

WT

SECTION

ROAD WHEELS & TIRES

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Precautions for Battery Service

AES000DR

This vehicle is equipped with the automatic window adjusting function. When a door is opened, the window automatically lowers slightly to avoid contact between the window and the side roof panel. After the door is closed, the window will automatically raise slightly.

On vehicles equipped with the automatic window adjusting function, lower both the driver and front passenger side windows before disconnecting the battery cables. This will prevent interference between the side window and the roof panel when either door is opened/closed.

CAUTION:
After the battery cables are disconnected, do not open/close the driver and/or front passenger door with the window in the full up position. The automatic window adjusting function will not work and the side roof panel may be damaged.

A
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PREPARATION

PREPARATION

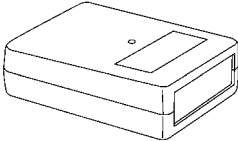
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Special Service Tool

AES0004K

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	ID registration

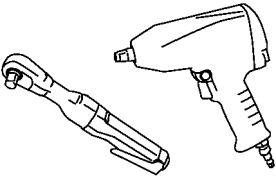


SEIA0051E

Commercial Service Tools

AES0004L

Tool name	Description
Power tool	Removing wheel nuts



PBIC0190E

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

PPF:00003

NVH Troubleshooting Chart

AES0004M

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

Reference page			FAX-4, FSU-5	WT-6	—	—	—	—	—	—	NVH in PR section.	NVH in RFD section.	NVH in FAX and FSU sections.	NVH in RAX and RSU sections.	Refer to TIRES in this chart.	Refer to ROAD WHEEL in this chart.	NVH in RAX section.	NVH in BR section.	NVH in PS section.
Possible cause and SUSPECTED PARTS			Improper installation, looseness	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
		Shake	x	x	x	x	x	x		x	x		x	x		x	x	x	x
		Vibration				x				x	x		x	x			x		x
		Shimmy	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
		Poor quality ride or handling	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
		Shake	x	x	x			x			x		x	x	x		x	x	x
		Shimmy, judder	x	x	x			x					x	x	x			x	x
		Poor quality ride or handling	x	x	x			x					x	x	x				

x: Applicable

ROAD WHEEL

ROAD WHEEL

PFP:40300

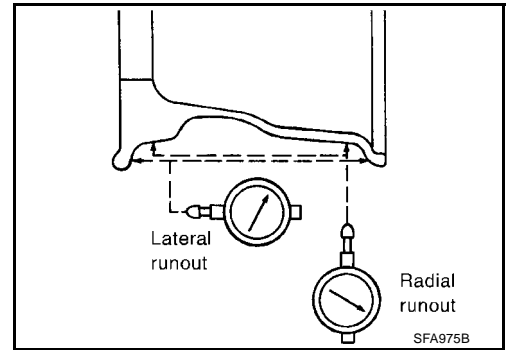
Inspection ALUMINUM WHEEL

AES000DH

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-39, "SERVICE DATA"



STEEL WHEEL

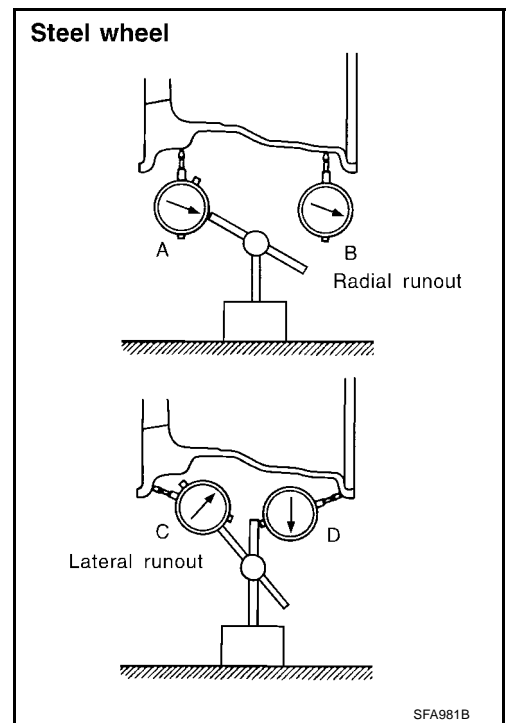
1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
 - a. Remove tire from steel wheel and mount wheel on a tire balance machine.
 - b. Set two dial indicators as shown in the illustration.
 - c. Set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

Radial runout = (A+B)/2

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-39, "SERVICE DATA"



ROAD WHEEL TIRE ASSEMBLY

ROAD WHEEL TIRE ASSEMBLY

PFP:40300

Balancing Wheels (Bonding Weight Type) REMOVAL

AES000DL

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

CAUTION:

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

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 1.6 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 $\times 1.6$ = balance weight to be installed

Calculation example:

23 g (0.81 oz) $\times 1.6$ = 38.33 g (1.35 oz) = 40 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:

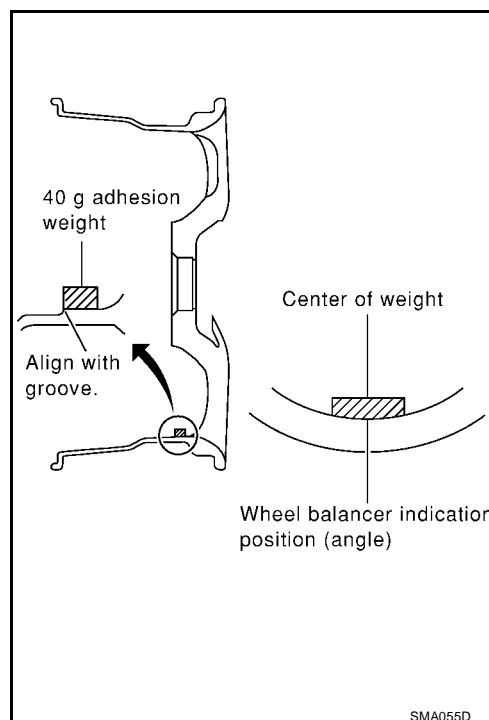
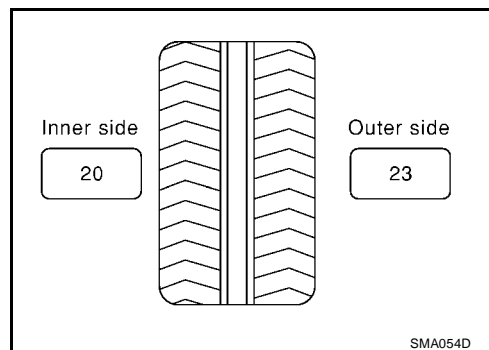
37.4 = 35 g (1.23 oz)

37.5 = 40 g (1.41 oz)

- a. Install balance weight in the position shown in the figure at left.
- 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 at left 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 at left).

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).

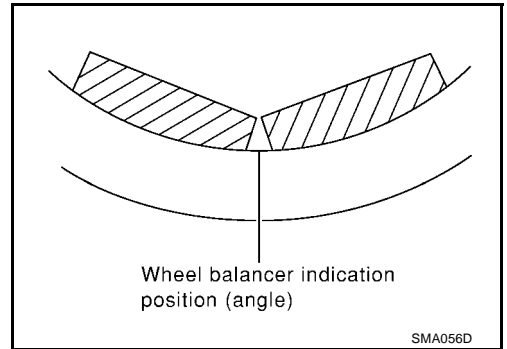
CAUTION:

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)	10 g (0.35 oz) (one side)
	Static (At rim flange)	20 g (0.71 oz)



Tire Rotation

AES000DJ

CAUTION:

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

NOTE:

Tire cannot be rotated in vehicle, as front tire are different size from rear tire and the direction of wheel rotation is fixed in each tire.

