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# WT

## SECTION

### ROAD WHEELS & TIRES

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# PREPARATION

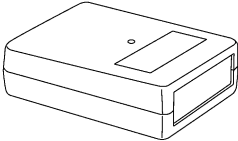
## PREPARATION

PF0:00002

### Special Service Tools

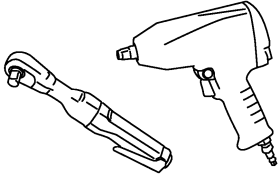
AES0003U

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
(J45295) Transmitter activation tool  SEIA0051E	ID registration

### Commercial Service Tools

AES0003V

Tool name	Description
Power tool  PBIC0190E	Removing wheel nuts

# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

## NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

PFP:00003

### NVH Troubleshooting Chart

AES0003W

Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

Reference page		WT-4	—	—	—	—	—	—	—	N/VH in PR section.	N/VH in RFD section.	N/VH in FAX and FSU sections.	N/VH in RAX and RSU sections.	Refer to TIRES in this chart.	Refer to ROAD WHEEL in this chart.	N/VH in RAX section.	N/VH in BR section.	N/VH in PS section.		
Possible cause and SUSPECTED PARTS		Out-of-round	Imbalance	Incorrect tire pressure	Uneven tire wear	Deformation or damage	Non-uniformity	Incorrect tire size	PROPELLER SHAFT	DIFFERENTIAL	FRONT AXLE AND FRONT SUSPENSION	REAR AXLE AND REAR SUSPENSION	TIRES	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING			
Symptom	TIRES	Noise	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
		Shake	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Vibration	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Shimmy	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Judder	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		Poor quality ride or handling	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	ROAD WHEEL	Noise	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
		Shake	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Shimmy, Judder		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Poor quality ride or handling		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		

x: Applicable

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# ROAD WHEEL

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AES0003X

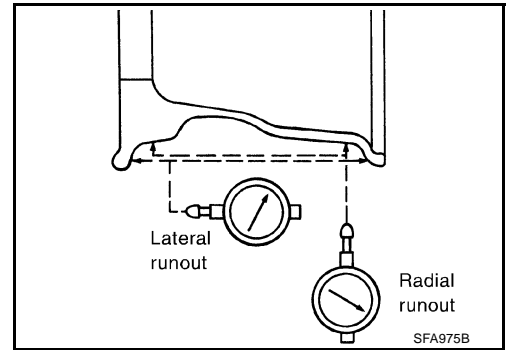
## ROAD WHEEL

### Inspection ALUMINUM WHEEL

1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
  - a. Remove tire from aluminum wheel and mount on a tire balance machine.
  - b. Set dial indicator as shown in the illustration.

**Wheel runout (Dial indicator value):**

**Refer to [WT-30, "SERVICE DATA"](#)**



### STEEL WHEEL

1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
  - a. Remove tire from steel wheel and mount wheel on a tire balance machine.
  - b. Set two dial indicators as shown in the illustration.
  - c. Set each dial indicator to 0.
  - d. Rotate wheel and check dial indicators at several points around the circumference of the wheel.
  - e. Calculate runout at each point as shown below.

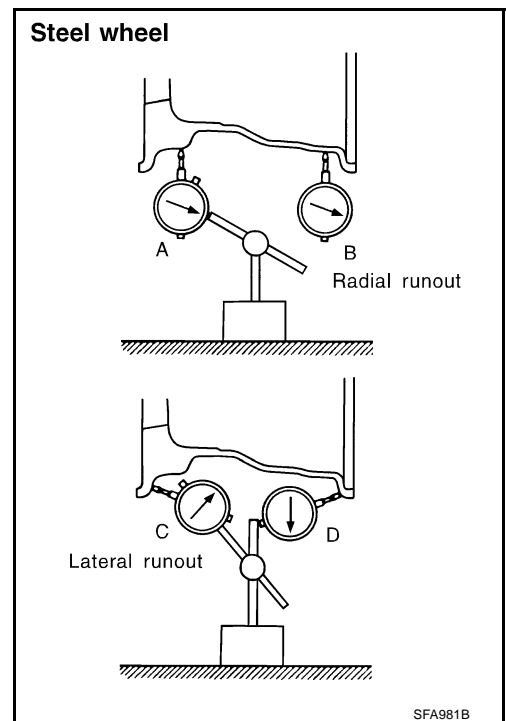
$$\text{Radial runout} = (A+B)/2$$

$$\text{Lateral runout} = (C+D)/2$$

- f. Select maximum positive runout value and the maximum negative value. Add the two values to determine total runout. In case a positive or negative value is not available, use the maximum value (negative or positive) for total runout. If the total runout value exceeds the limit, replace steel wheel.

**Wheel runout:**

**Refer to [WT-30, "SERVICE DATA"](#)**



# ROAD WHEEL TIRE ASSEMBLY

## ROAD WHEEL TIRE ASSEMBLY

PPF:40300

### Balancing Wheels (Bonding Weight Type) REMOVAL

AES000DQ

1. Remove inner and outer balance weights from the road wheel.

**CAUTION:**

**Be careful not to scratch the road wheel during removal.**

2. Using releasing agent, remove double-faced adhesive tape from the road wheel.

**CAUTION:**

- **Be careful not to scratch the road wheel during removal.**
- **After removing double-faced adhesive tape, wipe clean traces of releasing agent from the road wheel.**

### WHEEL BALANCE ADJUSTMENT

- If a tire balance machine has adhesion balance weight mode settings and drive-in weight mode setting, select and adjust a drive-in weight mode suitable for road wheels.

1. Set road wheel on wheel balancer using the center hole as a guide. Start the tire balance machine.
2. When inner and outer unbalance values are shown on the wheel balancer indicator, multiply outer unbalance value by  $5/3$  to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install it to the designated outer position of, or at the designated angle in relation to the road wheel.

**CAUTION:**

- **Do not install the inner balance weight before installing the outer balance weight.**
- **Before installing the balance weight, be sure to clean the mating surface of the road wheel.**

Indicated unbalance value  $\times 5/3$  = balance weight to be installed

Calculation example:

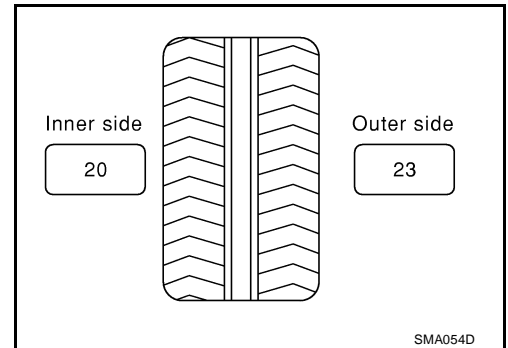
$23 \text{ g (0.81 oz)} \times 5/3 = 38.33 \text{ g (1.35 oz)} = 40 \text{ g (1.41 oz)}$  balance weight (closer to calculated balance weight value)

Note that balance weight value must be closer to the calculated balance weight value.

Example:

$37.4 = 35 \text{ g (1.23 oz)}$

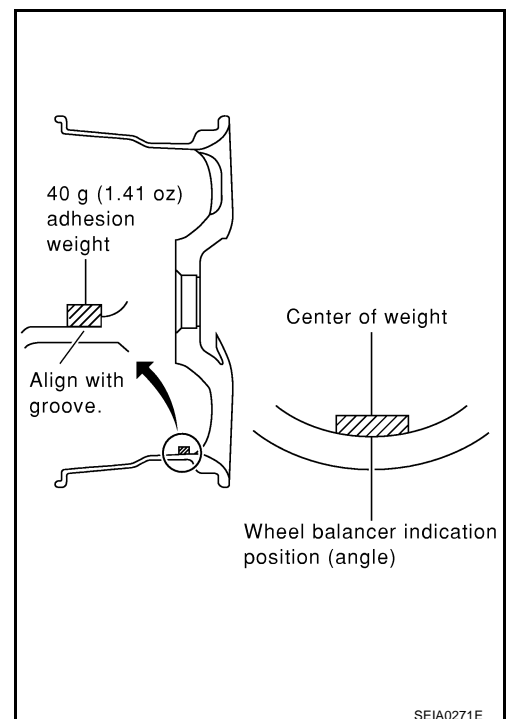
$37.5 = 40 \text{ g (1.41 oz)}$



- a. Install balance weight in the position shown in the figure.
- b. When installing balance weight to road wheels, set it into the grooved area on the inner wall of the road wheel as shown in the figure so that the balance weight center is aligned with the wheel balancer indication position (angle).

**CAUTION:**

- **Always use genuine Nissan adhesion balance weights.**
- **Balance weights are un reusable; always replace with new ones.**
- **Do not install more than three sheets of balance weight.**



# ROAD WHEEL TIRE ASSEMBLY

- c. If calculated balance weight value exceeds 50 g (1.76 oz), install two balance weight sheets in line with each other (as shown in the figure).

