: 8637A213

Q: Is the check result normal?

YES: Go to Step 4.

NO: Replace ETACS-ECU.

STEP 4. Check part number of WCM

Check the part number of WCM.

OK: MN141352

Q: Is the check result normal?

YES: Go to Step 5.

NO: Replace WCM and register the ID codes. (Refer to P.42C-8.)

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the WCM.

- (1) Erase the DTC.

- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-15).

TROUBLE SYMPTOM CHART

M14209200033USA0000010000

⚠ CAUTION

During diagnosis, a DTC associated with other system may be set when the ignition switch is

turned on with connector(s) disconnected. On completion, check all systems for diagnostic trouble code(s). If DTC(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Scan tool cannot communicate with WCM.	1	P.42C-66
The ignition key cannot be registered using scan tool.	2	P.42C-68
Engine does not start.	3	P.42C-69
Check the WCM power supply and ground circuits.	4	P.42C-71
Keyless entry system does not work.	5	P.42C-73
The dome light and the turn-signal lights do not operate through the answerback function.	6	P.42C-78
The timer lock function does not work after the doors have been unlocked by the keyless entry system.	7	P.42C-79

SYMPTOM PROCEDURES**Inspection Procedure 1: Scan tool cannot communicate with WCM.**

M14209200035USA0000010000

⚠ CAUTION

Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLESHOOTING HINTS

- * Malfunction of the power supply or ground of WCM
- * Malfunction of CAN bus line

TECHNICAL DESCRIPTION (COMMENT)

WCM communicates with scan tool via CAN. Therefore, communication error of WCM is suspected.

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

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

CAUTION

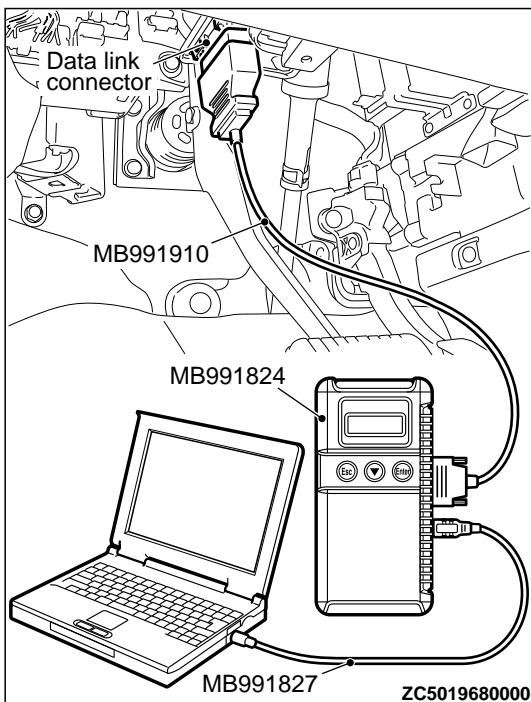
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 2.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



STEP 2. Check the power supply circuit and the ground circuit to WCM.

Refer to INSPECTION PROCEDURE 4 "Check WCM Power Supply/Ground Circuits" P.42C-71.

Q:Is the power supply circuit and the ground circuit to WCM in good condition ?

YES: Go to Step 3.

NO: Repair the power supply circuit and the ground circuit to WCM.

STEP 3. Retest the system

Check if scan tool can communicate with WCM.

Q:Does the scan tool cannot communicate with WCM in good condition?

YES: The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to use Troubleshooting/inspection Service Points - How to Cope with Intermittent Malfunction P.00-15).

NO: Replace WCM and register the ID codes. (Refer to P.42C-8.)

Inspection Procedure 2: The ignition key cannot be registered using scan tool.

M14209200036USA0000010000

TECHNICAL DESCRIPTION (COMMENT)

If only some ignition keys cannot be registered, the ignition key itself may be faulty. If no ignition key can be registered, the key assembly may have already been registered for another vehicle, or the WCM may be faulty.

TROUBLESHOOTING HINTS

- Malfunction of the ignition key
- Damaged wiring harness and connectors
- Malfunction of WCM
- Ignition key registered for other vehicle

DIAGNOSIS**Required Special Tools:**

- 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 (Vehicles with CAN communication system)

STEP 1. Check the ignition key inserted in the key cylinder for interference.

Q:Are there other ignition keys or anything that interferes with the communication (things that generate radio waves such as magnets and an air-cleaning device that has a power plug) near the ignition key inserted in the key cylinder?

YES: Move away or remove other ignition keys or things that interfere with the communication (things that generate radio waves such as magnets and a air-cleaning device that has a power plug) near the ignition key. Then, go to step 2.

NO: Go to Step 3.

STEP 2. Retest the system

Check that the ignition key can be registered.

Q:Is the ignition key that cannot be registered using scan tool in good condition?

YES: The procedure is complete.

NO: Go to Step 3.

STEP 3. Check which ignition key cannot be registered.

Q:Can any one of the ignition keys be registered?

YES (Only some keys): Replace the key that cannot be registered and register the ID codes. (Refer to P. 42C-8. After registering the ID codes, go to Step 5.

NO (All keys): Go to Step 4.

STEP 4. Retest the system

Check the scan tool screen when the key was not able to be registered.

Q: Is the error message of scan tool screen "Abnormality in key" ?

YES (Abnormality in key): Carry out DTC B1A25:

Transponder ID unmatched and DTC B1A35: Transponder read error. Refer to P. 42C-20B1A25, P. 42C-23B1A35. Then, go to Step 5.

NO (ECU internal error): Replace WCM and register the ID codes. (Refer to P. 42C-8. After registering the ID codes, go to Step 5.)

STEP 5. Retest the system

Check that the ignition key can be registered.

Q: Is the ignition key cannot be registered using scan tool in good condition?

YES: The procedure is complete.

NO: Replace WCM and register the ID codes. (Refer to P. 42C-8.)

Inspection Procedure 3: Engine does not start.

M14209200037USA000001000

TECHNICAL DESCRIPTION (COMMENT)

If the fuel injection does not work, WCM and the MFI system may have a problem. This symptom is not considered abnormal when the engine is started by an ignition key that has not been registered.

- Malfunction of WCM
- Malfunction of CAN bus line
- Malfunction of the transponder
- VIN not programmed

TROUBLESHOOTING HINTS

- Malfunction of the MFI system

DIAGNOSIS

Required Special Tools:

- 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 (Vehicles with CAN communication system)

STEP 1. Check the battery voltage.

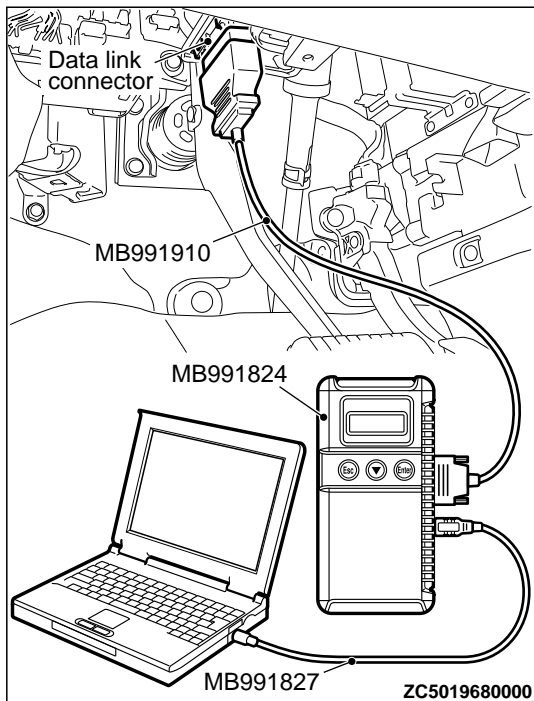
Measure the battery voltage when cranking.

- The voltage should measure 8 volt or more.

Q: Is the measured voltage 8 volt or more?

YES: Go to Step 2.

NO: Check the battery. (Refer to GROUP 54Aa - Battery test P. 54Aa-3.)



STEP 2. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES: Go to Step 3.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).

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

Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES: Troubleshoot the MFI system. (Refer to GROUP 13Ab, Diagnosis P.13Ab-44.)

NO: Go to Step 4.

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

Check if DTC is set to the WCM.

Q: Is the DTC set?

YES: Troubleshoot the WCM. (Refer to P.42C-11.)

NO: Go to Step 5.

STEP 5. Check that the engine starts.

Q: Does the engine start?