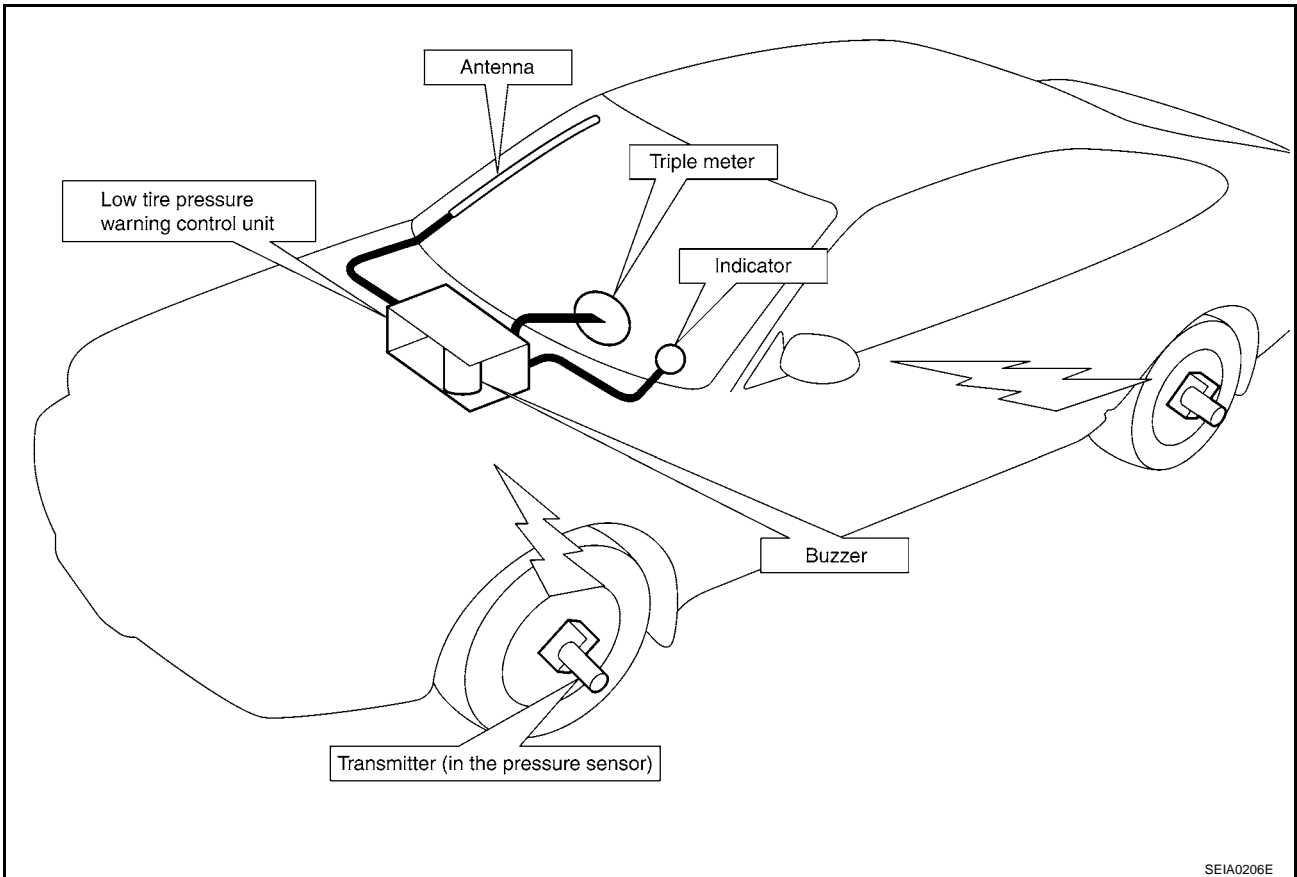
LOW TIRE PRESSURE WARNING SYSTEM

LOW TIRE PRESSURE WARNING SYSTEM

PFP:40300

System Components

AES0004Q



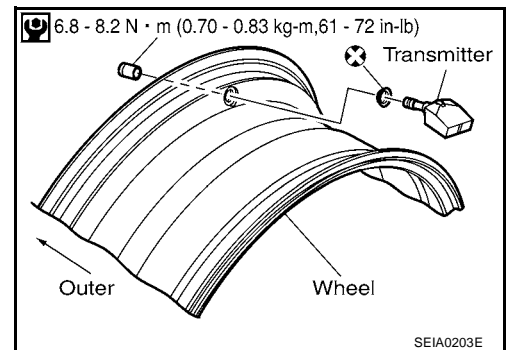
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System Description

TRANSMITTER

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.

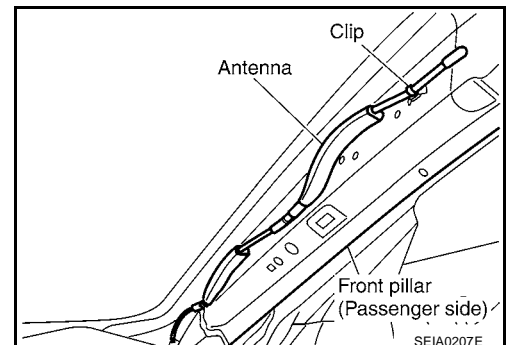
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ANTENNA

Receives the radio wave signal transmitted by the transmitter.

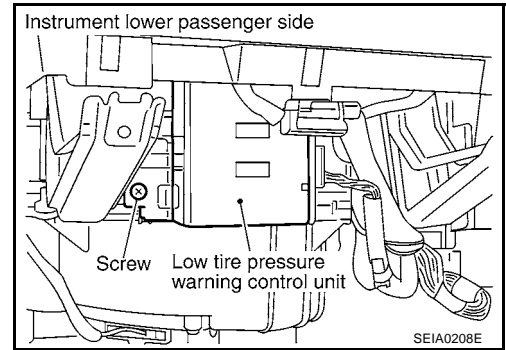


SEIA0207E

LOW TIRE PRESSURE WARNING SYSTEM

LOW 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.

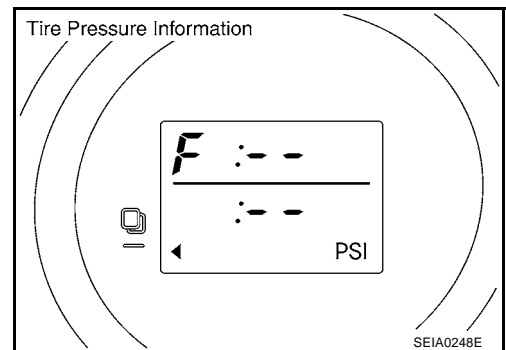


Condition	Warning lamp	Buzzer
Less than 200 kPa (2.0 kg/cm ² , 28 psi) [Flat tire]	ON	Sounds for 10 sec.
System malfunction	ON	OFF

DISPLAY (TRIPLE METER)

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.



CAN COMMUNICATION

CAN COMMUNICATION

PFP:23710

System Description

AES000DF

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Unit

AES000DO

Go to CAN system, when selecting your car model from the following table.

Body type	Coupe						
Axle	2WD						
Engine	VQ35DE						
Transmission	A/T	M/T					
Brake control	TCS	ABS		TCS		VDC	
Low tire pressure warning system	Not Applicable	Not Applicable	Applicable	Not Applicable	Applicable	Not Applicable	Applicable
CAN communication unit							
ECM	×	×	×	×	×	×	×
TCM	×						
Data link connector	×	×	×	×	×	×	×
Unified meter and A/C amp.	×	×	×	×	×	×	×
BCM	×	×	×	×	×	×	×
Low tire pressure warning control unit			×		×		×
Steering angle sensor						×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×		
VDC/TCS/ABS control unit						×	×
IPDM E/R	×	×	×	×	×	×	×
CAN communication type	WT-12. "TYPE 1"	WT-13. "TYPE 2/TYPE3"		WT-15. "TYPE 4/TYPE5"		WT-17. "TYPE 6/TYPE7"	
CAN system trouble diagnosis	LAN-14. "CAN SYS-TEM (TYPE 1)"	LAN-38. "CAN SYS-TEM (TYPE 2)"	LAN-57. "CAN SYS-TEM (TYPE 3)"	LAN-80. "CAN SYS-TEM (TYPE 4)"	LAN-99. "CAN SYS-TEM (TYPE 5)"	LAN-122. "CAN SYS-TEM (TYPE 6)"	LAN-144. "CAN SYS-TEM (TYPE 7)"