**CAUTION:**

**Do not install one balance weight sheet on top of another.**

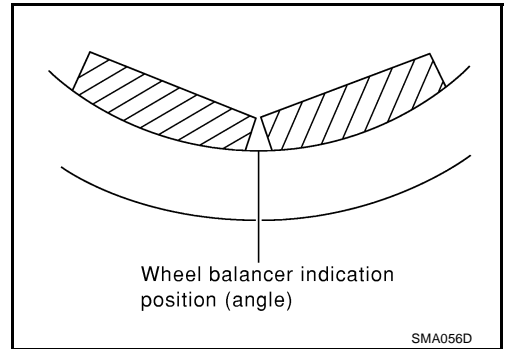
3. Start wheel balancer again.  
 4. Install drive-in balance weight on inner side of road wheel in the wheel balancer indication position (angle).

**CAUTION:**

**Do not install more than two balance weights.**

5. Start wheel balancer. Make sure that inner and outer residual unbalance values are 10 g (0.35 oz) each or below.
- If either residual unbalance value exceeds 10 g (0.35 oz), repeat installation procedures.

**Wheel balance (Maximum allowable unbalance):**



Maximum allowable unbalance	Dynamic (At rim flange)	Less than 10 g (0.35 oz) (one side)
	Static (At rim flange)	Less than 20 g (0.70 oz)

## Rotation

AES0003Z

- Do not include the T-type spare tire when rotating the tires.

**CAUTION:**

**When installing wheels, tighten them diagonally by dividing the work two to three times in order to prevent the wheels from developing any distortion.**

**Tightening torque of wheel nut : 98 - 118 N-m (10 - 12 kg-m, 72 - 87 ft-lb)**

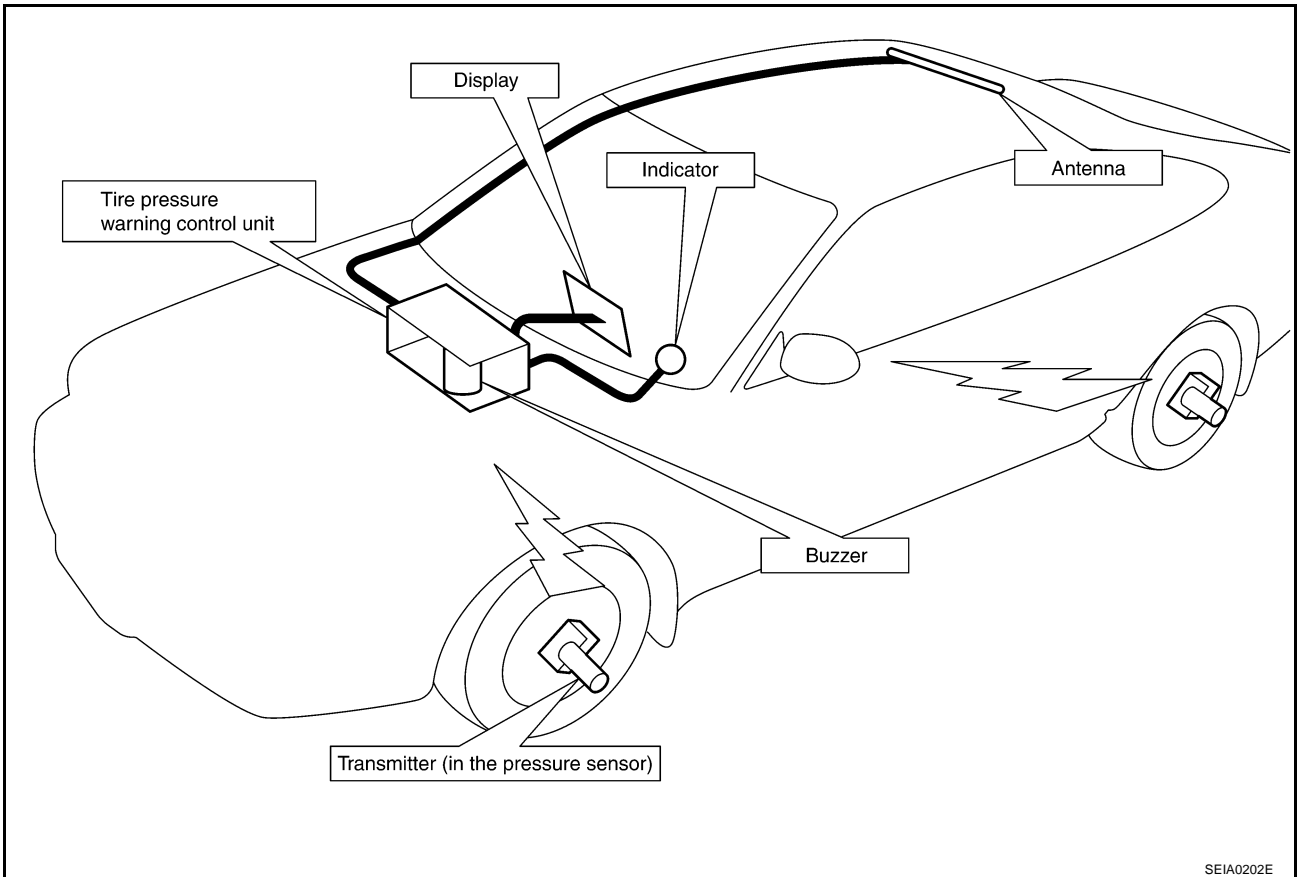
# LOW TIRE PRESSURE WARNING SYSTEM

## LOW TIRE PRESSURE WARNING SYSTEM

PFP:40300

### System Components

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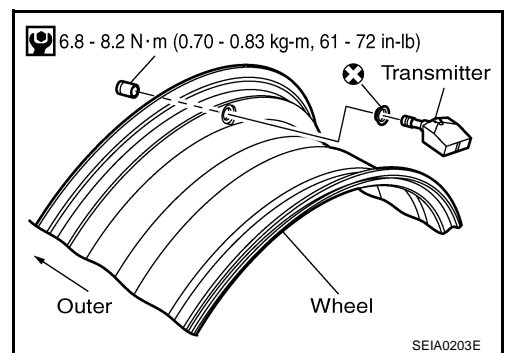


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### System Description TRANSMITTER

AES00041

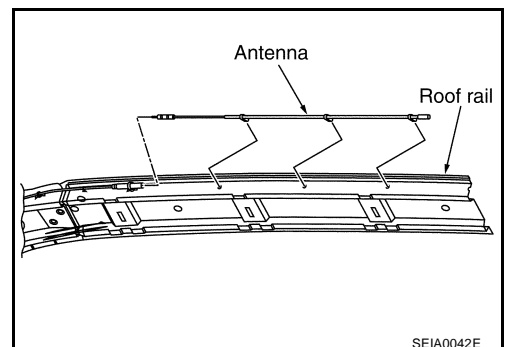
A sensor-transmitter integrated with a valve is installed on a wheel, and transmits a detected air pressure signal in the form of a radio wave.



SEIA0203E

### ANTENNA

Receives the radio wave signal transmitted by the transmitter.



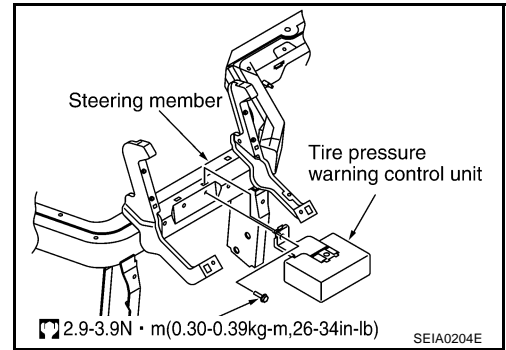
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# LOW TIRE PRESSURE WARNING SYSTEM

## TIRE PRESSURE WARNING CONTROL UNIT

Reads the radio wave signal received by the antenna, and controls the warning lamp and the buzzer operations as shown below. It also has a judgement function to detect a system malfunction.

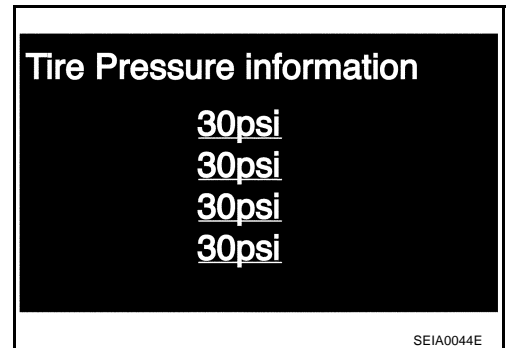


Condition	Warning lamp	Buzzer
Less than 190 kPa (1.9 kg/cm <sup>2</sup> , 27 psi) [Flat tire]	ON	Sounds for 10 sec.
System malfunction	ON	OFF

## DISPLAY

Displays the air pressure of each tire.

- After the ignition switch is turned ON, the pressure values are not be displayed until the data of all four wheels stabilizes.