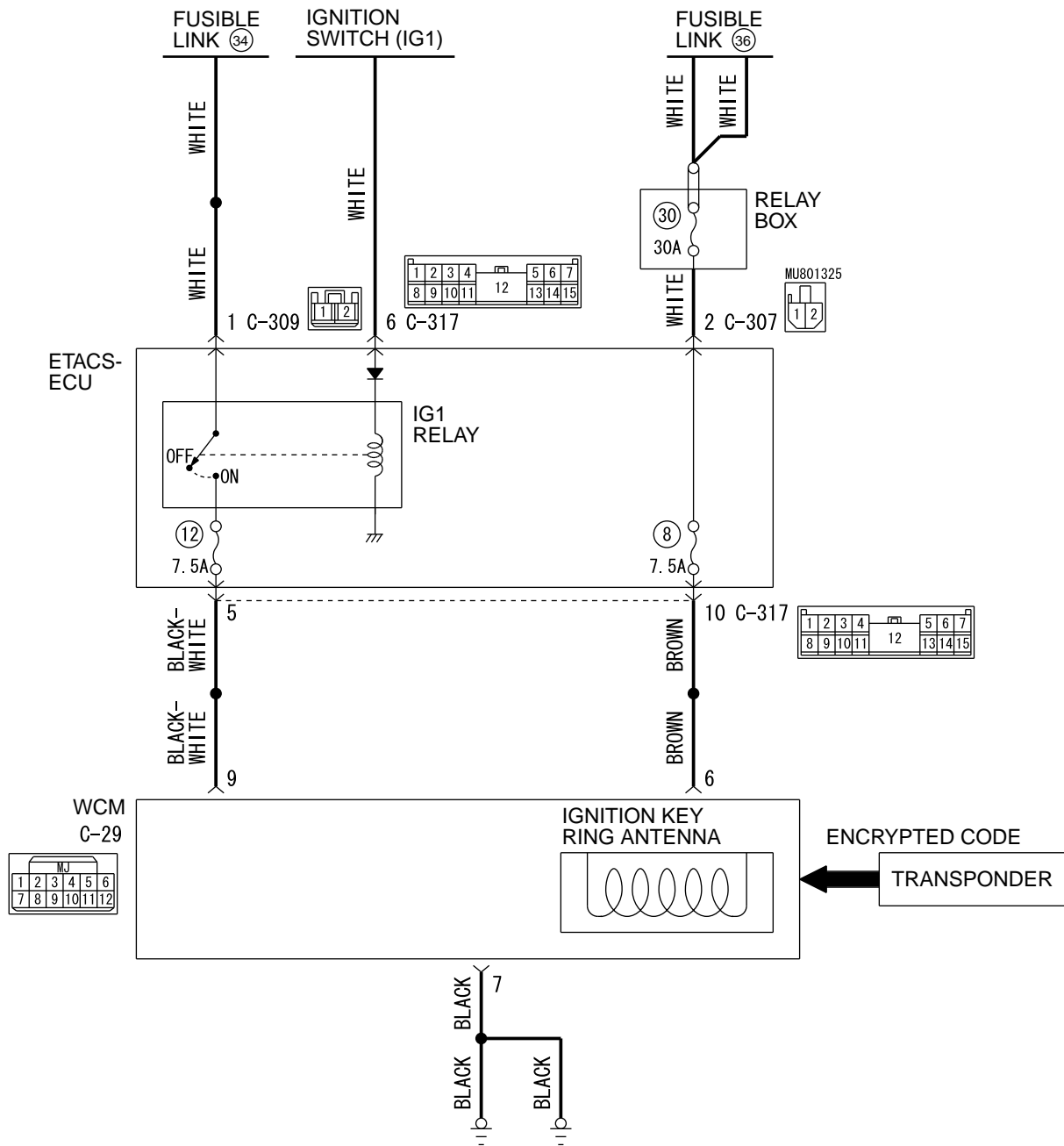
YES: The procedure is complete.

NO: Refer to GROUP 13Ab, Diagnosis P.13Ab-44. When the cause of the failure cannot be tracked down by the troubleshooting in GROUP 13Ab, replace WCM and register the ID codes. (Refer to P.42C-8.)

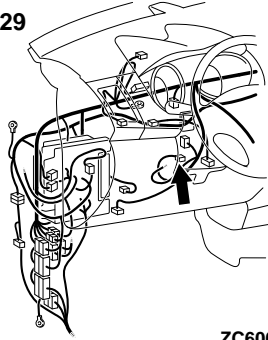
Inspection Procedure 4: Check the WCM power supply and ground circuits.

M1420920038USA0000010000

WCM Power Supply Circuit

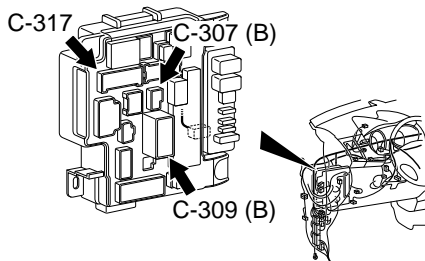


Connector: C-29



ZC6008750033

Connectors: C-307, C-309, C-317



ZC6008780029

DIAGNOSIS**Required Special Tools:**

- MB992006: Extra fine probe
- MB991223: Harness set

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

Q: Is the WCM connector C-29 in good condition?

YES: Go to Step 2.

NO: Repair the defective connector.

STEP 2. Check the battery power supply circuit to the WCM. Measure the voltage at WCM connector C-29.

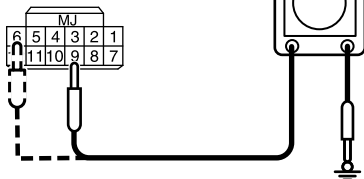
- (1) Disconnect WCM connector C-29 and measure the voltage available at the harness side of the connector.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between terminal No. 6 or 9 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

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

YES: Go to Step 4.

NO: Go to Step 3.

Harness side: C-29



ZC5010400055

STEP 3. Check the wiring harness between WCM connector C-29 (terminal No. 9, 6) and fusible link (36, 34).

NOTE: Before checking the wiring harnesses, check the ETACS-ECU connectors C-307, C-309, and C-317, and repair if necessary.

*Check the power supply line for open circuit.

Q: Is the wiring harness between WCM connector C-29 (terminal No. 9, 6) and fusible link (36, 34) in good condition?

YES: Go to Step 4.

NO: The wiring harness may be damaged or the connector (s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the high-beam headlights illuminate normally.

STEP 4. Check the ground circuit to the WCM. Measure the resistance at WCM connector C-29.

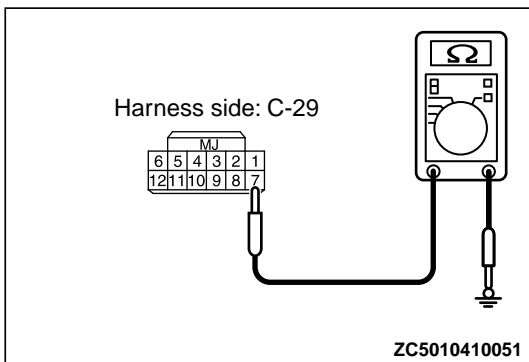
- (1) Disconnect the connector and measure the resistance at the wiring harness side.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the resistance between terminal No. 7 and the ground.

*The resistance should be 2 Ω or less.

Q: Is the measured resistance 2 Ω or less?

YES: The procedure is complete.

NO: Go to Step 5.



STEP 5. Check the wiring harness between the WCM connector C-29 (terminal No. 7) and the ground.

*Check the ground wires for open circuit.

Q: Is the wiring harness between WCM connector C-29 (terminal No. 7) and the ground in good condition?

YES: The procedure is complete.

NO: The wiring harness may be damaged or the connector (s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the high-beam headlights illuminate normally.

INSPECTION PROCEDURE 5: Keyless Entry System does not Work.

M14209200039USA0000010000

⚠ CAUTION

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

OPERATION

The lock/unlock signals from the transmitter are received by WCM, and then sent to ETACS-ECU from WCM. When ETACS-ECU receives signals from the key reminder switch and all the door switches, ETACS-ECU actuates the keyless entry system.

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of keyless entry transmitter
- Malfunction of the WCM
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors
- Option coding information

DIAGNOSTIC PROCEDURE**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A

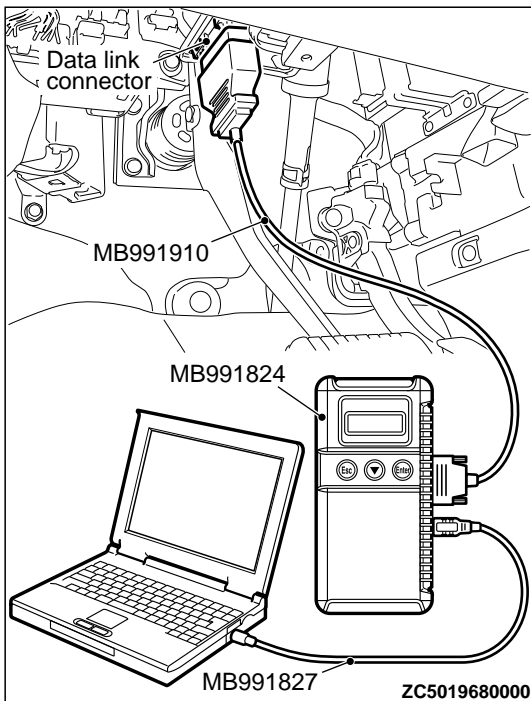
STEP 1. Scan tool (M.U.T.-III) CAN bus diagnostics

Use scan tool MB991958 (M.U.T.-III), diagnose the CAN bus lines.

Q: Is the CAN bus normal?

YES: Go to Step 2.

NO: Repair the CAN bus line (Refer to GROUP 54D, CAN bus diagnostics chart P. 54D-17).



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check whether the ETACS-ECU related DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES: Diagnose the ETACS-ECU. Refer to GROUP 54Ad, P. 54Ad-8.

NO: Go to Step 3.

STEP 3. Check the power supply system

With the ignition 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 4.

NO: Refer to GROUP 54Ad, Malfunction of ETACS-ECU power supply circuit P. 54Ad-57.

STEP 4. Verify the central door locking system.

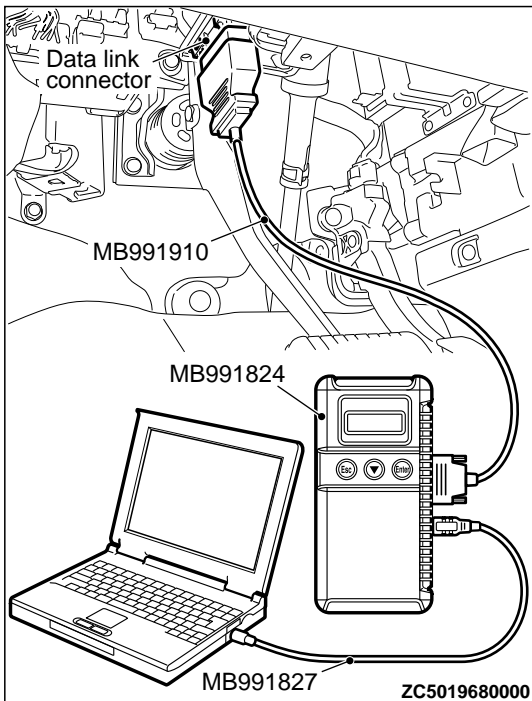
Q: Does the central door locking system work normally?

