

GROUP 31

WHEEL AND TIRE

CONTENTS

GENERAL DESCRIPTION	31-2	TPMS SPECIAL FUNCTION DATA LIST ..	31-47
GENERAL SPECIFICATION	31-3	CHECK AT TPMS RECEIVER	31-48
SERVICE SPECIFICATIONS	31-4	SPECIAL TOOLS	31-49
TIRE PRESSURE MONITORING SYSTEM (TPMS) SERVICE PRECAUTIONS ..	31-4	ON-VEHICLE SERVICE	31-50
WHEEL AND TIRE DIAGNOSIS	31-5	TIRE INFLATION PRESSURE CHECK ...	31-50
WHEEL AND TIRE DIAGNOSIS	31-5	TIRE WEAR CHECK	31-50
WHEEL BALANCE ACCURACY	31-6	WHEEL RUNOUT CHECK	31-51
TIRE PRESSURE MONITORING SYSTEM (TPMS) DIAGNOSIS	31-9	TPMS SPECIAL FUNCTION	31-51
INTRODUCTION TO DIAGNOSIS	31-9	TIRE PRESSURE SENSOR ID REGISTRATION	31-51
TPMS TROUBLESHOOTING STRATEGY	31-9	TIRE PRESSURE SENSOR ID CHECK ...	31-52
TPMS DIAGNOSTIC FUNCTION	31-10	TIRE PRESSURE SENSOR CHECK	31-53
TPMS WARNING LIGHT CHECK	31-12	WHEEL AND TIRE	31-54
DIAGNOSTIC TROUBLE CODE CHART ..	31-13	INSTALLATION SERVICE POINT	31-54
TPMS DIAGNOSTIC TROUBLE CODE PROCEDURES	31-13	WHEEL AND TIRE REPLACEMENT <TPMS>	31-54
TPMS SYMPTOM CHART	31-24	TIRE PRESSURE MONITORING SYSTEM (TPMS)	31-55
TPMS SYMPTOM PROCEDURES	31-25	TPMS RECEIVER	31-55
TPMS SERVICE DATA LIST	31-47	REMOVAL AND INSTALLATION	31-55
		TPMS TRANSMITTER	31-56
		REMOVAL AND INSTALLATION	31-56

GENERAL DESCRIPTION

M1311000100394

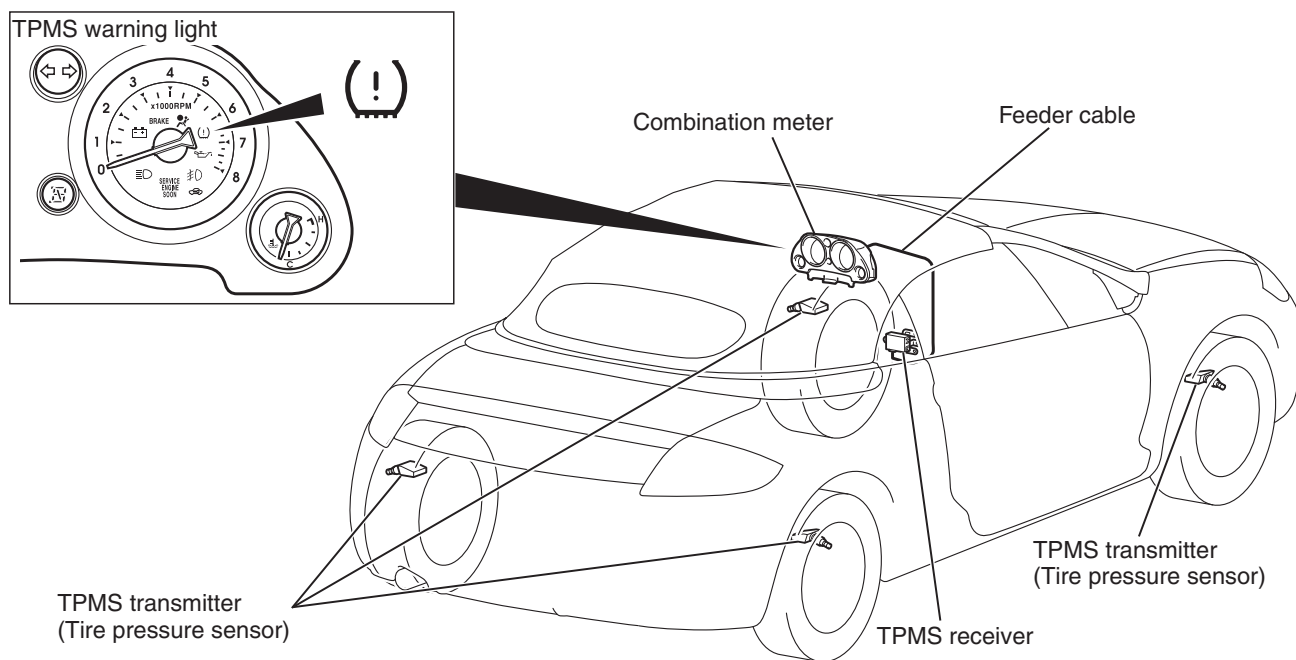
FEATURE

- Warns driver of low tire pressure by illuminating the TPMS warning light on the combination meter

- Warns driver of TPMS problems by flashing* the TPMS warning light on the combination meter

*NOTE: *: Flash for about 1 minute and then remain illuminated.*

TPMS CONSTRUCTION DIAGRAM



AC508175AC

The Tire Pressure Monitoring System (TPMS) consists of TPMS transmitters (tire pressure sensors) installed in tires, TPMS antenna built in the TPMS receiver, and a TPMS warning light on the combination meter. The TPMS antenna receives radio frequency signal output from the TPMS transmitters, the TPMS receiver interprets the signals and detects abnormality of tire pressure and/or the system, and the TPMS warning light illuminates or flashes to alert.

TPMS OPERATIONAL
CHARACTERISTICS

- The TPMS receiver monitors the tire pressure of road tires except compact spare tire.
- The TPMS transmitter includes a driving G sensor that senses tire rotation. The TPMS receiver can determine which tires are rotating.
- The recommended cold tire pressure at normal condition for ECLIPSE and ECLIPSE SPIDER are 220 kPa (32 psi). The TPMS warning light will turn ON and DTC C1912/C1922/C1932/C1942 will be stored in memory when the air pressure in any road tire is below 174 kPa (25 psi).

- The TPMS warning light will turn OFF and the DTC C1912/C1922/C1932/C1942 in memory will be eliminated when the tire pressure is increased to at least 190 kPa (28 psi).
- Customers may experience what appears to be an "intermittent" tire pressure warning light because the air pressure in the tires normally fluctuates under various operating conditions:
 - In cold weather, tire pressure will become lower due to the ambient temperature, and the TPMS warning light will turn ON if tire pressure drops below 174 kPa (25 psi). The tire pressure will increase after driving (tires warm up), and the TPMS warning light will turn OFF.

Regardless of the ambient temperature, set the tire pressure to 220 kPa (32 psi) with the tires cold [vehicle has been parked for at least three hours or driven less than 1.6 kilometers (one mile) after having been parked for three hours].

NOTE: Tire pressure changes at slightly less than 6.9 kPa (1 psi) per 5.5°C (10°F) of ambient temperature change.

For example, climates with seasonal temperatures that vary from 32°C (90°F) in the summer to -12°C (10°F) in the winter have a 44°C (80°F) temperature change. This can result in an approximate 55 kPa (8 psi) change in tire pressure. In this example:

- If the tire pressure was set when the ambient temperature was 32°C (90°F) in the summer, it can be about 165 kPa (24 psi) on the coldest day in the winter. This will cause the TPMS warning light to turn on.
- If the tire pressure was set when the ambient temperature was -12°C (10°F) in the winter, it can be about 275 kPa (40 psi) on the hottest day of the summer. This will create a rougher ride.

The important point is that customers should have their tire pressure seasonally adjusted.

GENERAL SPECIFICATION

M1311000200595

Road wheel and road tire

<ECLIPSE>

Item		2.4L ENGINE		3.8L ENGINE
		DK2AMNHYL4M, DK2AMRHYL4M, DK2AMNHYL9M, DK2AMRHYL9M, DK2AMNHYL5M, DK2AMRHYL5M	DK2AMNMYL4M, DK2AMRMYL4M, DK2AMNMYL9M, DK2AMRMYL9M, DK2AMNMYL5M, DK2AMRMYL5M	
TPMS warning pressure kPa (psi)	Warning ON	174 (25) or less		
	Warning OFF	190 (28) or more		
Wheel	Type	Aluminum type	Aluminum type	
	Size	17 × 7.5 JJ	18 × 8 JJ	
	Amount of wheel offset mm (in)	46 (1.8)	46 (1.8)	
	PCD mm (in)	114.3 (4.50)	114.3 (4.50)	
Tire	Size	P225/50 R17 93V	P235/45 R18 94V	

NOTE: PCD (Pitch Circle Diameter) indicates the pitch circle diameter of the wheel installation holes.

<ECLIPSE SPIDER>

Item		2.4L ENGINE	3.8L ENGINE
TPMS warning pressure kPa (psi)	Warning ON	174 (25) or less	
	Warning OFF	190 (28) or more	
Wheel	Type	Aluminum type	Aluminum type
	Size	17 × 7.5 JJ	18 × 8 JJ
	Amount of wheel offset mm (in)	46 (1.8)	46 (1.8)
	PCD mm (in)	114.3 (4.50)	114.3 (4.50)
Tire	Size	P225/50 R17 93V	P235/45 R18 94V

NOTE: PCD (Pitch Circle Diameter) indicates the pitch circle diameter of the wheel installation holes.

Spare wheel and spare tire

Item		Specification
Spare wheel	Type	Steel type
	Size	16 × 4T
	Amount of wheel offset mm (in)	40 (1.6)
	PCD mm (in)	114.3 (4.50)
Spare tire	Size	T125/70 D16

NOTE: PCD (Pitch Circle Diameter) indicates the pitch circle diameter of the wheel installation holes.

SERVICE SPECIFICATIONS

M1311000300633

Item		Limit
Tread depth of tire mm (in)		Minimum 1.6 (0.06)
Wheel runout	Radial runout mm (in)	1.0 (0.04) or less
	Lateral runout mm (in)	1.0 (0.04) or less

TIRE PRESSURE MONITORING SYSTEM (TPMS)
SERVICE PRECAUTIONS

M1311004300066

- Do not use an aerosol puncture-repair spray. Such a spray could damage the tire pressure sensor (TPMS transmitter).
- Whenever the TPMS transmitters and/or TPMS receiver are replaced with new ones, the tire pressure sensor IDs must be registered into the TPMS receiver.
- The use of non-genuine wheels may cause the improper installation of the TPMS transmitters, possibly resulting in air leakage and damage to the TPMS transmitter.
- When the tire is removed from the wheel, a special procedure must be observed to avoid the TPMS transmitter damage. Refer to "TPMS transmitter Removal and Installation (P.31-56)".
- The grommet at base of valve stem should be replaced with a new one every five years or when the tire is replaced. For the replacement procedure, refer to "TPMS transmitter Removal and Installation (P.31-56)".
- After the TPMS transmitter is replaced and the tires are inflated, retighten the valve nut (TPMS transmitter mounting nut) to the specified torque, refer to "TPMS transmitter Removal and Installation (P.31-56)".
- Replace the TPMS transmitter when the TPMS transmitter battery is discharged. The battery cannot be removed from the TPMS transmitter. Nominal service life of the battery is 10 years or 160,000 km (100,000 miles).
- If the valve core and valve cap are replaced, use a genuine replacement part. The valve core is similar to a conventional one, but nickel plating was applied to avoid electric corrosion.
- TPMS may not work normally in the following circumstances:
 - A wireless facility or device using the same frequency with the TPMS transmitter is near the vehicle.
 - Snow or ice is stuck inside the fenders and/or on the wheels.
 - The TPMS transmitter's battery is discharged.
 - Wheels other than Mitsubishi genuine wheels are being used.
 - Wheels that are not fitted with TPMS transmitters are being used.
 - Wheels whose tire pressure sensor IDs are not registered by the vehicle are being used.

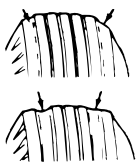
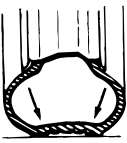
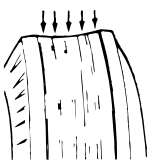
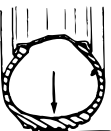

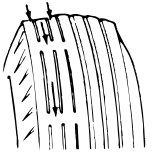
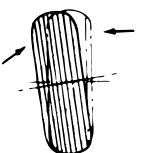
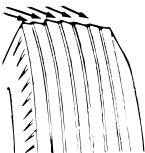
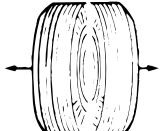
NOTE: Tire inflation pressures vary with the ambient temperature. If the vehicle is subjected to large variations in ambient temperature, the tire inflation pressures may be under-inflated (causing the TPMS warning light to come on) when the ambient temperature is relatively low. If the TPMS warning light comes on, adjust the tire inflation pressure.


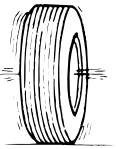
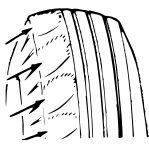
NOTE: If one of the road wheels do not contain a TPMS transmitter, and the customer continues driving, the TPMS warning light will flash for about 1 minute and then remain illuminated.

WHEEL AND TIRE DIAGNOSIS

WHEEL AND TIRE DIAGNOSIS

M1311000700921

Symptom		Probable cause		Remedy	Reference page
Rapid wear at shoulders	 ACX00923AB	Under-inflation or lack of rotation	 ACX00924AE	Adjust the tire pressure.	For tire inflation pressure, refer to the label on the driver's side center pillar.
Rapid wear at center	 ACX00925AE	Over-inflation or lack of rotation	 ACX00926AI		
Cracked treads	 ACX00927AB	Under-inflation		Adjust the tire pressure.	For tire inflation pressure, refer to the label on the driver's side center pillar.
Wear on one side	 ACX00928AB	Excessive camber	 ACX00929AE	Check the camber.	Refer to GROUP 33, On-vehicle service – Front wheel alignment check and adjustment P.33-6 .
Feathered edge	 ACX00930AB	Incorrect toe-in	 ACX00931AE	Adjust the toe-in.	

Symptom		Probable cause		Remedy	Reference page
Bald spots	 ACX00932AB	Unbalanced wheel	 ACX00933AB	Balance the wheels.	–
Scalloped wear	 ACX00934	Lack of rotation of tires or worn or out-of-alignment suspension		Rotate the tires, and check the front suspension alignment.	Refer to GROUP 33, On-vehicle service – Front wheel alignment check and adjustment P.33-6 .

WHEEL BALANCE ACCURACY

M1311001700719

PURPOSE

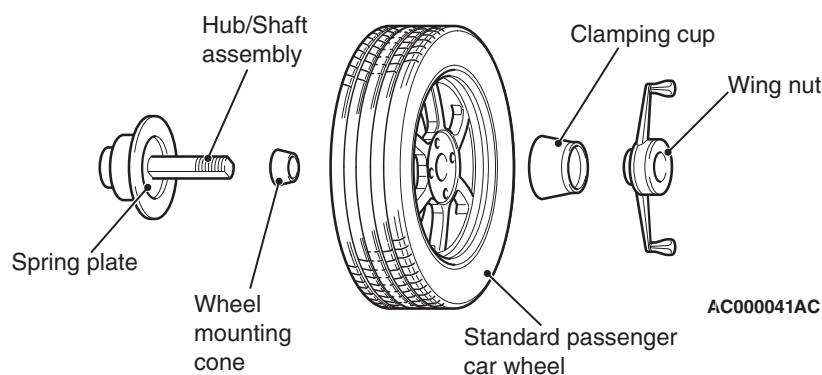
This section contains tips and procedures for achieving accurate wheel balance. Steering wheel vibration and/or body shake can result if any of these procedures are not carefully observed.

1. Wheels and tires must be properly mounted on a balancer in order to achieve correct balance. Centering the wheel on the shaft of the balancer is essential for proper mounting.
2. Off-the-car wheel balancers must be calibrated periodically to ensure good balancing results. An inaccurately calibrated balancer could cause unnecessary replacement of tires, shocks, suspension components, or steering components.

Check your balancer's calibration approximately every 100 balances. Your wheel balancer's instruction manual should include calibration procedures. If the calibration procedures specifically for your balancer are missing, use the generic steps in this section for zero calibration, static balance, and dynamic balance checks. The wheel balancer calibration checks are also described in the flowchart (Refer to [P.31-8](#)).

PROCEDURE <BALANCING TIPS>

1. Confirm that the balancer's cone and the wheel mounting cone are undamaged and free of dirt and rust.
2. On this vehicle, the wheel's center hole on the hub side has a chamfered edge. Use a back-mounting cone on your wheel balancer to center the wheel on the balancer shaft.
3. Install a wheel mounting cone. The appropriate size cone for this vehicle is 67.0 mm (2.64 inches).
4. Before balancing the wheel, remove any wheel weights from both sides. Also check both sides for any damage.
5. When installing wheel weights, hammer them at a straight (not diagonal) angle.