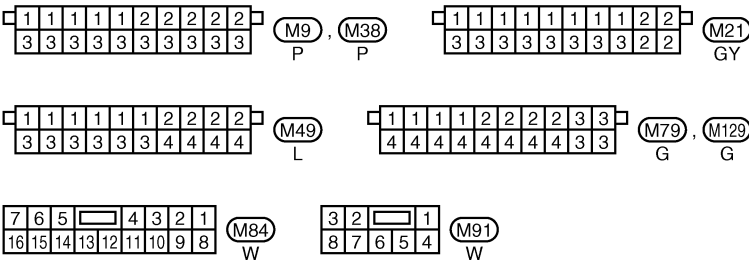
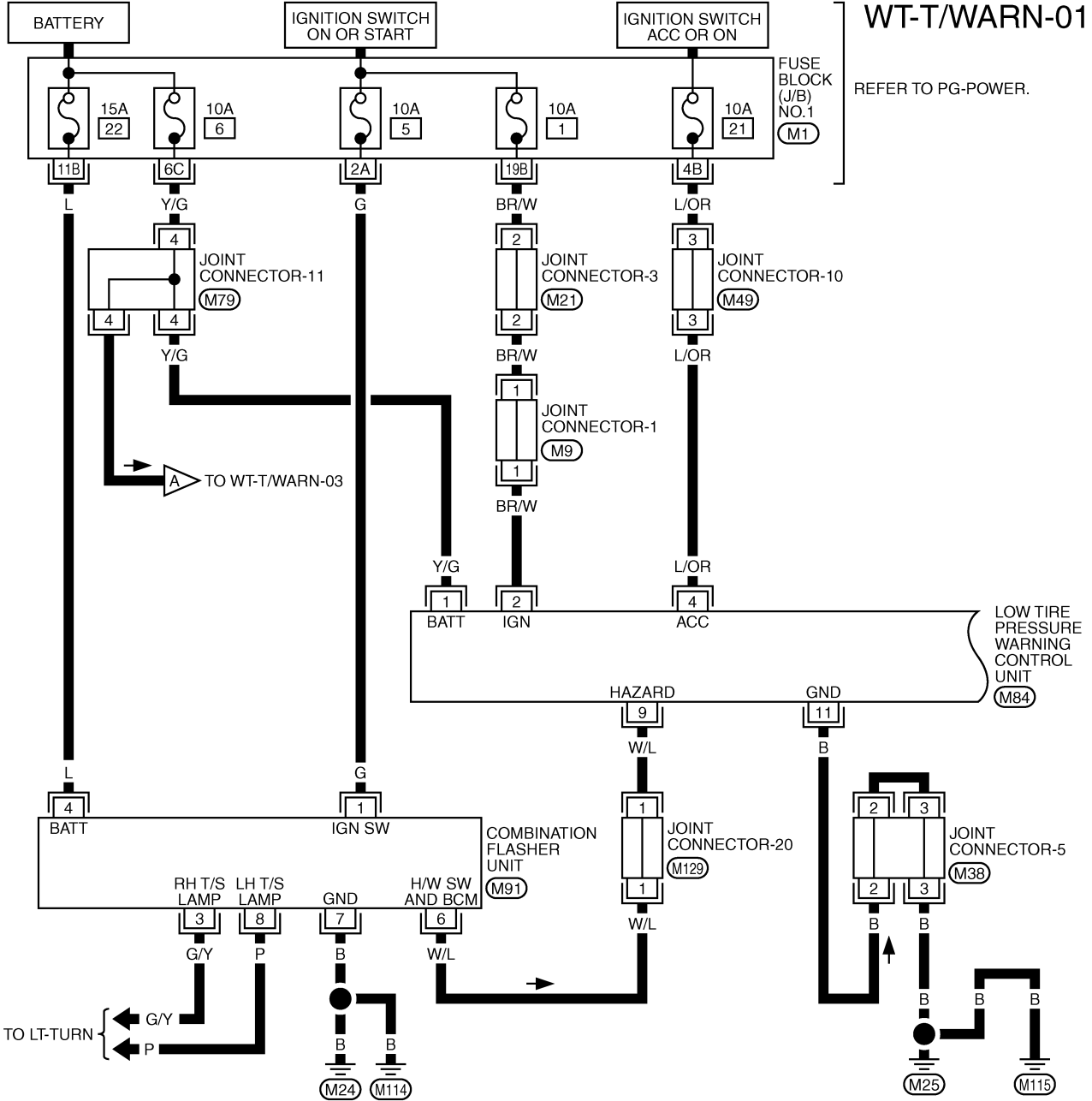
# TROUBLE DIAGNOSES

## Wiring Diagram

AES00042

### WT-T/WARN-01

REFER TO PG-POWER.



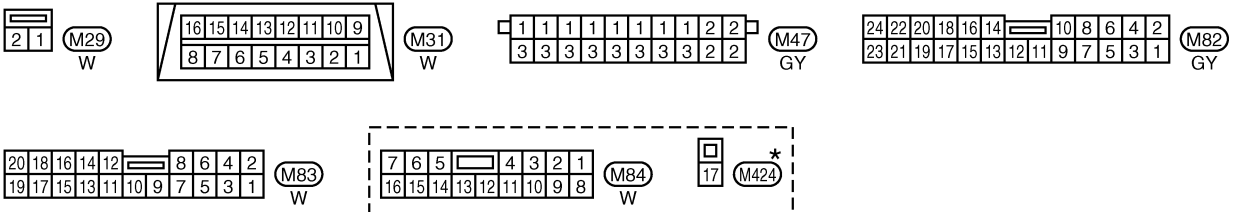
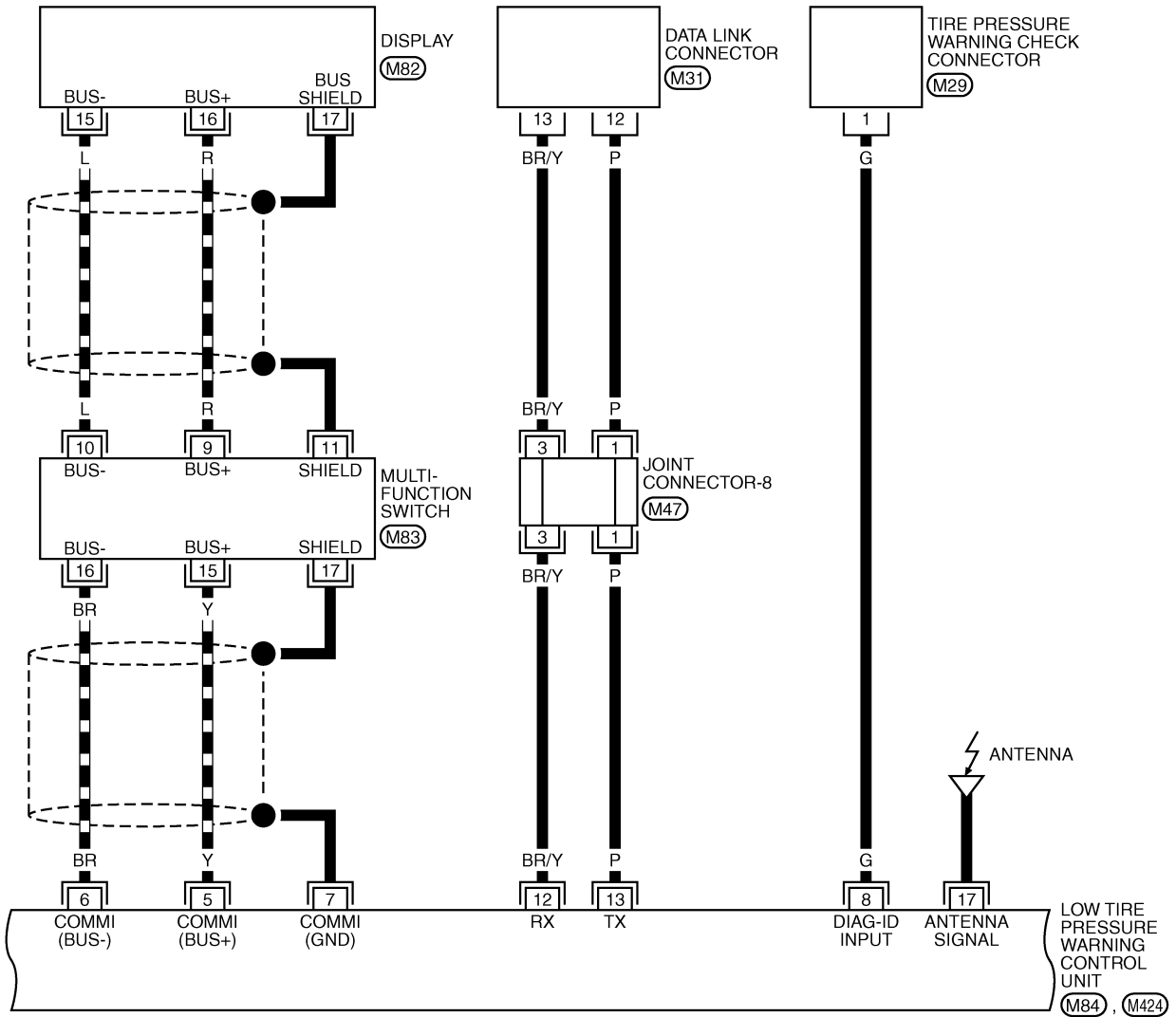
REFER TO THE FOLLOWING.  
 (M1) -FUSE BLOCK-JUNCTION BOX (J/B) NO.1