YES: Go to Step 5.

NO: Refer to GROUP 42Ab, Trouble Symptom Chart P. 42Ab-11.

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

Check the signals related to the keyless entry system operation.

**CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check the ETACS data list.
 - * Turn the ignition switch to the LOCK (OFF) position.
 - * Close the driver's door.
 - * Close the passenger's door.
 - * Close the RH-side rear door.
 - * Close the LH-side rear door.
 - * Close the liftgate.
 - * Remove the ignition key from the ignition key cylinder.

Item No.	Item name	Normal condition
Item 254	IG voltage	Battery voltage
Item 256	Dr door ajar switch	Close
Item 257	As door ajar switch	Close
Item 258	RR door ajar switch	Close
Item 259	RL door ajar switch	Close
Item 260	Trunk/gate trunk ajar switch	Close
Item 264	Handle lock switch	Key in → Key out

- (4) Turn the ignition switch to the "LOCK" (OFF) position.
OK: Normal condition is displayed.

Q: Is the check result normal?

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

Go to Step 6.

NO (Normal condition is not displayed for item No.

254.): Refer to GROUP 54Ad, Inspection Procedure 2: ETACS-ECU does not receive any signal from the ignition switch (IG1) P. 54Ad-62.

NO (Normal condition is not displayed for item No.

256.): Refer to GROUP 54Ad, Inspection Procedure 5: ETACS-ECU does not receive any signal from the front door switch (LH) P. 54Ad-73.

NO (Normal condition is not displayed for item No.

257.): Refer to GROUP 54Ad, Inspection Procedure 6: ETACS-ECU does not receive any signal from the front door switch (RH) P. 54Ad-75.

NO (Normal condition is not displayed for item No.

258.): Refer to GROUP 54Ad, Inspection Procedure 8: ETACS-ECU does not receive any signal from the rear door switch (RH) P. 54Ad-80.

NO (Normal condition is not displayed for item No. 259.): Refer to GROUP 54Ad, Inspection Procedure 7: ETACS-ECU does not receive any signal from the rear door switch (LH) P. 54Ad-77.

NO (Normal condition is not displayed for item No. 260.): Refer to GROUP 54Ad, Inspection Procedure 9: ETACS-ECU does not receive any signal from the liftgate switch P. 54Ad-82.

NO (Normal condition is not displayed for item No. 264.): Refer to GROUP 54Ad, Inspection Procedure 3: ETACS-ECU does not receive any signal from the key reminder switch. P. 54Ad-64.

STEP 6. Using scan tool MB991958, check pulse check.
Check the signals related to the keyless entry system operation.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
- (2) Confirm the ETACS pulse check.

*Remove the ignition key from the ignition key cylinder.

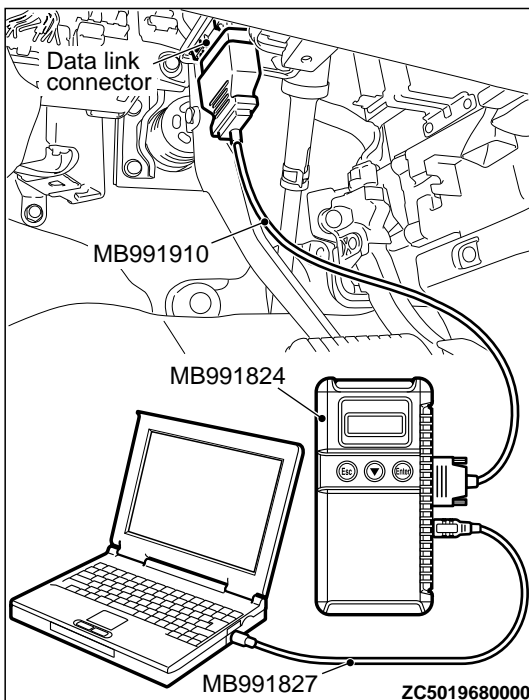
Item name	Conditions
Transmitter switch	Turn the switch ON/OFF.

OK: The scan tool (M.U.T.-III) tone alarm sounds.

Q: Is the check result normal?

YES: Go to Step 7.

NO: Refer to P. 42C-80.



STEP 7. Retest the system.

Check if the keyless entry system 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.00-15).

NO: Replace WCM and register the ID codes (Refer to P. 42C-85).

INSPECTION PROCEDURE 6: The Dome Light, The Turn-signal Lights The Horn do not Operate through The Answerback Function.

M14209200040USA0000010000

⚠ 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 hazard warning light, the dome light and the horn work normally, ETACS-ECU may be faulty. Also, the answerback function may have been disabled using the customization function.

PROBABLE CAUSES

- Malfunction of the turn signal light
- Malfunction of the dome light
- Malfunction of the horn
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. Verify the hazard warning lights.

Check that the hazard warning lights illuminate normally.

Q:Is the check result normal?

YES: Go to Step 2.

NO: Refer to GROUP 54Ac, Inspection Procedure 1: The Hazard Warning lights do not illuminate P. 54Ac-163.

STEP 2. Verify the dome light.

Check that the dome light illuminate normally.

Q:Is the check result normal?

YES: Go to Step 3.

NO: Refer to GROUP 54Ac, Trouble Symptom Chart P. 54Ac-140.

STEP 3. Verify the horn.

Check that the horn normally.

Q:Is the check result normal?

YES: Go to Step 4.

NO: Replace the horn (Refer to GROUP 54Af, Horn P. 54Af-28).

STEP 4. Check the operation of the keyless entry system.

Operate the transmitter and check that all doors (including the liftgate) lock and unlock.

Q:Is the check result normal?

YES: Go to Step 5.

NO: Refer to P. 42C-66.

STEP 5. Check the customize function.

Check that any one of the followings other than "Lock: 0, Unlock: 0" is set for "Hazard answerback" with a customization function.

- Lock:1, Unlock:2
- Lock:1, Unlock:0
- Lock:0, Unlock:2
- Lock:2, Unlock:1
- Lock:2, Unlock:0
- Lock:0, Unlock:1

Q:Is the check result normal?

YES: Go to Step 6.

NO: Set "Hazard answerback" to any one other than "Lock: 0, Unlock: 0" with a customization function (Refer to P. 42C-91).

STEP 6. Check the customize function.

Check that any one of the followings other than "Not sound horn" is set for "Horn chirp by RKE" with a customization function.

- Lock any time
- W lock any time

Q:Is the check result normal?

YES: Go to Step 7.

NO: Set "Horn chirp by RKE" to any one other than "Not sound horn" with a customization function (Refer to P. 42C-91).

STEP 7. Check of the troubles.

Check if the keyless entry answerback function 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.00-15).

NO: Replace ETACS-ECU.

INSPECTION PROCEDURE 7: The Timer Lock Function does not Work after The Doors have been Unlocked by The Keyless Entry System.

M14209200042USA0000010000

⚠ 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 timer lock function does not work normally, the keyless entry transmitter input signal circuit or ETACS-ECU may be faulty.

PROBABLE CAUSES

- Malfunction of keyless entry transmitter
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE**STEP 1. Verify the keyless entry system.**

Q: Does the keyless entry system work normally?

YES: Go to Step 2.

NO: Refer to P. 42C-66.

STEP 2. Check the customize function.

The "Timer lock timer" has been set to one of the followings with the customization function. Check if the doors are locked at the set period.

- 30sec
- 60sec
- 120sec
- 180sec

Q: Is the check result normal?

YES: Go to Step 3.

NO: Set "Timer lock timer" to one of the time above with a customization function (Refer to P. 42C-91).

STEP 3. Check of the troubles

Check that the keyless entry system 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. 00-15).

NO: Replace ETACS-ECU.

INPUT SIGNAL CHART

M14209200043USA0000010000

Trouble symptom	Reference page
Signals from transmitter switches are not received.	P.42C-80

INPUT SIGNAL PROCEDURES**Signals from transmitter switches are not received.**

M14209200045USA0000010000

CAUTION

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

COMMENTS ON TROUBLE SYMPTOM

Input signal from the keyless entry transmitter is used to operate the keyless entry system. If the signal is abnormal, the keyless entry system will not work normally.