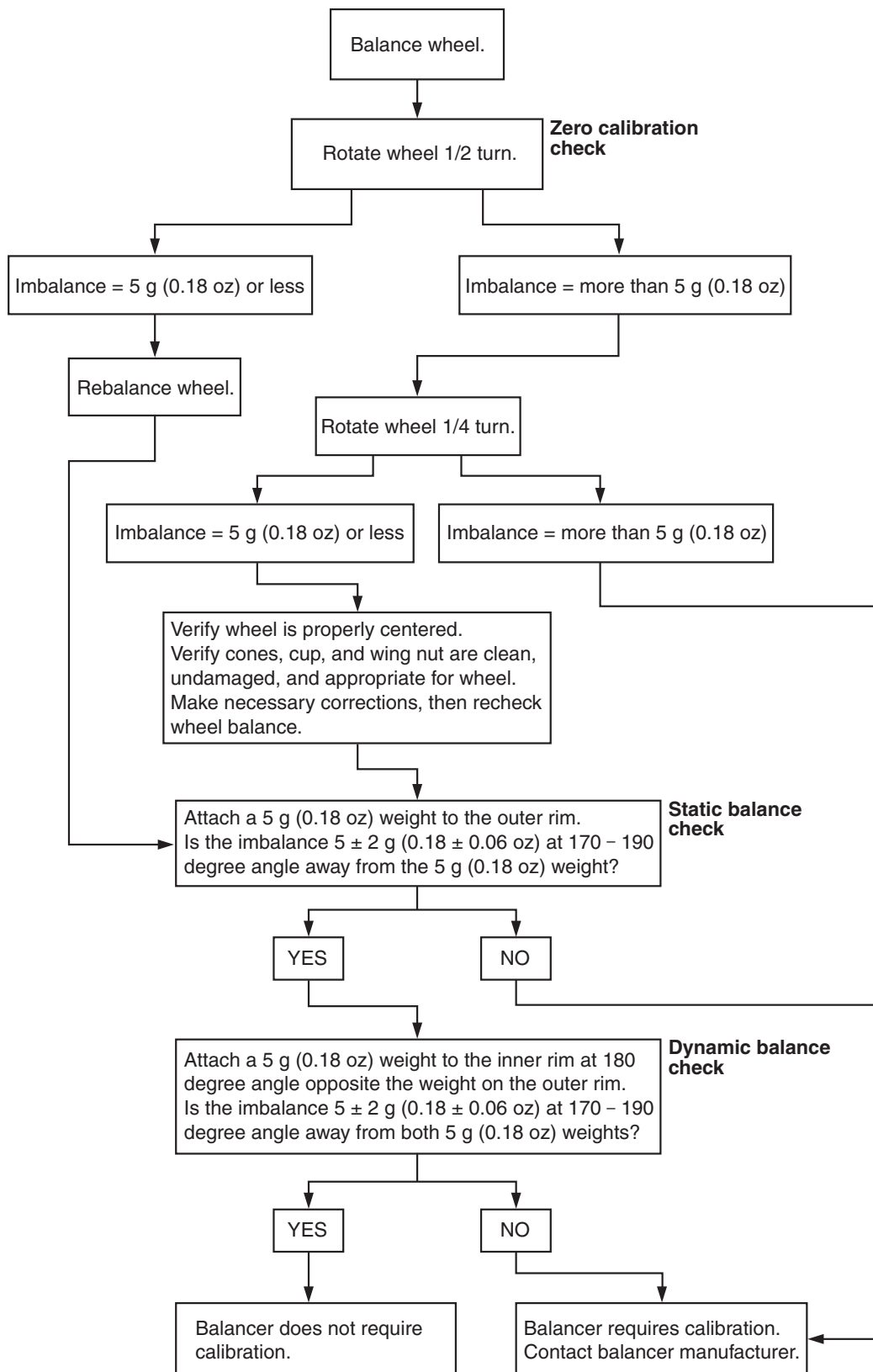
<CONFIRMING PROPER BALANCE>

1. After balancing the wheel, loosen the wing nut and turn the wheel 180 degree angle against the balancer's hub. Then re-tighten the wing nut and check the balance again. Repeat wheel balance if necessary.
2. Turn the wheel again 180 degree angle against the balancer's hub. If the wheel becomes out-of-balance each time it is turned against the balancer's hub, the wheel balancer may require calibration.

<WHEEL BALANCER CALIBRATION CHECKS>

1. Mount an undamaged original-equipment alloy rim and tire assembly (wheel) onto your off-the-car wheel balancer. Balance the wheel.
2. <<Zero Calibration Check>>
Loosen the balancer wing nut, rotate the wheel a half-turn (180 degree angle), and retighten the nut. Recheck the balance.
 - If the imbalance is 5 g (0.18 ounce) or less, the zero calibration is OK. Rebalance the wheel, then go to Step 4 to check static balance.
 - If the imbalance is more than 5 g (0.18 ounce), go to Step 3.
3. Loosen the balancer wing nut, rotate the wheel 1/4 turn (90 degree angle), and retighten the nut. Recheck the wheel balance.
 - If the imbalance is 5 g (0.18 ounce) or less, the wheel may not be centered on the balancer, or the balancing cones, the cup, and/or wing nut are damaged, dirty, or inappropriate for the wheel. You may need to refer to the balancer manufacturer's instructions to verify the correct attachments. After making the necessary corrections, recheck the wheel balance. If OK, then go to Step 4.
- If the imbalance is more than 5 g (0.18 ounce), the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.
4. <<Static Balance Check>>
Attach a 5 g (0.18 ounce) weight to the outer rim. Recheck the balancer. The balancer should detect 5 ± 2 g (0.18 ± 0.06 ounce) of imbalance 170 to 190 degree angle away from the 5 g (0.18 ounce) weight.
 - If the imbalance is within specification, the static balance calibration is correct. Go to Step 5 to check the dynamic balance.
 - If the imbalance is out of specification, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.
5. <<Dynamic Balance Check>>
Attach a 5 g (0.18 ounce) weight to the inner rim 180 degree angle opposite the 5 g (0.18 ounce) weight that was added in Step 4. Recheck the balance. The balancer should detect 5 ± 2 g (0.18 ± 0.06 ounce) of imbalance 170 to 190 degree angle away from both the inner and outer 5 g (0.18 ounce) weights.
 - If the imbalance is within specification, the dynamic balance calibration is correct. The balancer calibration checks are complete.
 - If the imbalance is out of specification, the balancer requires calibration. Contact the balancer manufacturer for calibration by their repair representative.

WHEEL BALANCER CALIBRATION CHECKING FLOW CHART



AC403557AE

TIRE PRESSURE MONITORING SYSTEM (TPMS) DIAGNOSIS

INTRODUCTION TO DIAGNOSIS

TPMS MAY NOT WORK NORMALLY IN THE FOLLOWING CIRCUMSTANCES:

- A wireless facility or device using the same frequency with the TPMS transmitter is near the vehicle.
- Snow or ice is stuck inside the fenders and/or on the wheels.
- The TPMS transmitter's battery is discharged.
- Wheels other than Mitsubishi genuine wheels are being used.
- Wheels that are not fitted with TPMS transmitters are being used.
- Wheels whose tire pressure sensor IDs are not registered by the vehicle are being used.

WHEN THE TPMS WARNING LIGHT IS ON

- If the TPMS warning light illuminates, check the inflation pressure of all the tires and adjust if necessary. If the TPMS warning light still remains illuminated, a flat tire or a defective TPMS transmitter is suspected.

TPMS TROUBLESHOOTING STRATEGY

Use these steps to plan your diagnostic strategy. If you follow them thoroughly, you will be sure that you have exhausted most of the possible ways to find a TPMS fault.

1. Gather information about the problem from the customer.
2. Verify that the condition described by the customer exists. If the condition matches a symptom listed in the TPMS Symptom Chart (Refer to [P.31-24](#)), execute an inspection procedure for the symptom.
3. Check the vehicle for any TPMS DTC.
4. If you cannot verify the condition and there are no TPMS DTCs, the malfunction is intermittent. Refer to GROUP 00, How to use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-14](#).

- If a road tire does not contain a TPMS transmitter, the TPMS warning light will flash* and the TPMS will not work normally. Replace the tire with one containing a TPMS transmitter.

*NOTE: *: Flash for about 1 minute and then remain illuminated.*

AFTER REPLACING TPMS COMPONENTS

- Whenever the TPMS transmitter and/or TPMS receiver are replaced, register the tire pressure sensor ID of all the TPMS transmitter-contained tires.
- Whenever any TPMS component (transmitter and receiver) is removed and installed, confirm that no TPMS DTC is set.

M1311002300082

M1311002400067

5. If there is an TPMS DTC, record the number of the DTC, then erase the DTC from the memory using the scan tool.
6. Recreate the TPMS DTC set conditions to see if the same TPMS DTC will set again.
 - If the same TPMS DTC sets again, perform the TPMS diagnostic trouble code procedures for the DTC. Refer to [P.31-13](#).
 - If you cannot get the same TPMS DTC to set again, the malfunction is intermittent. Refer to GROUP 00, How to use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-14](#).

TPMS DIAGNOSTIC FUNCTION

M1311002600083

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

⚠ CAUTION

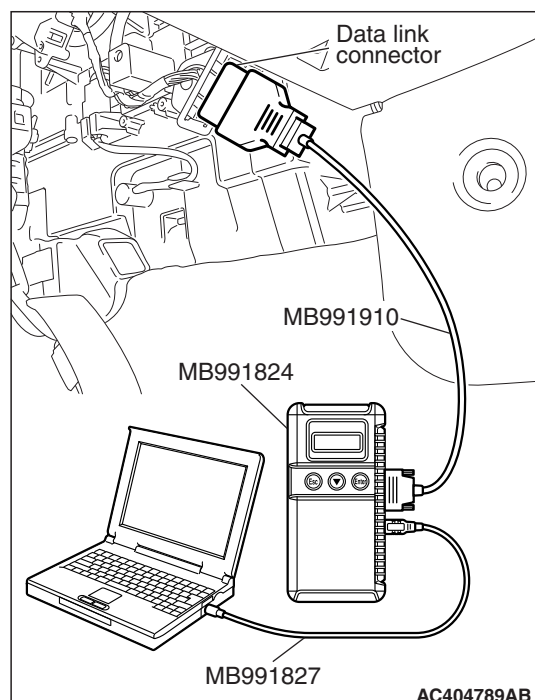
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Turn on 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 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, first making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC
TROUBLE CODES

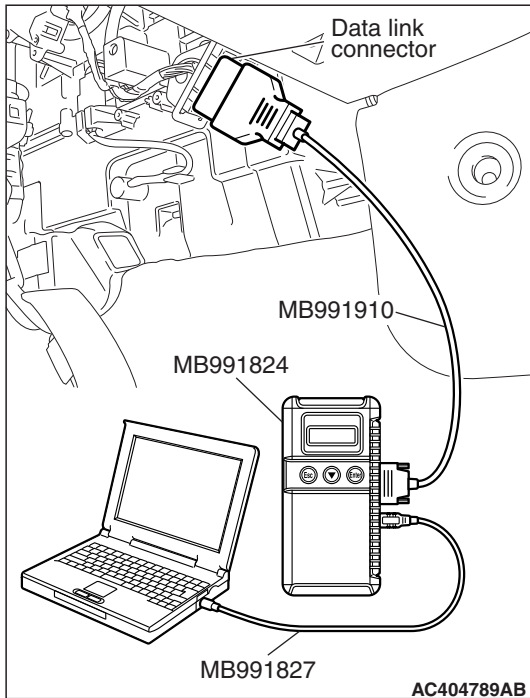
Required Special Tools:

- 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

⚠ 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 vehicle battery voltage is low, diagnostic trouble codes will not be set. Check the vehicle 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 "Interactive Diagnosis" from the start-up screen.
4. Select "System select."
5. Choose "TPMS" from the "CHASSIS" tab.
6. Select "MITSUBISHI."
7. Select "Diagnostic Trouble Code."
8. If a DTC is set, it is shown.
9. Choose "Erase DTCs" to erase the DTC.

HOW TO READ DATA LIST

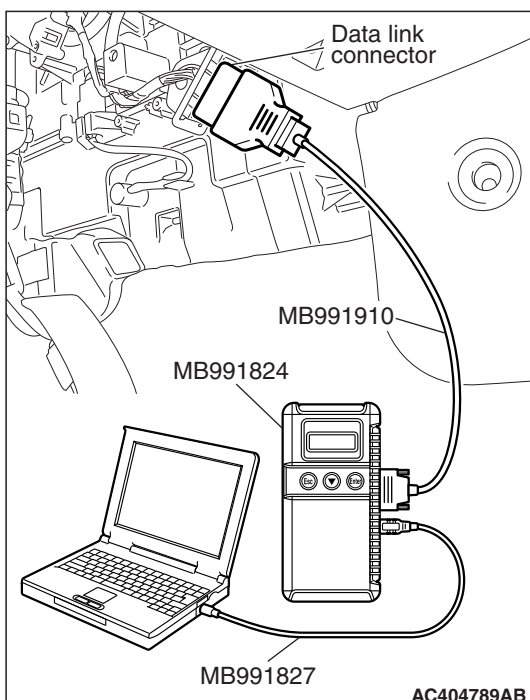
Required Special Tools:

- 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

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 "Data List."
8. Choose an appropriate item and select the "OK" button.



HOW TO PERFORM ACTUATOR TEST

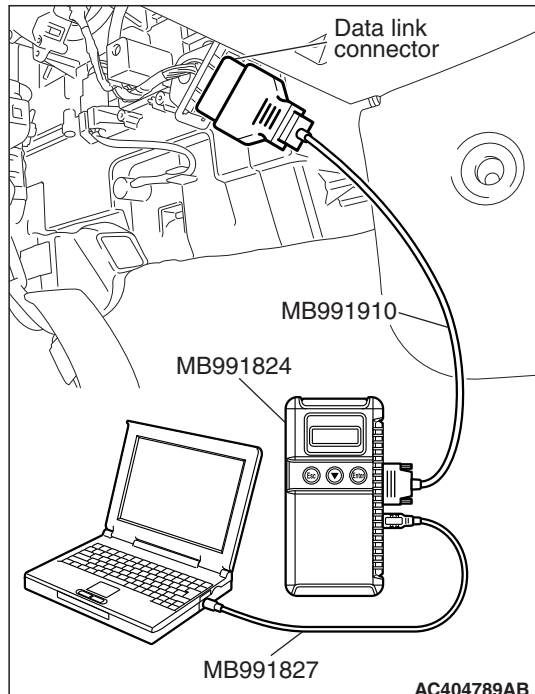
Required Special Tools:

- 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

CAUTION

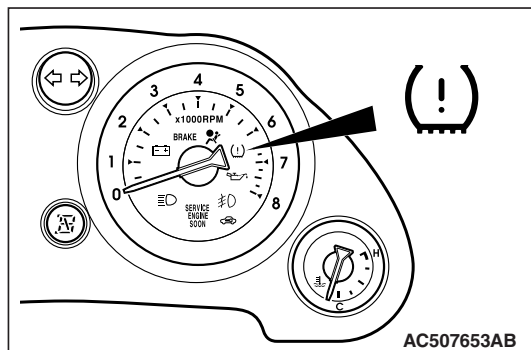
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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 "Actuator Test."
8. Choose an appropriate item and select the "OK" button.



TPMS WARNING LIGHT CHECK

M1311002500053



1. Check that the TPMS warning light illuminates for approximately three seconds when the ignition switch is turned to the "ON" position. (If it does not illuminate, perform troubleshooting for TPMS Inspection Procedure No.3. Refer to [P.31-34](#)).
2. Check that it illuminates for approximately three seconds and then goes out (If the warning light does not turn off and stays on, perform troubleshooting for TPMS Inspection Procedure No.1. Refer to [P.31-25](#)) (If the warning light does not turn off and flashes, perform troubleshooting for TPMS Inspection Procedure No.2. Refer to [P.31-30](#)).

*NOTE: *: Flash for about 1 minute and then remain illuminated.*

DIAGNOSTIC TROUBLE CODE CHART

M1311002700109

CAUTION

- During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned to the "ON" position with connector(s) disconnected. When diagnosis is finished, check all systems for DTC code(s). If DTC code(s) are set, erase them all.
- Tire pressure sensor ID registration must be done before any diagnosis.

DTC	Diagnostic content		Reference page
C1900	TPMS abnormality	ID code not registered	P.31-13
C1608		EEPROM failure	P.31-14
C1901		Vehicle Speed Signal	P.31-15
C1910	TPMS transmitter 1 abnormality	Transmitter battery voltage	P.31-18
C1911		Tire pressure sensor ID reception failure	P.31-20
C1912		Tire air pressure low	P.31-22
C1920	TPMS transmitter 2 abnormality	Transmitter battery voltage	P.31-18
C1921		Tire pressure sensor ID reception failure	P.31-20
C1922		Tire air pressure low	P.31-22
C1930	TPMS transmitter 3 abnormality	Transmitter battery voltage	P.31-18
C1931		Tire pressure sensor ID reception failure	P.31-20
C1932		Tire air pressure low	P.31-22
C1940	TPMS transmitter 4 abnormality	Transmitter battery voltage	P.31-18
C1941		Tire pressure sensor ID reception failure	P.31-20
C1942		Tire air pressure low	P.31-22

TPMS DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC C1900: TPMS Abnormality (ID Code Not Registered)

TPMS DTC SET CONDITION

DTC C1900 will be set if the tire pressure sensor IDs are not registered correctly in the TPMS receiver. At the same time this DTC is set, the TPMS warning light flashes for about 1 minute and then remain illuminated.