TEWA0010E

# TROUBLE DIAGNOSES

WT-T/WARN-02

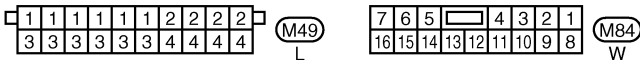
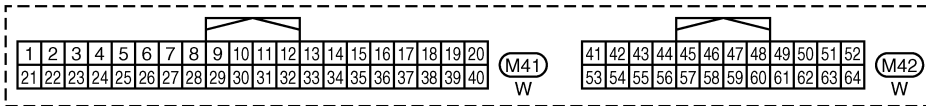
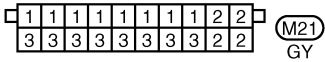
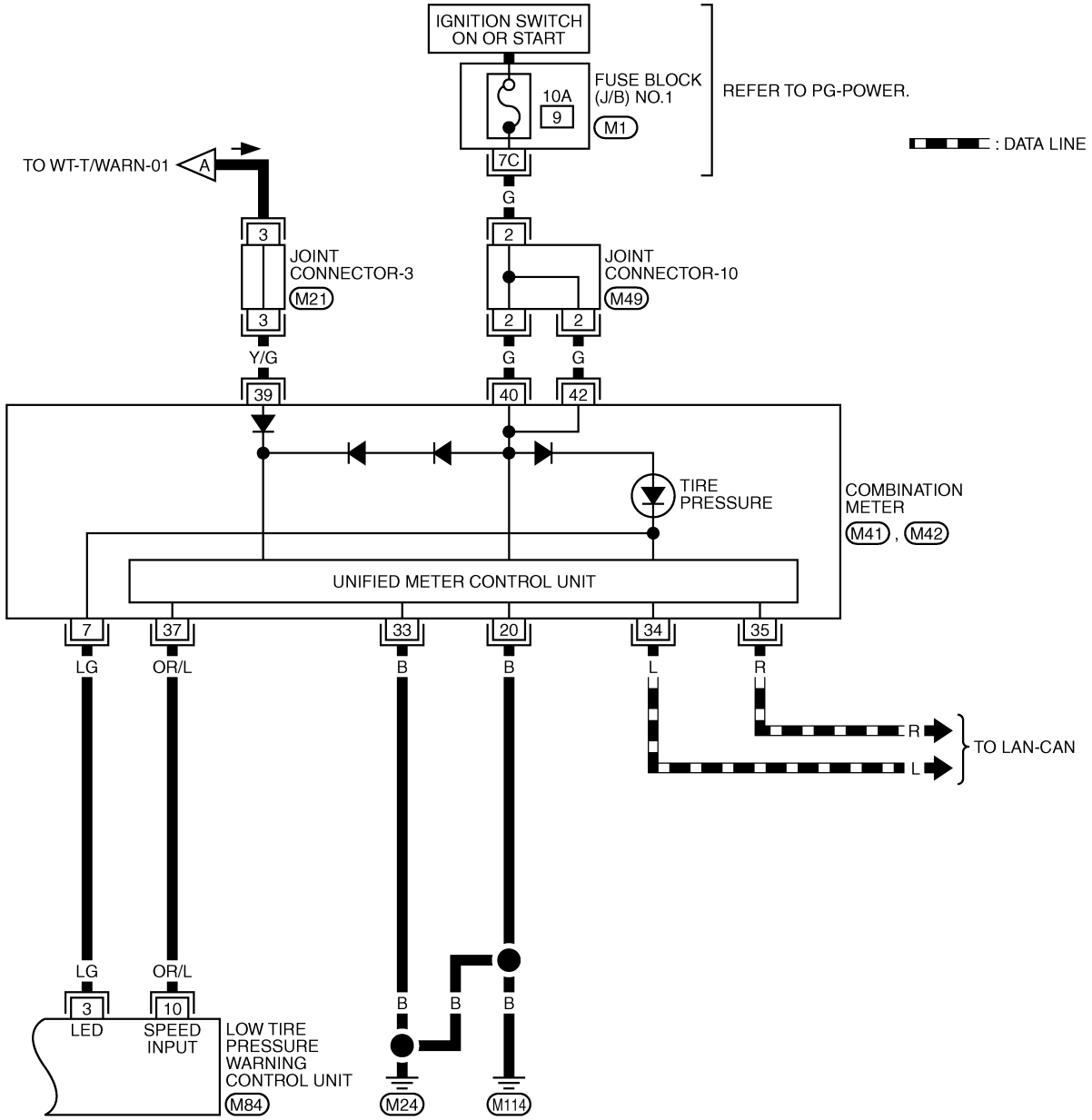
▬ : DATA LINE



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT", PG SECTION.

# TROUBLE DIAGNOSES

WT-T/WARN-03



REFER TO THE FOLLOWING.  
(M1) - FUSE BLOCK-JUNCTION BOX (J/B) NO.1

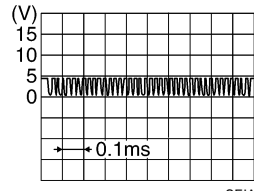
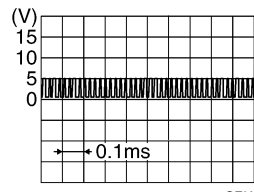
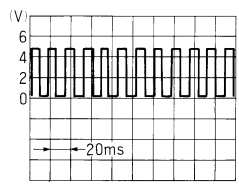
TEWA0012E

# TROUBLE DIAGNOSES

## Control Unit Input/Output Signal Standard

AES0008B

Standards using a circuit tester and oscilloscope.

Measurement terminal		Measuring point	Standard value	
+	-			
1		Battery Power supply	Always	Battery voltage (Approx. 12V)
2		Ignition switch ON or START	Ignition switch ON	Battery voltage (Approx. 12V)
3		Tire pressure warning lamp	Tire pressure warning lamp turns ON	Approx. 0V
			Tire pressure warning lamp turns OFF	Battery voltage (Approx. 12V)
4		Ignition switch ON or ACC	Ignition switch ON	Battery voltage (Approx. 12V)
5	Ground	Communication line (+)	Always	
6		Communication line (-)	Always	
7		Communication line GND	—	Approx. 0V
8		Tire pressure warning check switch	Always	Approx. 5V
9		Combination flasher unit	Hazard lamp switch OFF	Battery voltage (Approx. 12V)
			Hazard lamp switch ON	Approx. 0V
10		Vehicle speed signal (8-pulse)	Combination meter operated [When vehicle speed is approx. 40 km/h (25 MPH)]	
11		GND	—	Approx. 0V
12		Data link connector (RX)	—	—
13		Data link connector (TX)	—	—
17	Antenna	—	—	

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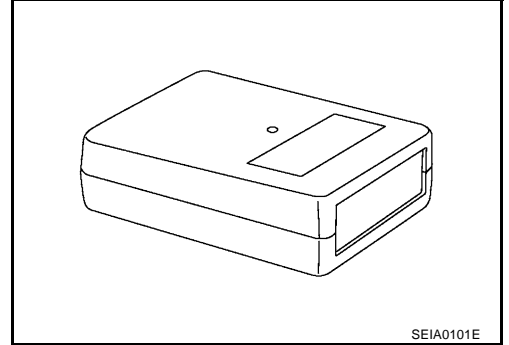
# TROUBLE DIAGNOSES

AES00043

## ID Registration Procedure

### ID REGISTRATION WITH TRANSMITTER ACTIVATION TOOL

1. Turn ignition switch "OFF".
2. Connect CONSULT-II to data link connector.
3. Start engine.
4. Touch "START", "AIR PRESSURE MONITOR", "WORK SUPPORT" and "ID REGIST".
5. With the transmitter activation tool (J-45295) pushed against the front-left transmitter, press the button then keep 5 seconds.



6. Register the IDs in order from FR LH, FR RH, RR RH, to RR LH. When ID registration of each wheel has been completed, a buzzer sounds and hazard warning lamp blinks.

Activation tire position	Buzzer	Hazard warning lamp	CONSULT-II
1	FR LH	Once	"YET" ↓ "DONE"
2	FR RH	2 times	
3	RR RH	3 times	
4	RR LH	4 times	

7. After completing all ID registrations, press "END" to complete the procedure.

#### NOTE:

Be sure to register the IDs in order from FR LH, FR RH, RR RH, to RR LH, or the self-diagnostic results display will not function properly.

# TROUBLE DIAGNOSES

## ID REGISTRATION WITHOUT TRANSMITTER ACTIVATION TOOL

1. Turn ignition switch "OFF".
2. Connect CONSULT-II to data link connector.
3. Touch "START", "AIR PRESSURE MONITOR", "WORK SUPPORT" and "ID REGIST".
4. Adjust the tire pressure to the values shown in the table below for ID registration, and drive the vehicle at 32 km/h (20 MPH) or more for a few minutes.

Tire position	Tire pressure kPa (kg/cm <sup>2</sup> , psi)
Front-Left	250 (2.5, 36)
Front-Right	230 (2.3, 33)
Rear-Right	210 (2.1, 30)
Rear-Left	190 (1.9, 27)

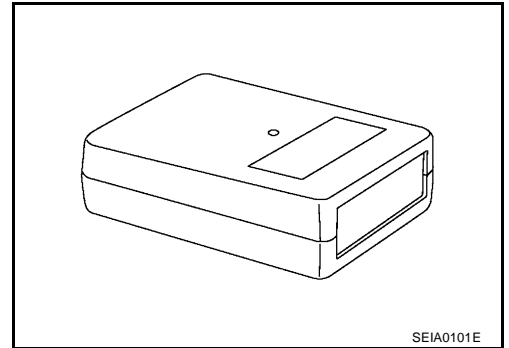
5. After completing all ID registrations, press "END" to complete the procedure.