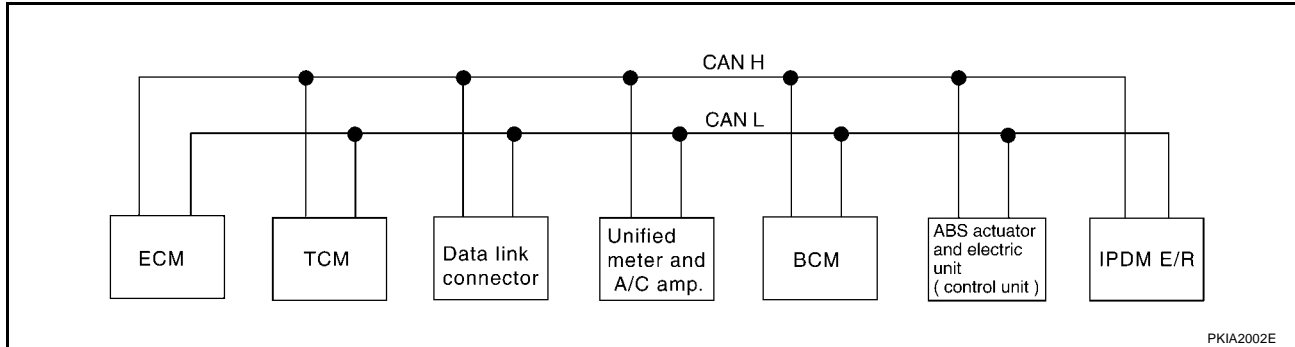
×: Applicable

CAN COMMUNICATION

TYPE 1

System diagram

- Type1



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R	R		R	
Engine torque signal	T	R				
Engine coolant temperature signal	T	R	R			
Accelerator pedal position signal	T	R			R	
Closed throttle position signal	T	R				
Wide open throttle position signal	T	R				
Battery voltage signal	T	R				
Stop lamp switch signal		R	T			
Fuel consumption monitor signal	T		R			
A/T self-diagnosis signal	R	T				
A/T CHECK indicator lamp signal		T	R			
A/T position indicator signal		T	R		R	
ABS operation signal		R			T	
A/T shift schedule change demand signal		R			T	
Air conditioner switch signal	R			T		
A/C compressor request signal	T					R
A/C compressor feedback signal	T		R			
Blower fan motor switch signal	R			T		
Cooling fan speed request signal	T					R
Position lights request signal			R	T		R
Low beam request signal				T		R
Low beam status signal	R					T
High beam request signal			R	T		R
High beam status signal	R					T
Vehicle speed signal			R		T	
	R	R	T	R		
Sleep request 1 signal			R	T		
Sleep request 2 signal				T		R

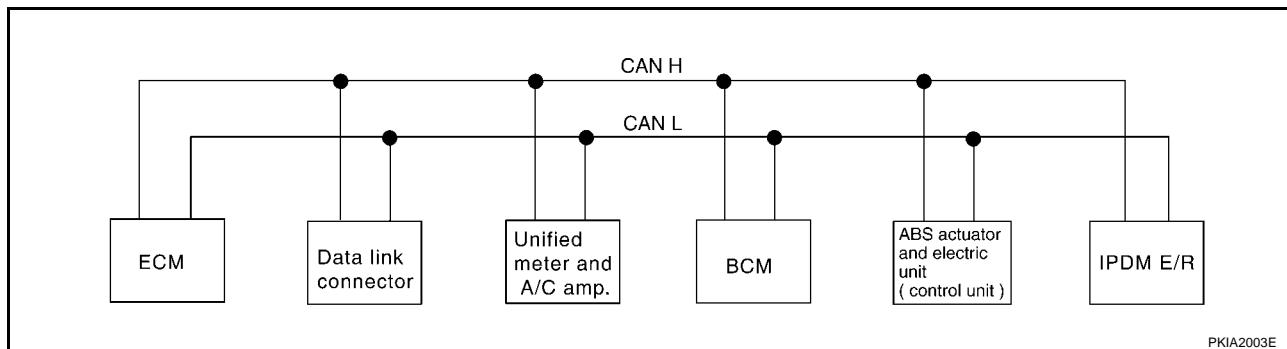
CAN COMMUNICATION

Signals	ECM	TCM	Unified meter and A/C amp.	BCM	ABS actuator and electric unit (control unit)	IPDM E/R
Wake up request 1 signal			R	T		
Door switch signal			R	T		R
Turn indicator signal			R	T		
Seat belt buckle switch signal			T	R		
Buzzer output signal			R	T		
Fuel level sensor signal	R		T			
Malfunction indicator lamp signal	T		R			
ASCD SET lamp signal	T		R			
ASCD operation signal	T	R				
ASCD CRUISE lamp signal	T		R			
Overdrive cancel signal	T	R				
Output shaft revolution signal	R	T				
Turbine revolution signal	R	T				
Front wiper request signal				T		R
Front wiper stop position signal				R		T
Rear window defogger switch signal				T		R
Rear window defogger control signal	R					T
Manual mode signal		R	T			
Not manual mode signal		R	T			
Manual mode shift up signal		R	T			
Manual mode shift down signal		R	T			
Manual mode indicator signal		T	R			
Hood switch signal				R		T
Theft warning horn request signal				T		R
Horn chirp signal				T		R
ABS warning lamp signal			R		T	
TCS OFF indicator lamp signal			R		T	
SLIP indicator lamp signal			R		T	
Brake (EBD) warning lamp signal			R		T	

TYPE 2/TYPE3

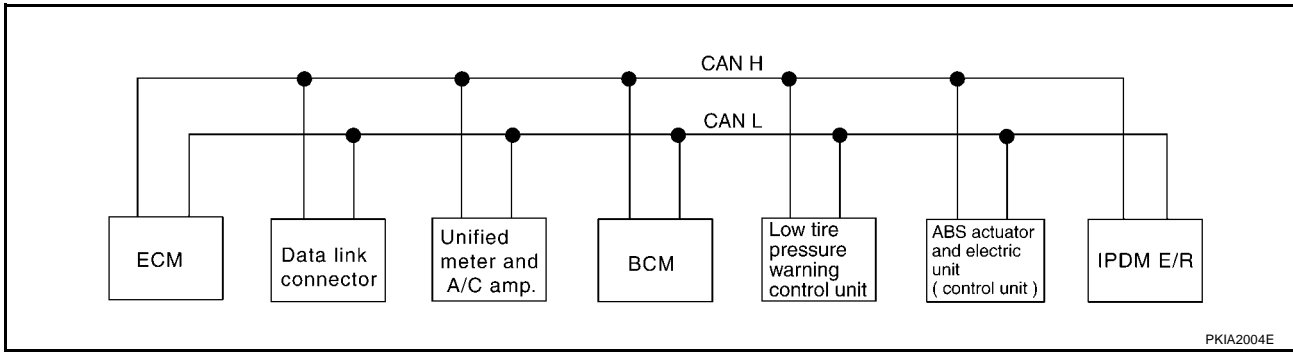
System diagram

- Type2



CAN COMMUNICATION

- Type3



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Unified meter and A/C amp.	BCM	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R			R	
Engine coolant temperature signal	T	R				
Accelerator pedal position signal	T				R	
Fuel consumption monitor signal	T	R				
Air conditioner switch signal	R		T			
A/C compressor request signal	T					R
A/C compressor feedback signal	T	R				
Blower fan motor switch signal	R		T			
Cooling fan speed request signal	T					R
Position lights request signal			R	T		R
Low beam request signal			T			R
Low beam status signal	R					T
High beam request signal		R	T			R
High beam status signal	R					T
Vehicle speed signal		R			T	
	R	T	R	R		
Sleep request 1 signal		R	T			
Sleep request 2 signal			T			R
Wake up request 1 signal		R	T			
Door switch signal		R	T			R
Turn indicator signal		R	T			
Seat belt buckle switch signal		T	R			
Buzzer output signal		R	T			
Fuel level sensor signal	R	T				
Malfunction indicator lamp signal	T	R				
ASCD SET lamp signal	T	R				
ASCD CRUISE lamp signal	T	R				
Front wiper request signal			T			R
Front wiper stop position signal			R			T
Rear window defogger switch signal			T			R