TROUBLESHOOTING HINT

Execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function."

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. Execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function."

⚠ CAUTION

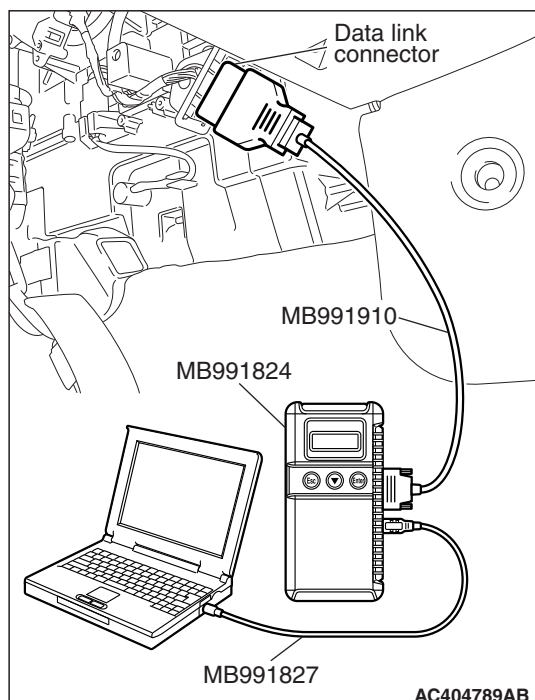
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Execute "Tire Pressure Sensor ID Registration" (Refer to [P.31-51](#)).

Q: Is the "Tire Pressure Sensor ID Registration" complete?

YES : Go to Step 2.

NO : Repeat the troubleshooting from Step 1.



STEP 2. Check the diagnostic trouble code.

NOTE: If the "Tire Pressure Sensor ID Registration" has been completed successfully, the DTC will be erased automatically.

Q: Does diagnostic trouble code C1900 reset?

YES : Replace the TPMS receiver (Refer to [P.31-55](#)), Then go to Step 1.

NO : The procedure is complete.

DTC C1608: TPMS Abnormality (EEPROM Failure)

TPMS DTC SET CONDITION

DTC C1608 will be set if there is any fault in the TPMS receiver's EEPROM. At the same time this DTC is set, the TPMS warning light flashes for about 1 minute and then remain illuminated.

TROUBLESHOOTING HINT

Replace the TPMS receiver.

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. Check the illumination condition of the TPMS warning light after the following procedures.

(1) Replace the TPMS receiver (Refer to P.31-55).

⚠ 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.

(2) Connect scan tool MB991958 to the data link connector.

(3) Turn the ignition switch to the "ON" position.

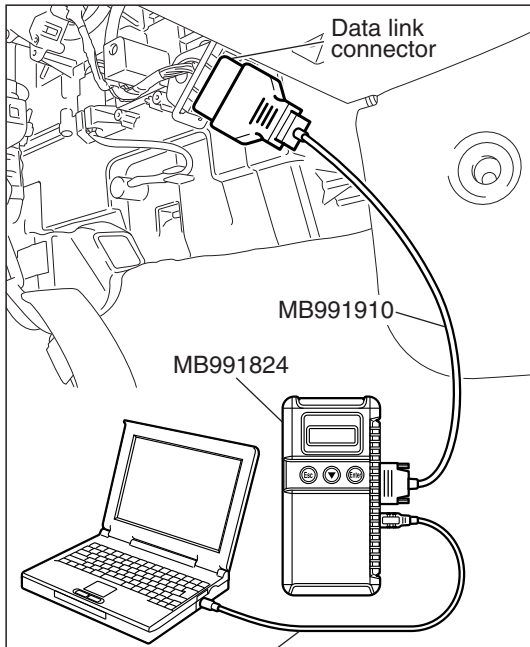
(4) Execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function" (Refer to P.31-51).

(5) Check the illumination condition of the TPMS warning light.

Q: Is the TPMS warning light flash for about 1 minute and then remain illuminated?

YES : Repeat the "Tire Pressure Sensor ID Registration".

NO : Go to Step 2.



STEP 2. Recheck for diagnostic trouble code.

Q: Does diagnostic trouble code C1608 reset?

YES : Repeat the troubleshooting from Step 1.

NO : The procedure is complete.

DTC C1901: TPMS Abnormality (Vehicle Speed Signal)

CIRCUIT OPERATION

The TPMS receiver receives the vehicle speed signal from the powertrain control module.

TPMS DTC SET CONDITION

DTC C1901 will be set if the TPMS receiver does not receive vehicle speed signal of 5 km/h (3 mph) or more during driving. At the same time this DTC is set, the TPMS warning light flashes for about 1 minute and then remain illuminated. TPMS receiver senses the vehicle's driving state by a driving G sensor inside the TPMS transmitter.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS DTC TO SET ARE:)

- Damaged wiring harness or connector
- Malfunction of the powertrain control module
- Malfunction of the TPMS receiver

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, read the MFI system diagnostic trouble code.

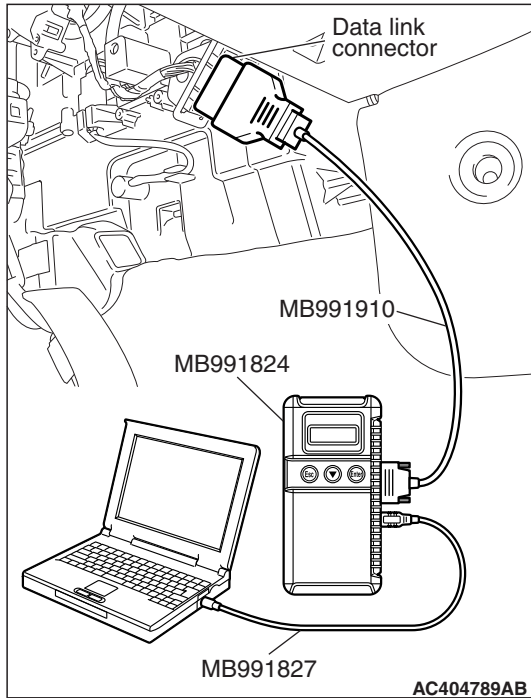
Check if an MFI system diagnostic trouble code is set.

- (1) Turn the ignition switch to "ON" position.
- (2) Read the diagnostic trouble code.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the MFI system by referring to GROUP 13A, MFI Diagnosis – Diagnostic Trouble Code Chart [P.13A-41](#) <2.4L ENGINE> or GROUP 13B, MFI Diagnosis – Diagnostic Trouble Code Chart [P.13B-43](#) <3.8L ENGINE>. Then go to Step 4.

NO : Go to Step 2.



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

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

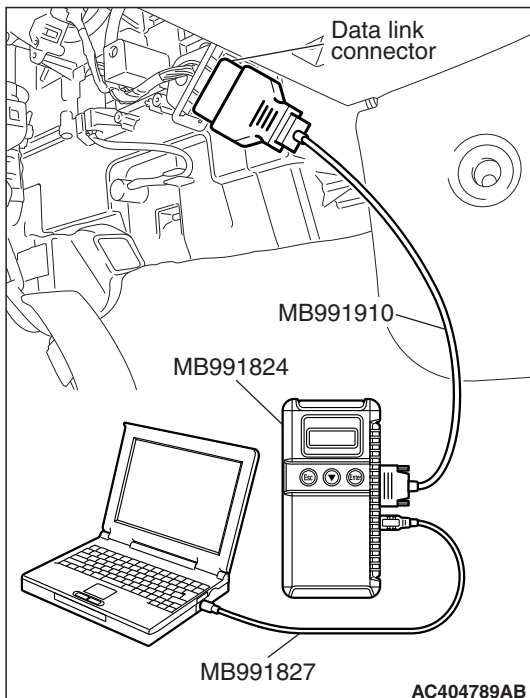
To prevent damage to scan tool (MB991958), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (MB991958).

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

Q: Is the check result satisfactory?

YES : Go to Step 3.

NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis – Can Bus Diagnostic Chart [P.54C-17](#)). Then go to Step 3.



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

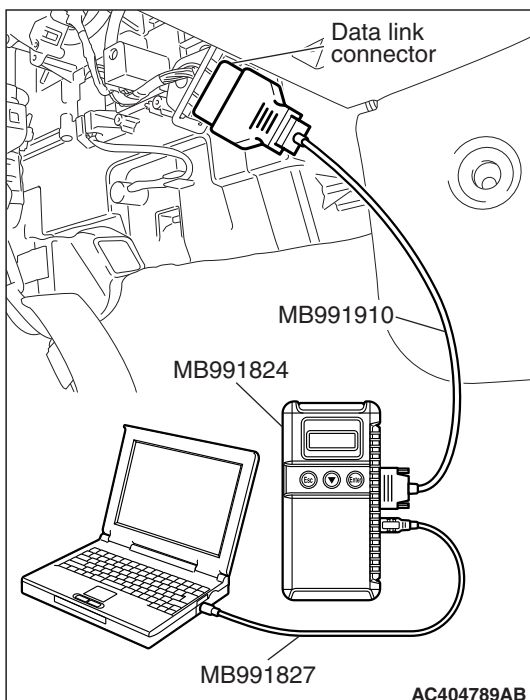
Check that the TPMS receiver sets a diagnostic trouble code.

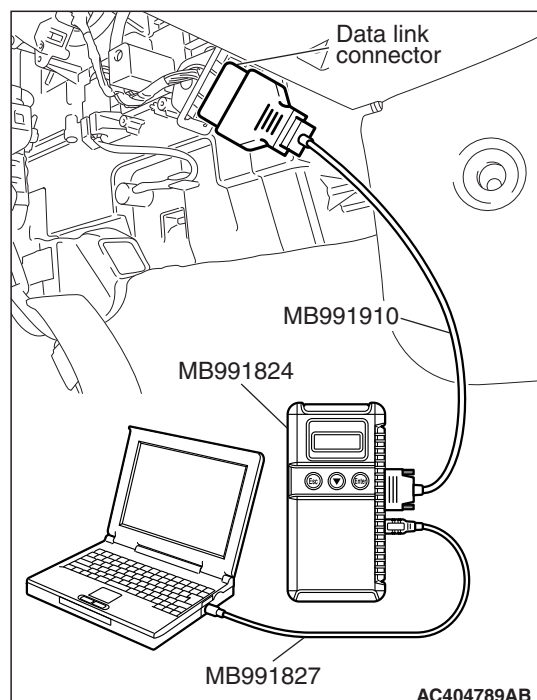
- (1) Turn the ignition switch to "ON" position.
- (2) Recheck the diagnostic trouble code.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC C1901 set?

YES : Replace the TPMS receiver (Refer to [P.31-55](#)). Then go to Step 4.

NO : The procedure is complete.



**STEP 4. Recheck for diagnostic trouble code.**

Check that the diagnostic trouble code is not reset.

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

Q: Is the check result normally?

YES : The procedure is complete.

NO : Repeat the troubleshooting from Step 1.

DTC C1910: TPMS Transmitter 1 Abnormality (Transmitter Battery Voltage)

DTC C1920: TPMS Transmitter 2 Abnormality (Transmitter Battery Voltage)

DTC C1930: TPMS Transmitter 3 Abnormality (Transmitter Battery Voltage)

DTC C1940: TPMS Transmitter 4 Abnormality (Transmitter Battery Voltage)

TPMS DTC SET CONDITION

DTC C1910, C1920, C1930 or C1940 is set if the battery in the TPMS transmitter is discharged. At the same time this DTC is set, the TPMS warning light flash for about 1 minute and then remain illuminated.

TROUBLESHOOTING HINT

Replace the TPMS transmitter if its battery is discharged.

NOTE: The battery cannot be removed from the TPMS transmitter. Nominal service life of the battery is 10 years or 160,000 km (100,000 miles).

DIAGNOSIS

NOTE: To help determine which TPMS transmitter is defective, make a note of the tire pressure sensor ID, which the DTC indicates, prior to the troubleshooting.

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. Execute "Tire Pressure Sensor Check" on scan tool MB991958 "Special Function."

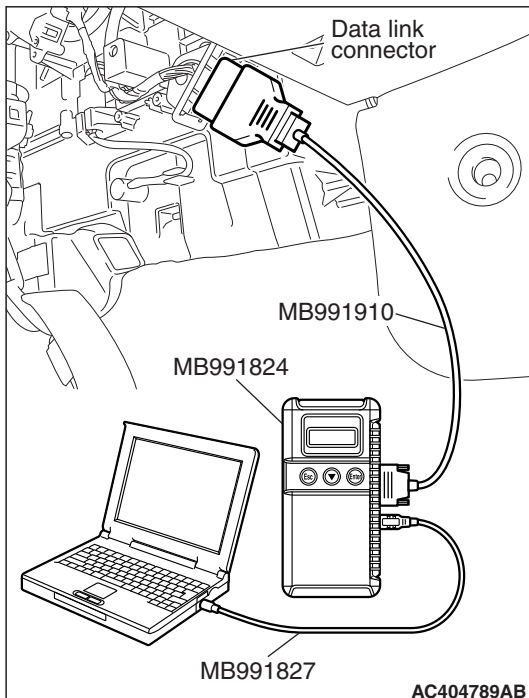
⚠ CAUTION

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) Execute "Tire Pressure Sensor Check" for all the TPMS transmitter-fitted tires (Refer to [P.31-53](#)).

Q: Is information on the tire pressure sensor displayed on scan tool MB991958 after the TPMS transmitter is activated?

- YES :** Determine which TPMS transmitter is defective by using scan tool MB991958, and replace its TPMS transmitter. Then execute "Tire Pressure Sensor ID Registration" (Refer to [P.31-51](#)). And then go to Step 2.
- NO :** Replace the TPMS transmitter, which is not activated. Then execute "Tire Pressure Sensor ID Registration" (Refer to [P.31-51](#)). Then go to Step 2. (If the TPMS transmitter is not activated and no data is displayed, the TPMS transmitter battery is completely flat).



STEP 2. Recheck for the diagnostic trouble code.

Q: Does diagnostic trouble code C1910, C1920, C1930 or C1940 reset?

- YES :** Repeat the troubleshooting from Step 1.
- NO :** The procedure is complete.

DTC C1911: TPMS Transmitter 1 Abnormality (Tire Pressure Sensor ID Reception Failure)

DTC C1921: TPMS Transmitter 2 Abnormality (Tire Pressure Sensor ID Reception Failure)

DTC C1931: TPMS Transmitter 3 Abnormality (Tire Pressure Sensor ID Reception Failure)

DTC C1941: TPMS Transmitter 4 Abnormality (Tire Pressure Sensor ID Reception Failure)

CIRCUIT OPERATION

The TPMS receiver receives data from the TPMS transmitters through the TPMS antenna.

TPMS DTC SET CONDITION

DTC C1911, C1921, C1931 or C1941 is set if the TPMS receiver cannot receive data from the TPMS transmitters normally, even when the tire pressure sensor IDs have been registered. At the same time this DTC is set, the TPMS warning light flash for about 1 minute and then remain illuminated.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS DTC TO SET ARE:)

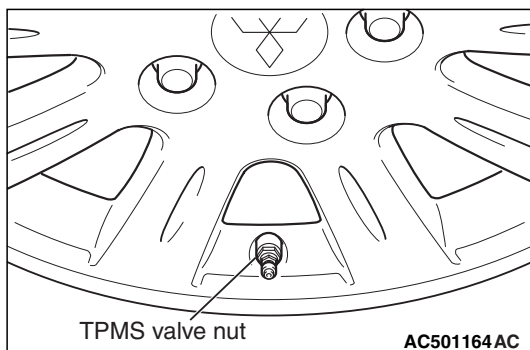
- Installing a tire/wheel that does not contain the TPMS transmitter
- Tire pressure sensor ID is not registered yet
- Damaged feeder cable or connector
- Malfunction of the TPMS transmitter
- Malfunction of the TPMS receiver

DIAGNOSIS

NOTE: To help determine which TPMS transmitter is defective, make a note of the tire pressure sensor ID and tire number, which the DTC indicates, prior to the troubleshooting. Also execute "Tire Pressure Sensor ID Check" or "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function", and make a note for the registered tire pressure sensor IDs.

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. Visually check whether the wheels contain the TPMS transmitter.

On TPMS transmitter-fitted tires, the TPMS transmitter is secured using a valve nut. Check for the valve nut.

Q: Are the wheels fitted with the TPMS transmitter?

YES : Go to Step 2.

NO : Install a TPMS transmitter-fitted wheel. Then execute "Tire Pressure Sensor ID Registration" (Refer to [P.31-51](#)). Then go to Step 3.