Activation tire position	CONSULT-II
FR LH	"YET" ↓ "DONE"
FR RH	
RR RH	
RR LH	

## Transmitter Wake Up Operation WITH TRANSMITTER ACTIVATION TOOL

AES000DS

1. With the transmitter activation tool (J-45295) pushed against the front-left transmitter, press the button then keep 5 seconds.
  - When ignition switch ON, then warning lamp is blinks as follow diagram transmitter must be waken up.



2. Register the IDs in order from FR LH, FR RH, RR RH or RR LH. When wake up of each wheel has been completed, a hazard warning lamp blinks.

	Warning lamp blinking timing	Need to activation tire position	Hazard warning lamp
1	ON OFF	a : 0.3sec b : 1.3sec	2 time flashing
2	ON OFF	a : 0.3sec b : 1.3sec	
3	ON OFF	a : 0.3sec b : 1.3sec	
4	ON OFF	a : 0.3sec b : 1.3sec	
5	ON OFF	a : 2sec b : 0.2sec	

SEIA0351E

3. After completing waking up of all transmitters, make sure tire pressure warning lamp go out.

# TROUBLE DIAGNOSES

AES00044

## Self-Diagnosis

### DESCRIPTION

During driving, the low tire pressure warning system receives the signal transmitted from the transmitter installed in each wheel, and gives alarms when the tire pressure becomes low. The control unit of this system has pressure judgement and trouble diagnosis functions.

### FUNCTION

When the low tire pressure warning system detects low inflation pressure or another unusual symptom, the warning lamps in the combination meter comes on. To start the self-diagnostic results mode, ground the self-diagnostic (check) terminal. The malfunction location is indicated by the warning lamp flashing and the buzzer sounds.

### CONSULT-II

#### CONSULT-II Application to Low Tire Pressure Warning System

ITEM	SELF-DIAGNOSTIC RESULTS	DATA MONITOR
Front - Left transmitter	×	×
Front - Right transmitter	×	×
Rear - Left transmitter	×	×
Rear - Right transmitter	×	×
Warning lamp	—	×
Vehicle speed	—	×
Buzzer (in control unit)	—	×

× : Applicable

— : Not applicable

### Self-Diagnostic Results Mode

Diagnostic item	Diagnostic item is detected when ...
FLAT - TIRE - FL FLAT - TIRE - FR FLAT - TIRE - RR FLAT - TIRE - RL	Front-left tire pressure drops to 190 kPa(1.9 kg/cm <sup>2</sup> , 27 psi) or less Front-right tire pressure drops to 190 kPa(1.9 kg/cm <sup>2</sup> , 27 psi) or less Rear-right tire pressure drops to 190 kPa(1.9 kg/cm <sup>2</sup> , 27 psi) or less Rear-left tire pressure drops to 190 kPa(1.9 kg/cm <sup>2</sup> , 27 psi) or less
[NO-DATA] - FL [NO-DATA] - FR [NO-DATA] - RR [NO-DATA] - RL	Data from front-left transmitter cannot be received. Data from front-right transmitter cannot be received. Data from rear-right transmitter cannot be received. Data from rear-left transmitter cannot be received.
[CHECKSUM- ERR] - FL [CHECKSUM- ERR] - FR [CHECKSUM- ERR] - RR [CHECKSUM- ERR] - RL	Checksum data from front-left transmitter is malfunctioning. Checksum data from front-right transmitter is malfunctioning. Checksum data from rear-right transmitter is malfunctioning. Checksum data from rear-left transmitter is malfunctioning.
[PRESSDATA- ERR] - FL [PRESSDATA- ERR] - FR [PRESSDATA- ERR] - RR [PRESSDATA- ERR] - RL	Air pressure data from front-left transmitter is malfunctioning. Air pressure data from front-right transmitter is malfunctioning. Air pressure data from rear-right transmitter is malfunctioning. Air pressure data from rear-left transmitter is malfunctioning.
[CODE- ERR] - FL [CODE- ERR] - FR [CODE- ERR] - RR [CODE- ERR] - RL	Function code data from front-left transmitter is malfunctioning. Function code data from front-right transmitter is malfunctioning. Function code data from rear-right transmitter is malfunctioning. Function code data from rear-left transmitter is malfunctioning.
[BATT - VOLT - LOW] - FL [BATT - VOLT - LOW] - FR [BATT - VOLT - LOW] - RR [BATT - VOLT - LOW] - RL	Battery voltage of front-left transmitter drops. Battery voltage of front-right transmitter drops. Battery voltage of rear-right transmitter drops. Battery voltage of rear-left transmitter drops.
RECEIVER- ID- NO- REG	No ID registration has been made to the tire pressure warning control unit.

#### NOTE:

Before performing the self-diagnosis, be sure to register the ID. Or, the actual malfunction location may be different from that displayed on CONSULT-II.



# TROUBLE DIAGNOSES

## Data Monitor Mode

MONITOR	CONDITION	SPECIFICATION
VHCL SPEED SE	Drive vehicle.	Vehicle speed (km/h or MPH)
AIR PRESS FL AIR PRESS FR AIR PRESS RR AIR PRESS RL	<ul style="list-style-type: none"> <li>Drive vehicle for a few minutes.</li> </ul> or <ul style="list-style-type: none"> <li>Ignition switch ON and activation tool is transmitting activation signals.</li> </ul>	Tire pressure (kPa or psi)
ID REGST FL ID REGST FR ID REGST RR ID REGST RL	Ignition switch ON	Registration ID: DONE No registration ID: YET
WARNING LAMP		Warning lamp on: ON Warning lamp off: OFF
BUZZER		Buzzer in tire pressure warning control unit on: ON Buzzer in tire pressure warning control unit off: OFF

### NOTE:

Before performing the self-diagnosis, be sure to register the ID. Or, the actual malfunction location may be different from that displayed on CONSULT-II.

## How to Perform Trouble Diagnosis for Quick and Accurate Repair

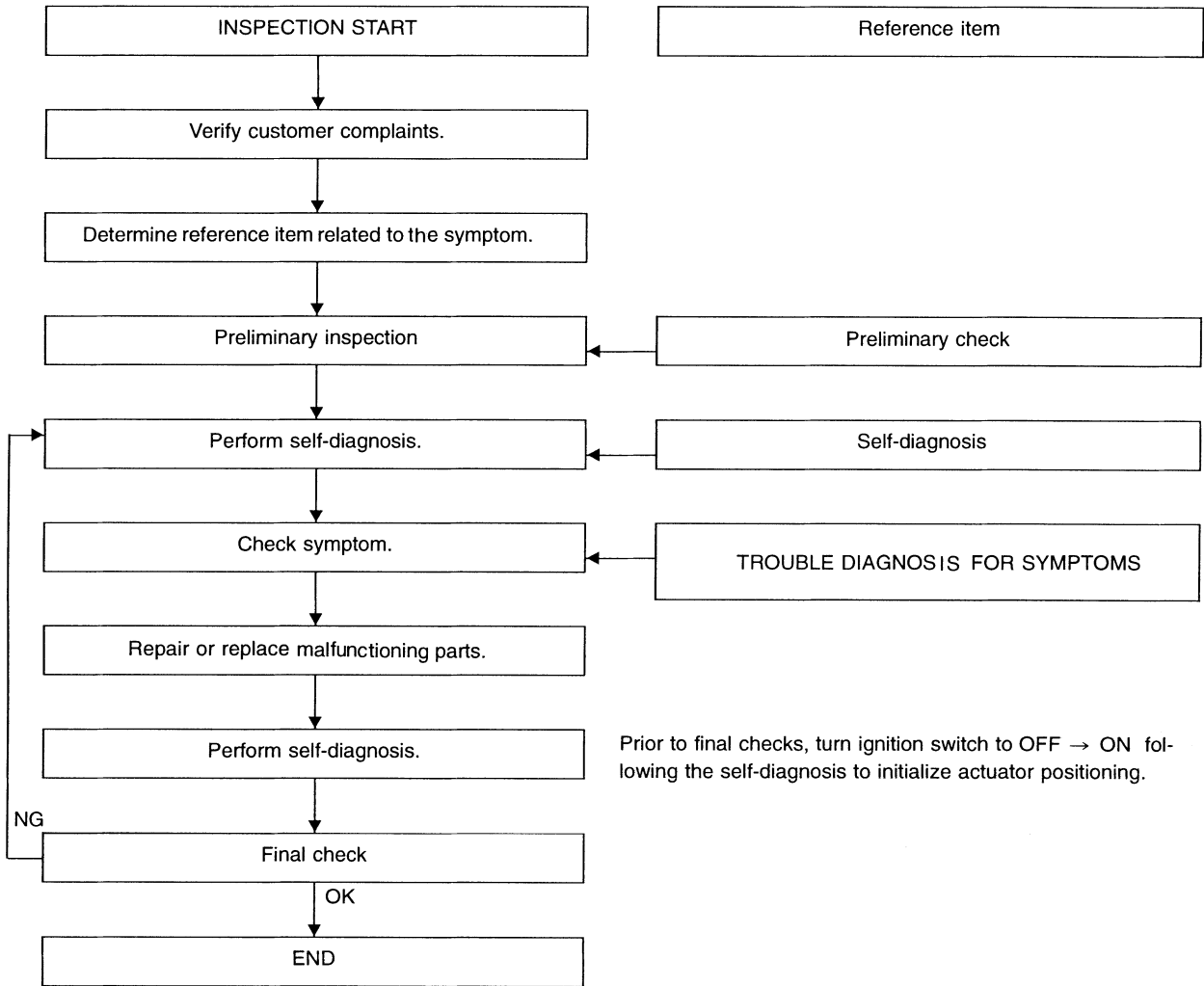
AES00045

### INTRODUCTION

- Before troubleshooting, verify customer complaints.
- If a vehicle malfunction is hard to reproduce, harnesses, harness connectors or terminals may often be malfunctioning. Hold and shake these parts by hand to make sure they are securely connected.
- When using a circuit tester to measure voltage or resistance of each circuit, be careful not to expand connector terminals.

