

WHEEL AND TIRE SYSTEM

WT

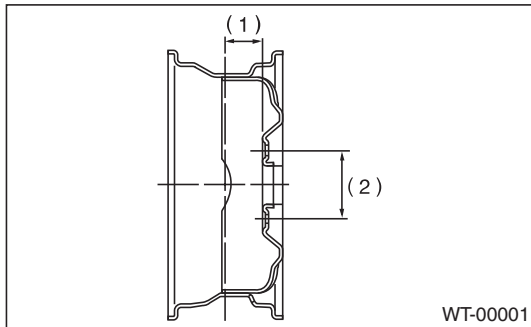
	Page
1. General Description	2
2. Tire and Wheel	5
3. "T-type" Tire	8
4. Tire Pressure Monitoring System	9
5. General Diagnostic Table	14

General Description

WHEEL AND TIRE SYSTEM

1. General Description

A: SPECIFICATION



- (1) Inset
(2) P.C.D.

Tire size	Wheel size	Inset mm (in)	P.C.D. mm (in)	Tire inflation pressure kPa (kgf/cm ² , psi)	
				Front wheel	Rear wheel
P225/60R17 98H	17 × 7J	48 (1.89)	100 (3.94)	210 (2.1, 30)	200 (2.0, 29)
P225/55R18 97H	18 × 7J			230 (2.3, 33)	220 (2.2, 32)
T145/80D17 101M	17 × 4T	20 (0.79)		420 (4.2, 60)	

NOTE:

Size and inflation pressure of the standard equipment tire and spare tire for emergency are described on the "Tire inflation pressure" label attached to the body side of the driver's door.

1. SERVICE DATA

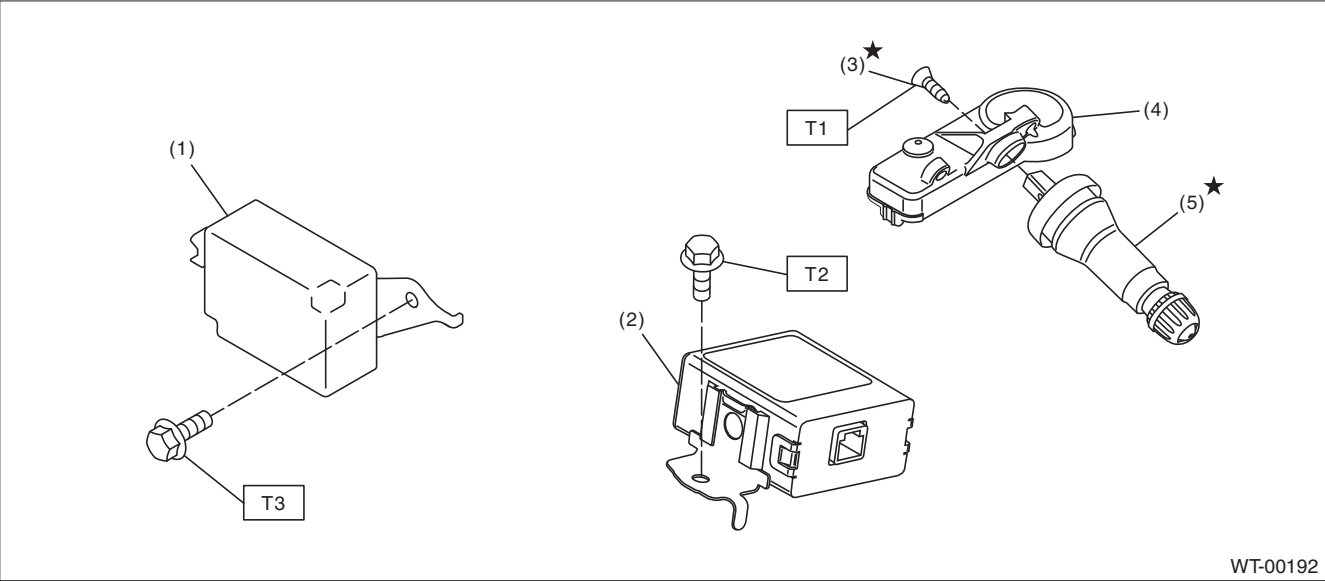
Part	Axial runout	Radial runout
Steel wheel	1.5 mm (0.059 in)	
Aluminum wheel	1.0 mm (0.039 in)	

Wheel balancing	Standard	Service limit
Dynamic unbalance	5 g (0.18 oz) or less	

General Description

WHEEL AND TIRE SYSTEM

B: COMPONENT



WT-00192

- | | |
|--|--------------------------------|
| (1) TPMS & keyless entry control module (model with keyless entry) | (4) Transmitter (snap in type) |
| (2) TPMS module ASSY (model with keyless access) | (5) Valve |
| (3) Screw | |

Tightening torque: N·m (kgf-m, ft-lb)

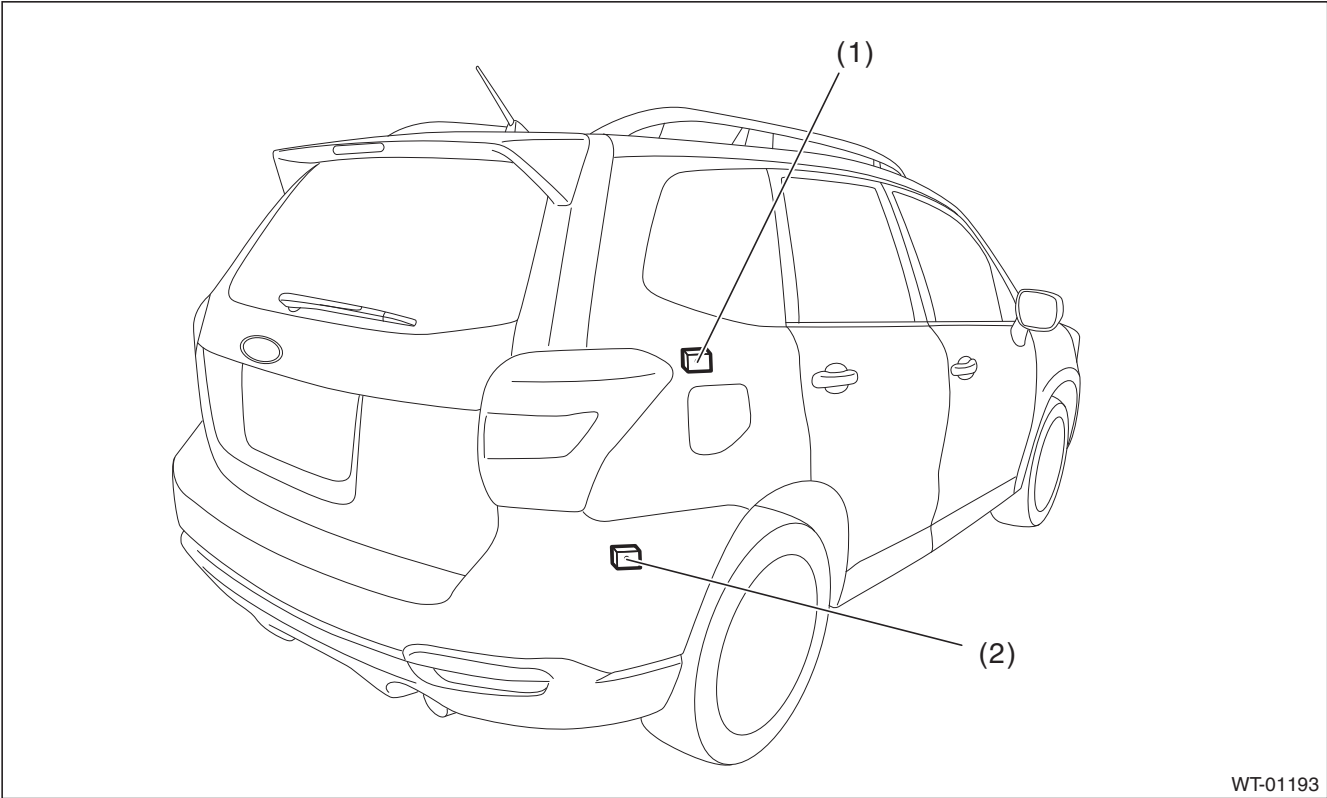
T1: 1.4 (0.14, 1.0)

T2: 7.5 (0.76, 5.5)

T3: 13 (1.33, 9.6)

General Description

WHEEL AND TIRE SYSTEM



WT-01193

- (1) TPMS & keyless entry control module (model with keyless entry) (2) TPMS module ASSY (model with keyless access)

C: PREPARATION TOOL

1. GENERAL TOOL

TOOL NAME	REMARKS
Air pressure gauge	Used for measuring tire air pressure.
Dial gauge	Used for measuring wheel runout.
Wheel balancer	Used for adjusting wheel balance.

2. Tire and Wheel

A: REMOVAL

- 1) Lift up the vehicle.
- 2) Remove the wheel nut.
- 3) Remove the wheels.

CAUTION:

When removing the wheels, be careful not to damage the bolt - hub.

B: INSTALLATION

- 1) Install the wheels to vehicle.
- 2) Tighten the wheel nuts to the specified torque.

Tightening torque:

120 N·m (12.24 kgf-m, 88.5 ft-lb)

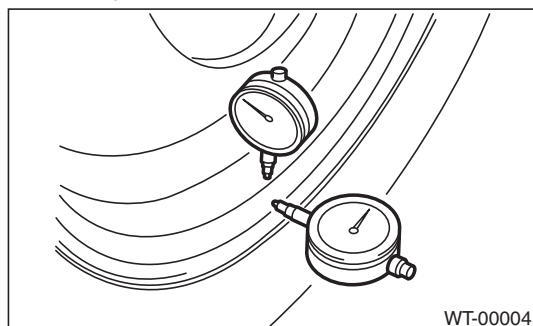
C: INSPECTION

1. TIRE

CAUTION:

When replacing a tire, make sure to use tires of the same size, construction and load range as originally installed.

- 1) Tire size and tire inflation pressure check <Ref. to WT-2, SPECIFICATION, General Description.>
- 2) Cracks, damage and wear check
- 3) Tire runout check
 - (1) Lift up the vehicle.
 - (2) Slowly rotate the wheel to check rim "runout" using a dial gauge.



- Aluminum wheel

Axial runout limit	Radial runout limit
1.0 mm (0.039 in)	

- Steel wheel

Axial runout limit	Radial runout limit
1.5 mm (0.059 in)	

- (3) If the rim runout exceeds service limit, replace the wheel.

Tire and Wheel

WHEEL AND TIRE SYSTEM

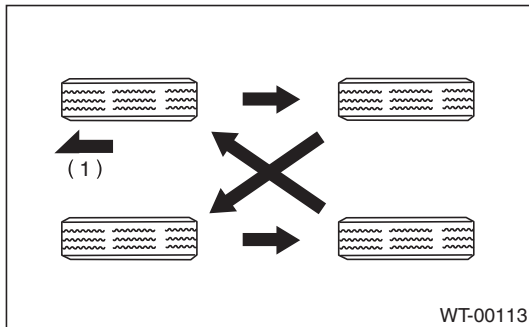
2. TIRE ROTATION

NOTE:

Rotate tires periodically (12,500 km/7,500 miles) in order to prolong life and to prevent uneven wear.

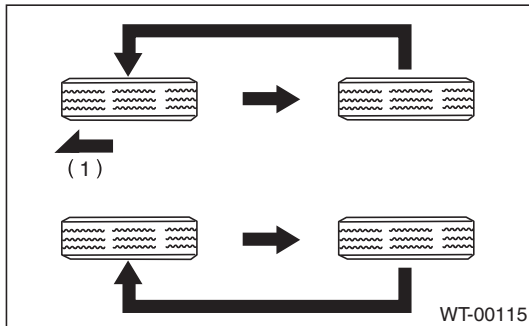
Rotate tires as shown in the figure depending on whether or not the direction of the tire rotation is specified.