PROBABLE CAUSES

- Battery discharged in the transmitter
- Malfunction of the transmitter
- Malfunction of WCM

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- 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 (Vehicles with CAN communication system)

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

⚠ CAUTION

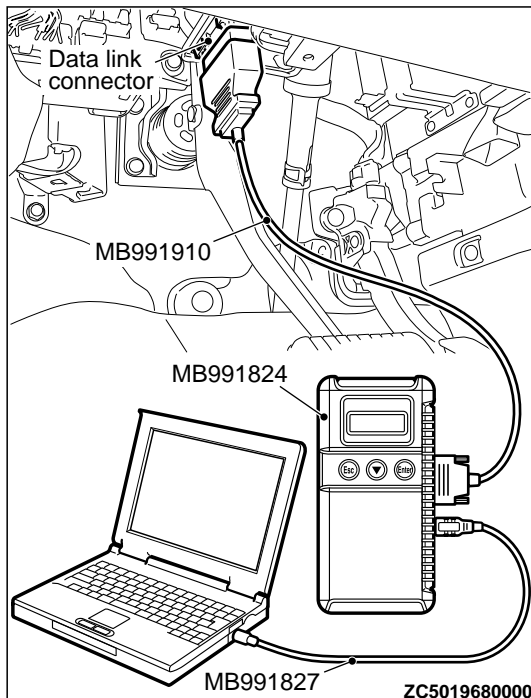
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

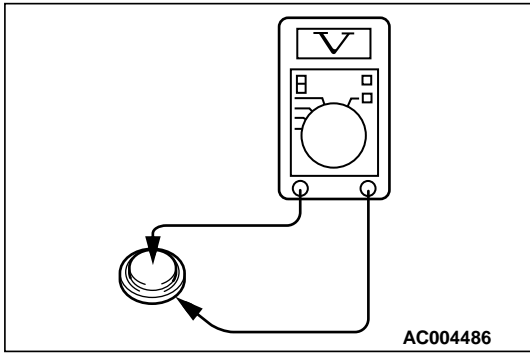
- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42C-7."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check whether the WCM related DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES: Diagnose the WCM. Refer to P. 42C-11.

NO: Go to Step 2.



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

Measure the voltage of the transmitter battery.

- The value should be approximately 2.5 - 3.2 volts.

Q: Is the measured voltage approximately 2.5 - 3.2 volts?

YES: Go to Step 3.

NO: Replace the battery. If the transmitter can be registered normally, and operates normally, it indicates that the transmitter is sending normal signal to the WCM.

STEP 3. Register the keyless entry secret code using a known-normal transmitter of the same type again, and check the trouble symptom.

- (1) Register a known-good transmitter of the same type.
- (2) Check if the signals from the transmitter switches are received.

Q: Can the transmitter be registered correctly?

YES: Replace the original transmitter with a new one.

NO: Replace the WCM. (Including when the new transmitter cannot be registered). Replace WCM and register the ID codes (Refer to P. 42C-85). If the transmitter works normally, the input signal from the transmitter should be normal.

DATA LIST REFERENCE TABLE

M14209200032USA0000010000

Item No.	Check items	Check conditions	Normal conditions
01	Received key data(ID)	-	Number of transmitter (Number that adheres in order of registration)
02	Received key data(button)	-	Switch display of transmitter
13	Number of registered IMMOB.key	-	Number of stored ignition keys (Number of registered ignition keys that can start the engine)
21	Air pressure, Tire 1	-	-
22	Air pressure, Tire 2		
23	Air pressure, Tire 3		
24	Air pressure, Tire 4		
25	Air pressure, Tire 5		
31	Acceleration, Tire 1	-	-
32	Acceleration, Tire 2		
33	Acceleration, Tire 3		
34	Acceleration, Tire 4		
35	Acceleration, Tire 5		

WIRELESS CONTROL MODULE (WCM)
DIAGNOSIS

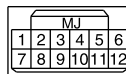
42C-83

Item No.	Check items	Check conditions	Normal conditions
36	Threshold of PRS. warning	The tire pressure is within the specified value range.	OFF
		The tire pressure is not within the specified value range.	ON
37	Threshold of PRS. warning release	The tire pressure is within the specified value range.	ON
		The tire pressure is not within the specified value range.	OFF
38	Number of registered TPMS ID	-	Number of stored TPMS
41	VSS	Drive the vehicle	The scan tool and the tachometer readings are approximately the same

CHECK AT ECU TERMINALS

M14209200046USA0000010000

C-29

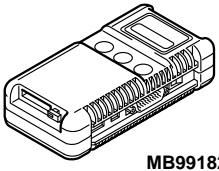
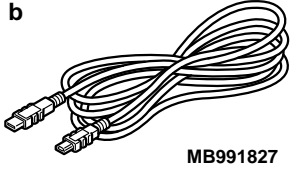
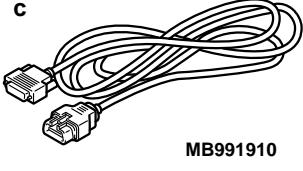
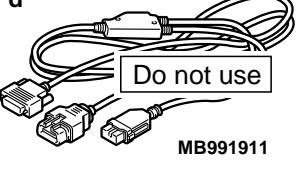
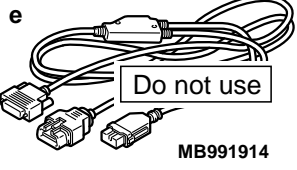
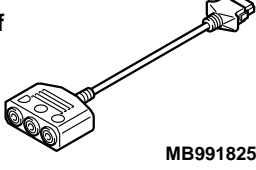
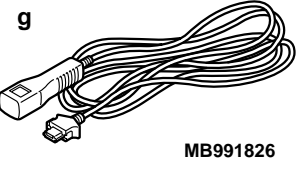



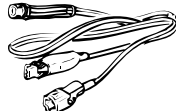
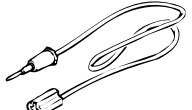
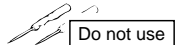
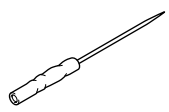
ZC6038960001

Terminal No.	Check items	Check conditions	Normal conditions
1 - 5	-	-	-
6	Power supply (Battery)	Always	Battery voltage
7	Ground	Always	0 V
8	-	-	-
9	Power supply (Ignition switch: IG1)	Ignition switch: ON	Battery voltage
10	CAN L	-	-
11	CAN H	-	-

SPECIAL TOOLS

M14209200003USA0000010000

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826</p> <p>YB9919580000</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Daimler Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>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.</p> <ul style="list-style-type: none"> *Check of the diagnostic trouble code and service data *Registration of ID codes

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>b</p>  <p>c</p>  <p>d</p>  <p>YB9912230000</p>	<p>MB991223</p> <p>a. MB991219</p> <p>b. MB991220</p> <p>c. MB991221</p> <p>d. MB991222</p> <p>Harness set</p> <p>a. Test harness</p> <p>b. LED harness</p> <p>c. LED harness adaptor</p> <p>d. Probe</p>	<p>General service tools</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p> <p>a. Connector pin contact pressure inspection</p> <p>b. Power circuit inspection</p> <p>c. Power circuit inspection</p> <p>d. Commercial tester connection</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	-	<p>Making voltage and resistance measurement during troubleshooting</p>

ON-VEHICLE SERVICE

ID CODES REGISTRATION PROCEDURE



M14209200048USA0000010000

The ID codes necessary for the engine immobilizer system, the keyless entry system and the TPMS can be registered using the M.U.T.-III.

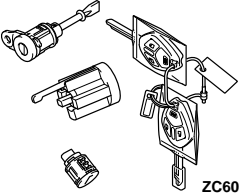
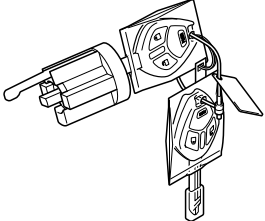
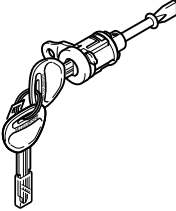

CAUTION

If the ignition key with transmitter is added or replaced, register the key (key ID), and then register the keyless entry secret code again.

SUPPLY UNIT LIST FOR INDIVIDUAL KEY

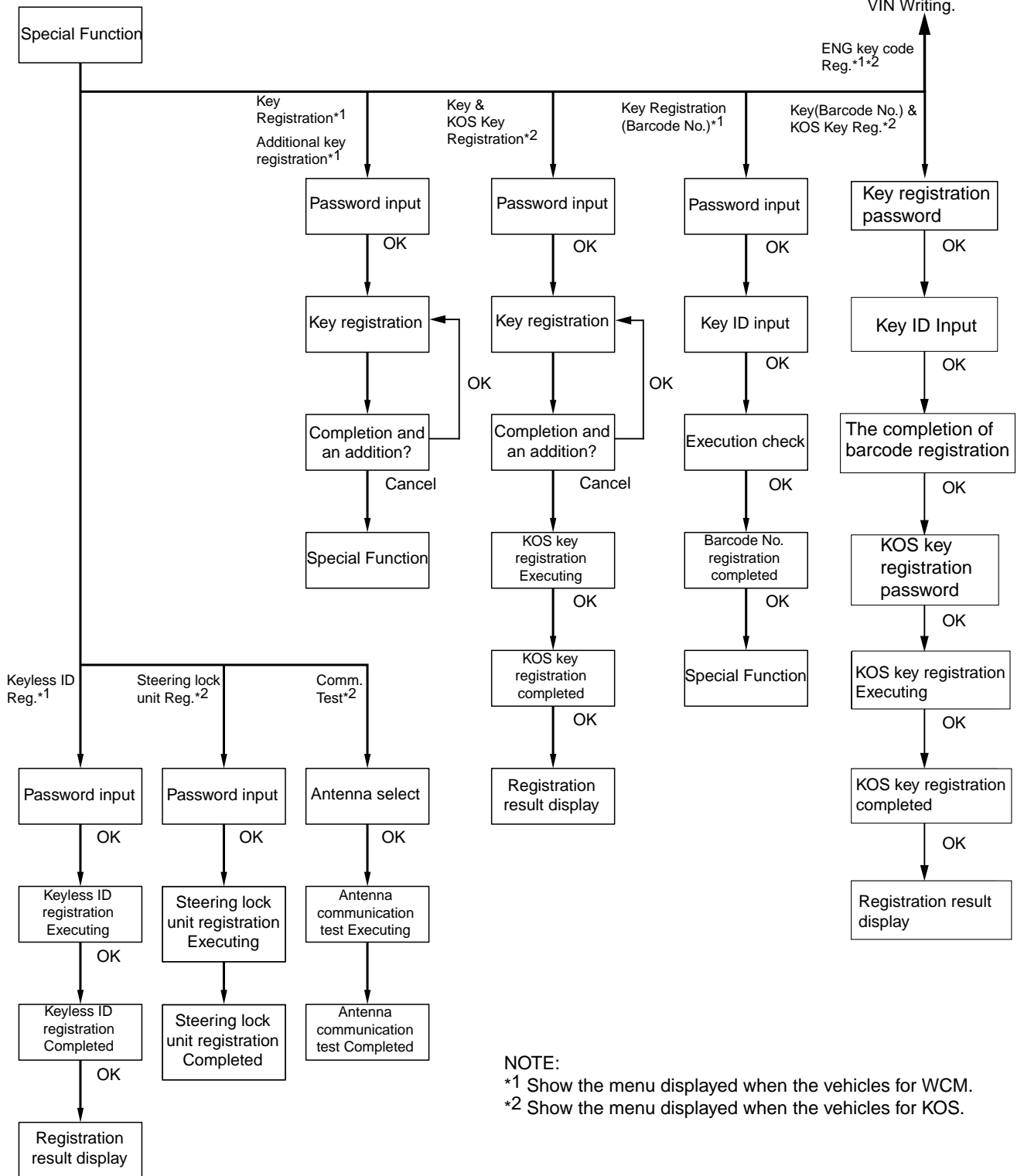
<p>Ignition key (with transmitter)</p>	<p><i>NOTE: Blank key (It is the key that comes with the door service key set and the glove box service key set. It can only be used for locking and unlocking, and it cannot start the engine.)</i></p>
 <p>ZC6037530000</p>	<p>Blank key</p>  <p>ZC6044010001</p>