STEP 2. Check each tire pressure sensor ID by executing "Tire Pressure Sensor Check" on scan tool MB991958 "Special Function."

⚠ CAUTION

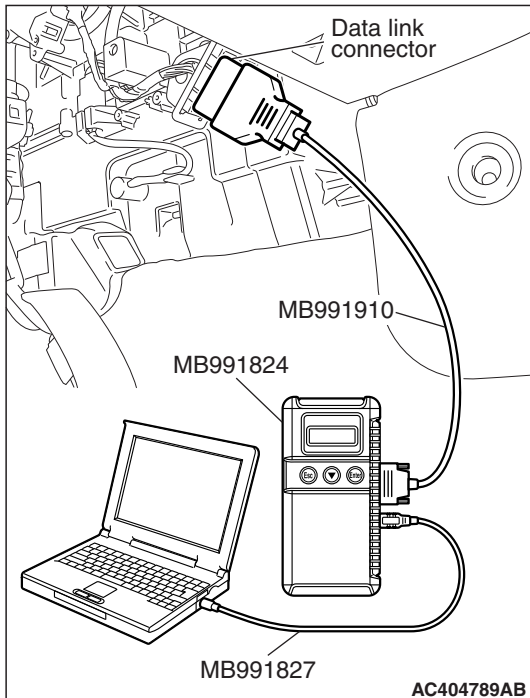
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Execute "Tire Pressure Sensor Check" for all the TPMS transmitter-fitted tires to check each tire pressure sensor ID (Refer to [P.31-53](#)).

Q: Is the tire pressure sensor ID, which DTC indicates, shown on the scan tool?

YES : Data can be received from the TPMS transmitters normally. Therefore, it is judged that the DTC is set due to a defective TPMS transmitter driving G sensor. Replace the TPMS transmitter of the road wheel, which the DTC indicates (Refer to [P.31-56](#)) and execute "Tire Pressure Sensor ID Registration" on scan tool (Refer to [P.31-51](#)). Then go to Step 3.

NO <when one (or more) of the tire pressure sensor IDs cannot be recognized> : Execute "Tire Pressure Sensor ID Registration" (Refer to [P.31-51](#)).



STEP 3. Recheck for diagnostic trouble code.

Q: Does diagnostic trouble code C1911, C1921, C1931 or C1941 reset?

YES : Repeat the troubleshooting from Step 1.

NO : The procedure is complete.

DTC C1912: TPMS Transmitter 1 Abnormality (Tire Air Pressure Low)

DTC C1922: TPMS Transmitter 2 Abnormality (Tire Air Pressure Low)

DTC C1932: TPMS Transmitter 3 Abnormality (Tire Air Pressure Low)

DTC C1942: TPMS Transmitter 4 Abnormality (Tire Air Pressure Low)

TPMS DTC SET CONDITION

DTC C1912, C1922, C1932 or C1942 is set when the TPMS receiver recognized a low tire pressure from one or more of the TPMS transmitters. At the same time this DTC is set, the TPMS warning light illuminates.

TIRE PRESSURE THRESHOLD VALUES

Item	Tire pressure kPa (psi)
Standard pressure at cold (reference)	220 (32)
Alarm ON pressure	174 (25) or less
Alarm OFF pressure	190 (28) or more

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS DTC TO SET ARE:)

- Low tire inflation pressure
- Punctured tire
- Damaged tire valve grommet and/or valve core
- Defective TPMS transmitter
- Malfunction of the TPMS receiver

DIAGNOSIS

NOTE: Prior to performing troubleshooting for DTC C1912, C1922, C1932 or C1942, first carry out "TPMS Inspection Procedure No.1: The TPMS Warning Light Stays On" (Refer to [P.31-25](#)). If the troubleshooting is not complete and DTC C1912, C1922, C1932 or C1942 is set, carry out troubleshooting as described below.

Required Special Tools:

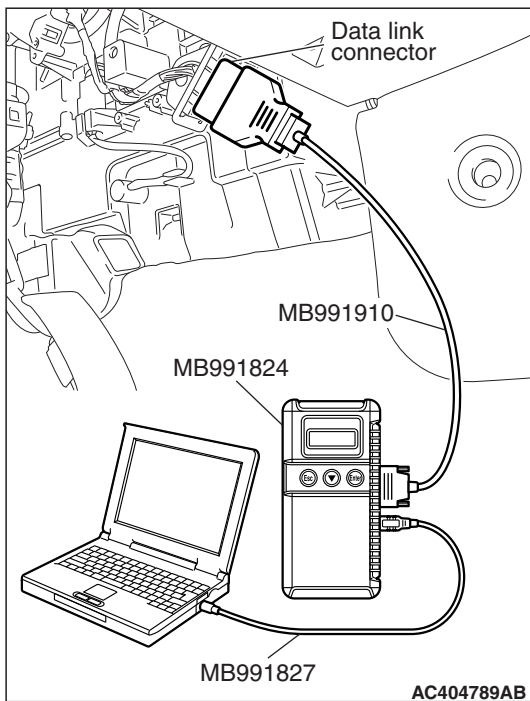
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A

STEP 1. Use a tire pressure gauge to measure the tire inflation pressure of the TPMS transmitter-fitted tires. Then execute "Tire Pressure Sensor Check" on scan tool MB991958

- (1) Use an accurate tire pressure gauge to measure the tire inflation pressure of the TPMS transmitter-fitted tires, and note the inflation pressures.

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.



- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Execute "Tire Pressure Sensor Check" for all the TPMS transmitter-fitted tires (Refer to [P.31-53](#)).

Q: Is the tire inflation pressure shown on scan tool MB991958 within ± 20 kPa (3 psi) from the actual inflation pressure? <Ambient temperature during measurement must be 0 – 50°C (32 – 122°F)>

YES : Adjust the tire inflation pressures to the value specified on the tire pressure label. Then execute "Tire Pressure Sensor Check" on scan tool MB991958 (Refer to [P.31-53](#)) to update the tire inflation pressure data on scan tool MB991958. Make sure that the pressures displayed on scan tool MB991958 correspond to the value specified on the tire pressure label. Then go to Step 2.

NO : Execute "TPMS transmitter check" again, and if the tire inflation pressure shown on scan tool is not within ± 20 kPa (3 psi) from actual inflation pressure. Replace the TPMS transmitter, where the tire pressure sensor is inaccurate. Then execute "Tire Pressure Sensor ID Registration" (Refer to [P.31-51](#)). Then go to Step 3.

STEP 2. Recheck for the diagnostic trouble code.

Q: Does diagnostic trouble code C1912, C1922, C1932 or C1942 reset?

YES : Replace the TPMS receiver (Refer to [P.31-55](#)). On completion, execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function" (Refer to [P.31-51](#)). Then go to Step 3.

NO : The procedure is complete.

STEP 3. Recheck for diagnostic trouble code.

Q: Does diagnostic trouble code C1912, C1922, C1932 or C1942 reset?

YES : Repeat the troubleshooting from Step 1.

NO : The procedure is complete.

TPMS SYMPTOM CHART

M1311003100081

⚠ CAUTION

During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned to the "ON" position with connector(s) disconnected. When diagnosis is finished, check all systems for DTC codes. If DTC code(s) are set, erase them all.

Symptom	Inspection procedure No.	Reference page
The TPMS warning light stays on.	1	P.31-25
The TPMS warning light flash for about 1 minute and then remain illuminated.	2	P.31-30
The TPMS warning light does not illuminate as a bulb check for three seconds when the ignition switch is turned to the "ON" position.	3	P.31-34
In spite of abnormally low tire pressure at a road wheel, the TPMS warning light does not illuminate.	4	P.31-42
Communication between the scan tool and the TPMS is not possible.	5	P.31-45

NOTE: Whenever the TPMS transmitters and/or TPMS receiver are replaced with new ones, the tire pressure sensor IDs must be registered into the TPMS.

NOTE: The use of non-genuine wheels will cause the improper installation of the TPMS transmitters, possibly resulting in air leakage and damage to the TPMS transmitter.

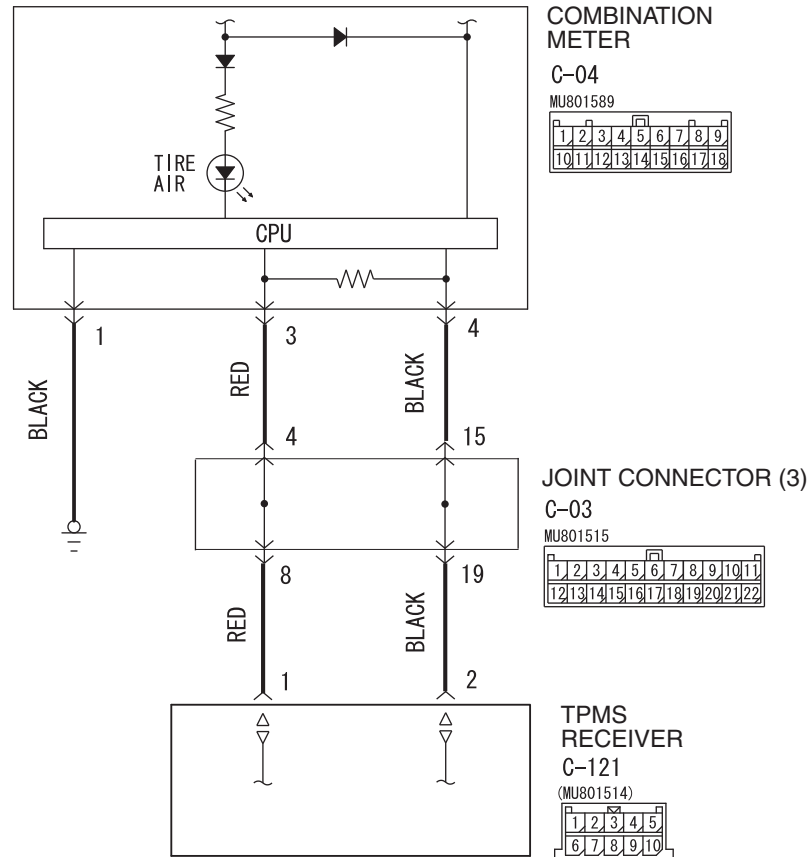
NOTE: TPMS may not work normally in the following circumstances:

- A wireless facility or device using the same frequency with the TPMS transmitter is near the vehicle.
- Snow or ice is stuck inside the fenders and/or on the wheels.
- The TPMS transmitter's battery is discharged.
- Wheels other than Mitsubishi genuine wheels are being used.
- Wheels that are not fitted with TPMS transmitters are being used.
- Wheels whose tire pressure sensor IDs are not registered by the vehicle are being used.

TPMS SYMPTOM PROCEDURES

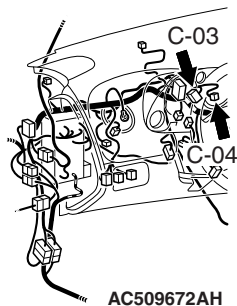
Inspection Procedure 1: The TPMS Warning Light Stays On.

TPMS Warning Light Signal Circuit

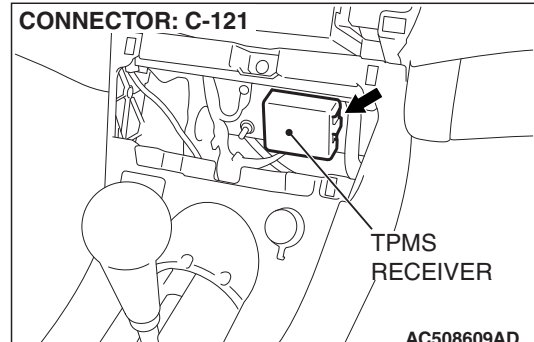


W7P31M007A

CONNECTORS: C-03, C-04



CONNECTOR: C-121



CIRCUIT OPERATION

- The TPMS warning light will illuminate when the tire inflation pressure of road wheel is below 174 kPa (25 psi).
- Furthermore, the TPMS warning light illuminates for three seconds immediately after the ignition switch is turned to the "ON" position. This is a bulb check of the TPMS warning light.

TECHNICAL DESCRIPTION (COMMENT)

If the TPMS warning light illuminates for three seconds after the ignition switch is turned to the "ON" position, and does not go out, diagnose the signal circuit of the TPMS warning light as follows (from Step 6).

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CASE:)

- Low tire inflation pressure
- Punctured tire
- Damaged tire valve grommet and/or valve core
- Inaccurate tire pressure sensor of the TPMS transmitter
- Malfunction of the combination meter
- Malfunction of the TPMS receiver

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. Inspect the all tires.

Visually check road tires for any sign of air leak or puncture.

Q: Are road tires in good condition?

YES : Go to Step 2.

NO : Replace the valve grommet or valve core, or repair the flat tire. Replace the tire if necessary. Then go to Step 2.

STEP 2. After the tire inflation pressure is adjusted and the TPMS transmitter sends inflation pressure information on it, check the TPMS warning light.

(1) Wait until the tires cool down, and adjust road tire inflation pressures to the value specified on the tire pressure label.

⚠ CAUTION

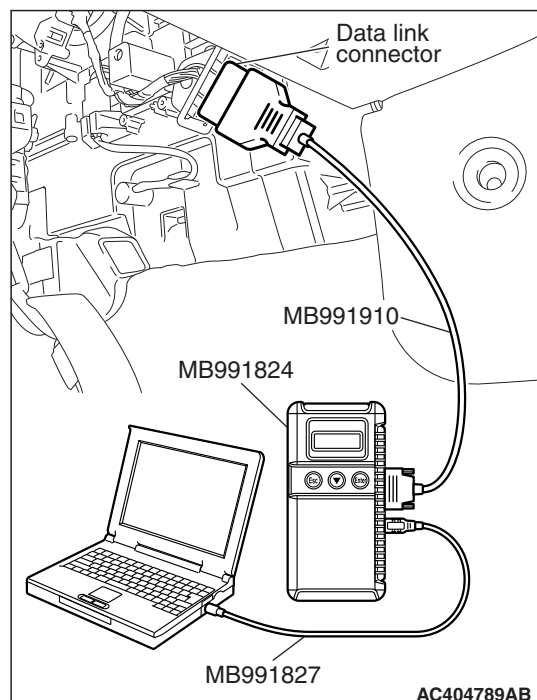
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (2) Connect scan tool MB991958 to the data link connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Execute "Tire Pressure Sensor Check" on scan tool MB991958 "Special Function" (Refer to P.31-53).
- (5) Check the TPMS warning light.

Q: Is the TPMS warning light turned off?

YES : The procedure is complete.

NO : Go to Step 3.



STEP 3. Check the tire inflation pressure again.

Use a tire pressure gauge to check that road tire inflation pressures meet the value specified on the tire pressure label.

Q: Are road tires in good condition?

YES : Go to Step 4.

NO : Replace the valve grommet or valve core, or repair the damaged tire. Replace the tire if necessary. Then return to Step 2.

STEP 4. Check the TPMS warning light.

Turn the ignition switch to the "ON" position. The TPMS warning light should illuminate for three seconds, and then go out momentarily.

NOTE: If the TPMS warning light goes out momentarily, the TPMS warning light signal circuit is correct. However, as DTC C1912, C1922, C1932 or C1942 (TPMS transmitter abnormality – Tire air pressure low) has been set, the TPMS warning light illuminated.

Q: Turn the ignition switch to the "ON" position. Does the TPMS warning light illuminate for three seconds, and then go out momentarily?

YES : Go to Step 5.

NO : Go to Step 6.

STEP 5. Using scan tool MB991958, read the diagnostic trouble code.

Use scan tool MB991958 to check whether DTC C1912, C1922, C1932 or C1942 (TPMS transmitter abnormality – Tire air pressure low) is set.

Q: Is DTC C1912, C1922, C1932 or C1942 set?

YES : Carry out troubleshooting for DTC C1912/C1922/C1932/C1942 (TPMS transmitter abnormality – Tire air pressure low) (Refer to [P.31-22](#)).

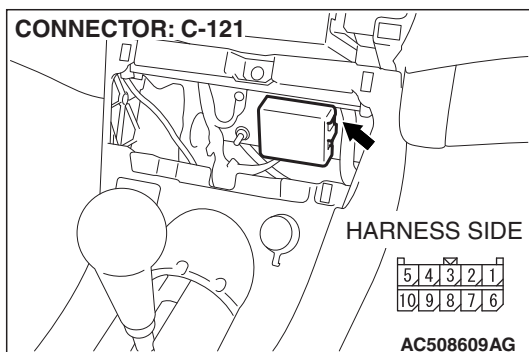
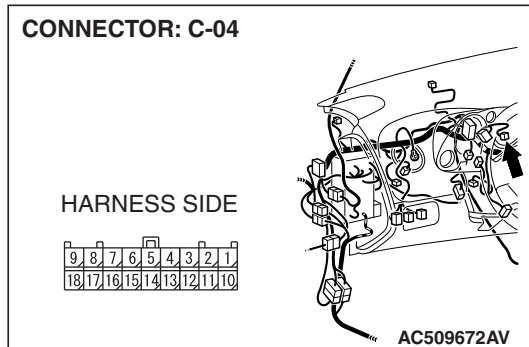
NO : Replace the TPMS receiver (Refer to [P.31-55](#)) and execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function" (Refer to [P.31-51](#)). Then go to Step 9.