- When the direction of tire rotation is not specified



(1) Front side of vehicle

- When the direction of tire rotation is specified



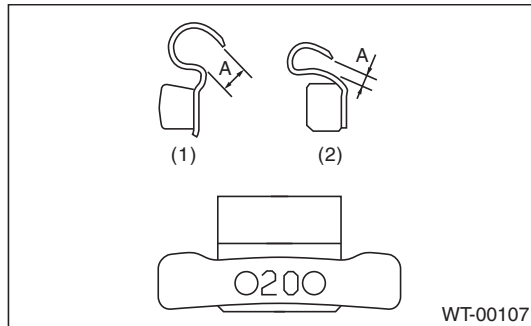
(1) Front side of vehicle

3. WHEEL BALANCING

- 1) Using the wheel balancer, measure wheel balance.
- 2) Adjust the wheel balancing.

NOTE:

- Unbalance after adjusting the wheel balancing should be 5 g (0.18 oz) or less.
- When using the adhesive type weight, degrease the surface where the adhesive type weight will be applied securely.
- After applying the adhesive type weight, apply a force to the weight and attain full adhesion.
- Using the knock-on type weight, check the size of the knock-on part.



- (1) Knock-on type weight for aluminum wheel
- (2) Knock-on type weight for steel wheel

Service limit A:

Knock-on type weight for steel wheel: 2.0 mm (0.079 in)

Knock-on type weight for aluminum wheel: 5.0 mm (0.197 in)

“T-type” Tire

WHEEL AND TIRE SYSTEM

3. “T-type” Tire

A: NOTE

“T-type” tire for temporary use is prepared as a spare tire.

CAUTION:

- The “T-type” tire is only for temporary use. Replace with a conventional tire as soon as possible.
- Do not use tire chains for “T-type” tires. Doing so can damage the vehicle and the tires because the tires are too small in size to attach chains to.
- Do not drive at a speed greater than 80 km/h (50 MPH).
- Drive at as low a speed as possible and avoid bumps on the road.

B: REPLACEMENT

Refer to “Tire & Wheel” for removal and installation of the “T-type” tire. <Ref. to WT-5, Tire and Wheel.>

C: INSPECTION

Refer to “Tire & Wheel” for inspection of the “T-type” tire. <Ref. to WT-5, TIRE, INSPECTION, Tire and Wheel.>



4. Tire Pressure Monitoring System

A: REMOVAL

1. TRANSMITTER (TIRE INFLATION PRESSURE SENSOR)

- 1) Remove the wheels from the vehicle. <Ref. to WT-5, REMOVAL, Tire and Wheel.>
- 2) Remove the tires from wheels.

CAUTION:

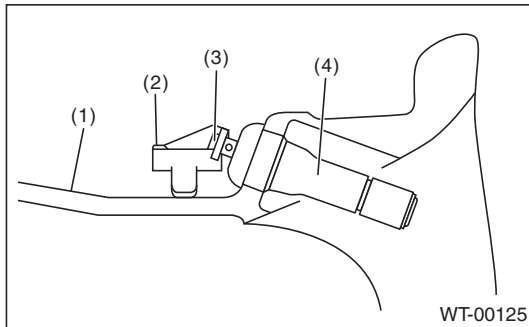
Use a tire changer when removing the tire from the wheel.

- 3) Loosen the screw to remove the transmitter from the valve stem.

CAUTION:

Do not reuse the valve and screw.

Replace the valve and screw with a new part even when reusing transmitter.



- (1) Wheel
- (2) Transmitter
- (3) Screw
- (4) Valve

- 4) Remove the valve from the wheel.

Tire Pressure Monitoring System

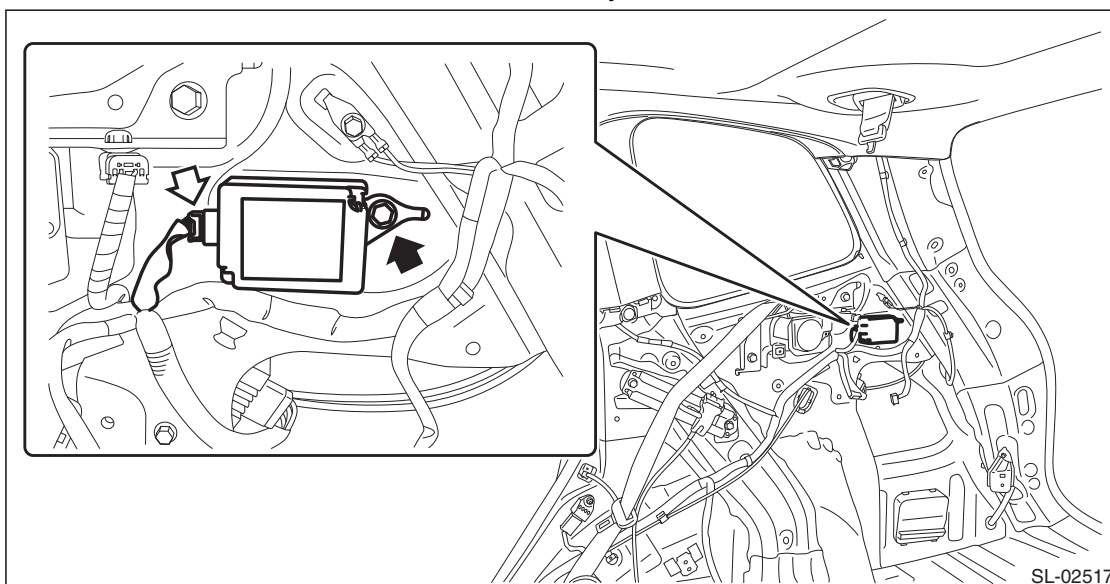
WHEEL AND TIRE SYSTEM

2. TPMS & KEYLESS CONTROL MODULE

NOTE:

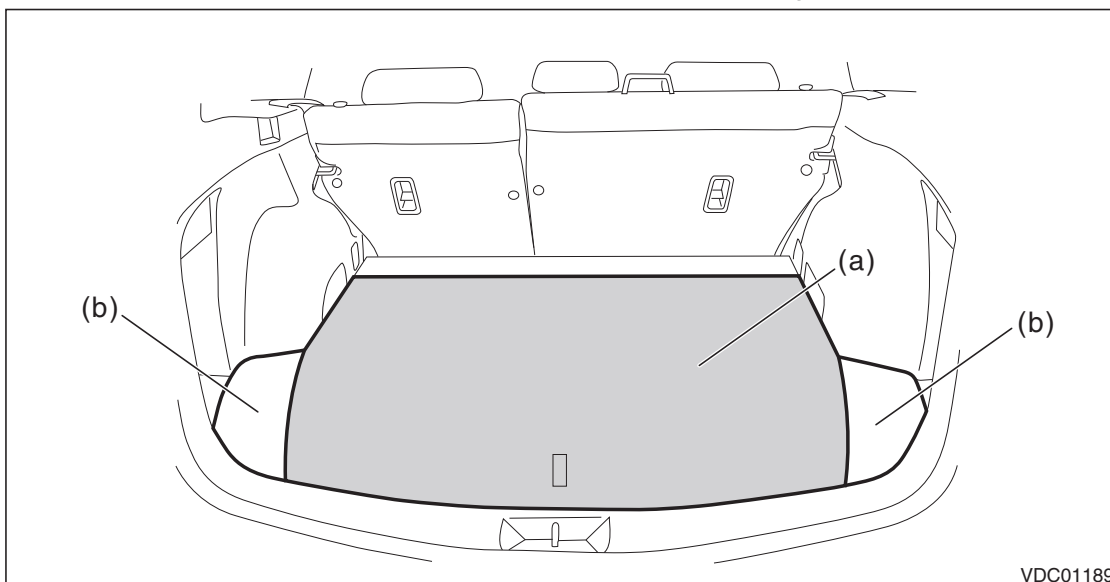
TPMS control module is integrated with the keyless entry control module.

- 1) Disconnect the ground cable from battery.
- 2) Remove the trim panel - rear apron. <Ref. to EI-102, REMOVAL, Rear Quarter Trim.>
- 3) Remove the TPMS & keyless control module.
 - (1) Disconnect the connector.
 - (2) Remove the bolt and then remove the TPMS & keyless control module.



3. TPMS MODULE

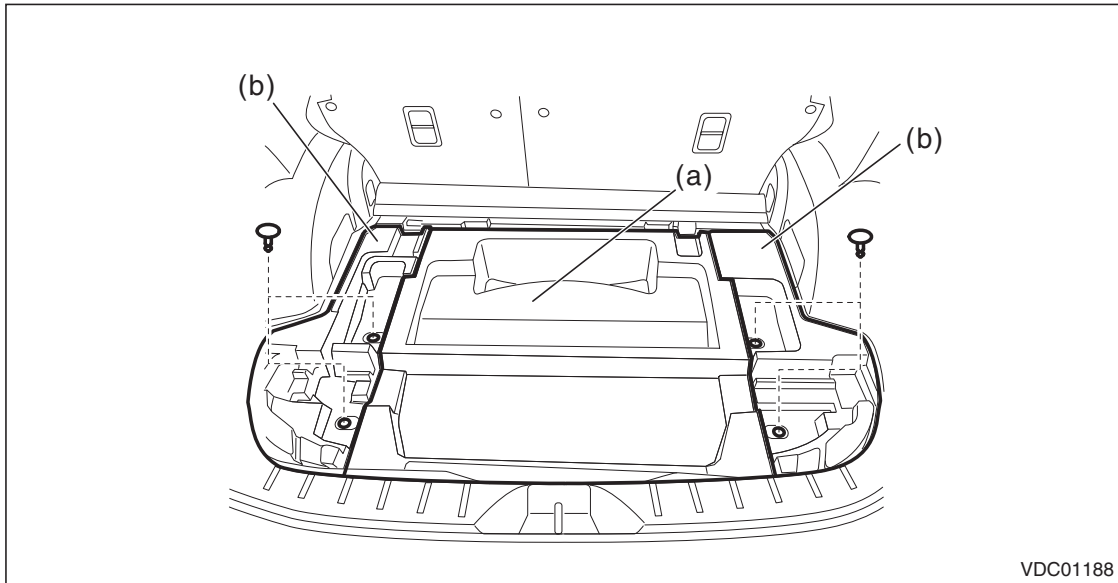
- 1) Disconnect the ground cable from battery.
- 2) Remove the mat - rear floor CTR (a) and the mats - rear floor (b) of right and left sides.