# TROUBLE DIAGNOSES

## WORK FLOW



SEIA0100E

Preliminary check: [WT-19](#) Self-diagnosis: [WT-16](#) Trouble diagnosis for symptoms: [WT-23](#)

# TROUBLE DIAGNOSES

## Preliminary Check

AES00046

### BASIC INSPECTION

#### 1. CHECK ALL TIRES PRESSURES

- Check all tires pressures.

**Tire pressure** : 230 kPa (2.3 kg/cm<sup>2</sup> , 33 psi)

#### OK or NG

OK >> GO TO 2.

NG >> Adjust tire pressure to specified value.

#### 2. CHECK WARNING LAMP ACTIVATION

- Check warning lamp activation.
- Does warning lamp activate for 1 second when ignition switch is turned "ON"?

#### YES or NO

YES >> GO TO 3.

NO >> Check fuse and combination meter. Then repair or replace malfunctioning parts.

#### 3. CHECK CONNECTOR

1. Disconnect tire pressure warning control unit connector M84.
2. Check terminals for damage or loose connection.

#### OK or NG

OK >> GO TO 4.

NG >> Repair or replace damaged parts.

#### 4. CHECK TRANSMITTER ACTIVATION TOOL

- Check transmitter tool battery.

#### OK or NG

OK >> Carry out self-diagnosis [WT-21](#) .

NG >> Replace transmitter activation tool battery.

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# TROUBLE DIAGNOSES

## Malfunction Code/Symptom Chart

AES00047

Code/Symptom	Malfunction part	Reference page
15 16 17 18	Front-left tire pressure drops to 190 kPa (1.9 kg/cm <sup>2</sup> , 27 psi) or less Front-right tire pressure drops to 190 kPa (1.9 kg/cm <sup>2</sup> , 27 psi) or less Rear-right tire pressure drops to 190 kPa (1.9 kg/cm <sup>2</sup> , 27 psi) or less Rear-left tire pressure drops to 190 kPa (1.9 kg/cm <sup>2</sup> , 27 psi) or less	—
21 22 23 24	Transmitter no data (front - left) Transmitter no data (front - right) Transmitter no data (rear - right) Transmitter no data (rear - left)	<a href="#">WT-21</a>
31 32 33 34	Transmitter checksum error (front - left) Transmitter checksum error (front - right) Transmitter checksum error (rear - right) Transmitter checksum error (rear - left)	<a href="#">WT-21</a>
35 36 37 38	Transmitter pressure data error (front - left) Transmitter pressure data error (front - right) Transmitter pressure data error (rear - right) Transmitter pressure data error (rear - left)	<a href="#">WT-22</a>
41 42 43 44	Transmitter function code error (front - left) Transmitter function code error (front - right) Transmitter function code error (rear - right) Transmitter function code error (rear - left)	<a href="#">WT-21</a>
45 46 47 48	Transmitter battery voltage low (front - left) Transmitter battery voltage low (front - right) Transmitter battery voltage low (rear - right) Transmitter battery voltage low (rear - left)	<a href="#">WT-21</a>
51	Tire pressure warning control unit	<a href="#">WT-22</a>
Warning lamp does not come on when ignition switch is turned on.	Fuse or combination meter Tire pressure warning control unit connector or circuit Tire pressure warning control unit	<a href="#">WT-23</a>
Warning lamp stays on when ignition switch is turned on.	Fuse or combination meter Tire pressure warning control unit connector or circuit Tire pressure warning control unit	<a href="#">WT-23</a>
Warning lamp blinks when ignition switch is turned on.	Tire pressure warning control unit harness connector or circuit Tire pressure warning control unit Transmitter's mode OFF ID registration not yet	<a href="#">WT-25</a>
Hazard warning lamp blinks when ignition switch is turned on.	Tire pressure warning control unit harness connector or circuit Tire pressure warning control unit	<a href="#">WT-26</a>
"TIRE PRESSURE" information in display does not exist.	Fuse Display Tire pressure warning control unit	<a href="#">WT-26</a>
ID registration cannot be operated.	Transmitter Antenna harness connector or circuit Antenna	<a href="#">WT-27</a>

# TROUBLE DIAGNOSIS FOR SELF-DIAGNOSTIC ITEMS

## TROUBLE DIAGNOSIS FOR SELF-DIAGNOSTIC ITEMS

PFP:00000

### Inspection 1: Transmitter or Low Tire Pressure Warning Control Unit MALFUNCTION CODE NO. 21, 22, 23 OR 24

AES0000B

#### 1. CHECK CONTROL UNIT

- Drive for several minutes. Check all tires' pressure with CONSULT-II "DATA MONITOR ITEM".

Are all tires' pressure displayed 0 kPa?

- YES >> GO TO 2.  
NO >> GO TO 3.

#### 2. CHECK ANTENNA CONNECTOR

- Check antenna and feeder connector M424 for damage or loose connections.

OK or NG

- OK >> Replace control unit, then GO TO 3.  
NG >> Repair or replace antenna or feeder connector.

#### 3. ID REGISTRATION

- Carry out ID registration of all transmitters.

Is there a tire that cannot register ID?

- YES >> Replace transmitter of the tire, then GO TO 5.  
NO >> GO TO 4.

#### 4. VEHICLE DRIVING

- Drive at a speed of 40 km/h (25 MPH) or more for several minutes without stopping.  
Check all tires' pressure with CONSULT-II "DATA MONITOR ITEM" within 15 minutes after vehicle speed becomes 17 km/h (11 MPH).

Does "DATA MONITOR ITEM" displayed tire pressure as normal without any warning lamp?

- YES >> INSPECTION END.  
NO >> GO TO 5.

#### 5. ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters.
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes. Then check all tires' pressure with CONSULT-II "DATA MONITOR ITEM" within 5 minutes.

Does "DATA MONITOR ITEM" displayed tire pressure as normal without any warning lamp?

- YES >> INSPECTION END.  
NO >> GO TO the inspection applicable to DTC.

### Inspection 2: Transmitter - 1

#### MALFUNCTION CODE NO. 31, 32, 33, 34, 41, 42, 43, 44, 45, 46, 47 OR 48

AES0000C

#### 1. ID REGISTRATION (CORRECTION OF TRANSMITTER LOCATION)

1. Carry out ID registration of all transmitters.
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes. Then check all tires' pressure with CONSULT-II "DATA MONITOR ITEM" within 5 minutes.

>> GO TO 2.

# TROUBLE DIAGNOSIS FOR SELF-DIAGNOSTIC ITEMS

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## 2. REPLACE TRANSMITTER

---

1. Check warning lamp for blink again, replace malfunctioning transmitter.
2. Carry out ID registration of all transmitters.

Can ID registration of all transmitters be completed?

- YES >> GO TO 3.  
NO >> GO TO the inspection 1.

## 3. VEHICLE DRIVING

---

- Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes. Then check all tires' pressure with CONSULT-II "DATA MONITOR ITEM" within 5 minutes.

Does "DATA MONITOR ITEM" displayed tire pressure as normal without any warning lamp?

- YES >> INSPECTION END.  
NO >> Replace malfunctioning transmitter, and perform "Step 3" again.

### Inspection 3: Transmitter - 2 MALFUNCTION CODE NO. 35, 36, 37 OR 38

AES0000D

#### 1. CHECK ALL TIRE PRESSURE

---

- Check all tire pressures.

**Tire pressure : 230 kPa (2.3 kg/m<sup>2</sup> , 33 psi)**

Are there any tires' which pressure is "64 psi" or more?

- YES >> GO TO 2.  
NO >> Adjust tire pressure to specified value.

#### 2. VEHICLE DRIVING

---

1. Carry out ID registration of all transmitters.
2. Drive at a speed of 40 km/h (25 MPH) or more for several minutes without stopping. Check all tires' pressure with CONSULT-II "DATA MONITOR ITEM" within 15 minutes after vehicle speed becomes 17 km/h (11 MPH).

>> Replace transmitter with new one if "DATA MONITOR ITEM" displayed 64 psi or more, Then GO TO 3.

#### 3. ID REGISTRATION AND VEHICLE DRIVING

---

- Carry out ID registration of all transmitters.
- Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes. Then check all tires' pressure with CONSULT-II "DATA MONITOR ITEM" within 5 minutes.

Does "DATA MONITOR ITEM" displayed tire pressure as normal without any warning lamp?