KEY SUPPLY UNIT LIST FOR OTHER THAN INDIVIDUAL KEY

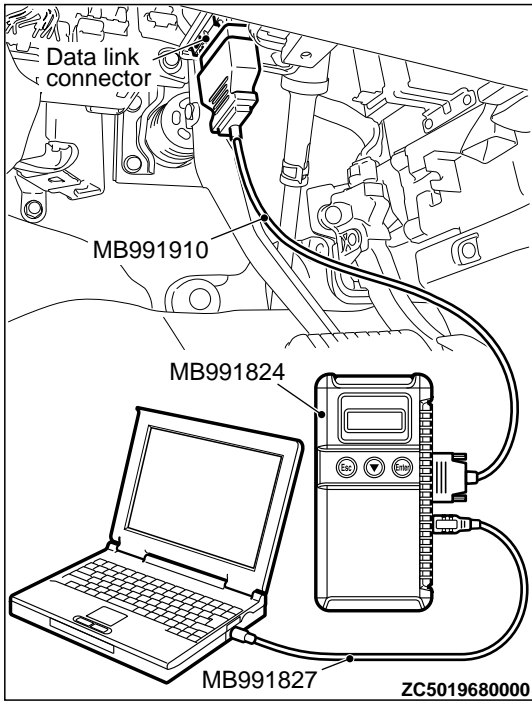
Full service key set	Handle lock service key set	Door service key set	Glove box service key set
 <p>ZC6045380000</p>	 <p>ZC6045400000</p>	 <p>ZC6045500000</p>	 <p>ZC6045390000</p>

NOTE:
 *When re-registering the key (key ID), all the keys (key ID) registered before must be re-registered because all of them will be erased.
 *After registering the keys, make sure that the engine is started normally with all of the keys registered.

Screen flow of M.U.T.-III



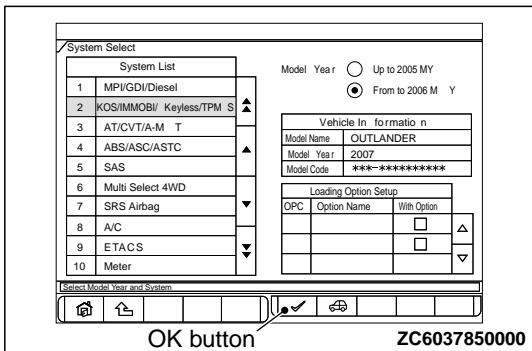
NOTE:
*1 Show the menu displayed when the vehicles for WCM.
*2 Show the menu displayed when the vehicles for KOS.



Connect the scan tool to the 16-pin data link connector as follows.

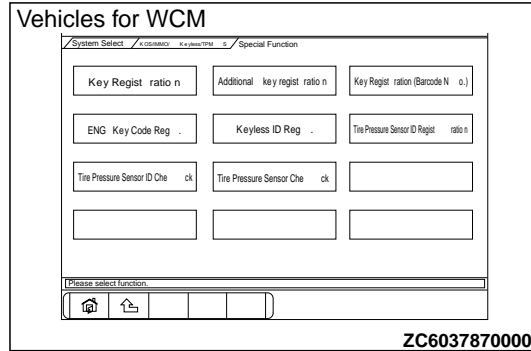
NOTE: For details on how to use the scan tool, refer to the "M. U. T. -III User's Manual."

1. Start the M.U.T.-III system on the PC and turn the ignition switch to the "ON" position.



2. Select "KOS/IMMO//Keyless/TPMS" button from the "System Select" screen. Then, select the

3. Select "Special Function" on the next screen.



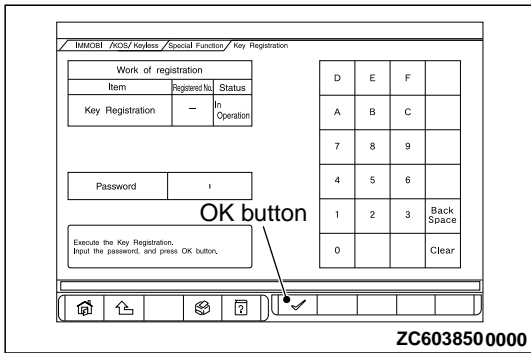
4. Select the button of the operation to be performed from the "Special Function" screen.

- "Key Registration": When the ignition key is replaced or added as a single unit.
- "Additional key registration": When the ignition key is added as a single unit.
- "Key Registration (Barcode No.)": When the ignition key is replaced by the full service key set or the handle lock service key set is replaced by the piece.
- "ENG key code Reg.": When the engine control module is replaced.
- "Keyless ID Reg.": When the ignition key is replaced or added.
- "Tire Pressure Sensor ID Registration": When the TPMS transmitter is replaced.
- "Tire Pressure Sensor Check": When the tire pressure sensor data is checked.
- "Tire Pressure Sensor ID Check": When the tire pressure sensor ID is checked.

NOTE:

- "For "Key Code Registration," refer to GROUP 00 - Precautions before Service P.00-26.
- "For "Tire Pressure Sensor ID Registration," refer to P.42C-92.
- "For "Tire Pressure Sensor Check," refer to P.42C-94.
- "For "Tire Pressure Sensor ID Check," refer to P.42C-94.

KEY REGISTRATION METHOD



1. When "Key registration" or "Additional key registration" screen is displayed, enter the password for the key registration and press the OK button. Then, "Executing!" is displayed and the registration process starts.

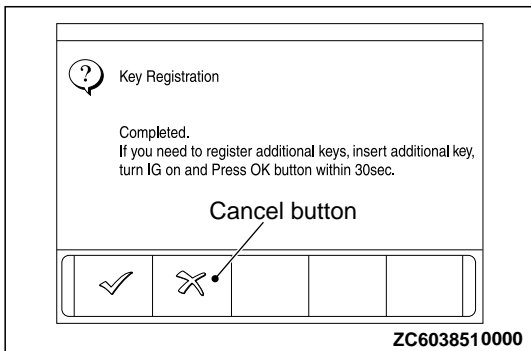
NOTE:

- *If the wrong password is entered consecutively 5 times, the password entry for the key registration will be disabled for 16 minutes.
- *The key registration cannot be cancelled during the operation.

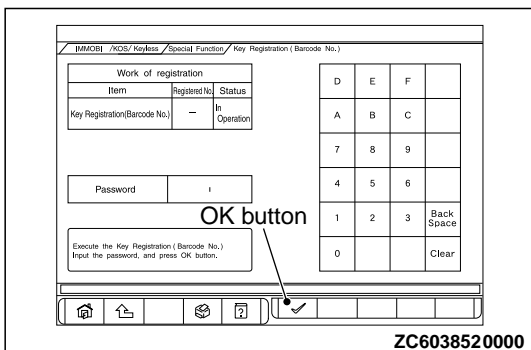
2. When the key registration is completed, "Completed" is displayed. To register the next key, follow the message on the screen and press the OK button. Then, "Executing!" is displayed again and the registration process for the next key starts. To finish the key registration, press the cancel button.

NOTE:

- *In order to register another key consecutively after registering the first key, the ignition switch must be turned to the ON position with the second key within 30 seconds after turning it to the "LOCK" (OFF) position with the first key.
- *Up to eight keys can be registered.