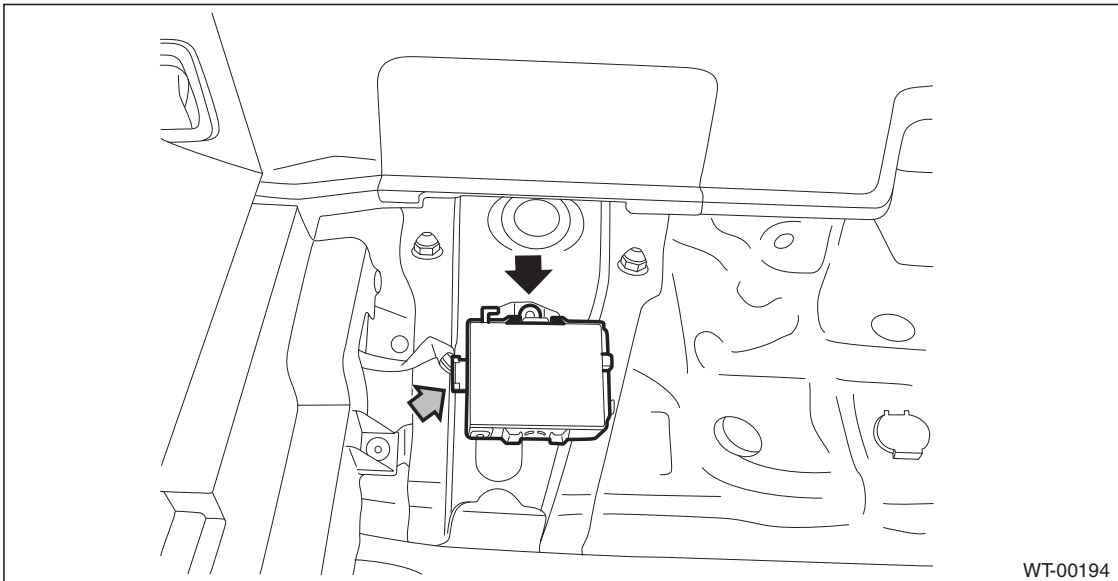
Tire Pressure Monitoring System

WHEEL AND TIRE SYSTEM

- 3) Remove the clips and remove the cover - trunk (a) and right and left spacers - rear front side (b).



- 4) Remove the TPMS module assembly.
(1) Disconnect the connector.
(2) Remove the bolts, then remove the TPMS module assembly.



Tire Pressure Monitoring System

WHEEL AND TIRE SYSTEM

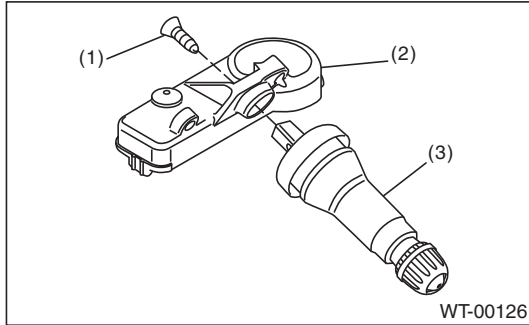
B: INSTALLATION

1. TRANSMITTER (TIRE INFLATION PRESSURE SENSOR)

CAUTION:

Use the new transmitter assembly or replace the new valve and screw, when installing.

1) Replace the valve and screw with a new part when reusing transmitter.



- (1) Screw
- (2) Transmitter
- (3) Valve

Tightening torque:

1.4 N·m (0.14 kgf-m, 1.0 ft-lb)

2) Install the transmitter to the wheel by aligning it with valve hole.

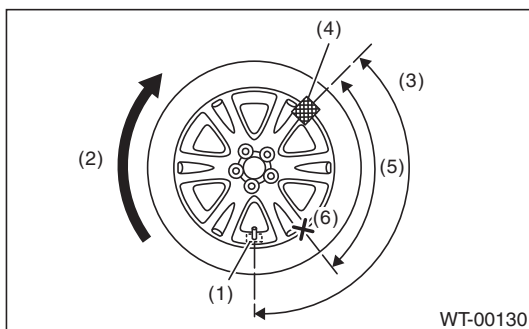
NOTE:

When using the jig that pulls the valve cap by hooking its neck part, use another short-type cap.

3) Install the tires to wheels.

CAUTION:

- Use a tire changer when installing tire to wheel.
- To prevent damaging the transmitter, set the tire changer boom in the position as shown in the figure.



- (1) Transmitter
- (2) Direction of turn table rotation
- (3) 135°
- (4) Tire changer boom
- (5) 90°
- (6) Starting point for fitting the bead to the rim

4) Install the wheels to vehicle. <Ref. to WT-5, INSTALLATION, Tire and Wheel.>

5) Register the transmitter ID when the transmitter has been replaced. <Ref. to TPM(diag)-15, Register Transmitter (ID).>

Tire Pressure Monitoring System

WHEEL AND TIRE SYSTEM

2. TPMS & KEYLESS CONTROL MODULE

1) Install each part in the reverse order of removal.

Tightening torque:

13 N·m (1.33 kgf-m, 9.6 ft-lb)

2) Re-register the transmitter ID and the keyless transmitter when the TPMS & keyless control module has been replaced.

- Register transmitter ID <Ref. to TPM(diag)-15, Register Transmitter (ID).>
- Keyless transmitter registration <Ref. to SL-78, REGISTRATION OF KEYLESS TRANSMITTER WITH SUBARU SELECT MONITOR, REPLACEMENT, Keyless Transmitter.>

3. TPMS MODULE

1) Install each part in the reverse order of removal.

Tightening torque:

7.5 N·m (0.76 kgf-m, 5.5 ft-lb)

2) Re-register the transmitter ID when the TPMS module has been replaced. <Ref. to TPM(diag)-15, Register Transmitter (ID).>



General Diagnostic Table

WHEEL AND TIRE SYSTEM

5. General Diagnostic Table

A: INSPECTION

Symptoms	Possible cause	Corrective action
Wheel is out of balance.	Improperly inflated tire.	Adjust the tire pressure.
	Uneven wear	Check the tire referring to "Abnormal tire wear" in this table, carry out the procedure and replace the tire.
	Front wheel alignment	Check or adjust the front wheel alignment. • Inspection: <Ref. to FS-7, INSPECTION, Wheel Alignment.> • Adjustment: <Ref. to FS-11, ADJUSTMENT, Wheel Alignment.>
	Rear wheel alignment	Check or adjust the rear wheel alignment. • Inspection: <Ref. to FS-7, INSPECTION, Wheel Alignment.> • Adjustment: <Ref. to FS-11, ADJUSTMENT, Wheel Alignment.>
	Front strut	Check the front strut. <Ref. to FS-45, INSPECTION, Front Strut.>
	Rear shock absorber	Check the rear shock absorber. <Ref. to RS-30, INSPECTION, Rear Shock Absorber.>
	Housing ASSY - front axle	Check the housing assembly - front axle. <Ref. to DS-33, INSPECTION, Front Hub Unit Bearing.>
	Hub unit COMPL - front axle	Check the hub unit COMPL - front axle. <Ref. to DS-33, INSPECTION, Front Hub Unit Bearing.>
	Hub unit COMPL - rear axle	Check the hub unit COMPL - rear axle. <Ref. to DS-54, INSPECTION, Rear Hub Unit Bearing.>
Vehicle is abnormally out of balance.	Improperly inflated tire.	Adjust the tire pressure.
	Uneven wear	Check the tire referring to "Abnormal tire wear" in this table, carry out the procedure and replace the tire.
	Front stabilizer	Inspect the front stabilizer.
	Front wheel alignment	Check or adjust the front wheel alignment. • Inspection: <Ref. to FS-7, INSPECTION, Wheel Alignment.> • Adjustment: <Ref. to FS-11, ADJUSTMENT, Wheel Alignment.>
	Rear wheel alignment	Check or adjust the rear wheel alignment. • Inspection: <Ref. to FS-7, INSPECTION, Wheel Alignment.> • Adjustment: <Ref. to FS-11, ADJUSTMENT, Wheel Alignment.>
Abnormal wheel vibration	Improperly inflated tire.	Adjust the tire pressure.
	Uneven wear	Check the tire referring to "Abnormal tire wear" in this table, carry out the procedure and replace the tire.
	Improper wheel balancing	Check the wheel balance. <Ref. to WT-7, WHEEL BALANCING, INSPECTION, Tire and Wheel.>
	Housing ASSY - front axle	Check the housing assembly - front axle. <Ref. to DS-33, INSPECTION, Front Hub Unit Bearing.>
	Hub unit COMPL - front axle	Check the hub unit COMPL - front axle. <Ref. to DS-33, INSPECTION, Front Hub Unit Bearing.>
	Hub unit COMPL - rear axle	Check the hub unit COMPL - rear axle. <Ref. to DS-54, INSPECTION, Rear Hub Unit Bearing.>
Abnormal tire wear	Improperly inflated tire.	Adjust the tire pressure.
	Improper wheel balancing	Check the wheel balance. <Ref. to WT-7, WHEEL BALANCING, INSPECTION, Tire and Wheel.>
	Front wheel alignment	Check or adjust the front wheel alignment. • Inspection: <Ref. to FS-7, INSPECTION, Wheel Alignment.> • Adjustment: <Ref. to FS-11, ADJUSTMENT, Wheel Alignment.>
	Rear wheel alignment	Check or adjust the rear wheel alignment. • Inspection: <Ref. to FS-7, INSPECTION, Wheel Alignment.> • Adjustment: <Ref. to FS-11, ADJUSTMENT, Wheel Alignment.>

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

TPM(diag)

	Page
1. Basic Diagnostic Procedure	2
2. General Description	4
3. Electrical Component Location	6
4. Control Module I/O Signal	8
5. Subaru Select Monitor	9
6. Read Diagnostic Trouble Code (DTC)	12
7. Clear Memory Mode	13
8. Read Current Data	14
9. Register Transmitter (ID)	15
10. Display Transmitter (ID)	16
11. Inspection Mode	17
12. Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern	18
13. List of Diagnostic Trouble Code (DTC)	23
14. Diagnostic Procedure with Diagnostic Trouble Code (DTC)	25
15. General Diagnostic Table	36



Basic Diagnostic Procedure

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

CAUTION:

Before removal or installation, be sure to remove any foreign matter (dust, moisture, oil, etc.) from the TPMS & keyless entry control module connector.

NOTE:

To check harness for open or short circuits, shake the suspected trouble spot or connector.

Step	Check	Yes	No
1 CHECK PRE-INSPECTION. 1) Check with the user regarding when the warning light lit or started blinking. 2) Before performing diagnostics, check all components which may adversely affect the tire pressure monitor system. <Ref. to TPM(diag)-4, INSPECTION, General Description.>	Is the component that might affect the tire pressure monitor system normal?	Go to step 2.	Repair or replace each component.
2 CHECK DIAGNOSTIC TROUBLE CODE (DTC). 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. 3) Turn the ignition switch to ON and run the Subaru Select Monitor. NOTE: If the communication function of the Subaru Select Monitor cannot be executed normally, check the communication circuit. <Ref. to TPM(diag)-9, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.> 4) Read the DTC. <Ref. to TPM(diag)-12, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is DTC displayed?	Go to step 4.	Go to step 3.
3 PERFORM GENERAL DIAGNOSTICS. 1) Perform the inspection by referring to "General Diagnostic Table". <Ref. to TPM(diag)-36, General Diagnostic Table.> 2) Perform the Clear Memory Mode. <Ref. to TPM(diag)-13, OPERATION, Clear Memory Mode.> 3) Perform the Inspection Mode. <Ref. to TPM(diag)-17, Inspection Mode.> 4) Read the DTC. <Ref. to TPM(diag)-12, OPERATION, Read Diagnostic Trouble Code (DTC).> Check the DTC is not displayed.	Does the tire pressure warning light illuminates for about 2 seconds and then goes off after turning on the ignition switch, and then go out?	Finish the diagnosis.	Check the tire inflation pressure warning light. <Ref. to TPM(diag)-18, Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern.>
4 CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, check the Freeze Frame Data.	Are freeze frame data recorded?	Record the data. Go to step 5.	Go to step 5.

Basic Diagnostic Procedure

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
5 PERFORM DIAGNOSIS. 1) Refer to "List of Diagnostic Trouble Code (DTC)". 2) Correct the cause of trouble. 3) Perform the Clear Memory Mode. <Ref. to TPM(diag)-13, OPERATION, Clear Memory Mode.> 4) Perform the drive test. Drive the vehicle at 40 km/h (25 MPH) or faster for at least 10 minutes. 5) Read the DTC. <Ref. to TPM(diag)-12, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is DTC displayed?	Repeat steps 1 to 4 until DTC is not shown.	Finish the diagnosis.