STEP 6. Check TPMS receiver connector C-121 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

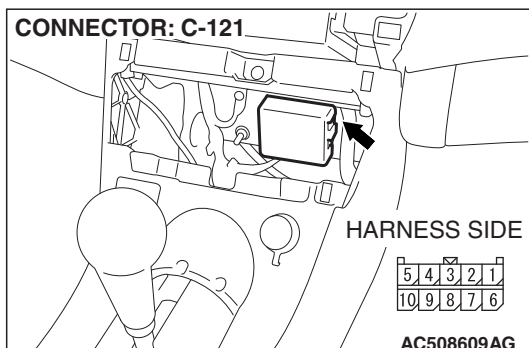
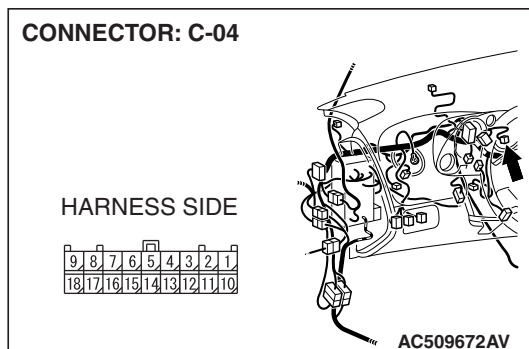
Q: Are TPMS receiver connector C-121 and combination meter connector C-04 in good condition?

YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

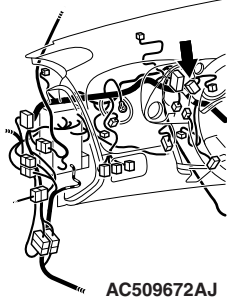


STEP 7. Check the wiring harness between TPMS receiver connector C-121 (terminal 1 and 2) and combination meter connector C-04 (terminal 3 and 4).



CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



NOTE: Also check joint connector (3) C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector (3) C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Are the wiring harness between TPMS receiver connector C-121 (terminal 1 and 2) and combination meter connector C-04 (terminal 3 and 4) in good condition?

YES : Go to Step 8.

NO : Repair or replace it. Then go to Step 9.

STEP 8. Check the combination meter.

Check that the combination meter warning lights and indicators other than TPMS warning light illuminate normally.

Q: Are there any faults on the combination meter?

YES : Replace the meter assembly (Refer to [P.54A-136](#)). Then go to Step 9.

NO : Replace the TPMS receiver (Refer to [P.31-55](#)) and execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function" (Refer to [P.31-51](#)). Then go to Step 9.

STEP 9. Retest the system.

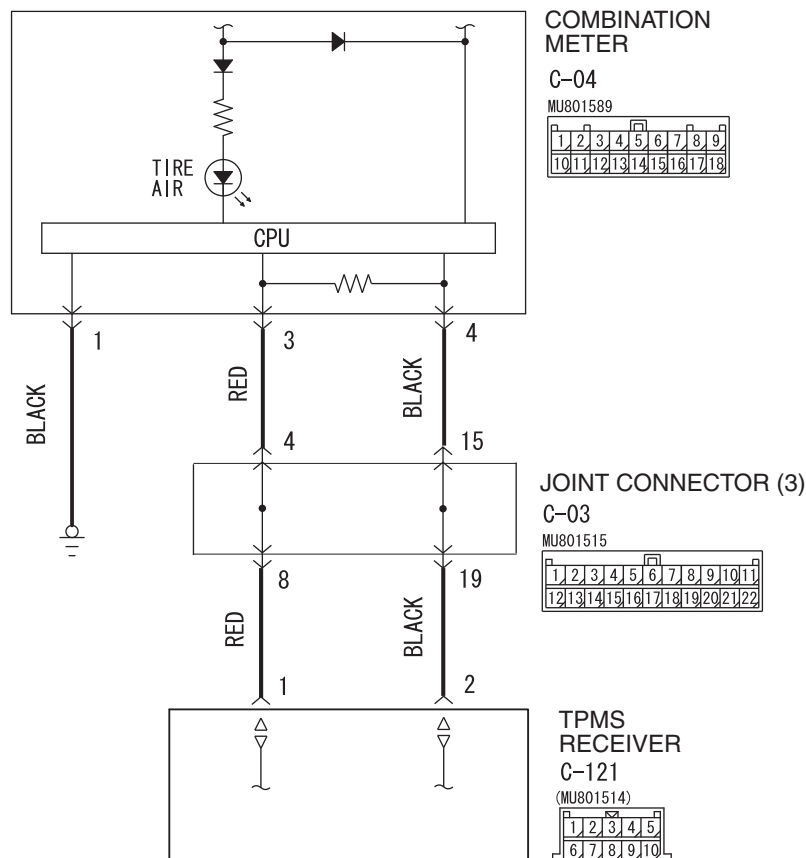
Q: Turn the ignition switch to the "ON" position. Does the TPMS warning light illuminate for three seconds, and then go out?

YES : The procedure is complete.

NO : Repeat the troubleshooting from Step 1.

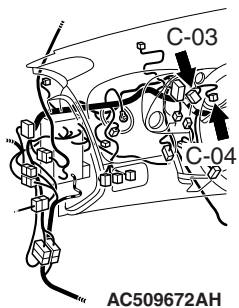
Inspection Procedure 2: The TPMS Warning Light Flash for About 1 Minute and Then Remain Illuminated.

TPMS Warning Light Signal Circuit

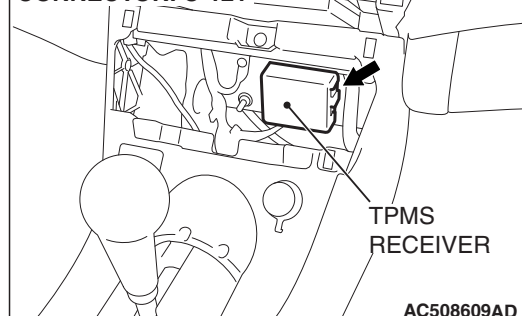


W7P31M007A

CONNECTORS: C-03, C-04



CONNECTOR: C-121



CIRCUIT OPERATION

- The TPMS warning light will flash for about 1 minute and then remain illuminated when a fault has occurred in the TPMS.
- The TPMS warning light may also flash for about 1 minute and then remain illuminated when a fault has occurred in the TPMS warning light signal circuit (including open circuit and shorted circuit).

TECHNICAL DESCRIPTION (COMMENT)

- If any TPMS DTCs are set, carry out the relevant troubleshooting.
- If no TPMS DTC is set, carry out the troubleshooting for the TPMS warning light signal circuit.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CASE:)

- A fault has occurred in the TPMS.
- Damaged harness wire or connector in the TPMS warning light signal circuit
- Malfunction of the combination meter
- Malfunction of the TPMS receiver

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, read the diagnostic trouble code.

CAUTION

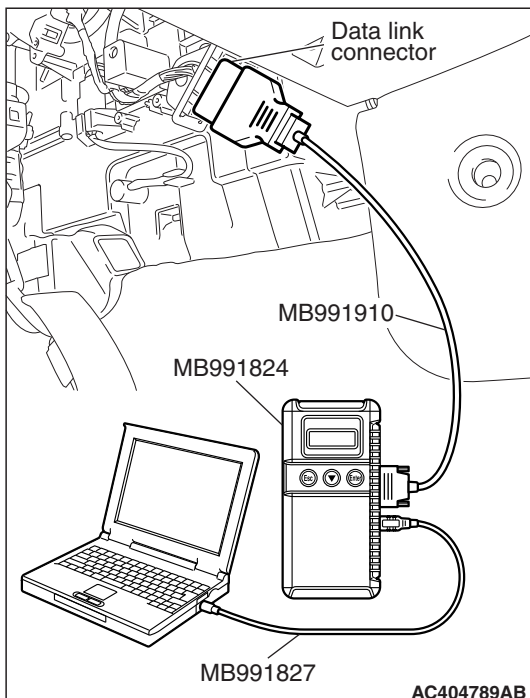
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

Q: Is any TPMS DTC set?

YES : Carry out the relevant TPMS troubleshooting (Refer to [P.31-13](#)).

NO : Go to Step 2.

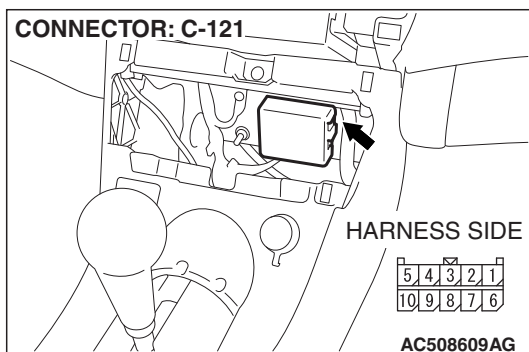
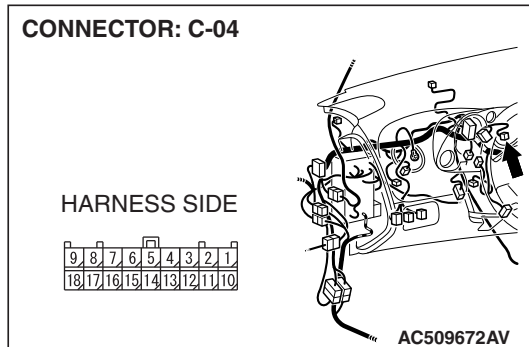


STEP 2. Check TPMS receiver connector C-121 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

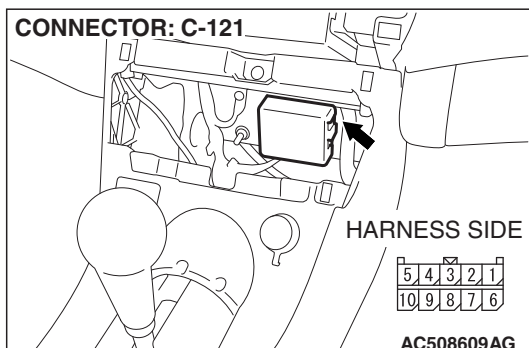
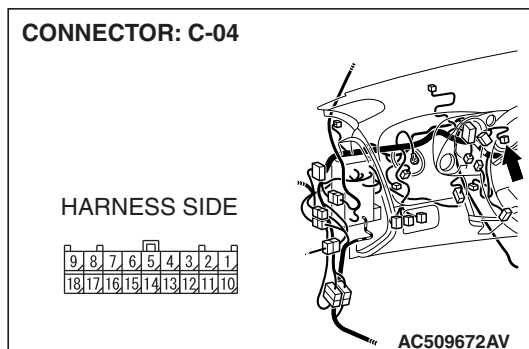
Q: Are TPMS receiver connector C-121 and combination meter connector C-04 in good condition?

YES : Go to Step 3.

NO : Repair it. Then go to Step 5.

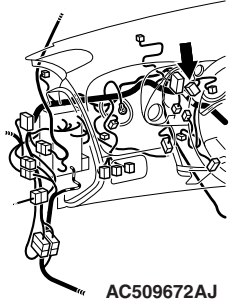


STEP 3. Check the wiring harness between TPMS receiver connector C-121 (terminal 1 and 2) and combination meter connector C-04 (terminal 3 and 4).



CONNECTOR: C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22



NOTE: Also check joint connector (3) C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector (3) C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Are the wiring harness between TPMS receiver connector C-121 (terminal 1 and 2) and combination meter connector C-04 (terminal 3 and 4) in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Then go to Step 5.

STEP 4. Check the combination meter.

Check that the combination meter warning lights and indicators other than TPMS warning light illuminate normally.

Q: Are there any faults on the combination meter?

YES : Replace the combination meter assembly (Refer to [P.54A-136](#)). Then go to Step 5.

NO : Replace the TPMS receiver (Refer to [P.31-55](#)) and execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function" (Refer to [P.31-51](#)). Then go to Step 5.

STEP 5. Retest the system.

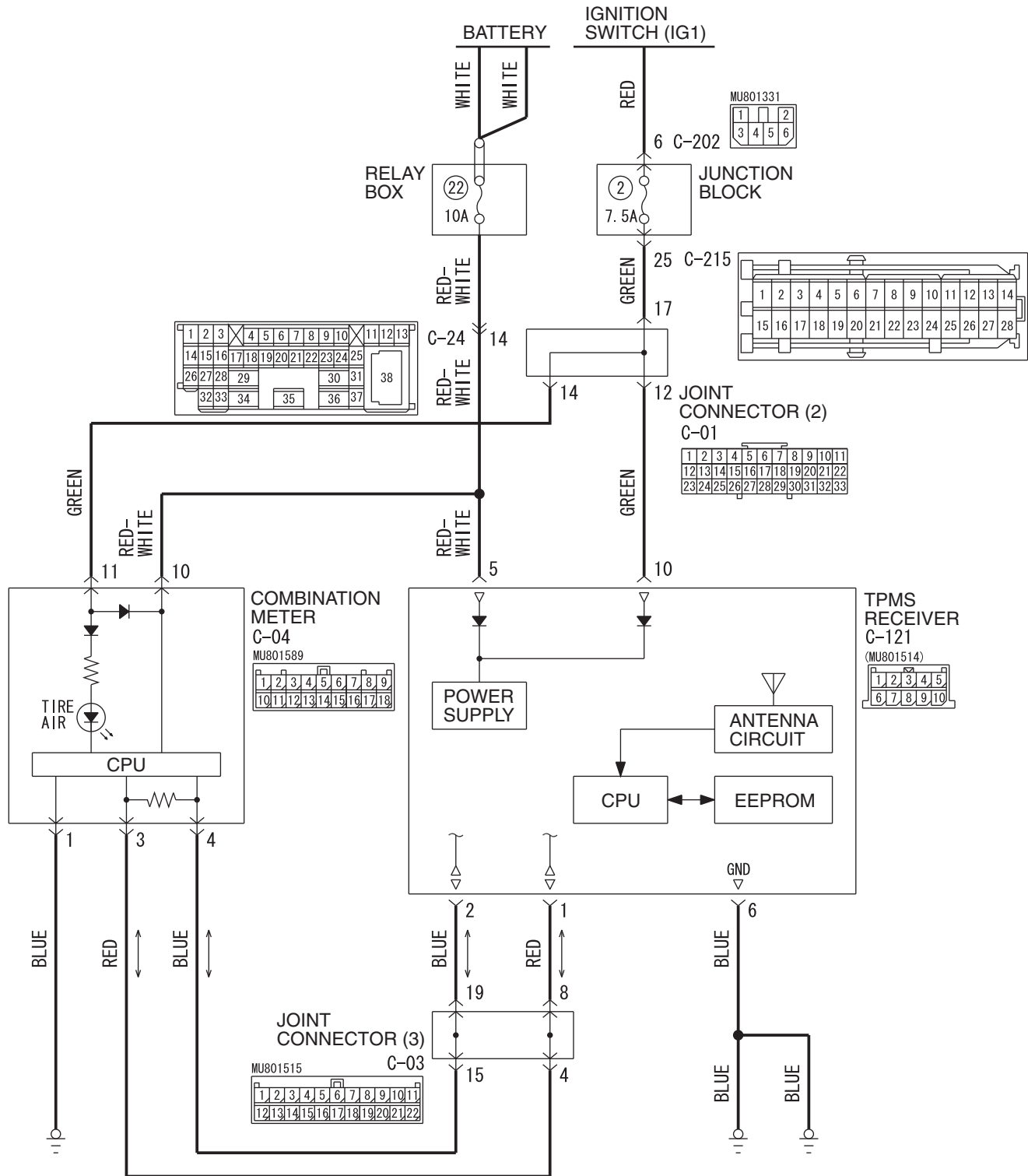
Q: Turn the ignition switch to the "ON" position. Does the TPMS warning light illuminate for three seconds, and then go out?

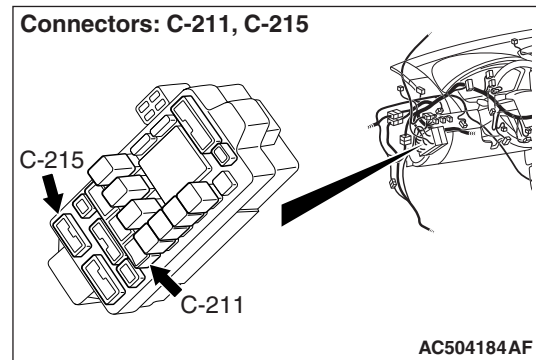
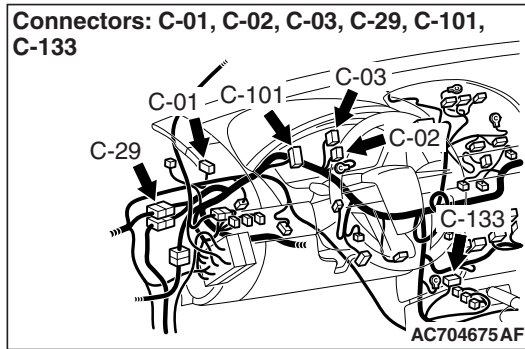
YES : The procedure is complete.