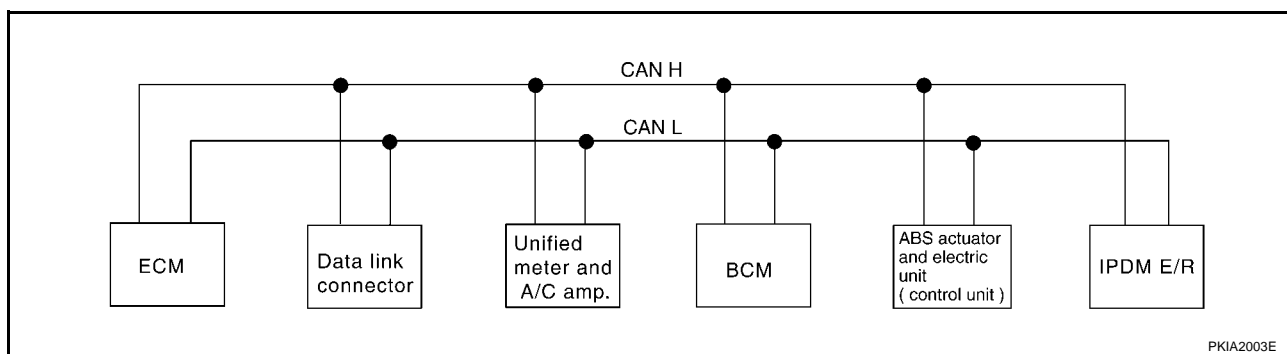
CAN COMMUNICATION

Signals	ECM	Unified meter and A/C amp.	BCM	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Rear window defogger control signal	R					T
Hood switch signal			R			T
Theft warning horn request signal			T			R
Horn chirp signal			T			R
Tire pressure signal		R		T		
ABS warning lamp signal		R			T	
Brake (EBD) warning lamp signal		R			T	

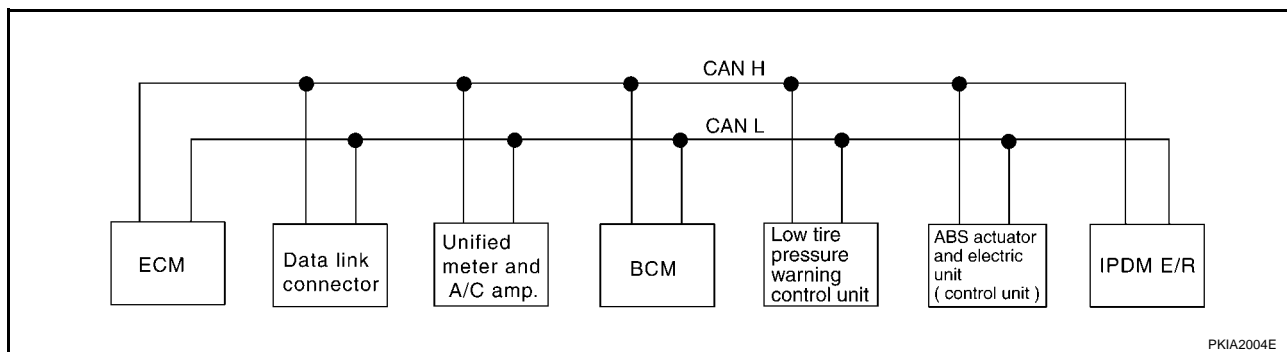
TYPE 4/TYPE5

System diagram

- Type4



- Type5



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Unified meter and A/C amp.	BCM	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Engine speed signal	T	R			R	
Engine coolant temperature signal	T	R				
Accelerator pedal position signal	T				R	
Fuel consumption monitor signal	T	R				
Air conditioner switch signal	R		T			
A/C compressor request signal	T					R
A/C compressor feedback signal	T	R				
Blower fan motor switch signal	R		T			

CAN COMMUNICATION

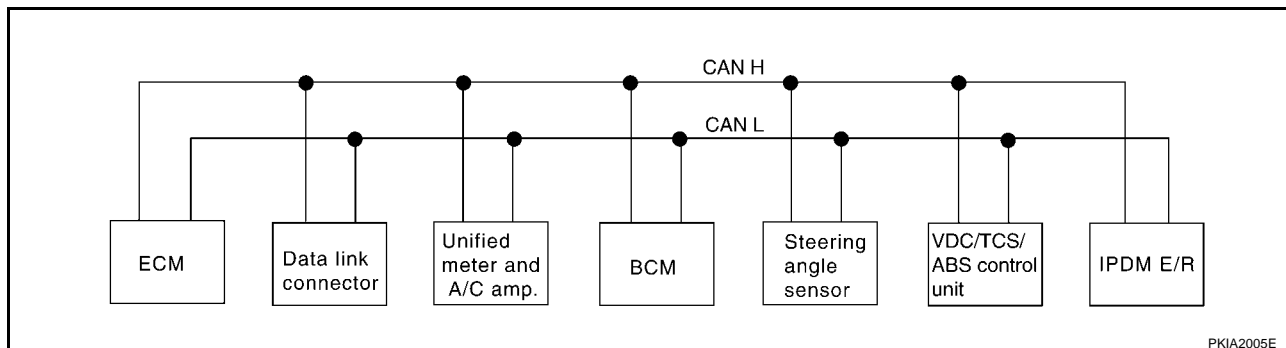
Signals	ECM	Unified meter and A/C amp.	BCM	Low tire pressure warning control unit	ABS actuator and electric unit (control unit)	IPDM E/R
Cooling fan speed request signal	T					R
Position lights request signal		R	T			R
Low beam request signal			T			R
Low beam status signal	R					T
High beam request signal		R	T			R
High beam status signal	R					T
Vehicle speed signal		R			T	
	R	T	R	R		
Sleep request 1 signal		R	T			
Sleep request 2 signal			T			R
Wake up request 1 signal		R	T			
Door switch signal		R	T			R
Turn indicator signal		R	T			
Seat belt buckle switch signal		T	R			
Buzzer output signal		R	T			
Fuel level sensor signal	R	T				
Malfunction indicator lamp signal	T	R				
ASCD SET lamp signal	T	R				
ASCD CRUISE lamp signal	T	R				
Front wiper request signal			T			R
Front wiper stop position signal			R			T
Rear window defogger switch signal			T			R
Rear window defogger control signal	R					T
Hood switch signal			R			T
Theft warning horn request signal			T			R
Horn chirp signal			T			R
Tire pressure signal		R		T		
ABS warning lamp signal		R			T	
TCS OFF indicator lamp signal		R			T	
SLIP indicator lamp signal		R			T	
Brake (EBD) warning lamp signal		R			T	

CAN COMMUNICATION

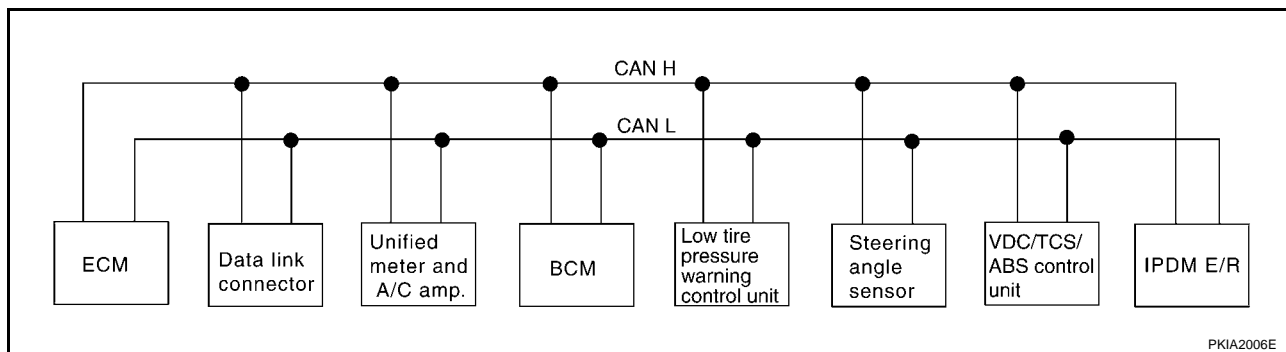
TYPE 6/TYPE7

System diagram

- Type6



- Type7



Input/output signal chart

T: Transmit R: Receive

Signals	ECM	Unified meter and A/C amp.	BCM	Low tire pressure warning control unit	Steering angle sensor	VDC/TCS/ABS control unit	IPDM E/R
Engine speed signal	T	R				R	
Engine coolant temperature signal	T	R					
Accelerator pedal position signal	T					R	
Fuel consumption monitor signal	T	R					
Air conditioner switch signal	R		T				
A/C compressor request signal	T						R
A/C compressor feedback signal	T	R					
Blower fan motor switch signal	R		T				
Cooling fan speed request signal	T						R
Position lights request signal		R	T				R
Low beam request signal			T				R
Low beam status signal	R						T
High beam request signal		R	T				R
High beam status signal	R						T
Vehicle speed signal		R				T	
	R	T	R	R			
Sleep request 1 signal		R	T				
Sleep request 2 signal			T				R
Wake up request 1 signal		R	T				