General Description

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

2. General Description

A: CAUTION

1. SUPPLEMENTAL RESTRAINT SYSTEM “AIRBAG”

Airbag system wiring harness is routed near the TPM control module.

CAUTION:

- Do not use electrical test equipment on any of the airbag system wiring harness circuits.
- Be careful not to damage the wiring harness of the airbag system when servicing the TPMS & keyless entry control module.

2. TPMS & KEYLESS ENTRY CONTROL MODULE

- If the transmitter is replaced, ID registration for the transmitter is required. <Ref. to TPM(diag)-15, OPERATION, Register Transmitter (ID).>
- When adjusting tire pressure indoors in winter, there is a big temperature difference between the indoor facilities and outside. Once the car is outside where the temperature is lower, the air pressure in the tires will drop, causing the tire pressure warning light to illuminate, even if the pressure in the tires was adjusted to standard values indoors. To avoid this, it is necessary to adjust the tire pressure to the high side in consideration of the difference in temperature between inside and outside according to the following table.
- P225/55R18

Temperature °C (°F)	Indoor temperature	15.5 (60)		
	Ambient temperature	-1 (30)	-12 (10)	-23 (-10)
Air pressure kPa (psi)	Front	250 (36)	260 (38)	275 (40)
	Rear	240 (35)	255 (37)	270 (39)

- P225/60R17

Temperature °C (°F)	Indoor temperature	15.5 (60)		
	Ambient temperature	-1 (30)	-12 (10)	-23 (-10)
Air pressure kPa (psi)	Front	230 (33)	240 (35)	255 (37)
	Rear	220 (32)	235 (34)	250 (36)

B: INSPECTION

Before performing diagnosis, check the following item which might affect the quality of the tire pressure monitoring system.

1. TIRE

- Inspect that the tire pressure is within the specification while the tire is cool. (Refer to Tire Caution Label.)
- Check the tires for damage or the insertion of foreign matters.

2. BATTERY

Check that amount of battery fluid, gravity and voltage are within the specifications.

Standard voltage: 12 V or more

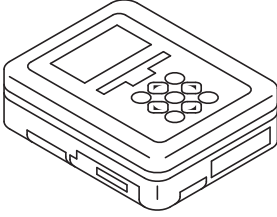
Specific gravity: 1.260 or more

General Description

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

C: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for troubleshooting the electrical system.

2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and current.
Transmitter registration tool	Used to register the transmitter ID. Manufacturer: Kent-Moore Item number: J45295

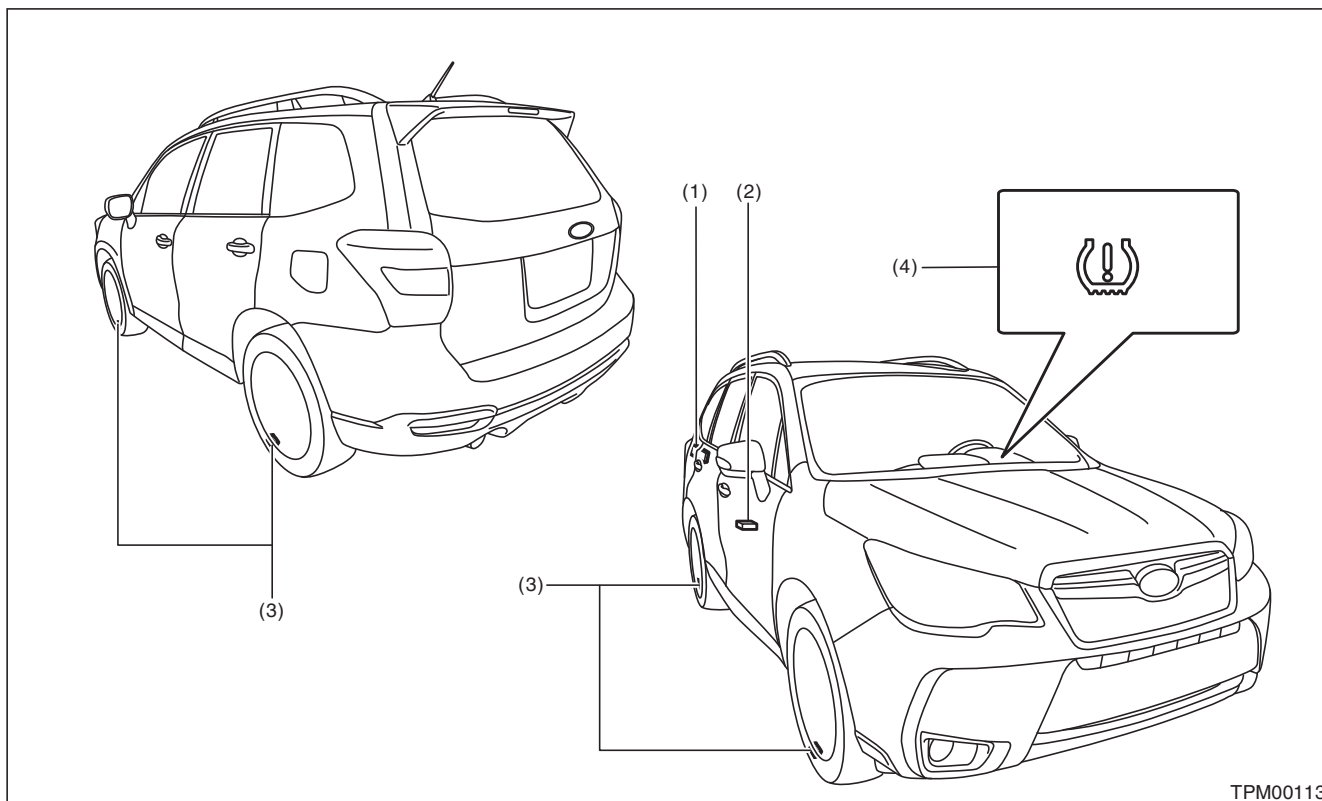


Electrical Component Location

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

3. Electrical Component Location

A: LOCATION



(1) TPMS & keyless entry control module
(model with keyless entry)

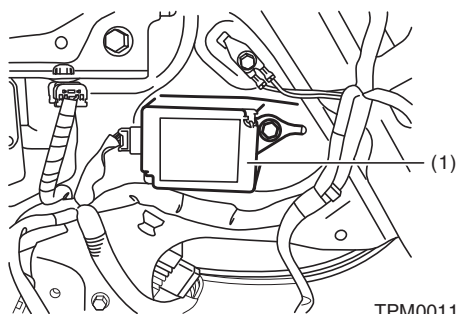
(2) TPMS control module
(model with keyless access)

(3) Snap-in type transmitter

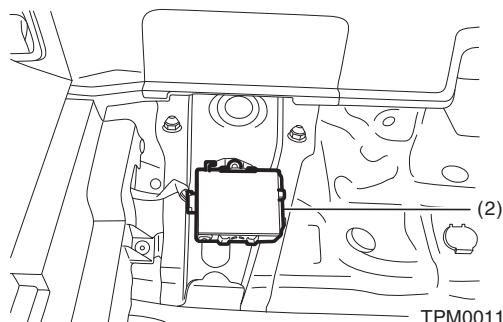
(4) Tire pressure warning light

Electrical Component Location

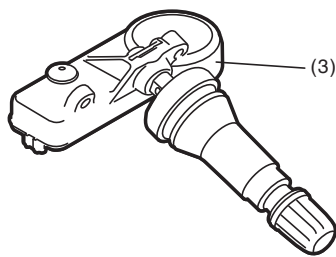
TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)



TPM00114



TPM00117



TPM00049

SUBARU.

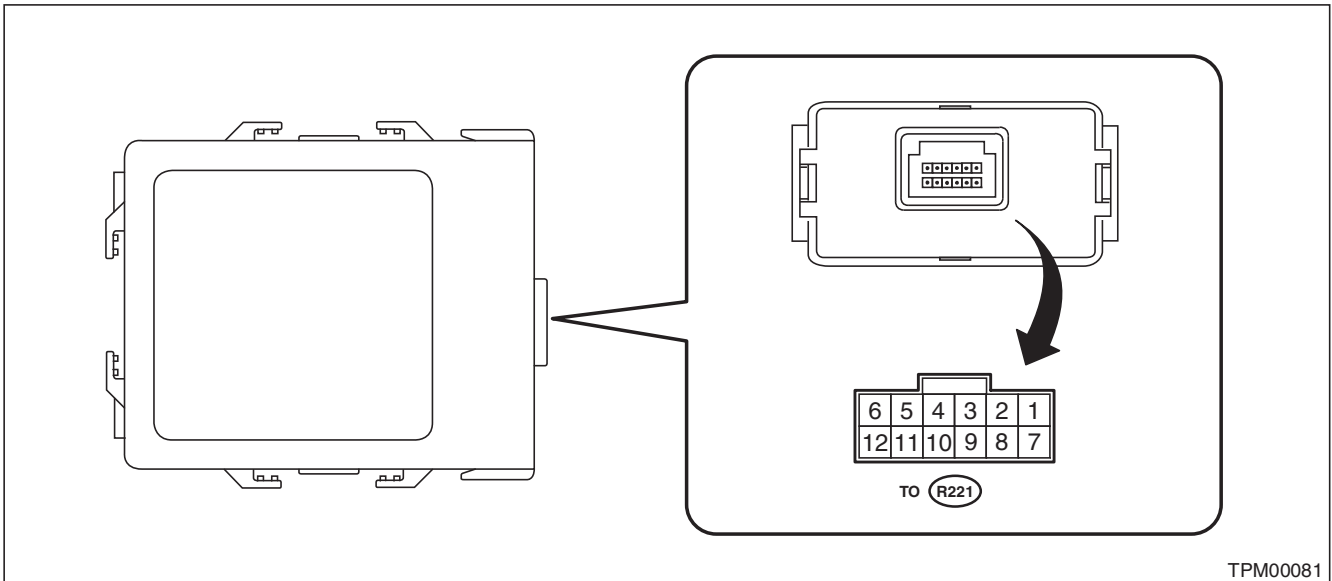


Control Module I/O Signal

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

4. Control Module I/O Signal

A: ELECTRICAL SPECIFICATION



Terminal No.	Content	Measured value and measuring conditions	Remarks
1	—	—	—
2	—	—	—
3	—	—	—
4	Ignition power supply	IG switch ON (battery voltage)	—
5	GND	0 V (always)	—
6	Battery power supply	Battery voltage (always)	Model with keyless entry only
7	—	—	—
8	—	—	—
9	—	—	—
10	—	—	—
11	Body integrated unit	—	—
12	—	—	—

B: WIRING DIAGRAM

<Ref. to WI-408, WIRING DIAGRAM, Tire Pressure Monitoring System.>

Subaru Select Monitor

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

5. Subaru Select Monitor

A: OPERATION

For the operation procedure, refer to the "PC application help for Subaru Select Monitor".