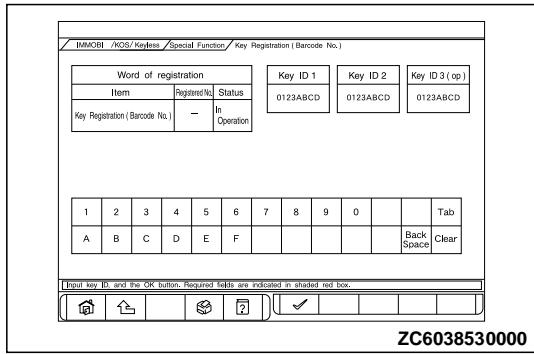


KEY REGISTRATION (BARCODE NO.) METHOD

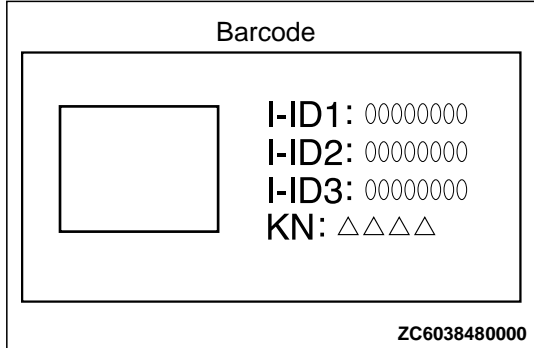


1. When "Key Registration (Barcode No.)" screen is displayed, enter the password for the key registration and press the OK button.

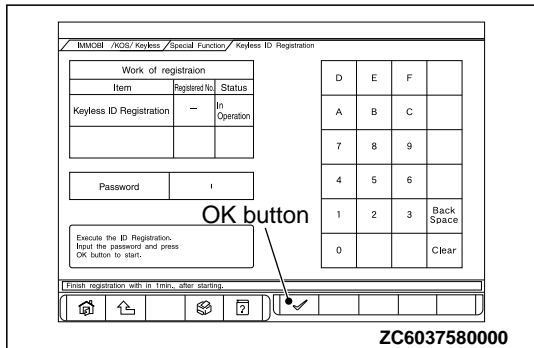
- NOTE:** If the wrong password is entered consecutively 5 times, the password entry for the key registration will be disabled for 16 minutes.



2. Follow the message on the screen to enter the bar code No., and then press the OK button.
3. When "Do you want to start registration?" is displayed, press the OK button to start the registration, or press the Cancel button to cancel the registration.
4. "Key Registration was completed" is displayed. Press the OK button to finish the registration.



"KEYLESS ID REG." METHOD



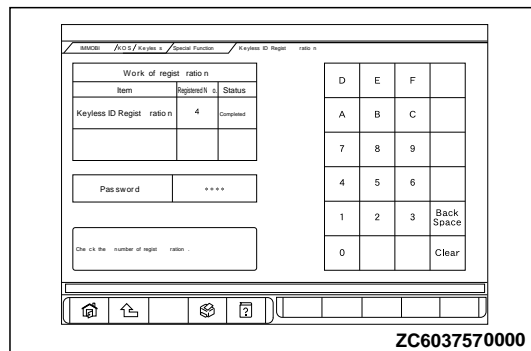
1. On the "Keyless ID Reg." screen, enter the password and press the OK button.
2. Register within 1 minute and send the programming packet* to register the keyless ID. To register multiple keys, register the next key within 1 minute from the registration operation of previous key. Complete the registration of necessary keys, then press the OK button to finish the keyless ID registration.

NOTE:

*Up to eight ignition keys can be registered.

** : Programming packet sending procedure
Complete the following steps 1 to 3 within four seconds.

1. Press and hold both the lock and the unlock switch for 1 second or longer.
 2. Release both the lock and the unlock switch for 0.5 second or longer.
 3. Press the unlock switch.
3. Push the OK button after "Keyless ID Registration was finished." is displayed.



4. Check number of the keyless IDs registered.

KEYLESS ENTRY SYSTEM CHECK

M14209200049USA0000010000

Check the keyless entry system function as described below. If it does not work, perform troubleshooting. Refer to P.42C-66.

- Operate the transmitter to check that the doors and liftgate can be locked and unlocked.
- Operate the transmitter to check that the answerback function works in response to door and liftgate locking/unlocking.

NOTE: The hazard and horn answerback setting can be changed using the customization function. Confirm which setting is activated before performing these checks. Refer to P. 42C-91.

INSPECTION OF KEYLESS ENTRY TIMER LOCK FUNCTION

M14209200051USA0000010000

Attempt to unlock the doors and the liftgate by using the transmitter. If the doors and the liftgate are not locked within 30 seconds, carry out diagnosis. Note that the doors and the liftgate will not be locked if the ignition key is inserted within the 30-second period, one of the doors or the liftgate is opened. Refer to P.42C-66.

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. 42C-91.

CONFIGURATION FUNCTION

M14209200052USA0000010000

Using M.U.T.-III, the following functions can be customized. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
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 (default)
		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	Without function
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0sec	0 second (no delay shutdown time)
		7.5sec	7.5 seconds

WIRELESS CONTROL MODULE (WCM)
ON-VEHICLE SERVICE

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
		15sec	15 seconds
		30sec	30 seconds (default)
		60sec	60 seconds
		120sec	120 seconds
		180sec	180 seconds
Door unlock mode	Door lock system	All doors unlock	All the doors are unlocked when the driver's side door is unlocked.
		Dr door unlock	Only the driver's side door is unlocked when the driver's side door is unlocked. (default)
Auto door unlock by P position	Auto door unlock by P position function	Disable	Without function (default)
		Always enabled	Always with function
		P/W unlocked	With function (with power window unlocked)
Duration of horn chirp	Horn sounding time during horn answer back	Short	0.01 second (default)
		Long	0.02 second
Horn chirp by RKE	Horn chirp by RKE	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. (default)
Timer lock timer	Timer lock period adjustment	30sec	30 seconds (default)
		60sec	60 seconds
		120sec	120 seconds
		180sec	180 seconds
Duration pre-alarm	Adjustment of pre-alarm continue time	10 sec	10 seconds (default)
		6 sec	6 seconds
Alarm	With/without theft-alarm function	Disable	Without function
		Enable	With function (default)
Panic alarm switch	With/without panic alarm function	Disable	Without function
		Enable	With function (default)

TIRE PRESSURE SENSOR ID REGISTRATION

M14209200068USA0000010000

When the TPMS transmitter and/or WCM are replaced, execute "Tire Pressure Sensor ID Registration." The TPMS won't function until the "Tire Pressure Sensor ID Registration" has been complete.

Required Special Tools:

- 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

Register the tire pressure sensor IDs as described in the procedure below.

⚠ CAUTION

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

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System select."
5. Select "Special Function."
6. Select "Tire Pressure Sensor ID Registration."
7. Select "4tires ID Reg. (Change tire PRS.)" and start the tire pressure sensor ID registration.

⚠ CAUTION

Register all tire pressure sensor IDs within twenty minutes.

8. "4 SNSR ID Registration Do you want to start? Note Finish ID Registration within 20 minutes." is displayed. Then, press "OK."
9. Decrease the tire pressure to 174 kPa or less, and register the TPMS transmitter ID code of each wheel to WCM.

NOTE:

**On completion of the TPMS transmitter ID code registration, the TPMS transmitter ID code is displayed on the M.U.T.-III screen.*

**It may take approximately one minute for the ID code to be displayed on the M.U.T.-III screen after the tire pressure is reduced.*

**If the ID code is not displayed, reduce the tire pressure another 20 kPa or more. If the ID code is not displayed yet, rotate the tire to displace the TPMS transmitter, and reduce the tire pressure 20 kPa or more again.*

**You can start out the following operations from any TPMS transmitter. The tire pressure sensor ID registration has no order.*

10. "4 SNSR ID Registration Completed." is displayed. Then, select "OK."

NOTE: The TPMS indicator illuminates for tire pressure alarm.

11. After tire pressure sensor ID registration, turn the ignition switch to the "LOCK" (OFF) position.
12. Remove scan tool MB991958.

TIRE PRESSURE SENSOR CHECK

M14209200069USA0000010000

Required Special Tools:

- 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

Check the condition of the tire pressure sensor as described below.

CAUTION

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

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System select."
5. Select "Special Function."
6. Select "Tire Pressure Sensor Check."
7. "Tire Pressure Sensor Check. Do you want to start?" is displayed. Then, select "OK."
8. Change the pressure of tire to be checked for 20 kPa or more. (The tire pressure can either be decreased or increased.)
9. Check the data on the PC display.

NOTE:

**It may take approximately one minute for the ID code to be displayed on the M.U.T.-III screen after the tire pressure is changed.*

**If the ID code is not displayed, change the tire pressure another 20 kPa or more. If the ID code is not still displayed, rotate the tire to displace the TPMS transmitter, and change the tire pressure 20 kPa or more again.*

10. After tire pressure sensor check, turn the ignition switch to the "LOCK" (OFF) position.
11. Remove scan tool MB991958.

TIRE PRESSURE SENSOR ID CHECK

M14209200070USA0000010000

Required Special Tools:

- 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

Check the tire pressure sensor IDs, which is registered in the TPMS receiver, as described below.

⚠ CAUTION

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

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System select."
5. Choose "TPMS" from the "CHASSIS" tab.
6. Select "MITSUBISHI."
7. Select "Special Function."
8. Select "Tire Pressure Sensor ID Check."
9. Check the tire pressure sensor IDs on the PC display.
10. After tire pressure sensor ID check, turn the ignition switch to the "LOCK" (OFF) position.
11. Remove scan tool MB991958.

FROM SCAN TOOL MB99158 DIAGNOSIS SCREEN

You can check the tire pressure sensor ID on the diagnosis screen as described below.

1. Operate scan tool MB991958 as follows:
 - Press "Special" button on the diagnosis screen.
 - Select "Tire Pressure Sensor ID Check" from the "Special Function" menu.
2. Check the tire pressure sensor IDs on the PC display.
3. After tire pressure sensor ID check, turn the ignition switch to the "LOCK" (OFF) position.
4. Remove scan tool MB991958.

WCM**REMOVAL AND INSTALLATION**

M14209200054USA0000010000

⚠ CAUTION

•To remove the driver airbag module, refer to GROUP 52B - Service Precautions P. 52B-28 and Air Bag Module(s) and Clock Spring P.52B-329.