CAN COMMUNICATION

Signals	ECM	Unified meter and A/C amp.	BCM	Low tire pressure warning control unit	Steering angle sensor	VDC/TCS/ABS control unit	IPDM E/R
Door switch signal		R	T				R
Turn indicator signal		R	T				
Seat belt buckle switch signal		T	R				
Buzzer output signal		R	T				
Fuel level sensor signal	R	T					
Malfunction indicator signal	T	R					
ASCD SET lamp signal	T	R					
ASCD CRUISE lamp signal	T	R					
Front wiper request signal			T				R
Front wiper stop position signal			R				T
Rear window defogger switch signal			T				R
Rear window defogger control signal	R						T
Hood switch signal			R				T
Theft warning horn request signal			T				R
Horn chirp signal			T				R
Steering angle sensor signal					T	R	
Tire pressure signal		R		T			
ABS warning lamp signal		R				T	
VDC OFF indicator lamp signal		R				T	
SLIP indicator lamp signal		R				T	
Brake (EBD) warning lamp signal		R				T	

TROUBLE DIAGNOSES
Schematic

PFP:00004

AES000AW

A

B

C

D

WT

F

G

H

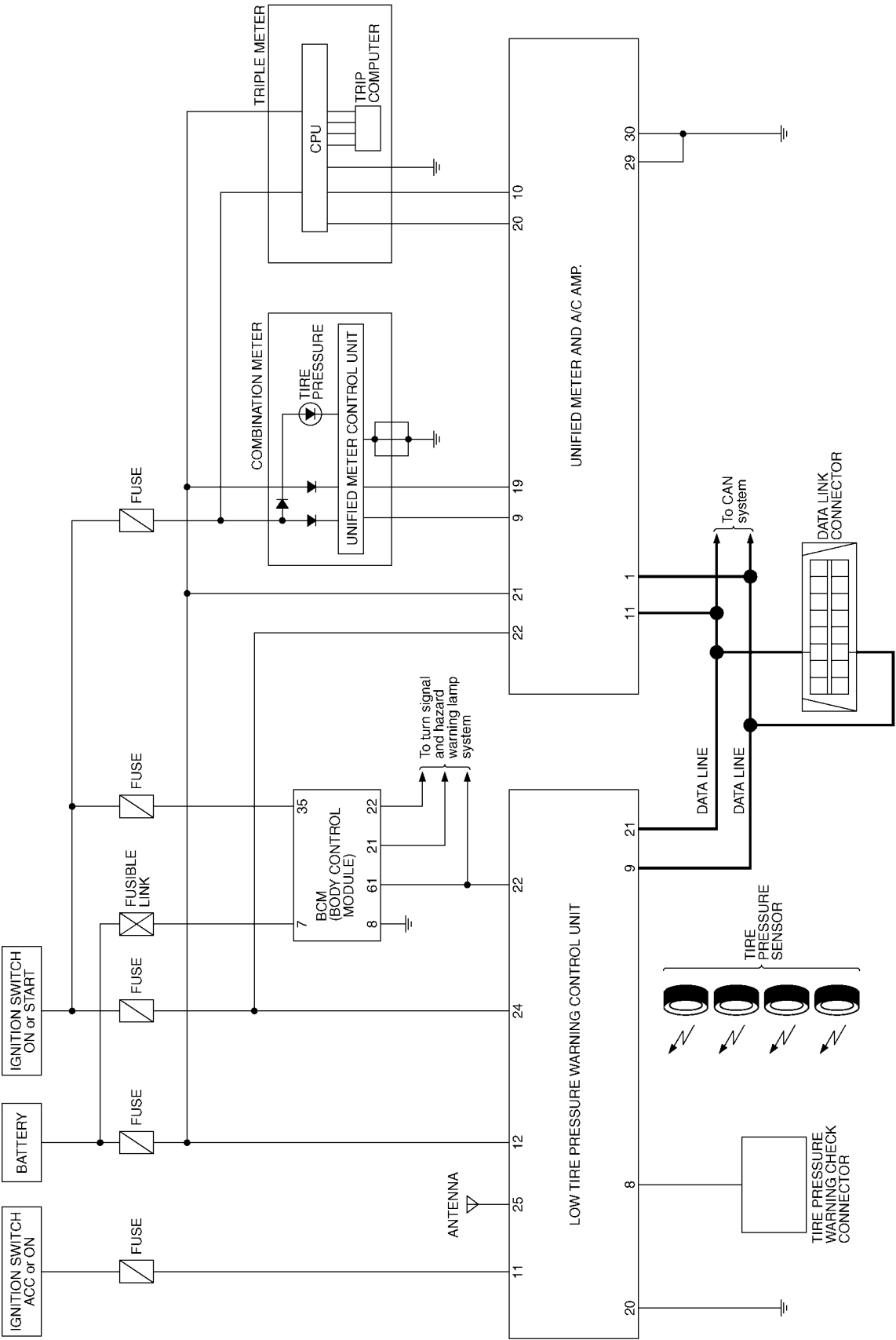
I

J

K

L

M



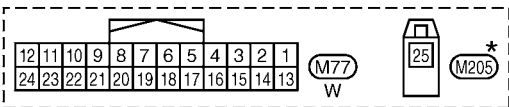
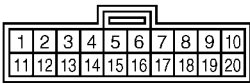
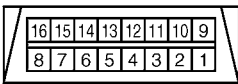
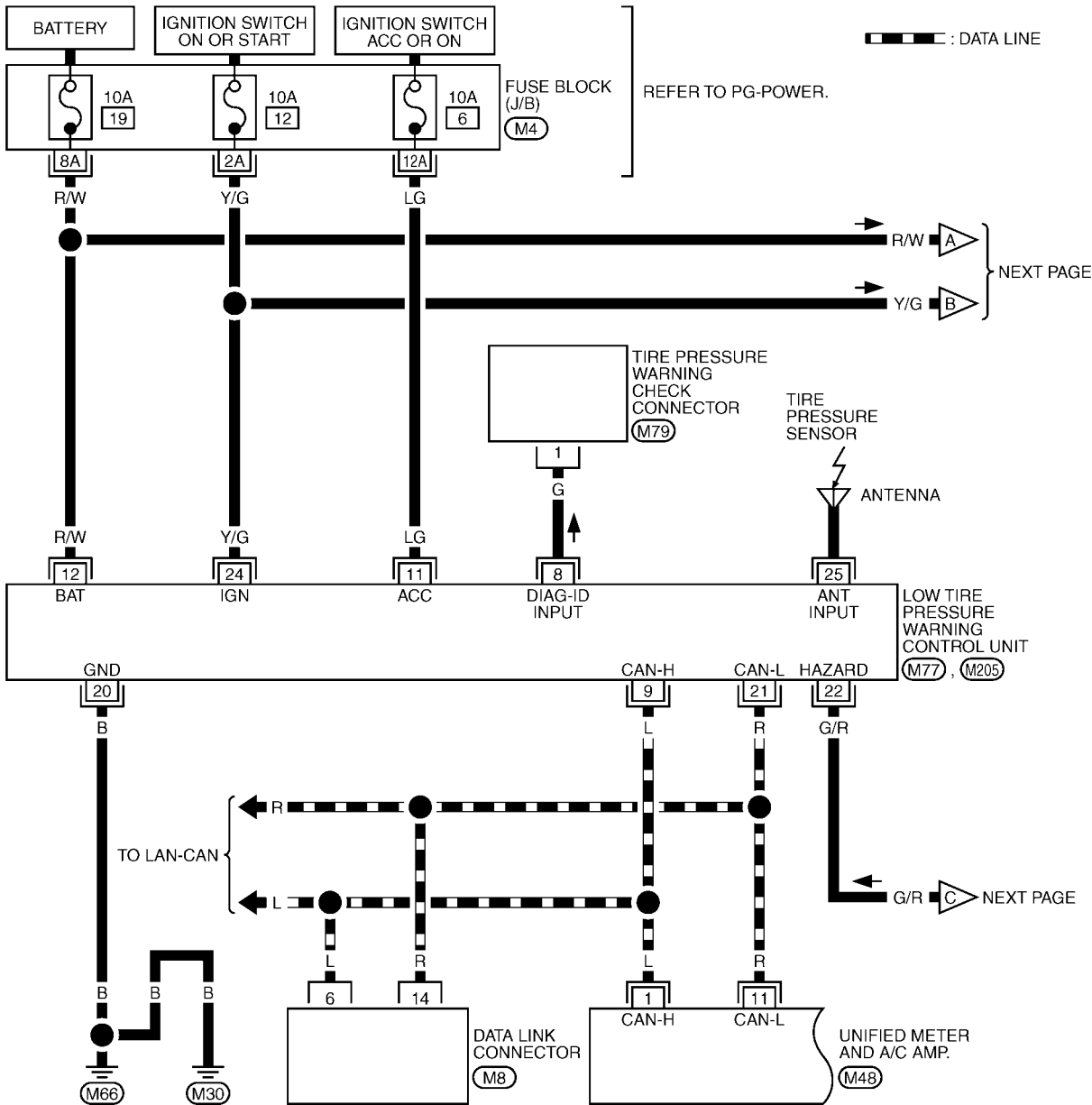
TEWT0001E