NO : Repeat the troubleshooting from Step 1.

Inspection Procedure 3: The TPMS Warning Light does not Illuminate as a Bulb Check for Three Seconds when the Ignition Switch is Turned to the "ON" Position.

TPMS Receiver Power Supply and Ground, Ignition Signal Input and TPMS Warning Light Circuit





CIRCUIT OPERATION

For three seconds after the ignition switch is turned to the "ON" position, the TPMS receiver illuminates the TPMS warning light to check any breaks in the TPMS warning light circuit.

TECHNICAL DESCRIPTION (COMMENT)

If the TPMS warning light does not illuminate for three seconds when the ignition switch is turned to the "ON" position, diagnose the TPMS warning light signal circuit, power supply to the TPMS receiver, ignition signal, and/or ground circuit.

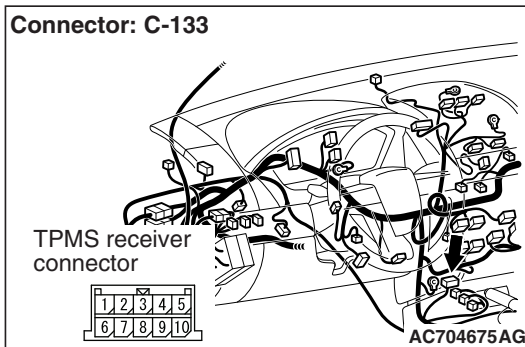
TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CASE:)

- TPMS warning light signal harness wire (CAN-bus line) open circuit
- Ignition signal harness wire of the TPMS receiver or battery power supply harness wire open circuit
- Ground harness wire of the TPMS receiver open circuit
- Malfunction of the combination meter
- Malfunction of the TPMS receiver

DIAGNOSIS

Required Special Tool:

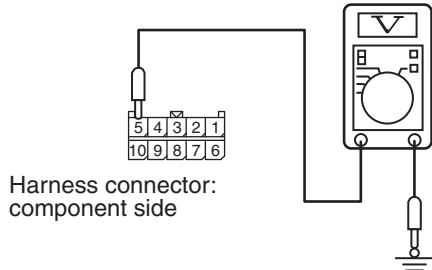
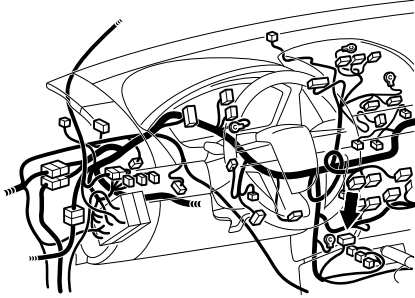
- MB991223: Harness Set



STEP 1. Measure the voltage at C-121 TPMS receiver connector.

- (1) Disconnect TPMS receiver connector C-121, and check at the harness connector (component side).

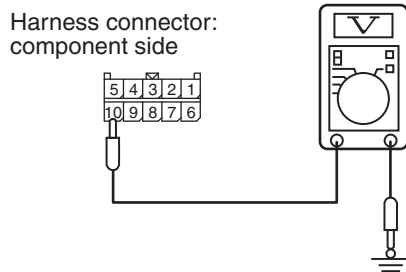
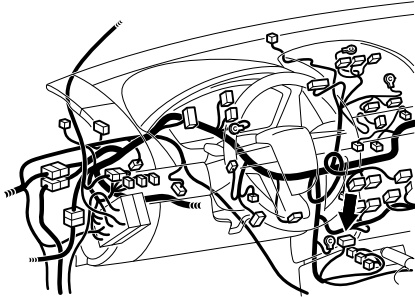
Connector: C-133



AC704690AF

- (2) Measure the voltage between terminal 5 and ground. It should measure battery positive voltage (approximately 12 volts).
- (3) Turn the ignition switch to the "ON" position.

Connector: C-133



AC704690AG

- (4) Measure the voltage between terminal 10 and ground. It should measure battery positive voltage (approximately 12 volts).

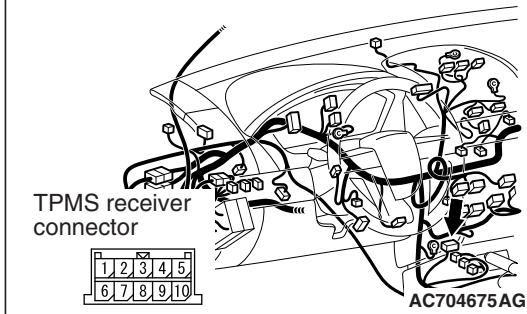
Q: Is battery positive voltage (approximately 12 volts) present?

YES <all the measured voltages are equivalent to battery positive voltage> : Go to Step 6.

NO <voltage between terminal 5 and ground is not battery positive voltage> : Go to Step 2.

NO <voltage between terminal 10 and ground is not battery positive voltage> : Go to Step 4.

Connector: C-133



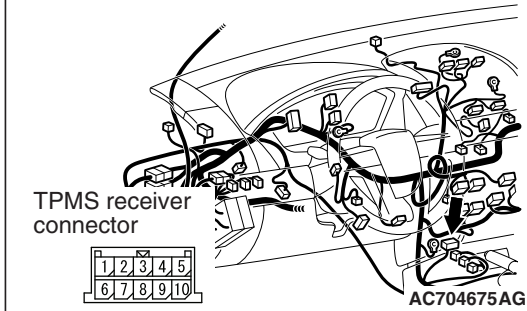
STEP 2. Check TPMS receiver connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the TPMS receiver connector C-121 in good condition?

YES : Go to Step 3.

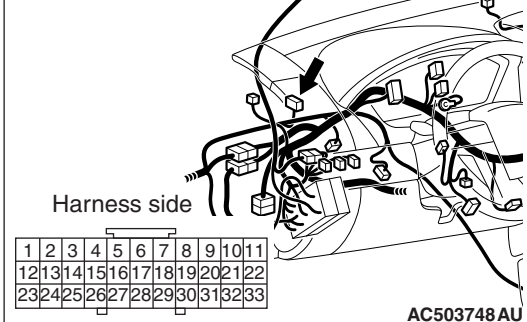
NO : Repair it. Then go to Step 12.

Connector: C-133



STEP 3. Check the wiring harness between TPMS receiver connector C-121 (terminal 5) and the battery.

Connector: C-01



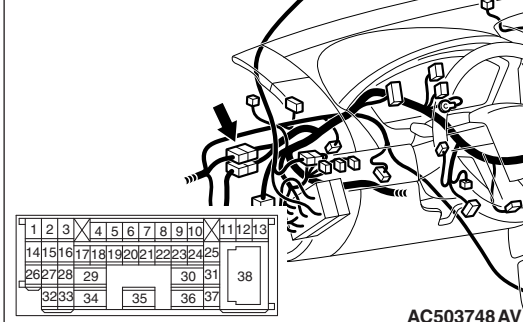
NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between TPMS receiver connector C-121 (terminal 5) and the battery in good condition?

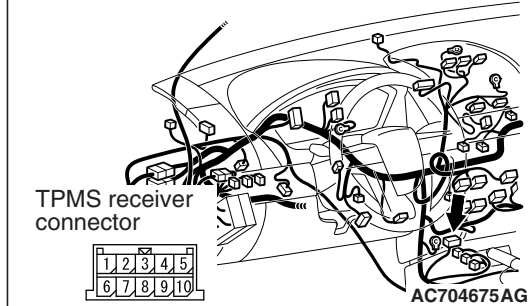
YES : Repeat the troubleshooting from Step 1.

NO : Repair or replace it. Then go to Step 12.

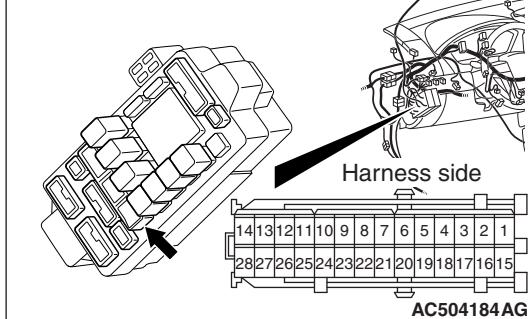
Connector: C-29



Connector: C-133



Connector: C-211



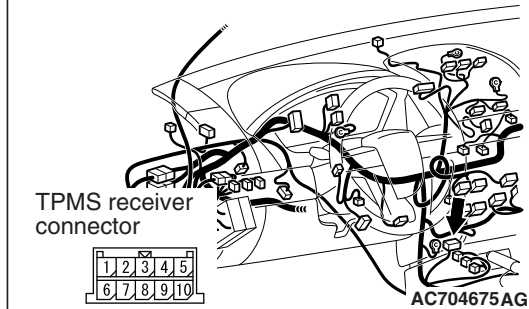
STEP 4. Check TPMS receiver connector C-121 and junction block connector C-215 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are TPMS receiver connector C-121 and junction block connector C-215 in good condition?

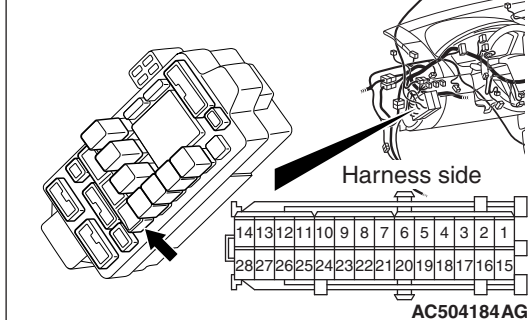
YES : Go to Step 5.

NO : Repair it. Then go to Step 12.

Connector: C-133



Connector: C-211



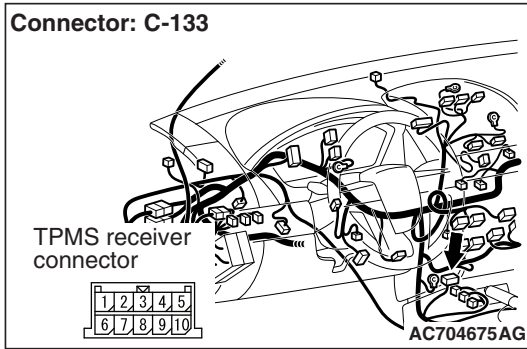
STEP 5. Check the wiring harness between TPMS receiver connector C-121 (terminal 10) and junction block connector C-215 (terminal 25).

Q: Is the wiring harness between TPMS receiver connector C-121 (terminal 10) and junction block connector C-215 (terminal 25) in good condition?

YES : Repeat the troubleshooting from Step 1.

NO : Repair or replace it. Then go to Step 12.

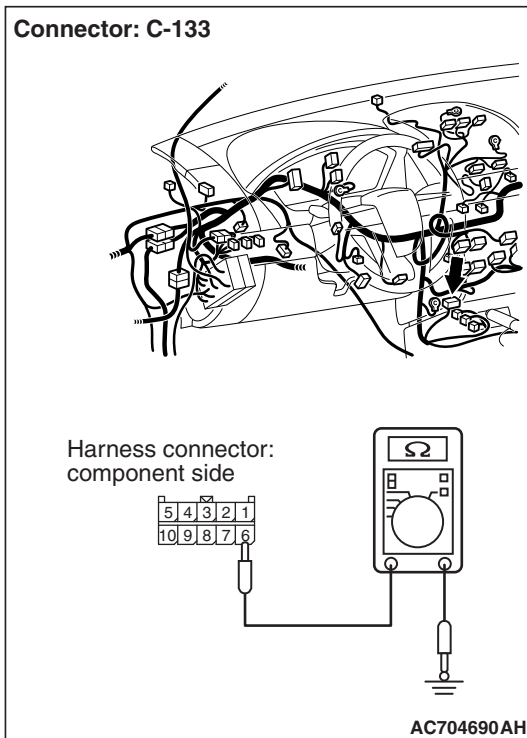
Connector: C-133



STEP 6. Check the wiring harness for open circuit.

- (1) Disconnect TPMS receiver connector C-121, and measure the resistance at the harness side.

Connector: C-133



- (2) Measure the resistance between terminal 6 and ground.

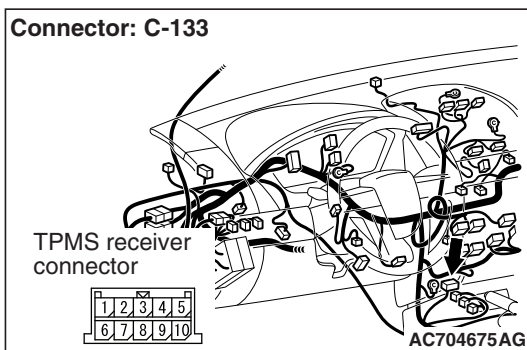
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 7.

Connector: C-133



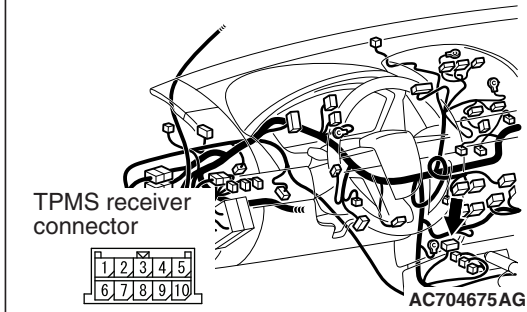
STEP 7. Check TPMS receiver connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is TPMS receiver connector C-121 in good condition?

YES : Go to Step 8.

NO : Repair it. Then go to Step 12.

Connector: C-133



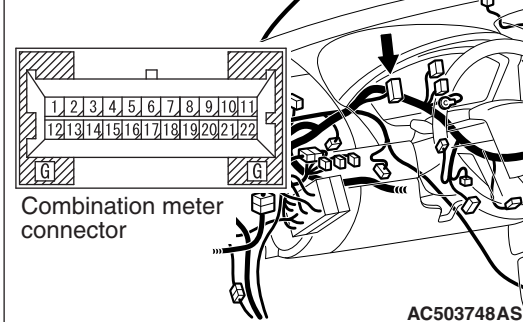
STEP 8. Check the wiring harness between TPMS receiver connector C-121 (terminal 6) and ground.

Q: Is the wiring harness between TPMS receiver connector C-121 (terminal 6) and ground in good condition?

YES : Return to Step 6.

NO : Repair or replace it. Then go to Step 12.

Connector: C-101



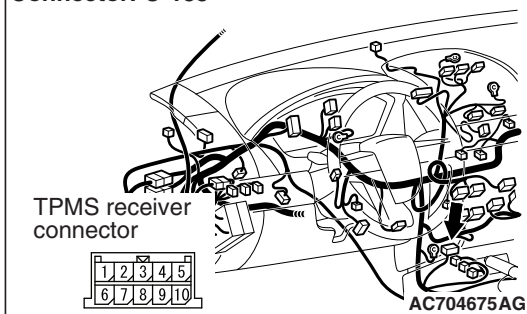
STEP 9. Check TPMS receiver connector C-121 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are TPMS receiver connector C-121 and combination meter connector C-04 in good condition?

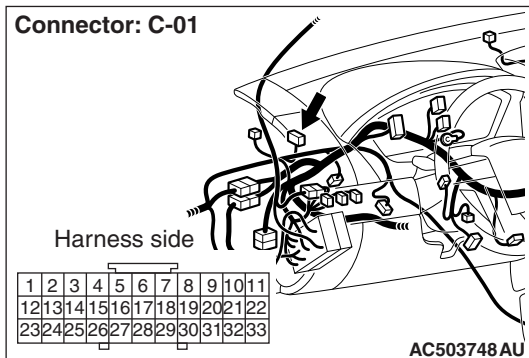
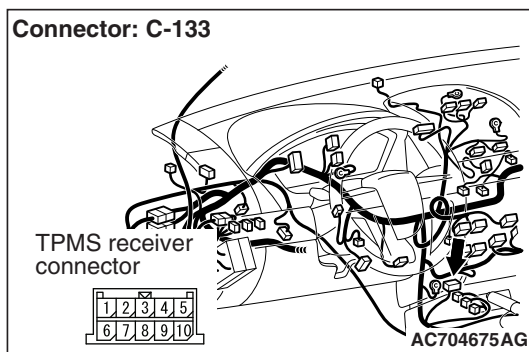
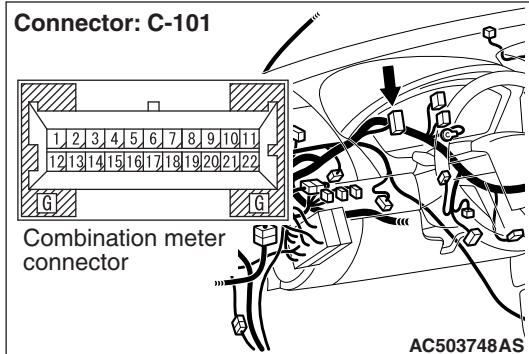
YES : Go to Step 10.

NO : Repair it. Then go to Step 12.

Connector: C-133



STEP 10. Check the wiring harness between TPMS receiver connector C-121 (terminal 1 and 2) and combination meter connector C-04 (terminal 3 and 4).