- YES >> INSPECTION END.  
NO >> GO TO the inspection applicable to DTC.

### Inspection 4:Low Tire Pressure Warning Control Unit MALFUNCTION CODE NO. 51

AES0000E

#### 1. ID REGISTRATION

---

- Carry out ID registration of all transmitters.

Does warning lamp still activate?

- YES >> Replace low tire pressure warning control unit.  
NO >> Inspection END.

# TROUBLE DIAGNOSIS FOR SYMPTOMS

## TROUBLE DIAGNOSIS FOR SYMPTOMS

PFP:00007

### Inspection 1: Warning Lamp Does Not Come On When Ignition Switch Is Turned On.

AES0004B

#### DIAGNOSTIC PROCEDURE

#### 1. CHECK COMBINATION METER OPERATION

- Check combination meter operation.

##### OK or NG

- OK >> GO TO 2.
- NG >> Check combination meter.

#### 2. CHECK WARNING LAMP

- Disconnect tire pressure warning control unit connector M84.

##### Does the warning lamp activate?

- YES >> Replace tire pressure warning control unit.
- NO >> GO TO 3.

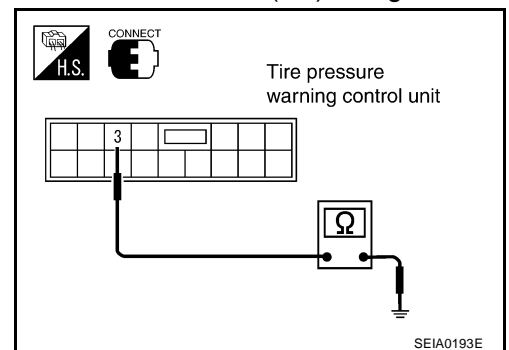
#### 3. CHECK COMBINATION METER CIRCUIT

- Check continuity between tire pressure warning control unit connector M84 terminal 3 (LG) and ground.

**3 (LG) – Ground : Continuity should not exist.**

##### OK or NG

- OK >> Check combination meter.
- NG >> Repair or replace harness connector.



### Inspection 2: Warning Lamp Stays On When Ignition Switch Is Turned On.

AES0004C

#### DIAGNOSTIC PROCEDURE

#### 1. CHECK CONNECTOR

1. Disconnect tire pressure warning control unit connector M84.
2. Check terminal for damage or loose connections.

##### OK or NG

- OK >> GO TO 2.
- NG >> Repair or replace damaged parts.

# TROUBLE DIAGNOSIS FOR SYMPTOMS

## 2. CHECK CIRCUIT

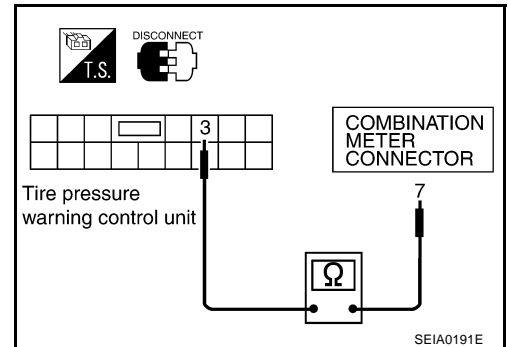
1. Disconnect combination meter connector M41 and tire pressure warning control unit connector M84.
2. Check continuity between tire pressure warning control unit connector M84 terminal 3 (LG) and combination meter connector M41 terminal 7 (LG).

**3 (LG) – 7 (LG) : Continuity should not exist.**

OK or NG

OK >> GO TO 3.

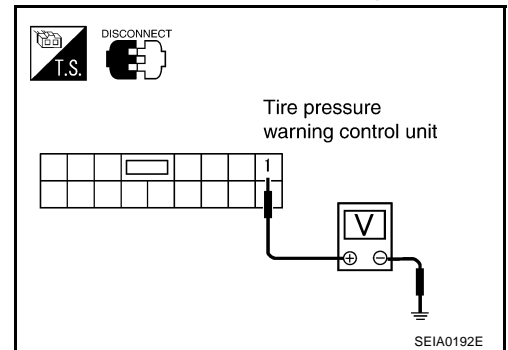
NG >> Repair or replace harness connector.



## 3. CHECK POWER SUPPLY CIRCUIT

1. Check voltage between tire pressure warning control unit connector M84 terminal 1 (Y/G) and ground.

**1 (Y/G) – Ground : Battery voltage (Approx.12V)**



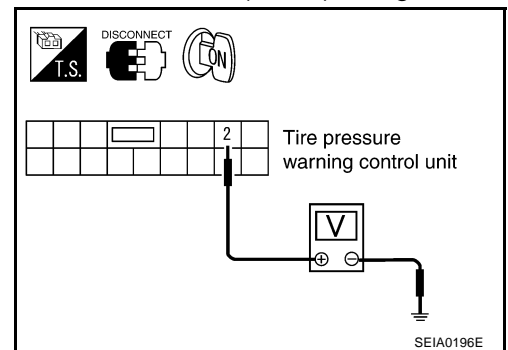
2. Turn ignition switch ON.
3. Check voltage between tire pressure warning control unit connector M84 terminal 2 (BR/W) and ground.

**2 (BR/W) – Ground : Battery voltage (Approx. 12V)**

OK or NG

OK >> GO TO 4.

NG >> Repair or replace harness connector.





# TROUBLE DIAGNOSIS FOR SYMPTOMS

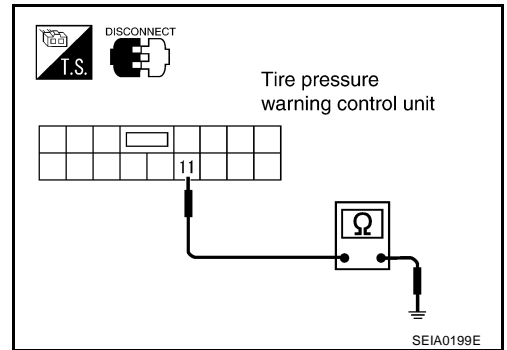
## 4. CHECK GROUND CIRCUIT

1. Check continuity between tire pressure warning control unit connector M84 terminal 11 (B) and ground.

**11 (B) – Ground : Continuity should exist.**

OK or NG

- OK >> Replace tire pressure warning control unit.
- NG >> Repair or replace tire pressure warning control unit ground circuit.



## Inspection 3: Warning Lamp Blinks When Ignition Switch Is Turned On.

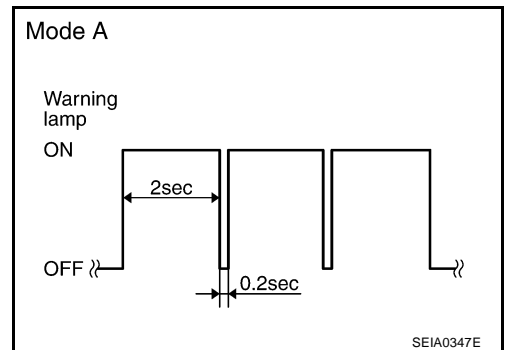
AES0004D

### NOTE:

If warning lamp blinking patterns are as follows, the system is normal.

Blink Mode A

- This mode shows transmitter status is OFF-mode. Carry out transmitter wake up operation. Refer to [WT-15, "Transmitter Wake Up Operation"](#).



## DIAGNOSTIC PROCEDURE

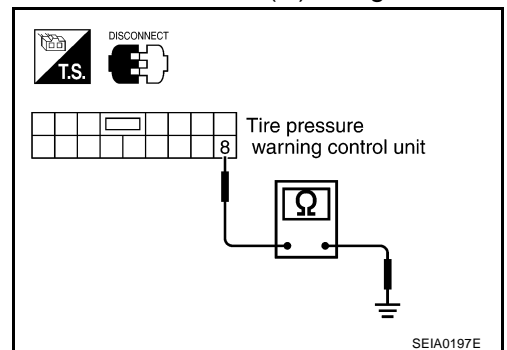
### 1. CHECK CIRCUIT

1. Disconnect tire pressure warning control unit connector M84.
2. Check continuity between tire pressure warning control unit connector M84 terminal 8 (G) and ground.

**8 (G) – Ground : Continuity should not exist.**

OK or NG

- OK >> Replace tire pressure warning control unit.
- NG >> Repair or replace harness connector.



# TROUBLE DIAGNOSIS FOR SYMPTOMS

## Inspection 4: Hazard Warning Lamp Blinks When Ignition Switch Is Turned On.

AES0004E

### DIAGNOSTIC PROCEDURE

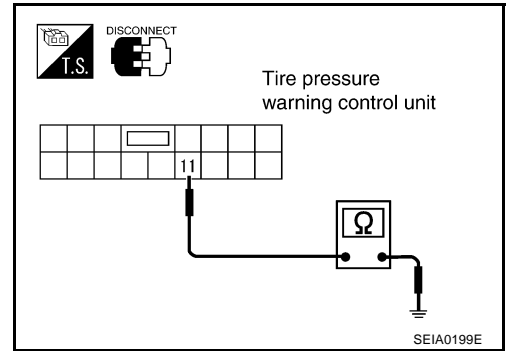
#### 1. CHECK GROUND CIRCUIT

1. Disconnect tire pressure warning control unit connector M84.
2. Check continuity between tire pressure warning control unit connector M84 terminal 11 (B) and ground.