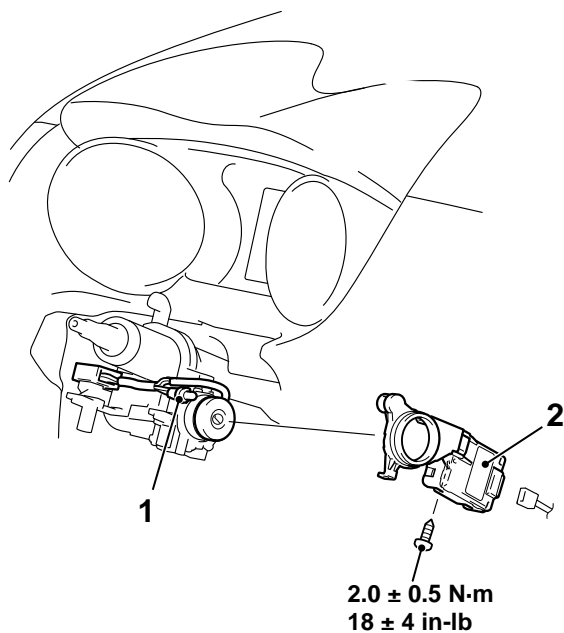
Pre-removal operation

- Lower panel and steering column cover removal (Refer to GROUP 52A - Instrument Panel Assembly P.52A-2.)
- Clock spring column switch assembly removal (Refer to GROUP 37 - Steering Shaft P.37-23 or GROUP 52B - Air Bag Module(s) and Clock Spring P.52B-329.)

•When WCM has been replaced, all key ID codes should be registered, referring to the ID code registration necessity judgment table P.42C-8.

Post-installation operation

- Clock spring column switch assembly installation (Refer to GROUP 37 - Steering Shaft P.37-23 or GROUP 52B - Air Bag Module(s) and Clock Spring P.52B-329.)
- Lower panel and steering column cover installation (Refer to GROUP 52A - Instrument Panel Assembly P.52A-2.)

**Removal steps**

1. Key ring illumination light

Removal steps

- >>A<<
2. WCM

INSTALLATION SERVICE POINT

>>A<< WCM INSTALATION

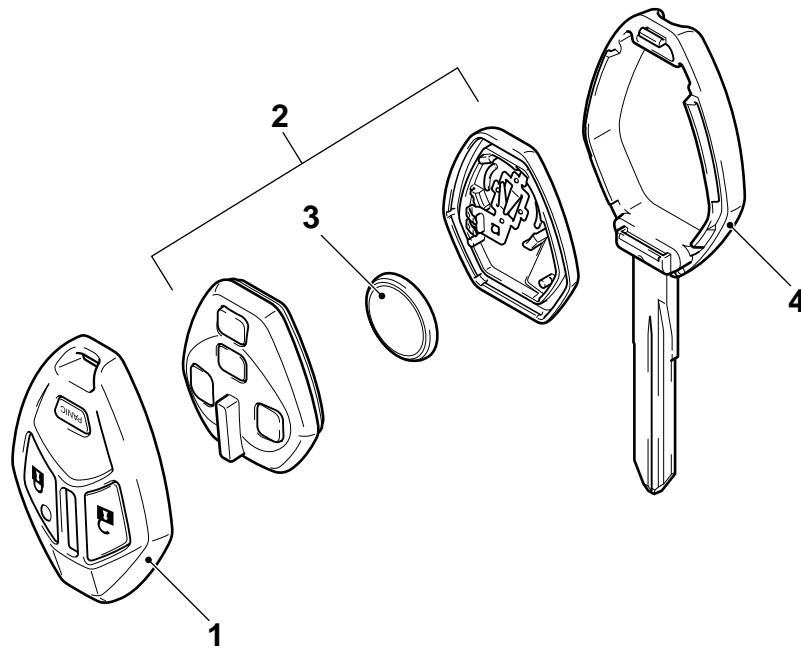
Check that the top claw of WCM is fixed securely to the boss of steering lock and the antenna is not floated on the key cylinder.

TRANSMITTER

DISASSEMBLY AND ASSEMBLY

Post-installation operation

- Transmitter operation check



ZC600220000

Disassembly steps

<<A>>

1. Upper cover
2. Transmitter assembly
3. Battery

<> >>A<<

Disassembly steps

4. Master key

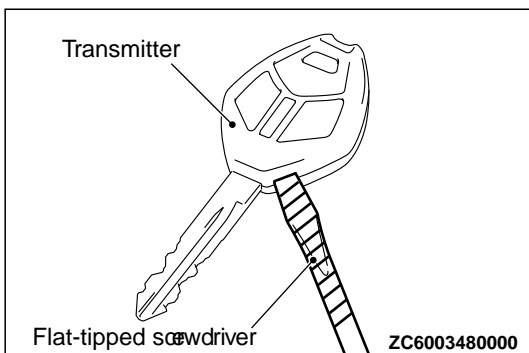
DISASSEMBLY SERVICE POINTS

<<A>> UPPER COVER REMOVAL

⚠ CAUTION

To prevent damage to the transmitter, wrap a flat-tipped screwdriver with protective tape before prying.

Insert a flat-tipped screwdriver in the area shown, and remove the upper cover by prying it with the screwdriver.

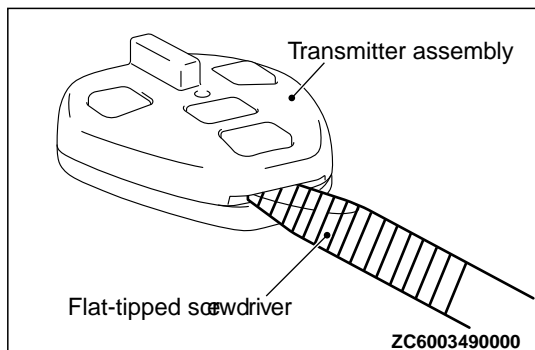


ZC600348000

<> BATTERY 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.
- To prevent damage to the transmitter assembly, wrap a flat-tipped screwdriver with protective tape before prying. Insert a flat-tipped screwdriver in the area shown, and remove the battery by prying it with the screwdriver.



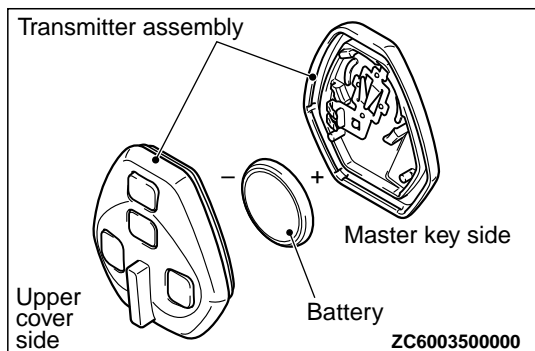
ASSEMBLY SERVICE POINT

>>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 new battery to the transmitter assembly with its (+) side facing towards the master key side.

Battery required for replacement: Coin type battery CR1620



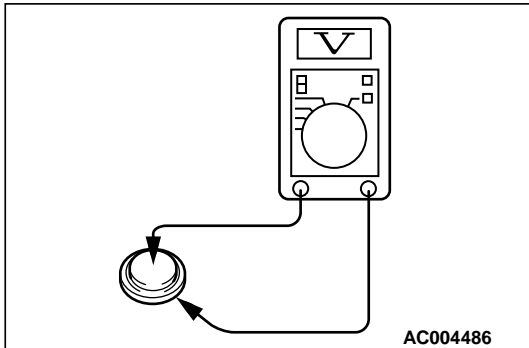
INSPECTION

M14209200057USA0000010000

TRANSMITTER BATTERY CHECK

Measure the voltage of the battery. If the voltage of the battery is not within the standard value, replace the battery.

Standard value: 2.5 - 3.2 V



TPMS TRANSMITTER

REMOVAL AND INSTALLATION

M14209200072USA0000010000

CAUTION

- Ensure valve cap is always in place except when adjusting tire pressure.
- If the valve core and valve cap are replaced, use a genuine replacement part. The valve core is similar to a conventional one, but uses nickel plating to avoid corrosion.
- Replace the valve stem grommet and washer with a new one every five years or when the tire is replaced.
- Do not drop the TPMS transmitter from height greater than 1 meter (3.3 feet).

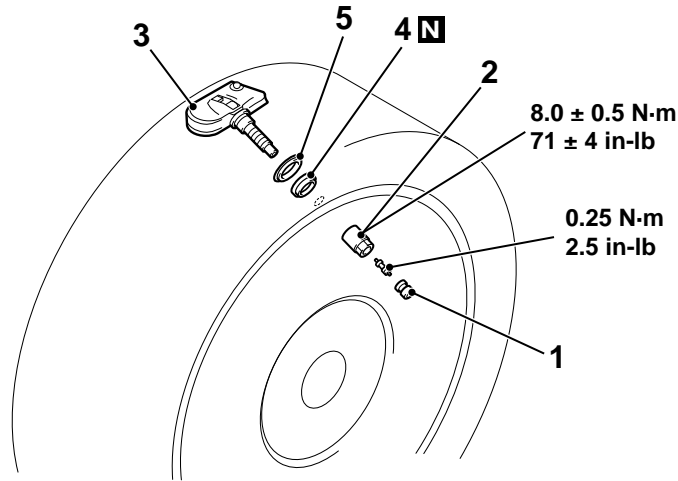
Pre-removal Operation

- Wheel and Tire Removal

Post-installation Operation

- Wheel and Tire Installation
- Tire Pressure Sensor ID Registration If a new TPMS transmitter is installed (Refer to P.42C-92.)
- After the tire pressure sensor ID registration, check that the TPMS warning light does not illuminate or flash.