NOTE:

If TPMS & keyless entry control module and Subaru Select Monitor cannot communicate, check the communication circuit. <Ref. to TPM(diag)-9, INSPECTION, Subaru Select Monitor.>

B: INSPECTION

1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

DETECTING CONDITION:

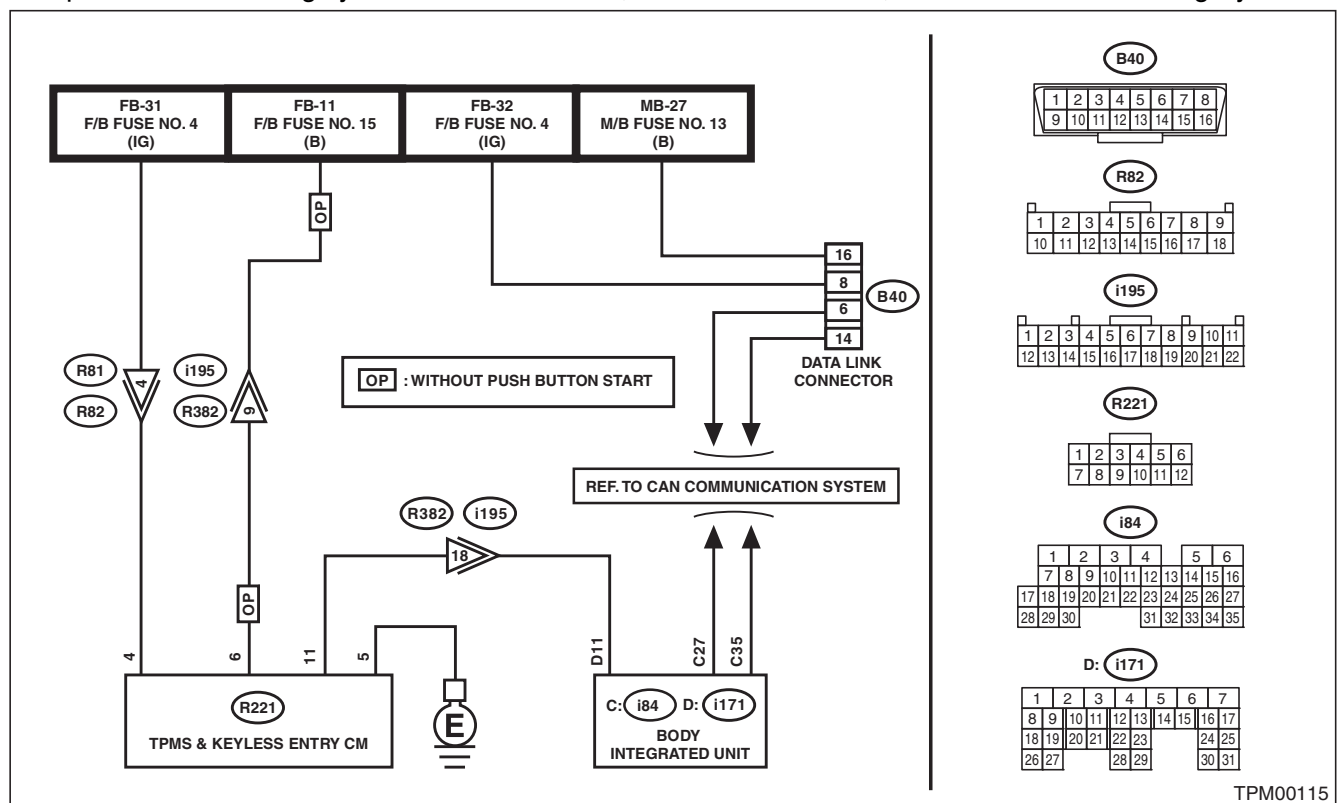
Defective harness connector

TROUBLE SYMPTOM:

Communication is impossible between the TPMS & keyless entry control module and the Subaru Select Monitor.

WIRING DIAGRAM:

Tire pressure monitoring system <Ref. to WI-408, WIRING DIAGRAM, Tire Pressure Monitoring System.>



Step	Check	Yes	No	
1	CHECK IGNITION SWITCH.	Is the ignition switch ON?	Go to step 2.	Turn the ignition switch to ON, and select TPM mode using Subaru Select Monitor.
2	CHECK BATTERY.	Is the voltage 11 V or more?	Go to step 3.	Charge or replace the battery.
3	CHECK BATTERY TERMINAL.	Is there poor contact at battery terminal?	Repair or tighten the battery terminal.	Go to step 4.

Subaru Select Monitor

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
4 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check whether communication to other systems can be executed normally.	Is the system name displayed on Subaru Select Monitor?	Go to step 8.	Go to step 5.
5 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to OFF. 2) Disconnect the TPMS & keyless entry control module connector. 3) Turn the ignition switch to ON. 4) Check whether communication to other systems can be executed normally.	Is the system name displayed on Subaru Select Monitor?	Replace the TPMS & keyless entry control module. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>	Go to step 6.
6 CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Disconnect the TPMS & keyless entry control module. 3) Measure the resistance between the body integrated unit and chassis ground. Connector & terminal (B40) No. 6 — Chassis ground: (B40) No. 14 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 7.	Repair the harness and connector between each control module and body integrated unit.
7 CHECK OUTPUT SIGNAL TO TPMS & KEYLESS ENTRY CONTROL MODULE. 1) Turn the ignition switch to ON. 2) Measure the voltage between TPMS & keyless entry control module and chassis ground. Connector & terminal (B40) No. 6 (+) — Chassis ground (-): (B40) No. 14 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 8.	Repair the harness and connector between each control module and body integrated unit.
8 CHECK HARNESS CONNECTOR BETWEEN TPMS & KEYLESS ENTRY CONTROL MODULE AND BODY INTEGRATED UNIT. 1) Turn the ignition switch to OFF. 2) Measure the resistance between TPMS & keyless entry control module connector and body integrated unit. Connector & terminal (R221) No. 11 — (i171) No. 11:	Is the resistance less than 0.5 Ω?	Go to step 9.	Repair the harness and connector between TPMS & keyless entry control module and body integrated unit.
9 CHECK TPMS & KEYLESS ENTRY CONTROL MODULE CONNECTOR.	Is the connector inserted into the TPMS & keyless entry control module until it locks?	Go to step 10.	Insert the connector into the TPMS & keyless entry control module.
10 CHECK POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. 2) Measure the ignition power supply voltage between TPMS & keyless entry control module connector and chassis ground. Connector & terminal (R221) No. 4 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 11.	Repair open circuit of the harness between TPMS & keyless entry control module and battery.

Subaru Select Monitor

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
11 CHECK HARNESS CONNECTOR BETWEEN TPMS & KEYLESS ENTRY CONTROL MODULE AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the TPMS & keyless entry control module. 3) Measure the resistance of harness between TPMS & keyless entry control module and chassis ground. Connector & terminal (R221) No. 5 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 12.	Repair open circuit of the harness of the TPMS & keyless entry control module.
12 CHECK POOR CONTACT OF CONNECTOR.	Is there poor contact in TPMS & keyless entry control module power supply, ground circuit and body integrated unit?	Repair the connector.	Replace the TPMS & keyless entry control module. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>

Read Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

6. Read Diagnostic Trouble Code (DTC)

A: OPERATION

For operation procedures, refer to the "PC application help for Subaru Select Monitor".

NOTE:

- For details concerning DTCs, refer to List of Diagnostic Trouble Code (DTC). <Ref. to TPM(diag)-23, List of Diagnostic Trouble Code (DTC).>
- All DTCs detected will be displayed.
- If a particular DTC is not properly stored in memory (due to a voltage drop of the TPMS & keyless entry control module power supply, etc.) when a problem occurs, a DTC suffixed with a question mark will appear on the Subaru Select Monitor display. This shows it may be an unreliable reading.
- When DTC is not displayed, check the indicator circuit and communication circuit. <Ref. to TPM(diag)-18, Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern.>

Clear Memory Mode

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

7. Clear Memory Mode

A: OPERATION

For the operation procedure, refer to the "PC application help for Subaru Select Monitor".

Read Current Data

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

8. Read Current Data

A: OPERATION

For the operation procedure, refer to the "PC application help for Subaru Select Monitor".

B: LIST

Display	Contents to be displayed	Unit of measure
Tire 1 FN code	LEARN, LOW BAT, OFF, WAKE, RE ME, NORMAL	LEARN: Transmitted transmitter ID using the transmitter registration tool LOW BAT: Transmitter battery voltage running low OFF: Transmitter function stops (no data transmission) RE ME: Tire air changes ± 8.4 kPa WAKE: When data transmission is started from a stopped state. NORMAL: Conditions other than above
Tire 2 FN code		
Tire 3 FN code		
Tire 4 FN code		
Tire 1 air pressure	Value converted to tire pressure from data delivered from transmitter is displayed. (The figure may differ from the actual measured values.)	kPa, psig, mmHg, inHg
Tire 2 air pressure		kPa, psig, mmHg, inHg
Tire 3 air pressure		kPa, psig, mmHg, inHg
Tire 4 air pressure		kPa, psig, mmHg, inHg
Vehicle Speed	Vehicle speed signal which is input in control module	km/h, MPH
Pressure warning	Threshold where tire pressure warning light illuminates	kPa, psig, mmHg, inHg
Return pressure	Threshold where tire pressure warning light goes out	kPa, psig, mmHg, inHg

Register Transmitter (ID)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

9. Register Transmitter (ID)

A: OPERATION

Perform the registration procedure of the transmitter in the following cases:

- Transmitter replaced.
- TPMS & keyless entry control module replaced.

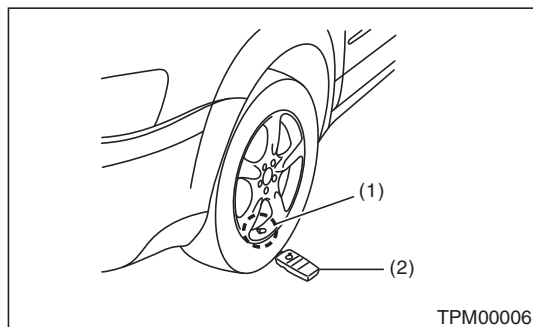
NOTE:

- If registration of the transmitter ID is not possible after two attempts, replace the TPMS & keyless entry control module.
- During the registration, turn the ignition switch to OFF and end the Subaru Select Monitor. Or if the registration is not performed for 5 minutes or more, the registration mode is cancelled.
- When rotating tires, there is no affect on the performance or functions of the tire pressure monitoring control module even if the transmitter (ID) is not registered, however, the tire position displayed on the Subaru Select Monitor will be incorrect.

- 1) Adjust all tire pressures to the specifications.
- 2) Connect Subaru Select Monitor and select the {Each System Check} on the «Main Menu».
- 3) On «System Selection Menu» display, select {Tire pressure monitor}.
- 4) After the {Tire pressure monitor} is displayed, select [OK].
- 5) On «Tire pressure monitor diagnosis» display, select {Transmitter ID regist confirm}.
- 6) {ID registration mode When execute Registered ID is deleted. Continue?} is displayed, select [OK].
- 7) Contact the transmitter registration tool to the side wall area near the air valve on the front left tire, and press the switch. The transmitter ID is sent to the TPMS & keyless entry control module. (At that time, the tire pressure warning light blinks to confirm that the registration has started.)

NOTE:

- The registration order of transmitter ID is not specified.
 - The transmitter registration tool is used by touching the side wall area near the transmitter.
 - When registration of each tire is completed, {ID registration completed} is displayed on the Select Monitor screen.
 - If registration procedure stop in the halfway (turning ignition switch to OFF, wrong registration order, etc), proceed from step 5).
- 8) When ID registration is completed, the tire pressure warning light remains lit for approximately 2 seconds, to end the registration. Switch to the screen displaying the transmitter ID on the Subaru Select Monitor display. <Ref. to TPM(diag)-16, Display Transmitter (ID).>
- 9) Check the transmitter ID that was registered, then perform a driving test. <Ref. to TPM(diag)-17, Inspection Mode.>



- (1) Air valve (transmitter)
- (2) Transmitter registration tool

Display Transmitter (ID)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

10.Display Transmitter (ID)

A: OPERATION

For the operation procedure, refer to the “PC application help for Subaru Select Monitor”.