TROUBLE DIAGNOSES

Wiring Diagram

AES000AH

WT-T/WARN-01

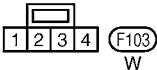
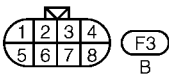
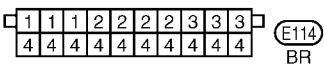
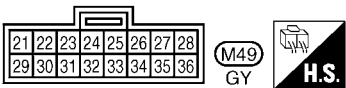
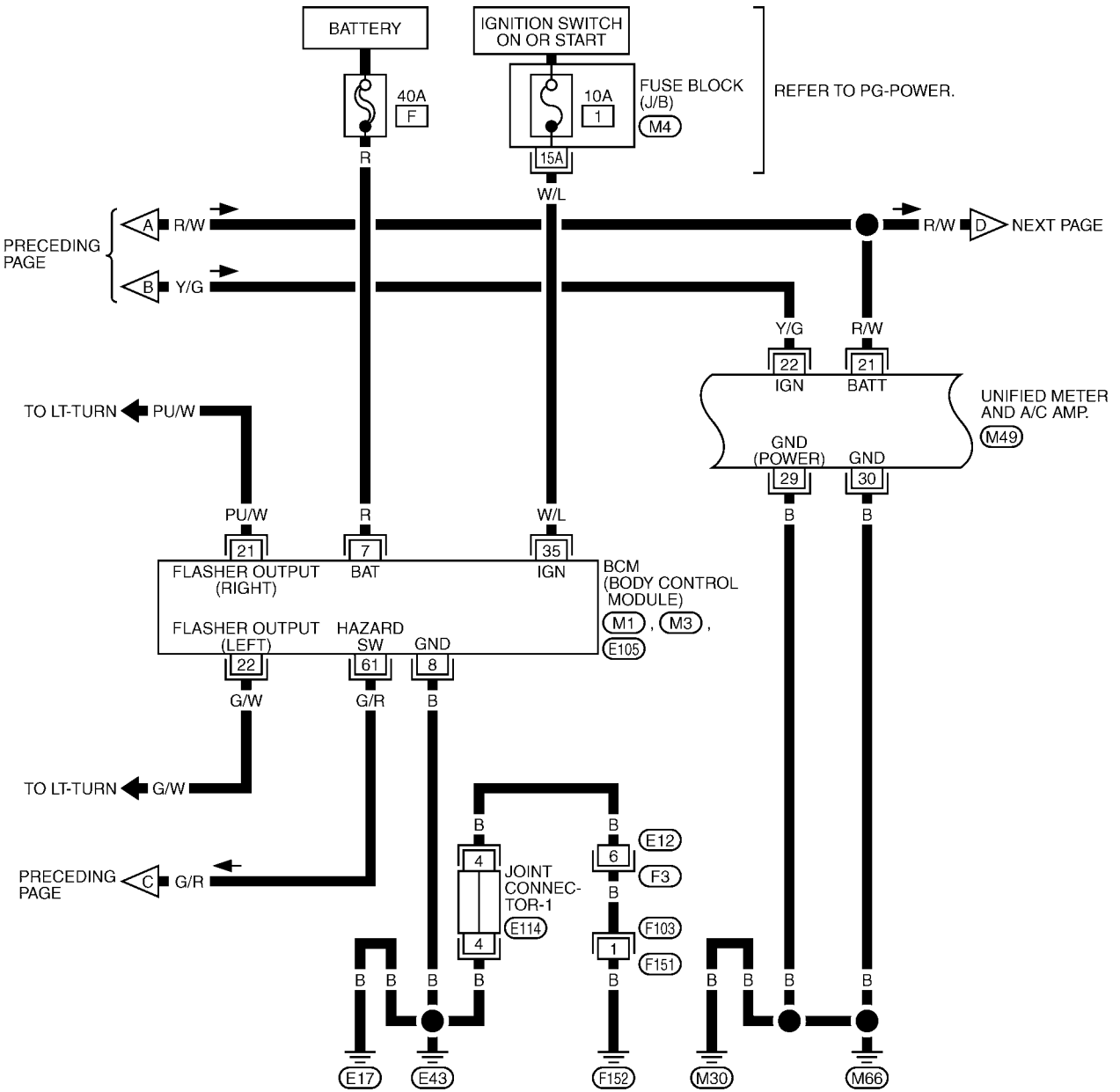


★: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

REFER TO THE FOLLOWING.
(M4) - FUSE BLOCK-JUNCTION BOX (J/B)