NOTE: Also check joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between TPMS receiver connector C-121 (terminal 1 and 2) and combination meter connector C-04 (terminal 3 and 4) in good condition?

YES : Replace the TPMS receiver and execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function". Then go to Step 11.

NO : Repair or replace it. Then go to Step 12.

STEP 11. Check the TPMS bulb check function.

Q: Turn the ignition switch to the "ON" position. Does the TPMS warning light illuminate for three seconds, and then go out?

YES : The procedure is complete.

NO : Replace the combination meter assembly (Refer to GROUP 54A – Combination meter [P.54A-135](#)). Then go to Step 12.

STEP 12. Retest the system.

Q: Turn the ignition switch to the "ON" position. Does the TPMS warning light illuminate for three seconds, and then go out?

YES : The procedure is complete.

NO : Repeat the troubleshooting from Step 1.

Inspection Procedure 4: In Spite of Abnormally Low Tire Pressure at a Road Wheel, the TPMS Warning Light does not Illuminate.

SYSTEM OPERATION

The TPMS warning light will illuminate when the ignition switch is turned to the "ON" position if tire pressure of any road wheel is low.

TECHNICAL DESCRIPTION (COMMENT)

- The TPMS may not detect a failure if the TPMS transmitter does not send timely information or there is any interference with the antenna.
- The tire pressure sensor or driving G sensor inside the TPMS transmitter may be inaccurate or defective. In this case, the TPMS may not detect a failure.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CASE:)

- The TPMS transmitter does not send timely information or there is any interference with the antenna.
- Damaged harness wire or connector
- Malfunction of the combination meter
- Malfunction of the TPMS transmitter
- Malfunction of the TPMS receiver

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. Check the TPMS warning light.

Check whether the TPMS warning light illuminates for three seconds after the ignition switch is turned to the "ON" position.

Q: Does the TPMS warning light illuminate for three seconds?

YES : Go to Step 2.

NO : Go to TPMS Inspection Procedure No.3 "The TPMS Warning Light does not Illuminate as a Bulb Check for Three Seconds when the Ignition Switch is Turned to the "ON" Position" (Refer to [P.31-34](#)).

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.

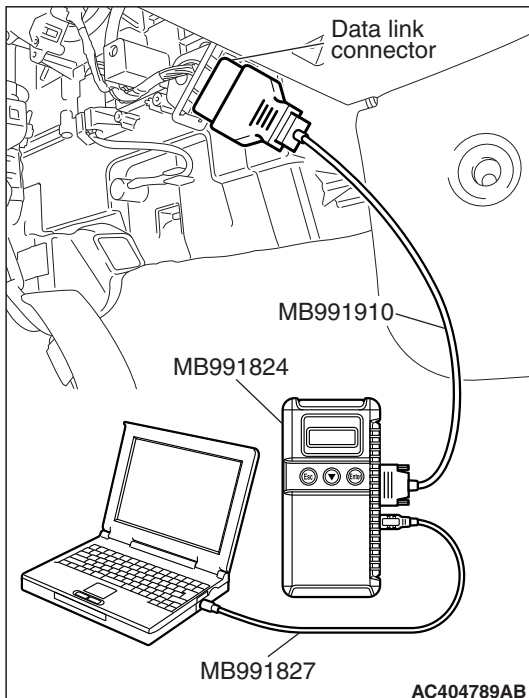
- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check whether DTC C1912, C1922, C1932 or C1942 (TPMS transmitter abnormality – Tire air pressure low) is set.

NOTE: If DTC C1912, C1922, C1932 or C1942 is set, the TPMS receiver is defective. In Step 1, the TPMS warning light illuminated for three seconds and then went out. However, the DTC is set. This means that a contradiction has arisen in the receiver operation.

Q: Is DTC C1912, C1922, C1932 or C1942 (TPMS transmitter abnormality – Tire air pressure low) set?

YES : Replace the TPMS receiver (Refer to [P.31-55](#)). Then go to Step 8.

NO : Go to Step 3.



STEP 3. Execute "Tire Pressure Sensor Check" on scan tool MB991958.

- (1) Execute "Tire Pressure Sensor Check" on scan tool MB991958 for the relevant tire (Refer to [P.31-53](#)).
- (2) Confirm the tire inflation pressure, which are shown on scan tool MB991958 display.

Standard value: 220kPa (32 psi)

Q: Are the tire inflation pressure displayed?

YES : Go to Step 4.

NO : It is judged that the TPMS could not detect low pressure due to a defective TPMS transmitter or the TPMS transmitter which is not registered is installed. Go to Step 8.

STEP 4. Check the tire pressure, which is shown on scan tool MB991958 display.

Q: Is the shown tire inflation pressure less than the threshold value (174 kPa, 25.3 psi)?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Use an accurate tire pressure gauge to measure the relevant tire inflation pressure.

Compare the actually measured value with the value shown on scan tool MB991958 to determine whether the TPMS transmitter pressure sensor is inaccurate.

Q: Is the tire inflation pressure shown on scan tool MB991958 within ± 20 kPa (2.9 psi) from the actual inflation pressure? <Ambient temperature during measurement must be 0 – 50°C (32 – 122°F)>

YES : The procedure is complete.

NO : Replace the TPMS transmitter of the relevant tire (Refer to [P.31-56](#)). Then go to Step 8.

STEP 6. Check the illumination condition of the TPMS warning light.

Turn the ignition switch to the "ON" position. Check that the TPMS warning light illuminates for three seconds, goes out momentarily, and then illuminates again.

Q: Does the TPMS warning light illuminate again?

YES : Go to Step 7.

NO : Replace the TPMS receiver (Refer to [P.31-55](#)). Then go to Step 8.

STEP 7. Check the relevant tire for improper inflation pressure or any other problems, and make necessary repairs. Then drive the vehicle and check if the TPMS warning light comes on.

- (1) If the relevant tire has been punctured, repair it. If the valve grommet or valve core is defective, replace it (Refer to [P.31-56](#)).
- (2) Adjust the relevant tire inflation pressure to the value specified on the tire pressure label.
- (3) Drive the vehicle, and check that the TPMS warning light goes out within 10 minutes after the vehicle speed reaches 30 km/h (19 mph).

Q: Does the TPMS warning light go out?

YES : The procedure is complete. (For some reason, the TPMS transmitter could not communicate with the TPMS receiver momentarily).

NO : The driving G sensor of the TPMS transmitter may be defective. Replace the TPMS transmitter of the relevant tire (Refer to [P.31-56](#)). Then go to Step 8.

STEP 8. Tire pressure sensor ID registration.

Execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function" (Refer to [P.31-51](#)).

Q: Is the TPMS warning light off?

YES : The procedure is complete.

NO : Repeat this Step 1.

Inspection Procedure 5: Communication between the Scan Tool and the TPMS is not Possible.

CIRCUIT OPERATION

The TPMS receiver is linked to the data link connector via CAN bus line to communicate with the scan tool.

TECHNICAL DESCRIPTION (COMMENT)

If the system does not communicate with scan tool, power supply to data link connector or CAN bus lines may be defective.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CASE:)

- Malfunction of the TPMS receiver
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.

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.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

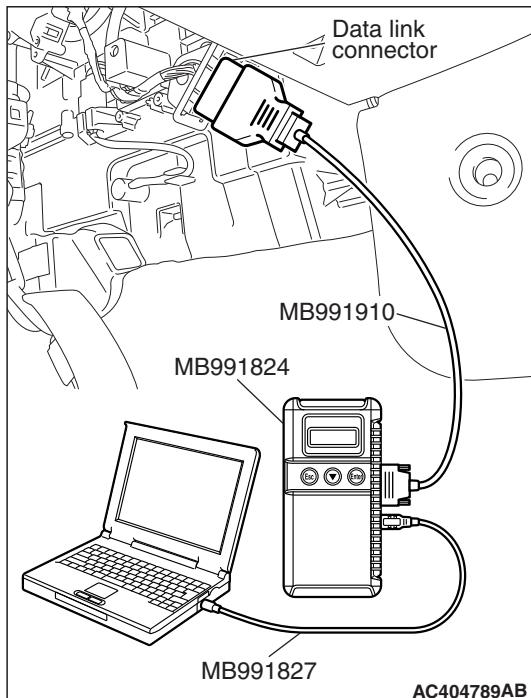
To prevent damage to scan tool (MB991958), always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool (MB991958).

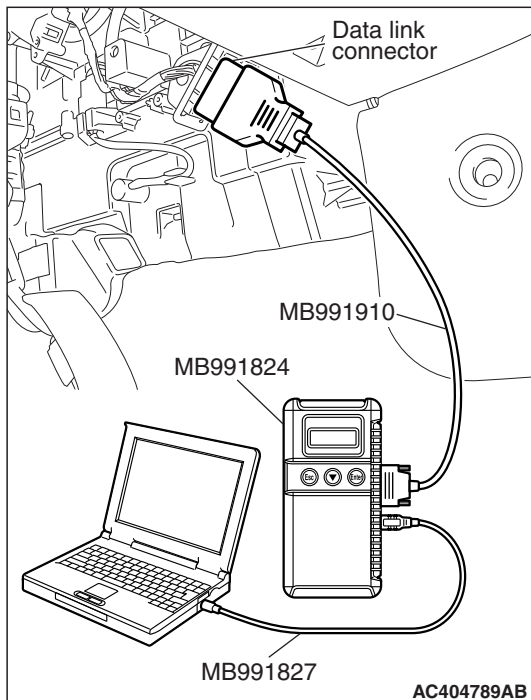
- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 2.

NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis – Can Bus Diagnostic Chart [P.54C-17](#)).



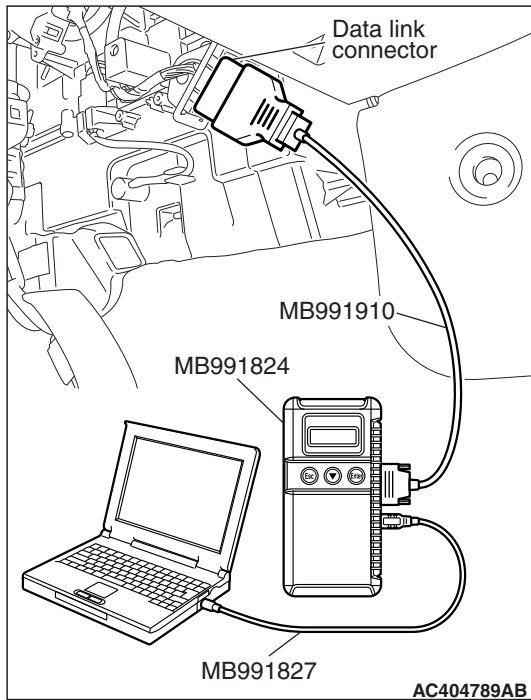
**STEP 2. Check that the TPMS receiver communicates with the scan tool.**

- (1) Turn the ignition switch to "ON" position.
- (2) Check if scan tool MB991958 can communicate with the TPMS receiver.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Replace the TPMS receiver, and execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function" (Refer to [P.31-51](#)). Then go to Step 3.

**STEP 3. Check that the TPMS receiver communicates with the scan tool.**

- (1) Turn the ignition switch to "ON" position.
- (2) Check if scan tool MB991958 can communicate with the TPMS receiver.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Repeat the troubleshooting from Step 1.

TPMS SERVICE DATA LIST

M1311003300104

The following items can be read by the scan tool from the TPMS receiver input data.

M.U.T.-III scan tool display	Item No.	Check item	Display text or unit
VSS	01	Vehicle speed signal data	Km/h or mph
Air Pressure, Tire 1	02	Air pressure data 1	psi
Air Pressure, Tire 2	03	Air pressure data 2	psi
Air Pressure, Tire 3	04	Air pressure data 3	psi
Air Pressure, Tire 4	05	Air pressure data 4	psi
Threshold of PRS. warning	07	Tire pressure warning threshold level set for pressure rising	25 psi
Threshold of PRS. warning release	08	Tire pressure warning threshold level set for pressure reduction	28 psi
No. of registered ID at present	09	Number of ID codes currently registered	–
Ignition signal (CAN data)	10	Ignition ON	ON
Ignition signal (port input)	11	Ignition ON	ON
Air Pressure, Tire 1 (corrected)	12	Air pressure data 1	psi
Air Pressure, Tire 2 (corrected)	13	Air pressure data 2	psi
Air Pressure, Tire 3 (corrected)	14	Air pressure data 3	psi
Air Pressure, Tire 4 (corrected)	15	Air pressure data 4	psi
Atmospheric pressure (filtered)	17	–	kPa
Atmospheric PRES. (from Engine)	18	–	kPa

TPMS SPECIAL FUNCTION DATA LIST

M1311006300095

When the TPMS "Special Function" is executed, the TPMS receiver uses the data below.

TPMS SPECIAL FUNCTION DATA LIST

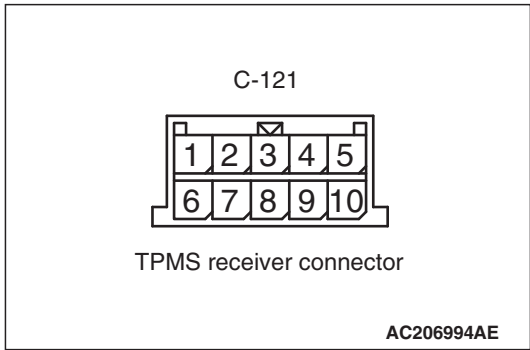
Function	M.U.T.-III scan tool display	Item		Display text or unit
Tire Pressure Sensor ID Registration	4 tires PRES SNSR ID Registration	ID registration flag (tire 1)		OK/ –
		ID registration flag (tire 2)		OK/ –
		ID registration flag (tire 3)		OK/ –
		ID registration flag (tire 4)		OK/ –
Tire Pressure Sensor ID Check	1st	Tire pressure sensor ID	Not checked	FFFFF
			Checked	e.g. 4B9B45
	2nd	Tire pressure sensor ID	Not checked	FFFFF
			Checked	e.g. 4B9B46
	3rd	Tire pressure sensor ID	Not checked	FFFFF
			Checked	e.g. 4B9B47
	4th	Tire pressure sensor ID	Not checked	FFFFF
			Checked	e.g. 4B9B48

CHECK AT TPMS RECEIVER

M1311003400093

TERMINAL VOLTAGE CHECK CHART

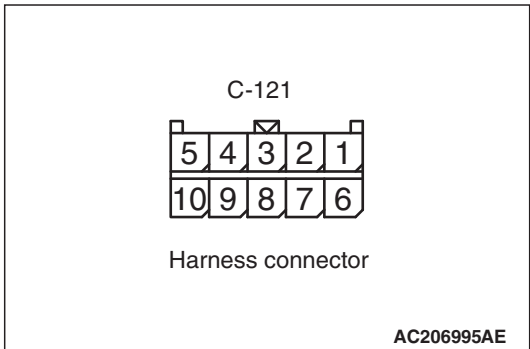
Measure the voltages between terminal 6 (ground terminal) and each respective terminal.



Connector terminal No	Signal	Checking requirement	Normal condition
5	TPMS receiver power supply	Always	Battery positive voltage
10	Ignition signal	Ignition switch: "ON"	Battery positive voltage

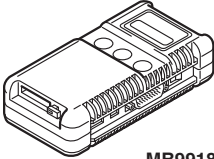

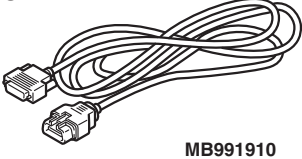
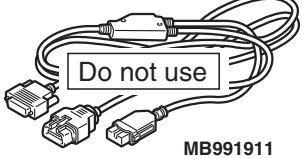
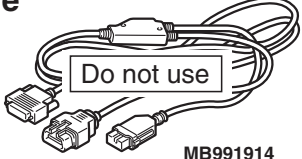
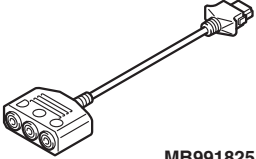
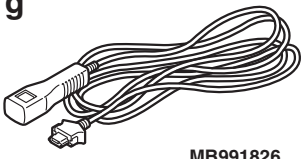
TPMS RECEIVER GROUND CHECK


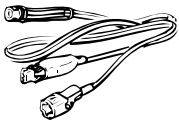
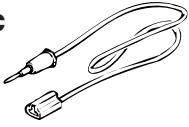
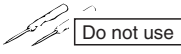
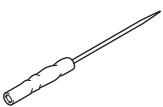
1. Turn the ignition switch to the "LOCK" (OFF) position and disconnect the TPMS receiver connector.
2. Check the resistance and continuity between terminal 6 of the harness connector and body ground. The resistance should measure less than 2 ohms.