Inspection Mode

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

11. Inspection Mode

A: PROCEDURE

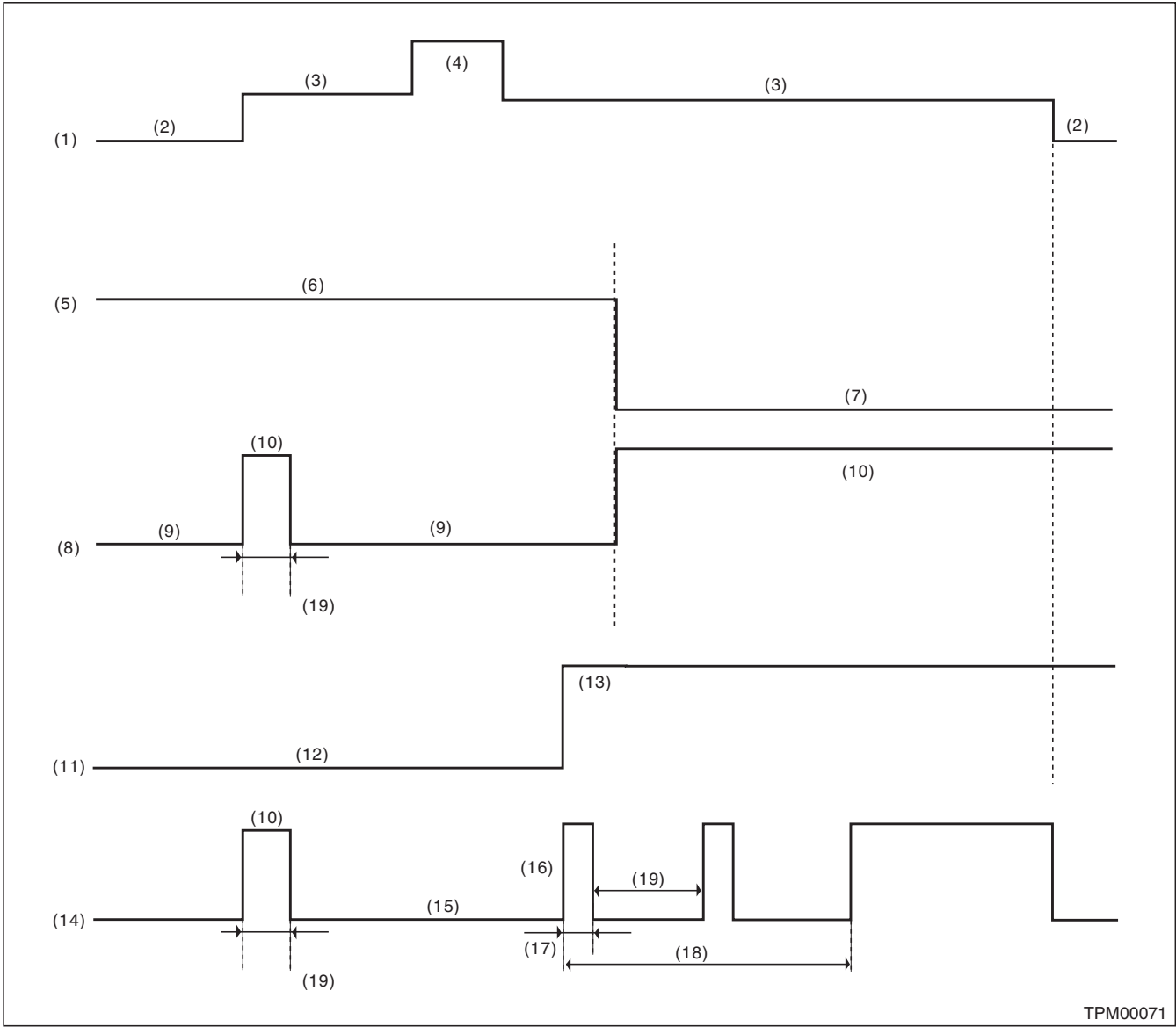
Reproduce the malfunction occurrence condition as much as possible. Drive the vehicle at 40 km/h (25 MPH) or faster for at least ten minutes.

Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

12.Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern

A: INSPECTION



TPM00071

- | | | |
|---|--|----------------------|
| (1) Ignition switch | (8) Tire inflation pressure warning light (pressure condition) | (15) Light OFF |
| (2) OFF | (9) Light OFF | (16) Blink |
| (3) ON | (10) Light ON | (17) 1 second |
| (4) Start | (11) System status | (18) Blinks 25 times |
| (5) Tire inflation pressure condition | (12) Normal | (19) 2 seconds |
| (6) Meet the specification | (13) Malfunction | |
| (7) Less than standard value
(For the pressure warning level, refer to "CURRENT DATA".) <Ref. to TPM(diag)-14, LIST, Read Current Data.> | (14) Tire inflation pressure warning light (system condition) | |

Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

1) When the tire pressure warning light does not illuminate in accordance with this illumination pattern, there must be an electrical malfunction.

2) If the tire pressure warning light does not go off, check the TPMS & keyless entry control module/warning light circuit and the combination meter circuit. <Ref. to TPM(diag)-20, TIRE PRESSURE WARNING LIGHT DOES NOT COME OFF, Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern.>

NOTE:

If the problem is fixed while driving at approximately 40 km/h (25 MPH) after the tire pressure warning light blinks/lights, the warning light goes out and the tire pressure monitor system operates normally. (If there is a decrease in tire pressure, or a malfunction of the system, the malfunction history is displayed.)

B: TIRE PRESSURE WARNING LIGHT DOES NOT COME ON

DETECTING CONDITION:

Defective combination meter

TROUBLE SYMPTOM:

When the ignition switch is turned to ON, the tire pressure warning light does not turn on (for approx. 2 seconds).

Step	Check	Yes	No
1 CHECK DIAGNOSTIC TROUBLE CODE (DTC). Connect the Subaru Select Monitor, and read the Diagnostic Trouble Code. <Ref. to TPM(diag)-12, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is diagnostics code (DTC) displayed?	Perform the diagnosis according to the DTC. <Ref. to TPM(diag)-23, List of Diagnostic Trouble Code (DTC).>	Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>



Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

C: TIRE PRESSURE WARNING LIGHT DOES NOT COME OFF

DETECTING CONDITION:

- Defective combination meter
- Tires pressure drop
- Transmitter ID not registered

TROUBLE SYMPTOM:

Tire pressure warning light remains illuminating after engine starts.

Step	Check	Yes	No
1 CHECK DTC. Connect the Subaru Select Monitor, and read the Diagnostic Trouble Code. <Ref. to TPM(diag)-12, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is a DTC displayed?	Perform the diagnosis according to the DTC. <Ref. to TPM(diag)-23, List of Diagnostic Trouble Code (DTC).>	Go to step 2.
2 CHECK TRANSMITTER (ID). Display the transmitter ID of the tire pressure monitor system.	Is the transmitter ID registered?	Go to step 3.	Register the transmitter ID. <Ref. to TPM(diag)-15, OPERATION, Register Transmitter (ID).>
3 CHECK TRANSMITTER DATA OUTPUT. 1) Select data display of the tire pressure monitoring. 2) Start the engine and check the tire pressure warning light output.	Is the warning light output ON?	Replace the TPMS & keyless entry control module. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>	Replace the combination meter. <Ref. to IDI-18, REMOVAL, Combination Meter.>



Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

D: TIRE PRESSURE WARNING LIGHT IS 25 TIMES BLINKING AND TURN ON DETECTING CONDITION:

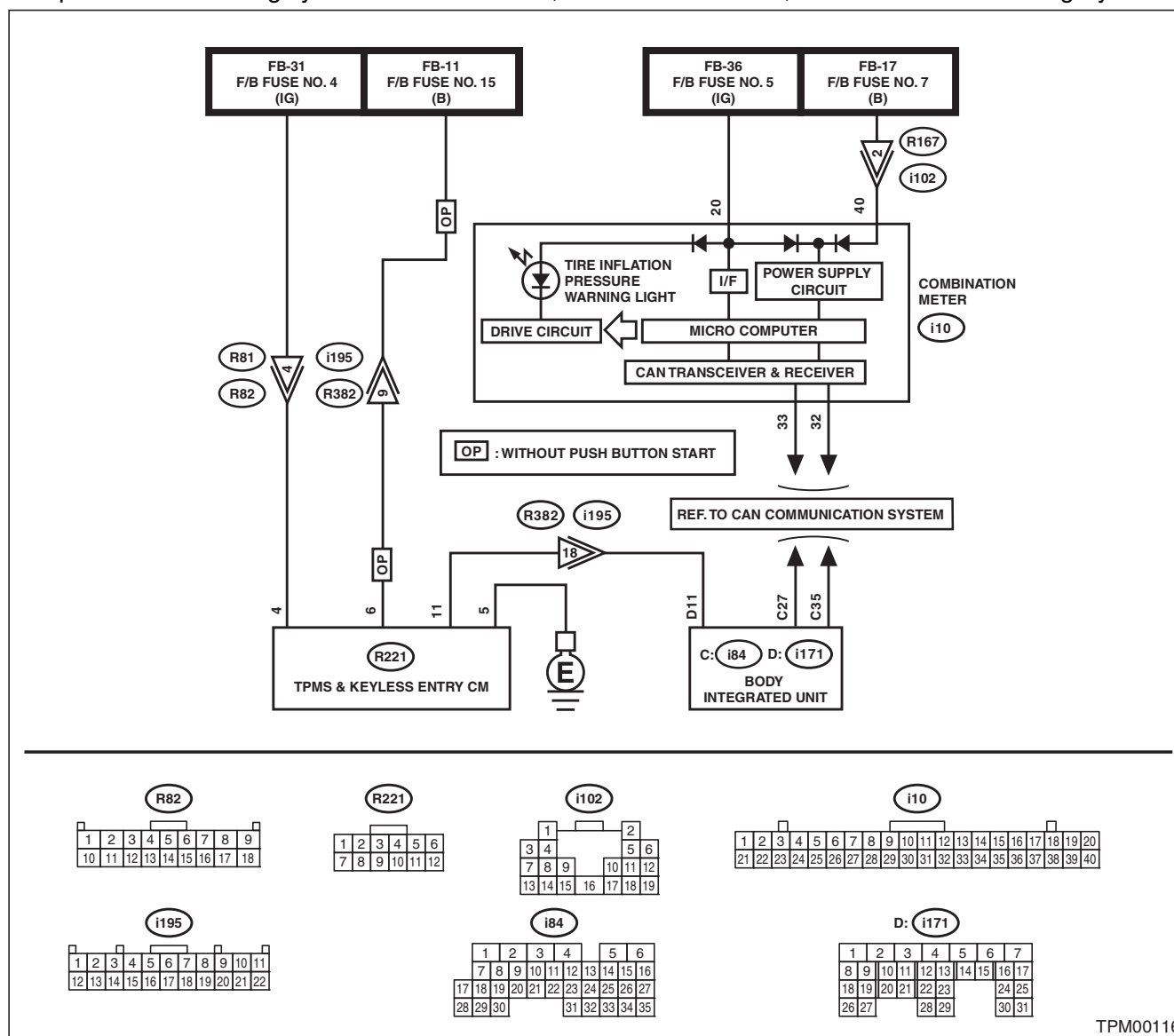
- Defective TPMS & keyless entry control module
- Defective harness
- Transmitter is faulty.

TROUBLE SYMPTOM:

Every time the engine starts, tire pressure warning light blinks 25 times and then illuminates.

WIRING DIAGRAM:

Tire pressure monitoring system <Ref. to WI-408, WIRING DIAGRAM, Tire Pressure Monitoring System.>



Step	Check	Yes	No
1	CHECK DTC. Connect the Subaru Select Monitor, and read the Diagnostic Trouble Code. <Ref. to TPM(diag)-12, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is diagnostics code (DTC) displayed? Perform the diagnosis according to the DTC. <Ref. to TPM(diag)-23, List of Diagnostic Trouble Code (DTC).>	Go to step 2.