TROUBLE DIAGNOSES

WT-T/WARN-02



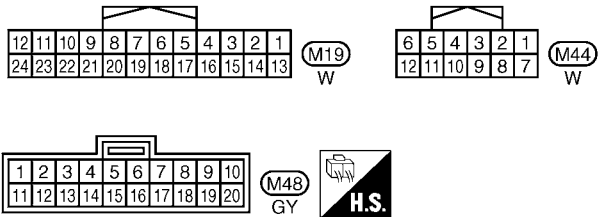
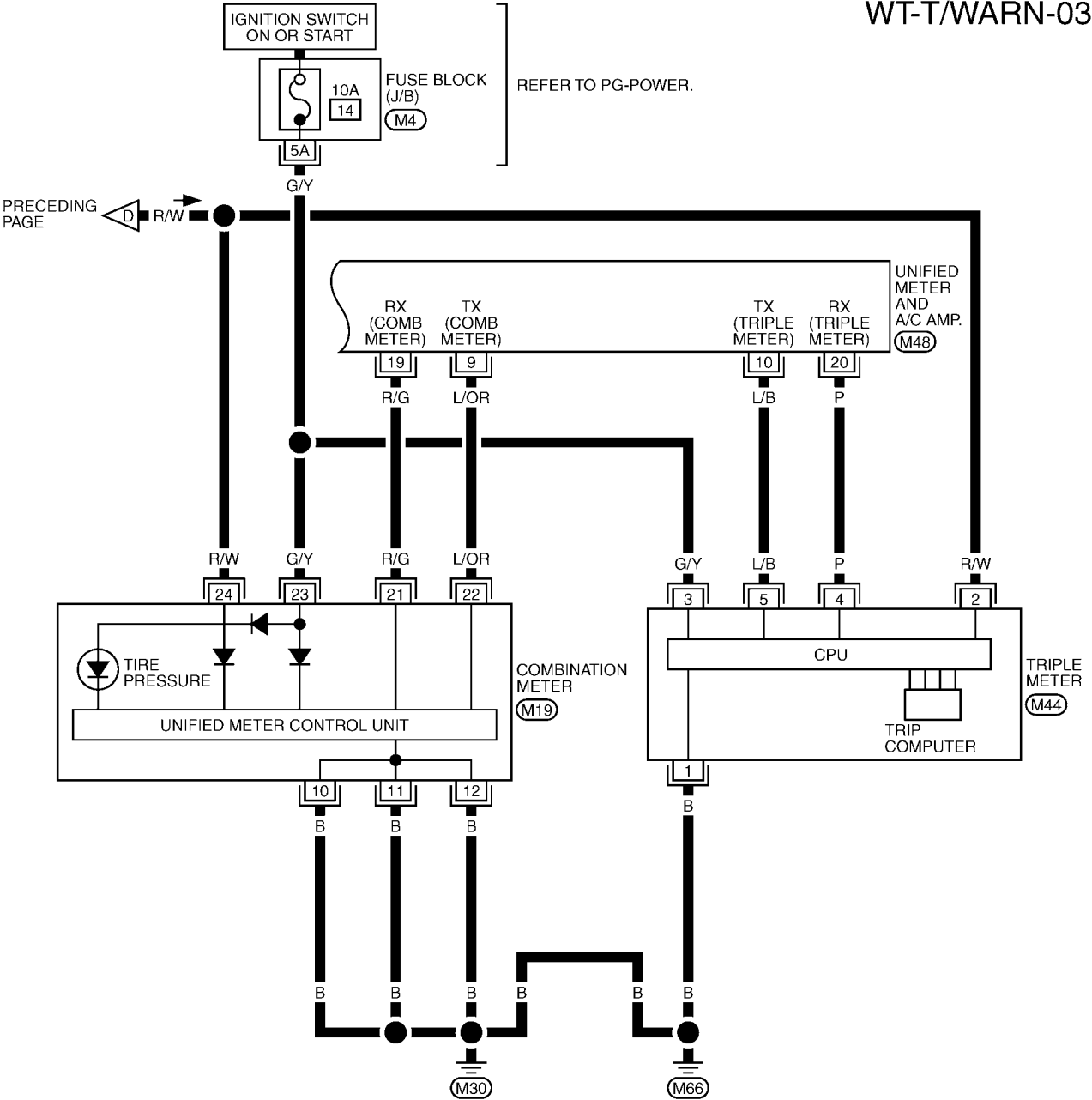
REFER TO THE FOLLOWING.

(M4) -FUSE BLOCK-JUNCTION BOX (J/B)

(M1), (M3), (E105) -ELECTRICAL UNITS

TROUBLE DIAGNOSES

WT-T/WARN-03



REFER TO THE FOLLOWING.

(M4) -FUSE BLOCK-JUNCTION BOX (J/B)

TROUBLE DIAGNOSES

Control Unit Input/Output Signal Standard

AES000AV

Standards using a circuit tester and oscilloscope.

Measurement terminal		Measuring point	Standard value	
+	−			
8 (G)	Body ground	Tire pressure warning check switch	Always	Approx. 5V
9 (L)		Data line (CAN H)	—	—
11 (LG)		Ignition switch ON or ACC	Ignition switch ON	Battery voltage (Approx. 12V)
12 (R/W)		Battery power supply	Always	Battery voltage (Approx. 12V)
20 (B)		GND	—	Approx. 0V
21 (R)		Data line (CAN L)	—	—
22 (G/R)		Hazard	Hazard lamp switch OFF	Battery voltage (Approx. 12V)
			Hazard lamp switch ON	Approx. 0V
24 (Y/G)		Ignition switch ON or IGN		Battery voltage (Approx. 12V)
25		Antenna	—	—

() : Wire color

ID Registration Procedure

AES000AI

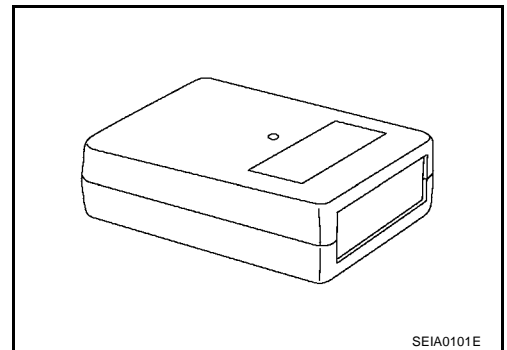
ID REGISTRATION WITH TRANSMITTER ACTIVATION TOOL

- Turn ignition switch "OFF".
- Connect CONSULT-II and CONSULT-II CONVERTER to data link connector.

NOTE:

If "AIR PRESSURE MONITOR" is not indicated, go to [GI-40, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).

- Touch "AIR PRESSURE MONITOR", "WORK SUPPORT" and "ID REGIST".
- With the transmitter activation tool (J-45295) pushed against the front-left transmitter, press the button then keep 5 seconds.



SEIA0101E

- Register the IDs in order from FR LH, FR RH, RR RH or 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	Front LH	Once	2 times flashing	"YET" ↓ "DONE"
2	Front RH	2 times		
3	Rear LH	3 times		
4	Rear RH	4 times		

- 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 and CONSULT-II CONVERTER to data link connector.
NOTE:
 If "AIR PRESSURE MONITOR" is not indicated, go to [GI-40, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).
3. Touch "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 15 km/h (9.4 MPH) or more for a few minutes.

Tire position	Tire pressure kPa (kg/cm ² , 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. When ID registration of each wheel has been completed, a buzzer sounds and hazard warning lamp blinks.

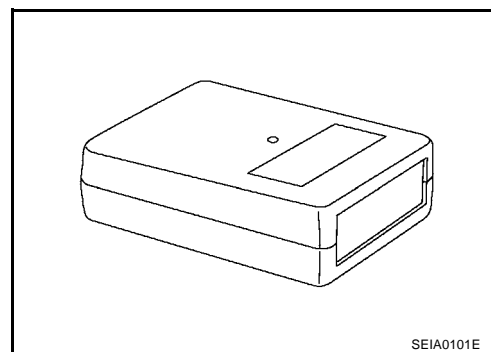
Activation tire position	Buzzer	Hazard warning lamp	CONSULT-II
1 Front LH	Once	2 times flashing	"YET" ↓ "DONE"
2 Front RH	2 times		
3 Rear LH	3 times		
4 Rear RH	4 times		

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

How To Transmitter Wake Up Operation WITH TRANSMITTER ACTIVATION TOOL

AES000DP

1. With the transmitter activation tool (J-45295) pushed against the front-left transmitter, press the button then keep 5 seconds.



2. Register the IDs in order from FR LH, FR RH, RR RH or 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
1 Front LH	Once	3 times flashing
2 Front RH	2 times	
3 Rear LH	3 times	
4 Rear RH	4 times	

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

TROUBLE DIAGNOSES

Self-Diagnosis

AES000AX

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 200kPa(2.0kg/cm ² , 28psi) or less Front-right tire pressure drops to 200kPa(2.0kg/cm ² , 28psi) or less Rear-right tire pressure drops to 200kPa(2.0kg/cm ² , 28psi) or less Rear-left tire pressure drops to 200kPa(2.0kg/cm ² , 28psi) 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.
VHCL_SPEED_SIG_ERR	Vehicle speed signal is error.
RECEIVER - ID - NO - REG	No ID registration has been made to the low tire pressure warning control unit.

TROUBLE DIAGNOSES

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.

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">● Drive vehicle for a few minutes. or <ul style="list-style-type: none">● Ignition switch ON and activation tool is transmitting activate signals.	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 Low tire pressure warning control unit on: ON Buzzer in Low 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.