SPECIAL TOOLS

M1311000600117

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>MB991958</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 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> <p>For communication with TPMS receiver</p> <ul style="list-style-type: none"> • Diagnostic trouble code reading • Service data reading • Actuator testing • Executing TPMS special function

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>b</p>  <p>c</p>  <p>d</p>  <p>MB991223</p>	<p>MB991223</p> <p>a. MB991219 b. MB991220 c. MB991221 d. MB991222</p> <p>Harness set</p> <p>a. Test harness b. LED harness c. LED harness adaptor d. Probe</p>	General service tools	Checking the continuity and measuring the voltage at the TPMS receiver harness connector
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	General service tool	Making voltage and resistance measurement during troubleshooting

ON-VEHICLE SERVICE

TIRE INFLATION PRESSURE CHECK

M1311000900550

NOTE: For information on tire inflation pressure, refer to the label attached to the center pillar on the driver's side.

NOTE: The TPMS is not a substitute for regular checks of the tire inflation pressure. Be sure to check the tire inflation pressure as usual.

TIRE WEAR CHECK

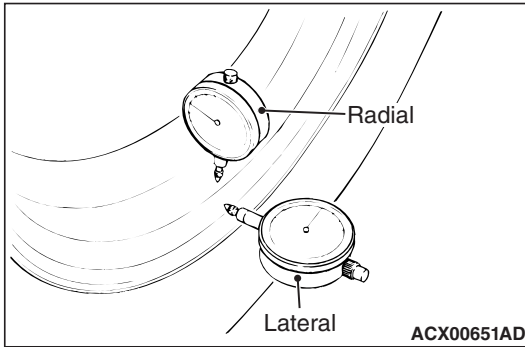
M1311001000583

Measure the tread depth of the tires.

Minimum limit: 1.6 mm (0.06 inch)

If the remaining tread depth is less than the minimum limit, replace the tire.

NOTE: When the tread depth of the tires is reduced to 1.6 mm (0.06 inch) or less, wear indicators will appear.



WHEEL RUNOUT CHECK

M1311001100900

Jack up the vehicle so that the wheels are clear of the floor. While slowly turning the wheel, measure wheel runout with a dial indicator.

Limit:

Item	Specification
Radial runout	1.0 mm (0.04 inch) or less
Lateral runout	1.0 mm (0.04 inch) or less

If wheel runout exceeds the limit, replace the wheel.

TPMS SPECIAL FUNCTION

TIRE PRESSURE SENSOR ID REGISTRATION

M1311003900098

When the TPMS transmitter or TPMS receiver 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.

1. 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.

2. "4 SNSR ID Registration Do you want to start? Note Finish ID Registration within 20 minutes." is displayed. Then, press "OK."

NOTE: If the ID code registration is not finished within 20 minutes, all the ID codes registered in the TPMS transmitter before will be erased. For this reason, the ID codes need to be registered again.

3. Decrease the tire pressure to 174 kPa (25.2 psi) or less by changing 20 kPa (2.9 psi) or more, and register the TPMS transmitter ID code of each wheel to TPMS receiver.

NOTE:

- You can start out the following operations from any TPMS transmitter. The tire pressure sensor ID registration has no order.
- On completion of the TPMS transmitter ID code registration, the TPMS transmitter ID code is displayed on the M.U.T.-III screen.

- *M.U.T.-III cannot identify which registered TPMS transmitter is used for each wheel. For this reason, write down the tire number for each wheel when the tire number and ID code is displayed on the scan tool during ID code registration.*
 - *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 (2.9 psi) 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 (2.9 psi) or more again.*
 - *If the ID code cannot be registered for all the four wheels, the TPMS receiver may be faulty, thus replace the TPMS receiver.*
 - *If the ID code can be registered for one wheel or more, the TPMS transmitter in which the code cannot be registered may be faulty, thus replace that TPMS transmitter.*
4. "4 SNSR ID Registration Completed." is displayed. Then, select "OK."

NOTE: The TPMS indicator illuminates for tire pressure alarm.

5. After one minute or more has passed, correct the tire pressure for all wheels.
6. Check if the TPMS indicator goes out. If it does not go to, drive the vehicle for approximately 5 minutes, check the display again. If it still does not go out, register the ID code again.

TIRE PRESSURE SENSOR ID CHECK

M1311004100073

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

You can check the TPMS transmitter ID on the diagnosis screen as described below.

1. Operate scan tool MB991958 as follows:
 - Press "Special function" button on the diagnosis screen.
 - Select "Tire Pressure Sensor ID Check" from the "Special function" menu.
2. Check the TPMS transmitter IDs on the M.U.T.-III screen.

TIRE PRESSURE SENSOR CHECK

M1311004000087

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

According to the following procedures, identify which registered TPMS transmitter corresponds to which wheel, and check the tire pressure and acceleration value of each TPMS transmitter.

1. Check the data list "Air Pressure, Tire1, 2, 3, 4" and write down the tire pressure for all wheels.

NOTE: The display at this time is the data received most recently.

2. Perform the following procedures for four wheels in order, identify the wheel by checking the tire pressure of each wheel.

- (1) Change the pressure of tire for 20 kPa (2.9 psi) or more so that the TPMS transmitter sends the latest sensor data (The tire pressure can either be decreased or increased).
- (2) Check the data list screen to determine which tire number corresponds to the wheel whose tire pressure has changed.

NOTE:

- *It may take approximately one minute that the data of tire pressure change is displayed on the M.U.T.-III screen.*
- *If the data of tire pressure change is not displayed on the M.U.T.-III screen, the most possible cause is that the radio wave sent from the TPMS transmitter cannot be received. In this case, the radio wave may be received by performing the procedures from (1) again after turning the tire to change the TPMS transmitter position. If the tire pressure change is still not displayed on the M.U.T.-III screen, the TPMS transmitter in which the ID code is not registered may be installed, or the TPMS transmitter may be faulty. Therefore, perform ID code registration or replace the TPMS transmitter according to the instructions of troubleshooting for DTCs. (At this time, do not register the ID codes or replace the TPMS transmitter.)*

3. Check the tire pressure or acceleration value shown in the screen (if needed).
4. After checking by the tire pressure change, adjust the checked tire pressure to the proper value.

WHEEL AND TIRE

INSTALLATION SERVICE POINT

M1311001300506

Tighten the wheel nuts to the specified torque.

Tightening torque: 98 ± 10 N·m (73 ± 7 ft-lb)

WHEEL AND TIRE REPLACEMENT <TPMS>

M1311005800019

CAUTION

Do not use non-genuine wheels. The use of non-genuine wheels may cause the improper installation of the TPMS transmitters, possibly resulting in air leakage and damage to the TPMS transmitter.

- When the tire is removed from the wheel, a special procedure must be observed to avoid the TPMS transmitter damage. Refer to TPMS transmitter Removal and Installation ([P.31-56](#)).
- When the TPMS transmitter-fitted tire is replaced, always replace the rubber grommet. Refer to TPMS transmitter Removal and Installation ([P.31-56](#)).

TIRE PRESSURE MONITORING SYSTEM (TPMS)

TPMS RECEIVER

REMOVAL AND INSTALLATION

M1311003700113

⚠ CAUTION

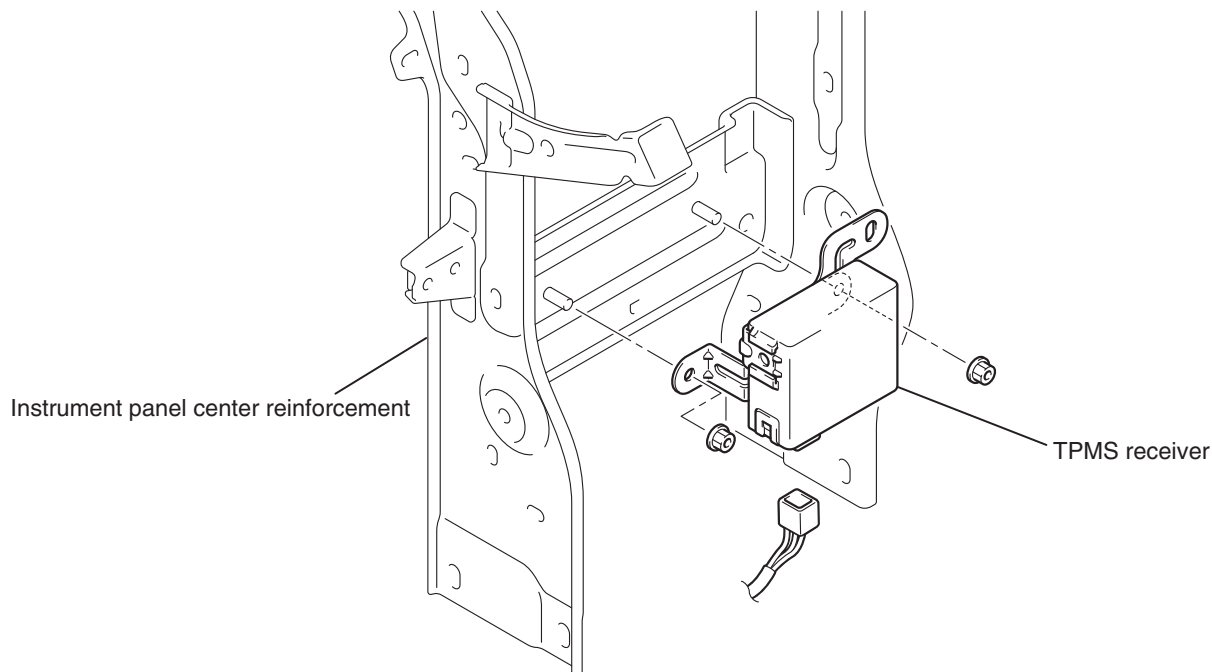
- Do not drop the TPMS receiver.
- TPMS receiver should not be exposed to temperatures above 85°C (185°F).
- If the TPMS receiver is replaced, execute "Tire Pressure Sensor ID Registration" on scan tool MB991958 "Special Function."

Pre-removal Operation

- Instrument Center Panel Assembly Removal (Refer to GROUP 52A, Instrument Panel Assembly [P.52A-19.](#))
- Center Panel Assembly Removal (Refer to GROUP 52A, Floor Console Assembly [P.52A-28.](#))

Post-installation Operation

- Center Panel Assembly Installation (Refer to GROUP 52A, Floor Console Assembly [P.52A-28.](#))
- Instrument Center Panel Assembly Installation (Refer to GROUP 52A, Instrument Panel Assembly [P.52A-19.](#))
- Tire Pressure Sensor ID Registration <If a new TPMS receiver is installed> (Refer to [P.31-51.](#))
- After the tire pressure sensor ID registration, check that the TPMS warning light does not illuminate or flash.



AC509678AB

TPMS TRANSMITTER

REMOVAL AND INSTALLATION

M1311003800121

CAUTION

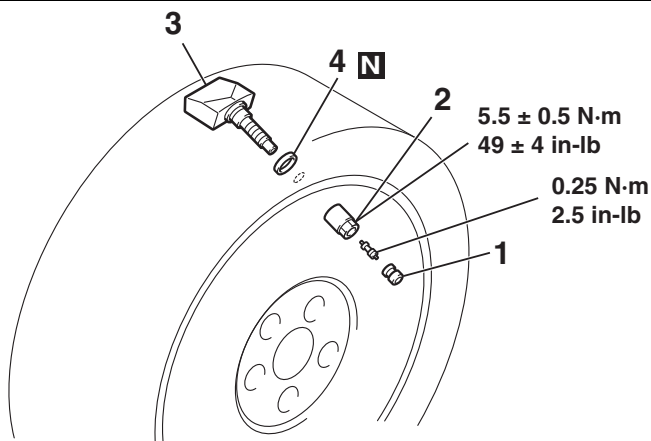
- Ensure valve cap is always in place except when adjusting tire pressure.
- If the valve core and valve cap are replaced, use a genuine replacement part. The valve core is similar to a conventional one, but uses nickel plating to avoid corrosion.
- Relieve tire pressure by removing the valve nut rather than by removing the valve core.
- Replace the valve stem grommet with a new one every five years or when the tire is replaced.
- If you shake the TPMS transmitter, you can hear a rattle, but this is not a failure. It is normal.
- Do not drop the TPMS transmitter from height greater than 1 meter (3.3 feet).
- 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 MB991958 "Special Function."

Pre-removal Operation

- Wheel and Tire Removal (Refer to P.31-54).

Post-installation Operation

- Wheel and Tire Installation (Refer to P.31-54).
- Tire Pressure Sensor ID Registration <If a new TPMS transmitter is installed> (Refer to P.31-51).
- After the tire pressure sensor ID registration, check that the TPMS warning light does not illuminate or flash.



AC205717 AB

Removal steps

- <<A>> 1. Valve cap
<<A>> 2. Valve nut
• Let tpms transmitter fall into tire
• Tire bead
<> 3. TPMS transmitter
<<C>> 4. Grommet

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 a few turns. Slowly push valve stem into tire so that tire pressure is relieved.
4. Once tire pressure is relieved, remove the valve nut.

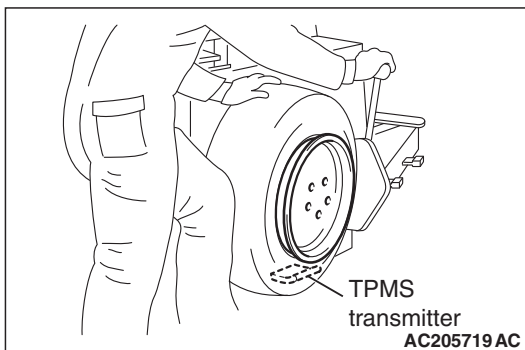
<> TPMS TRANSMITTER REMOVAL

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 REMOVAL

CAUTION

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

Remove the grommet from the TPMS transmitter.

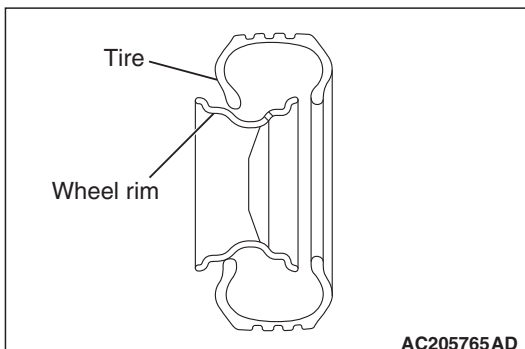
INSTALLATION SERVICE POINTS

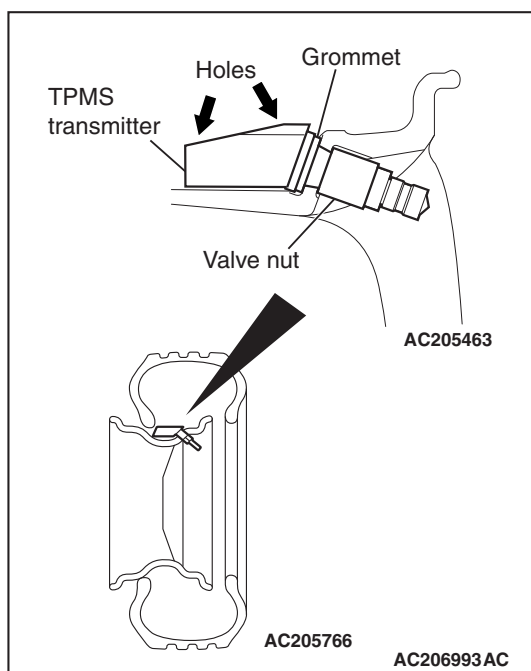
>>A<< GROMMET/TPMS TRANSMITTER/VALVE NUT INSTALLATION

1. Slide inner tire bead over rim face. Use lubricant, as normal procedures require.
2. Install a new grommet 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, hold the valve and grommet firmly in contact with the rim.
- 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.



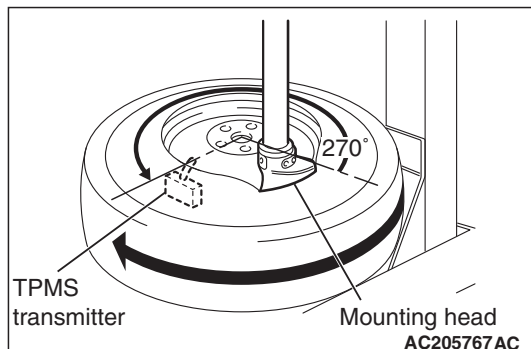


3. Mount TPMS transmitter valve through rim hole as illustrated. Both holes in the transmitter case should face away from center of rim. Tighten valve nut finger tight, then slowly torque the valve nut to 5.5 ± 0.5 N·m (49 ± 4 in-lb).

⚠ 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.

4. Check that the TPMS transmitter is correctly assembled (Refer to illustration).
 - One side of lower lip of the TPMS transmitter case can touch the rim after torquing.
 - Except for the grommet, valve nut and lower lip of the TPMS transmitter, no other part of the front of the TPMS transmitter case should be touching the rim.



>>B<< TIRE BEAD MOUNTING

1. Place wheel and tire on turntable of tire mounting machine. Ensure that transmitter is 270 degree angle (3 o'clock position) from mounting head when the outer tire bead is mounted as illustrated.
2. Lubricate tire well and mount outer tire bead as normal. Ensure that tire does not rotate during mounting.

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

⚠ CAUTION

After tire inflation, retighten the valve nut 5.5 ± 0.5 N·m (49 ± 4 in-lb). 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 retorquing the valve nut to 5.5 ± 0.5 N·m (49 ± 4 in-lb).