**11 (B) – Ground : Continuity should exist.**

#### OK or NG

- OK >> Replace tire pressure warning control unit.  
NG >> Repair or replace tire pressure warning control unit ground circuit.



## Inspection 5: “TIRE PRESSURE” Information In Display Does Not Exist.

AES0004F

### DIAGNOSTIC PROCEDURE

#### 1. CHECK FUSE

- Check 10A fuse [No. 21 located in the fuse block (J/B)] for tire pressure warning control unit.

#### OK or NG

- OK >> GO TO 2.  
NG >> Replace fuse.

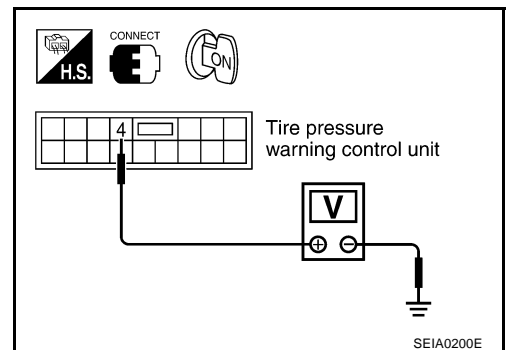
#### 2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch “ON”.
2. Check voltage between tire pressure warning control unit connector M84 terminal 4 (L/OR) and ground.

**4 (L/OR) – Ground : Battery voltage**

#### OK or NG

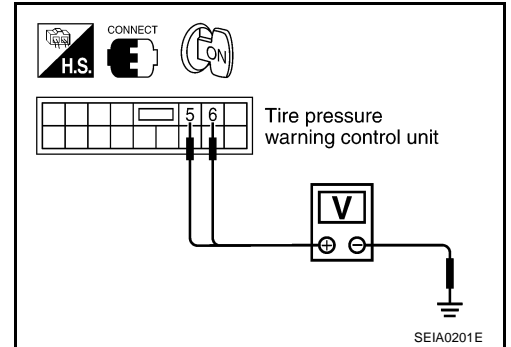
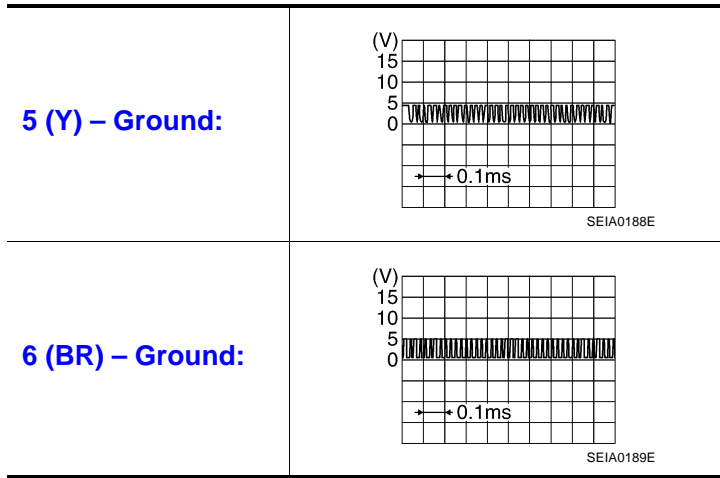
- OK >> GO TO 3.  
NG >> Repair or replace harness connector.



# TROUBLE DIAGNOSIS FOR SYMPTOMS

## 3. CHECK CONTROL INPUT SIGNAL

1. Turn ignition switch "ON".
2. Check voltage between tire pressure warning control unit connector M84 terminal 5 (Y), 6 (BR) and ground.



OK or NG

- OK >> Check multi-function switch.
- NG >> Check harness for open or short between tire pressure warning control unit and multi-function switch.

## Inspection 6: ID Registration Can not Be Completed

AES0004G

DIAGNOSTIC PROCEDURE

### 1. ID REGISTRATION (ALL)

- Carry out ID registration of all transmitters.
- Can ID registration of all transmitters be completed?

YES or NO

- YES >> INSPECTION END.
- NO >> Go To Inspection 1: Transmitter or Tire Pressure Warning Control Unit.

# REMOVAL AND INSTALLATION

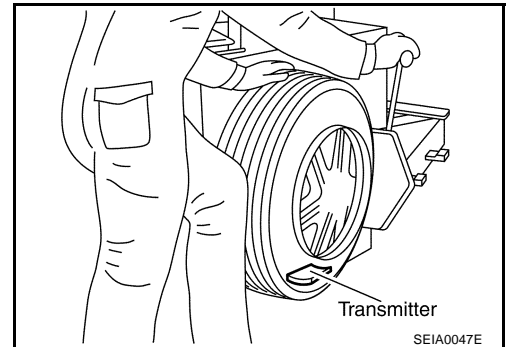
## REMOVAL AND INSTALLATION

PFP:00000

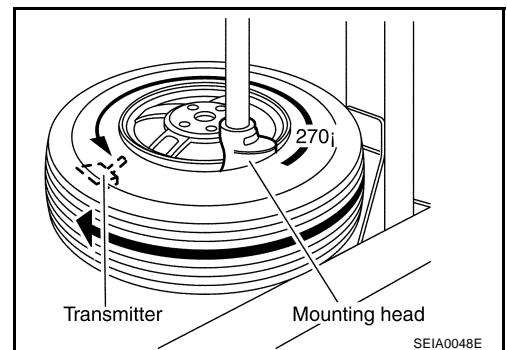
### Transmitter REMOVAL

AES0004H

1. Deflate tire. Unscrew transmitter retaining nut and allow transmitter to fall into tire.
2. Gently bounce tire so that transmitter falls to bottom of tire. Place on tire changing machine and break both tire beads ensuring that the transmitter remains at the bottom of the tire.

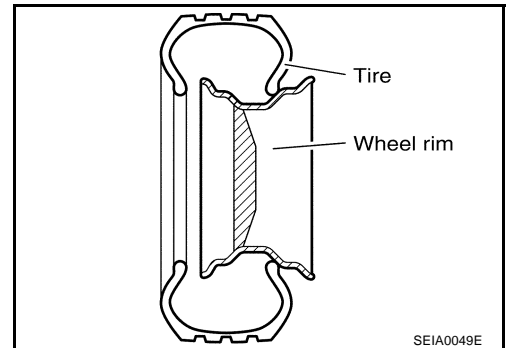


3. Turn tire so that valve hole is at bottom and bounce so that transmitter is near valve hole. Carefully lift tire onto turntable and position valve hole (and transmitter) 270 degree from mounting/dismounting head.
4. Lubricate tire well and remove first side of the tire. Reach inside the tire and remove the transmitter. Remove second side of tire.

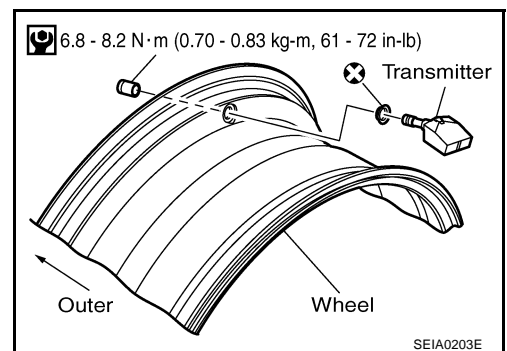


### INSTALLATION

1. Put first side of tire onto rim.



2. Mount transmitter on rim and tighten nut.



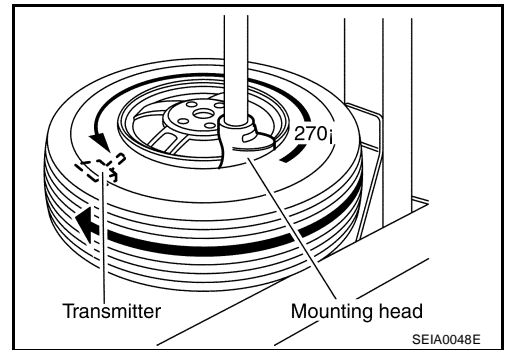
## REMOVAL AND INSTALLATION

- Place wheel on turntable of tire machine. Ensure that transmitter is 270 degree from mounting head when second side of tire is fitted.

**NOTE:**

Do not touch transmitter at mounting head.

- Lubricate tire well and fit second side of tire as normal. Ensure that tire does not rotate relative to rim.
- Inflate tire and fit to appropriate wheel position.



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# SERVICE DATA

## SERVICE DATA

PFP:00030

### Road Wheel

AES0004I

Kind of wheel		Aluminum	Steel for emergency use
Deflection limit	Lateral deflection	Less than 0.3 mm (0.012 in)	Less than 1.2 mm (0.039 in)
	Vertical deflection	Less than 0.3 mm (0.012 in)	Less than 1.0 mm (0.047 in)
Allowable quantity of residual unbalance	Dynamic (At rim flange)	Less than 10g (0.35 oz) (per side)	
	Static (At rim flange)	Less than 20g (0.70 oz)	

### Tire

AES0004J

Unit: kPa (kg/cm<sup>2</sup>, psi)

Tire size	Air pressure	
	Front wheel	Rear wheel
235/45R18 P235/45R18	230 (2.3, 33)	230 (2.3, 33)
T135/90D16	420 (4.2, 60)	420 (4.2, 60)