- Do not expose the TPMS transmitter to extraneous magnetic fields.
- TPMS transmitter should not be stored at temperatures above 80°C (176°F).
- TPMS transmitter should not be exposed to temperatures above 100°C (212°F).
- If the TPMS transmitter is replaced, execute "Tire Pressure Sensor ID Registration" on scan tool MB99158 "Special Function."



ZC6045420000

REMOVAL STEPS

- <<A>> 1. VALVE CAP
- <<A>> 2. VALVE NUT
- LET TPMS TRANSMITTER FALL INTO TIRE
- TIRE BEAD
- <> 3. TPMS TRANSMITTER
- <<C>> 4. GROMMET
- <<C>> 5. WASHER

INSTALLATION STEPS

- >>A<< 5. WASHER

INSTALLATION STEPS

- >>A<< 4. GROMMET
- >>A<< 3. TPMS TRANSMITTER
- >>A<< 2. VALVE NUT
- >>B<< · TIRE BEAD MOUNTING
- >>C<< · TIRE PRESSURE INFLATION
- >>C<< · VALVE NUT RETIGHTENING
- 1. VALVE CAP

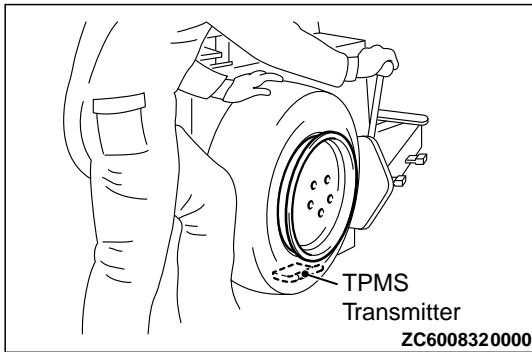
REMOVAL SERVICE POINTS

<<A>> VALVE CAP/VALVE NUT REMOVAL

CAUTION

Ensure valve cap is always in place except when adjusting tire pressure.

1. Remove the valve cap.
2. Rotate tire so that valve stem is in the 6 o'clock position.
3. Use a long-reach 17.2 mm (0.68 inch) socket to unscrew the valve nut and remove it. Slowly push valve stem into tire so that tire pressure is relieved.
4. Once tire pressure is relieved, let TPMS transmitter into tire.



<> TPMS TRANSMITTER REMOVAL

1. Place on tire changing machine and break both tire beads ensuring that the transmitter remains in the bottom of the tire.

⚠ CAUTION

Be careful not to damage the TPMS transmitter.

2. Lubricate tire well and remove outer side of the tire.
3. Reach inside the tire and remove the TPMS transmitter.
4. Remove tire from rim using proper tire changing equipment procedures.

<<C>> GROMMET/WASHER REMOVAL

⚠ CAUTION

• Do not vary the angle of valve except at mounting on the rim. If varying the angle over and over, it may cause breakage of antenna plate resulting in the failure of transmitter.

• Use a soft tool to remove the grommet and washer to prevent scratching the valve of the TPMS transmitter.

Remove the grommet and washer from the TPMS transmitter.

INSTALLATION SERVICE POINTS

>>A<< GROMMET/WASHER/TPMS TRANSMITTER/VALVE NUT INSTALLATION

⚠ CAUTION

When installing a new grommet and washer, make sure to support the valve stem base with a thumb so that there is no movement of the stem. Otherwise, the stem may protrude resulting in the breakage of antenna plate.

1. Install a new grommet and washer to the TPMS transmitter.

⚠ CAUTION

• Visually check that TPMS transmitter is not deformed or damaged.

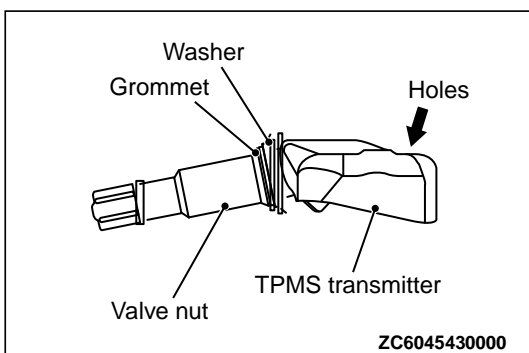
• When installing the TPMS transmitter, be sure the rim, grommet and valve nut are clean.

• Ensure the grommet is located inside the valve hole before installing the valve nut.

• While installing the valve nut, push the transmitter to maintain the lower lip of the transmitter case is in contact with the rim without clearance.

• While installing the valve nut, ensure the tool is kept aligned to the valve and the valve hole.

• After installing the valve nut, check that the grommet is compressed and washer is bend.



2. Mount TPMS transmitter valve through rim hole as illustrated. Pressure holes in the transmitter case should face away from center of rim. Tighten valve nut finger tight, then slowly torque the valve nut to 8.0 ± 0.5 N·m (71 ± 4 in-lb).

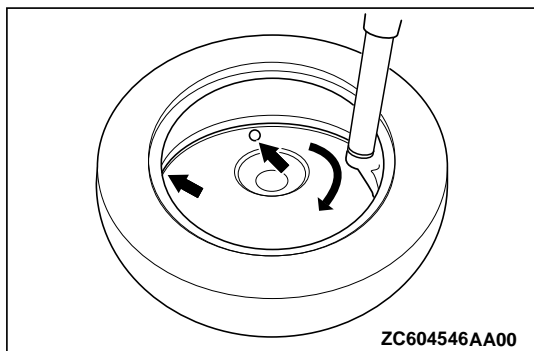
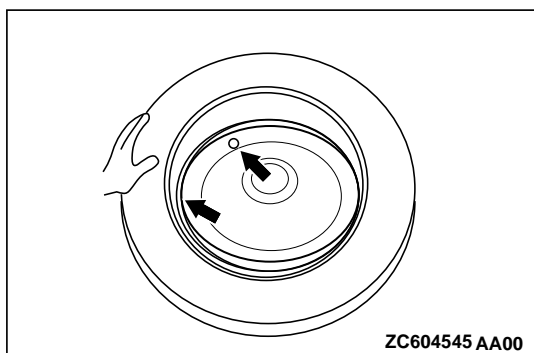
⚠ CAUTION

Install the TPMS transmitter correctly. If the TPMS transmitter is installed incorrectly, it may not work correctly, or become damaged when the tire is installed.

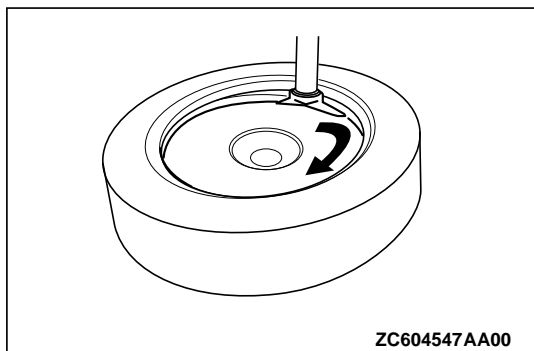
3. Check that the TPMS transmitter is correctly assembled (Refer to illustration).
 - *Lower lip of the TPMS transmitter case is touching the rim after torquing.

>>B<< TIRE BEAD MOUNTING

1. Put the tire on the rim, so that the cross point of the belt with the rim is approximately 20 cm (7.9 inch) away from the valve

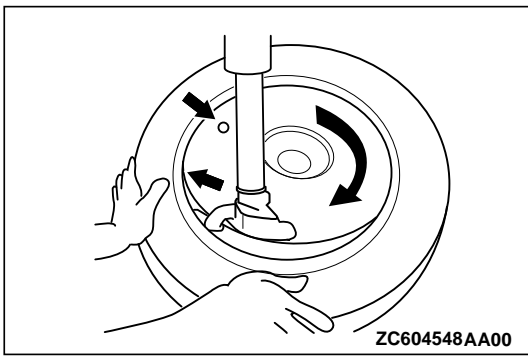


2. Engage the shoe and make sure that 20 cm (7.9 inch) is maintained between the cross point and the valve. The arrow shows the direction of rotation of the wheel.

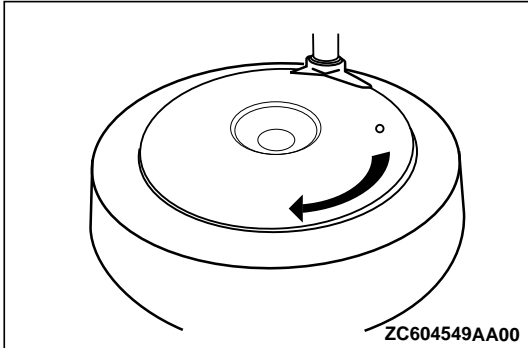


3. Turn the wheel in order to engage all the first side of the tire.

NOTE: The standard shoes can pass over the sensor without damaging it.



4. Put the second side of the tire in position, so that the cross point of the belt with the rim is approximately 20 cm (7.9 inch) away from the valve. The curved arrow shows the direction of rotation of the wheel.



5. Turn the wheel in order to engage all of the second side of the tire.

NOTE: The standard shoes can pass over the sensor without damaging it.

>>C<< TIRE PRESSURE INFLATION/VALVE NUT RETIGHTENING

⚠ CAUTION

After tire inflation, retighten the valve nut 8.0N·m (71 inch pounds). This is necessary, because the TPMS transmitter is secured to the wheel with the valve nut and rubber grommet. The rubber grommet will be depressed by tire pressure or deteriorate over a period of time, which requires the valve nut to be retightened.

Inflate tire to required pressure, then retorque the valve nut to 8.0 N·m (71 inch pounds).

MEMO