Tire Pressure Warning Light / Trouble Indicator Light Illumination Pattern

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
2	CHECK LAN COMMUNICATION. Inspect LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>	Is there any fault? Repair it according to the diagnosis for LAN system.	Go to step 3.
3	CHECK HARNESS. Measure the resistance between TPMS & keyless entry control module and body integrated unit. Connector & terminal (R221) No. 11 — (i171) No. 11:	Is the resistance less than 10 Ω? Go to step 4.	Repair the harness.
4	CHECK CONNECTOR. Check each connector.	Is there poor contact or any other faults? Repair the connector.	Replace the TPMS & keyless entry control module. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>



List of Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

13. List of Diagnostic Trouble Code (DTC)

A: LIST

DTC	Item	Contents of diagnosis	Remarks
C2021	Tire 1 Air Pressure Decrease	Tire pressure of tire 1 is reduced.	<Ref. to TPM(diag)-25, DTC C2021 TIRE 1 AIR PRESSURE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2022	Tire 2 Air Pressure Decrease	Tire pressure of tire 2 is reduced.	<Ref. to TPM(diag)-25, DTC C2022 TIRE 2 AIR PRESSURE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2023	Tire 3 Air Pressure Decrease	Tire pressure of tire 3 is reduced.	<Ref. to TPM(diag)-25, DTC C2023 TIRE 3 AIR PRESSURE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2024	Tire 4 Air Pressure Decrease	Tire pressure of tire 4 is reduced.	<Ref. to TPM(diag)-26, DTC C2024 TIRE 4 AIR PRESSURE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2121	Transmitter 1 No Data	Data cannot be received from transmitter 1.	<Ref. to TPM(diag)-26, DTC C2121 TRANSMITTER 1 NO DATA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2122	Transmitter 2 No Data	Data cannot be received from transmitter 2.	<Ref. to TPM(diag)-26, DTC C2122 TRANSMITTER 2 NO DATA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2123	Transmitter 3 No Data	Data cannot be received from transmitter 3.	<Ref. to TPM(diag)-26, DTC C2123 TRANSMITTER 3 NO DATA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2124	Transmitter 4 No Data	Data cannot be received from transmitter 4.	<Ref. to TPM(diag)-27, DTC C2124 TRANSMITTER 4 NO DATA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2221	Transmitter 1 Pressure Data Abnormal	Transmitter 1 data contents are abnormal.	<Ref. to TPM(diag)-28, DTC C2221 TRANSMITTER 1 PRESSURE DATA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2222	Transmitter 2 Pressure Data Abnormal	Transmitter 2 data contents are abnormal.	<Ref. to TPM(diag)-28, DTC C2222 TRANSMITTER 2 PRESSURE DATA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2223	Transmitter 3 Pressure Data Abnormal	Transmitter 3 data contents are abnormal.	<Ref. to TPM(diag)-28, DTC C2223 TRANSMITTER 3 PRESSURE DATA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2224	Transmitter 4 Pressure Data Abnormal	Transmitter 4 data contents are abnormal.	<Ref. to TPM(diag)-29, DTC C2224 TRANSMITTER 4 PRESSURE DATA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2321	Transmitter 1 Function Code Abnormal	Function code has error.	<Ref. to TPM(diag)-30, DTC C2321 TRANSMITTER 1 FUNCTION CODE ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



List of Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

DTC	Item	Contents of diagnosis	Remarks
C2322	Transmitter 2 Function Code Abnormal	Function code has error.	<Ref. to TPM(diag)-30, DTC C2322 TRANSMITTER 2 FUNCTION CODE ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2323	Transmitter 3 Function Code Abnormal	Function code has error.	<Ref. to TPM(diag)-30, DTC C2323 TRANSMITTER 3 FUNCTION CODE ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2324	Transmitter 4 Function Code Abnormal	Function code has error.	<Ref. to TPM(diag)-31, DTC C2324 TRANSMITTER 4 FUNCTION CODE ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2421	Transmitter 1 Battery Voltage Decrease	Transmitter battery voltage is low.	<Ref. to TPM(diag)-32, DTC C2421 TRANSMITTER 1 BATTERY VOLTAGE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2422	Transmitter 2 Battery Voltage Decrease	Transmitter battery voltage is low.	<Ref. to TPM(diag)-32, DTC C2422 TRANSMITTER 2 BATTERY VOLTAGE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2423	Transmitter 3 Battery Voltage Decrease	Transmitter battery voltage is low.	<Ref. to TPM(diag)-32, DTC C2423 TRANSMITTER 3 BATTERY VOLTAGE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2424	Transmitter 4 Battery Voltage Decrease	Transmitter battery voltage is low.	<Ref. to TPM(diag)-33, DTC C2424 TRANSMITTER 4 BATTERY VOLTAGE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
C2521	Vehicle Speed Is Abnormal	Vehicle speed signal is not input to the control module when the vehicle speed is 6 km/h (3.7 MPH) or more.	<Ref. to TPM(diag)-34, DTC C2521 VEHICLE SPEED IS ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

14. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC C2021 TIRE 1 AIR PRESSURE DECREASE

NOTE:

Refer to DTC C2024 for diagnostic procedure. <Ref. to TPM(diag)-26, DTC C2024 TIRE 4 AIR PRESSURE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

B: DTC C2022 TIRE 2 AIR PRESSURE DECREASE

NOTE:

Refer to DTC C2024 for diagnostic procedure. <Ref. to TPM(diag)-26, DTC C2024 TIRE 4 AIR PRESSURE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

C: DTC C2023 TIRE 3 AIR PRESSURE DECREASE

NOTE:

Refer to DTC C2024 for diagnostic procedure. <Ref. to TPM(diag)-26, DTC C2024 TIRE 4 AIR PRESSURE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

D: DTC C2024 TIRE 4 AIR PRESSURE DECREASE

DTC DETECTING CONDITION:

Inflation pressure of tires dropped below the specified value.

NOTE:

For the specifications, refer to "CURRENT DATA". <Ref. to TPM(diag)-14, LIST, Read Current Data.>

TROUBLE SYMPTOM:

Tire pressure warning light illuminates.

Step	Check	Yes	No
1 CHECK TIRES. Lift up the vehicle and check for damage in the tires.	Are there cracks or damage?	Replace the tire.	Go to step 2.
2 CHECK TIRES. Check the tire air pressure.	Is the tire pressure in the specifications?	Go to step 3.	Adjust the air pressure.
3 CHECK TRANSMITTER. Drive the vehicle at 40 km/h (25 MPH) or faster and compare the data from the transmitter on the four wheels.	Is there a transmitter with different data?	Replace the transmitter (tire pressure sensor). <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>	Go to step 4.
4 PERFORM DRIVING TEST. 1) Perform the Clear Memory Mode. <Ref. to TPM(diag)-13, OPERATION, Clear Memory Mode.> 2) Perform a driving test. <Ref. to TPM(diag)-17, PROCEDURE, Inspection Mode.> 3) Read the DTC. <Ref. to TPM(diag)-12, OPERATION, Read Diagnostic Trouble Code (DTC).>	Is DTC displayed?	Inspect by referring to "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to TPM(diag)-25, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Finish the diagnosis.

CAUTION:

When driving vehicle to perform driving test, there should be always 2 persons (driver and checker) to check.

E: DTC C2121 TRANSMITTER 1 NO DATA

NOTE:

Refer to DTC C2124 for diagnostic procedure. <Ref. to TPM(diag)-27, DTC C2124 TRANSMITTER 4 NO DATA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

F: DTC C2122 TRANSMITTER 2 NO DATA

NOTE:

Refer to DTC C2124 for diagnostic procedure. <Ref. to TPM(diag)-27, DTC C2124 TRANSMITTER 4 NO DATA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

G: DTC C2123 TRANSMITTER 3 NO DATA

NOTE:

Refer to DTC C2124 for diagnostic procedure. <Ref. to TPM(diag)-27, DTC C2124 TRANSMITTER 4 NO DATA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

H: DTC C2124 TRANSMITTER 4 NO DATA

DTC DETECTING CONDITION:

Data from each transmitter is not received for 8 minutes.

TROUBLE SYMPTOM:

Tire pressure warning light blinks 25 times and then illuminates.

Step	Check	Yes	No
1 START FL TRANSMITTER. 1) Connect the Subaru Select Monitor and then turn the ignition switch to ON. 2) Select "Transmit ID data monitor". <Ref. to TPM(diag)-16, OPERATION, Display Transmitter (ID).> 3) Use the transmitter registration tool and transmit the ID from the FL transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 2.	Replace front left transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
2 CHECK FL TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 1 registered ID.	Are the two IDs same?	Go to step 3.	Record the received ID update as the FL transmitter. Go to step 3.
3 START FR TRANSMITTER. Use the transmitter registration tool and transmit the ID from the FR transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 4.	Replace the front right transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
4 CHECK FR TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 2 registered ID.	Are the two IDs same?	Go to step 5.	Record the received ID update as the FR transmitter. Go to step 5.
5 START RR TRANSMITTER. Use the transmitter registration tool and transmit the ID from the RR transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 6.	Replace the RR transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
6 CHECK RR TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 3 registered ID.	Are the two IDs same?	Go to step 7.	Record the received ID update as the RR transmitter. Go to step 7.
7 START RL TRANSMITTER. Use the transmitter registration tool and transmit the ID from the RL transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 8.	Replace the RL transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
8 CHECK RL TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 4 registered ID.	Are the two IDs same?	Go to step 9.	Record the received ID update as the RL transmitter. Go to step 9.
9 CHECK MALFUNCTION TRANSMITTER.	Is ID recorded by this procedure?	Go to step 10.	Go to step 1.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
10 CHECK MALFUNCTION TRANSMITTER. Check the registered ID of the transmitter indicated by DTC.	Is there checked ID in the record?	Replace the transmitter of the recorded position. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>	Replace the transmitter showing the latest ID that is not included in the registered IDs. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>

CAUTION:

When driving vehicle to perform driving test, there should be always 2 persons (driver and checker) to check.

I: DTC C2221 TRANSMITTER 1 PRESSURE DATA ABNORMAL

NOTE:

Refer to DTC C2224 for diagnostic procedure. <Ref. to TPM(diag)-29, DTC C2224 TRANSMITTER 4 PRESSURE DATA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

J: DTC C2222 TRANSMITTER 2 PRESSURE DATA ABNORMAL

NOTE:

Refer to DTC C2224 for diagnostic procedure. <Ref. to TPM(diag)-29, DTC C2224 TRANSMITTER 4 PRESSURE DATA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC C2223 TRANSMITTER 3 PRESSURE DATA ABNORMAL

NOTE:

Refer to DTC C2224 for diagnostic procedure. <Ref. to TPM(diag)-29, DTC C2224 TRANSMITTER 4 PRESSURE DATA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

L: DTC C2224 TRANSMITTER 4 PRESSURE DATA ABNORMAL

DTC DETECTING CONDITION:

- When comparing the data from each transmitter to the previous data, the change is large.
- The pressure exceeds what the transmitter can measure. (Excessive pressure)

TROUBLE SYMPTOM:

Tire pressure warning light blinks 25 times and then illuminates.

Step	Check	Yes	No
1 START FL TRANSMITTER. 1) Connect the Subaru Select Monitor and then turn the ignition switch to ON. 2) Select "Transmit ID data monitor". <Ref. to TPM(diag)-16, OPERATION, Display Transmitter (ID).> 3) Use the transmitter registration tool and transmit the ID from the FL transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 2.	Replace front left transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
2 CHECK FL TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 1 registered ID.	Are the two IDs same?	Go to step 3.	Record the received ID update as the FL transmitter. Go to step 3.
3 START FR TRANSMITTER. Use the transmitter registration tool and transmit the ID from the FR transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 4.	Replace the front right transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
4 CHECK FR TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 2 registered ID.	Are the two IDs same?	Go to step 5.	Record the received ID update as the FR transmitter. Go to step 5.
5 START RR TRANSMITTER. Use the transmitter registration tool and transmit the ID from the RR transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 6.	Replace the RR transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
6 CHECK RR TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 3 registered ID.	Are the two IDs same?	Go to step 7.	Record the received ID update as the RR transmitter. Go to step 7.
7 START RL TRANSMITTER. Use the transmitter registration tool and transmit the ID from the RL transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 8.	Replace the RL transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
8 CHECK RL TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 4 registered ID.	Are the two IDs same?	Go to step 9.	Record the received ID update as the RL transmitter. Go to step 9.
9 CHECK MALFUNCTION TRANSMITTER.	Is ID recorded by this procedure?	Go to step 10.	Go to step 1.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
10 CHECK MALFUNCTION TRANSMITTER. Check the registered ID of the transmitter indicated by DTC.	Is there checked ID in the record?	Replace the transmitter of the recorded position. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>	Replace the transmitter showing the latest ID that is not included in the registered IDs. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>

M: DTC C2321 TRANSMITTER 1 FUNCTION CODE ABNORMAL

NOTE:

Refer to DTC C2324 for diagnostic procedure. <Ref. to TPM(diag)-31, DTC C2324 TRANSMITTER 4 FUNCTION CODE ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

N: DTC C2322 TRANSMITTER 2 FUNCTION CODE ABNORMAL

NOTE:

Refer to DTC C2324 for diagnostic procedure. <Ref. to TPM(diag)-31, DTC C2324 TRANSMITTER 4 FUNCTION CODE ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

O: DTC C2323 TRANSMITTER 3 FUNCTION CODE ABNORMAL

NOTE:

Refer to DTC C2324 for diagnostic procedure. <Ref. to TPM(diag)-31, DTC C2324 TRANSMITTER 4 FUNCTION CODE ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

P: DTC C2324 TRANSMITTER 4 FUNCTION CODE ABNORMAL

DTC DETECTING CONDITION:

Unexpected function codes received from each transmitter.

TROUBLE SYMPTOM:

Tire pressure warning light blinks 25 times and then illuminates.

Step	Check	Yes	No
1 START FL TRANSMITTER. 1) Connect the Subaru Select Monitor and then turn the ignition switch to ON. 2) Select "Transmit ID data monitor". <Ref. to TPM(diag)-16, OPERATION, Display Transmitter (ID).> 3) Use the transmitter registration tool and transmit the ID from the FL transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 2.	Replace front left transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
2 CHECK FL TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 1 registered ID.	Are the two IDs same?	Go to step 3.	Record the received ID update as the FL transmitter. Go to step 3.
3 START FR TRANSMITTER. Use the transmitter registration tool and transmit the ID from the FR transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 4.	Replace the front right transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
4 CHECK FR TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 2 registered ID.	Are the two IDs same?	Go to step 5.	Record the received ID update as the FR transmitter. Go to step 5.
5 START RR TRANSMITTER. Use the transmitter registration tool and transmit the ID from the RR transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 6.	Replace the RR transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
6 CHECK RR TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 3 registered ID.	Are the two IDs same?	Go to step 7.	Record the received ID update as the RR transmitter. Go to step 7.
7 START RL TRANSMITTER. Use the transmitter registration tool and transmit the ID from the RL transmitter to check "Latest reception ID".	Is "Latest reception ID" updated?	Go to step 8.	Replace the RL transmitter. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>
8 CHECK RL TRANSMITTER ID. Check the ID displayed in the updated ID display and the tire 4 registered ID.	Are the two IDs same?	Go to step 9.	Record the received ID update as the RL transmitter. Go to step 9.
9 CHECK MALFUNCTION TRANSMITTER.	Is ID recorded by this procedure?	Go to step 10.	Replace the transmitter indicated by diagnostics trouble code (DTC). <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
10 CHECK MALFUNCTION TRANSMITTER. Check the registered ID of the transmitter indicated by DTC.	Is there checked ID in the record?	Replace the transmitter of the recorded position. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>	Replace the transmitter indicated by diagnostics trouble code (DTC). <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>

Q: DTC C2421 TRANSMITTER 1 BATTERY VOLTAGE DECREASE

NOTE:

Refer to DTC C2424 for diagnostic procedure. <Ref. to TPM(diag)-33, DTC C2424 TRANSMITTER 4 BATTERY VOLTAGE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

R: DTC C2422 TRANSMITTER 2 BATTERY VOLTAGE DECREASE

NOTE:

Refer to DTC C2424 for diagnostic procedure. <Ref. to TPM(diag)-33, DTC C2424 TRANSMITTER 4 BATTERY VOLTAGE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

S: DTC C2423 TRANSMITTER 3 BATTERY VOLTAGE DECREASE

NOTE:

Refer to DTC C2424 for diagnostic procedure. <Ref. to TPM(diag)-33, DTC C2424 TRANSMITTER 4 BATTERY VOLTAGE DECREASE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

T: DTC C2424 TRANSMITTER 4 BATTERY VOLTAGE DECREASE

DTC DETECTING CONDITION:

Low battery signals received 20 times from each transmitter.

TROUBLE SYMPTOM:

Tire pressure warning light blinks 25 times and then illuminates.

Step		Check	Yes	No
1	CHECK TRANSMITTER. 1) Replace all transmitters and register their IDs. <Ref. to TPM(diag)-15, OPERATION, Register Transmitter (ID).> 2) Perform the Clear Memory Mode, and perform driving test.	Is the fault eliminated?	Internal battery of the transmitter had worn out.	Replace the TPMS & keyless entry control module. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

U: DTC C2521 VEHICLE SPEED IS ABNORMAL

DTC DETECTING CONDITION:

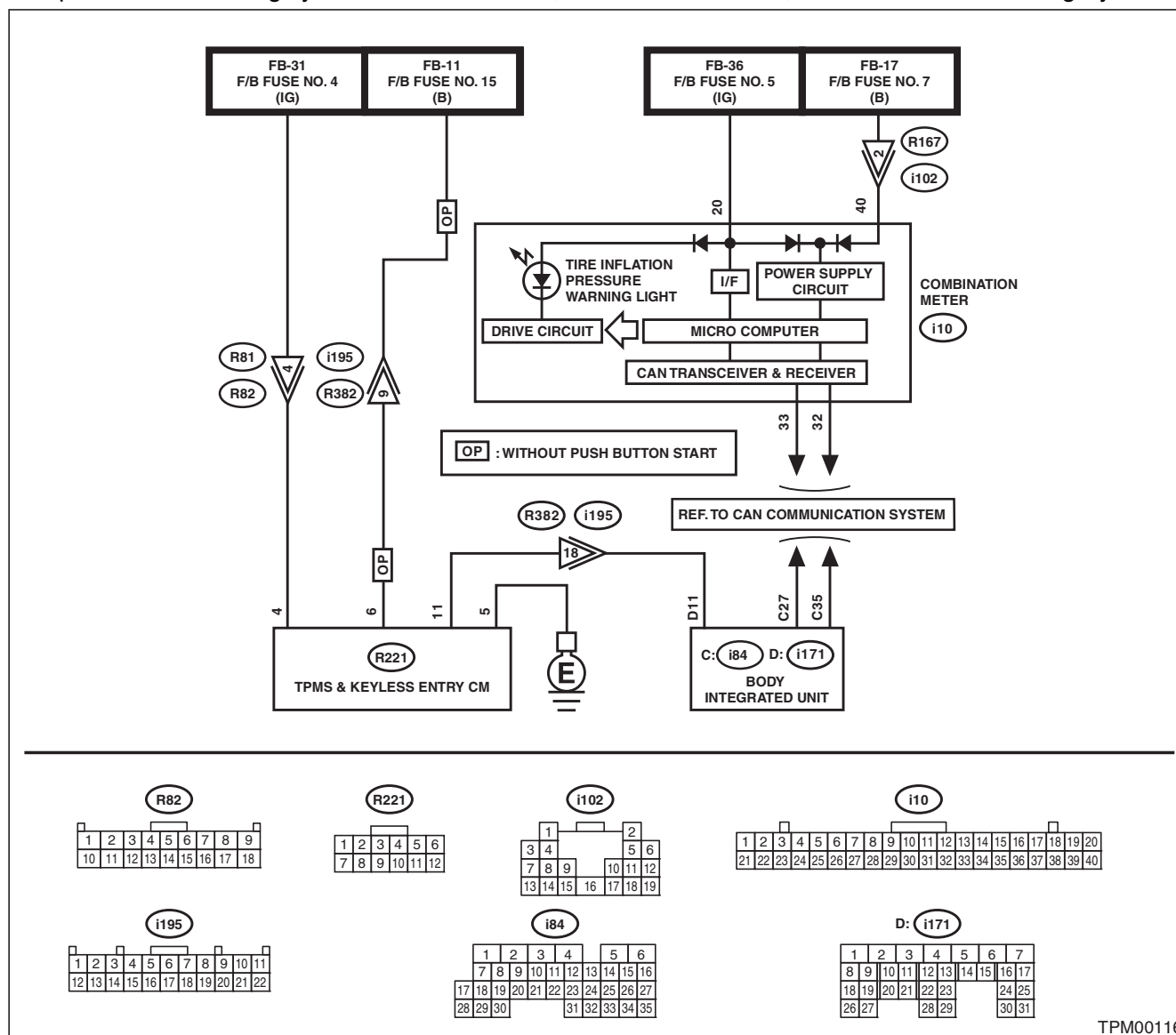
Vehicle speed function codes were received from the transmitter, but the vehicle speed signal was not input to the module.

TROUBLE SYMPTOM:

Tire pressure warning light blinks 25 times and then illuminates.

WIRING DIAGRAM:

Tire pressure monitoring system <Ref. to WI-408, WIRING DIAGRAM, Tire Pressure Monitoring System.>



Step	Check	Yes	No
1	CHECK LAN COMMUNICATION. Inspect LAN system. <Ref. to LAN(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>	Repair it according to the diagnosis for LAN system.	Go to step 2.
2	CHECK HARNESS. Measure the resistance between TPMS & keyless entry control module and body integrated unit. Connector & terminal (R221) No. 11 — (i171) No. 11:	Go to step 3.	Repair the harness.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
3 CHECK CONNECTOR. Check each connector.	Is there poor contact or any other faults?	Repair the connector.	Replace the TPMS & keyless entry control module. <Ref. to WT-9, REMOVAL, Tire Pressure Monitoring System.>

General Diagnostic Table

TIRE PRESSURE MONITORING SYSTEM (DIAGNOSTICS)

15.General Diagnostic Table

A: INSPECTION

Symptoms		Faulty parts
Tire pressure warning light illuminates.	Tire pressure is reduced.	• Improper tire pressure adjustment. • Punctured tire
Tire pressure warning light blinks 25 times and then illuminates.	Tire pressure monitoring system has malfunction.	• Air pressure sensor malfunction • Air pressure sensor is out of battery. • Defective TPMS & keyless entry control module • Defective vehicle harness • Defective combination meter
Tire pressure is dropping but the warning light does not illuminate.	Tire pressure warning light does not illuminate.	• Air pressure sensor is faulty. • Defective TPMS & keyless entry control module • Defective combination meter