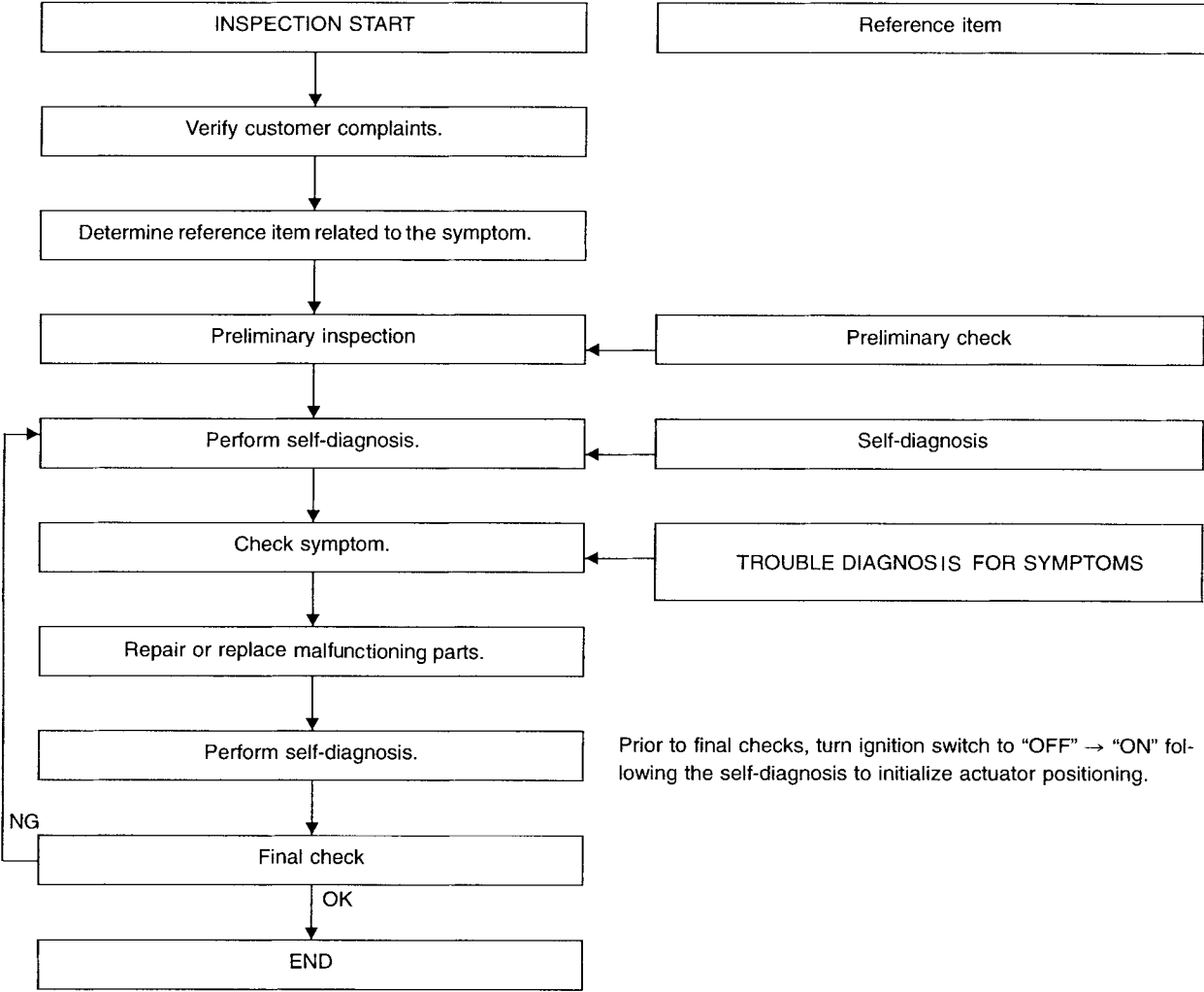
TROUBLE DIAGNOSES

How to Perform Trouble Diagnosis for Quick and Accurate Repair

AES000AY

- Before troubleshooting, verify customer complaints.
- If a vehicle problem 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.

WORK FLOW



Preliminary check : [WT-28](#) Self-diagnosis : [WT-30](#) Trouble diagnosis for symptoms : [WT-31](#)

SEIA0100E

TROUBLE DIAGNOSES

Preliminary Check

AES000AZ

BASIC INSPECTION

1. CHECK ALL TIRES PRESSURES

- Check all tires pressures.

Tire pressure : 240 kPa (2.4 kg/cm² , 34 psi)

OK or NG?

OK >> GO TO 2.

NG >> Adjust tire pressure to specified value.

2. CHECK CONNECTOR

1. Disconnect low tire pressure warning control unit connector M77.
2. Check terminals for damage or loose connection.

Inspection results OK?

OK >> GO TO 3.

NG >> Repair or replace damaged parts.

3. CHECK TRANSMITTER ACTIVATION TOOL

- Check transmitter tool battery.

OK or NG?

OK >> Carry out self-diagnosis.

NG >> Replace transmitter activation tool battery.

TROUBLE DIAGNOSES

Malfunction Code/Symptom Chart

AES000B0

Code/Symptom	Malfunction part	Reference page
15 16 17 18	Front-left tire pressure drops to 200kPa (2.0kg/cm ² , 28psi) or less Front-right tire pressure drops to 200kPa (2.0kg/cm ² , 28psi) or less Rear-right tire pressure drops to 200kPa (2.0kg/cm ² , 28psi) or less Rear-left tire pressure drops to 200kPa (2.0kg/cm ² , 28psi) 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)	WT-30
31 32 33 34	Transmitter checksum error (front - left) Transmitter checksum error (front - right) Transmitter checksum error (rear - right) Transmitter checksum error (rear - left)	WT-30
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)	WT-30
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)	WT-30
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)	WT-30
51	Low tire pressure warning control unit	WT-30
Warning lamp does not come on when ignition switch is turned on.	Fuse or unified meter and A/C amp. Low tire pressure warning control unit connector or circuit Low tire pressure warning control unit	WT-31
Warning lamp stays on when ignition switch is turned on.	Fuse or unified meter and A/C amp. Low tire pressure warning control unit connector or circuit Low tire pressure warning control unit	WT-32
Warning lamp blinks when ignition switch is turned on.	Low tire pressure warning control unit harness connector or circuit Low tire pressure warning control unit Transmitter's mode off ID registration not yet	WT-33
Hazard warning lamp blinks when ignition switch is turned on.	Low tire pressure warning control unit harness connector or circuit Low tire pressure warning control unit	WT-34
"TIRE PRESSURE" information in triple meter does not exist.	Fuse Triple meter Low tire pressure warning control unit	WT-35
ID registration can not be operated.	Transmitter Antenna harness connector or circuit Antenna	WT-35

TROUBLE DIAGNOSIS FOR SELF-DIAGNOSTIC ITEMS

TROUBLE DIAGNOSIS FOR SELF-DIAGNOSTIC ITEMS

PF0:00000

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

AES000D7

1. CHECK CONNECTOR

- Disconnect low tire pressure warning control unit connector M77.
- Check terminals for damage or loose connections.

Inspection results OK?

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

2. CHECK ANTENNA CONNECTOR

- Check antenna and feeder connector M205 for damage or loose connections.

OK or NG?

OK >> GO TO 3.
NG >> Repair or replace antenna or feeder connector.

3. CHECK ANTENNA CIRCUIT

- Check antenna circuit continuity.

OK or NG?

OK >> Check transmitter and transmitter activation tool.
NG >> Replace antenna circuit.

Inspection 2: Transmitter

MALFUNCTION CODE NO. 31, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, 44, 45, 46, 47 OR 48

AES000D8

1. ID REGISTRATION

- Carry out ID registration.
- Drive the vehicle for 5 minutes or longer for malfunction codes No. 31, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, or 44, for 20 minutes or longer for malfunction codes No. 45, 46, 47, or 48.

Does warning lamp activate?

YES >> GO TO 2.
NO >> INSPECTION END.

2. REPLACE TRANSMITTER

- Replace the transmitter of malfunctioning part.

Does warning lamp still activate again?

YES >> GO TO 1.
NO >> INSPECTION END.

Inspection 3: Low Tire Pressure Warning Control Unit MALFUNCTION CODE NO. 51

AES000D9

1. SELF-DIAGNOSIS

- Carry out self-diagnosis.

Does warning lamp still activate again?

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.

AES000AR

Before carrying out the inspection on the following diagnostic procedure, perform the CAN communication line check. Refer to [WT-36, "Inspection 7: CAN Communication Line"](#).

DIAGNOSTIC PROCEDURE

1. CHECK COMBINATION METER

- Check combination meter operation.

Inspection results OK?

OK >> GO TO 2.

NG >> Check combination meter. Refer to [DI-4](#).

2. CHECK WARNING LAMP

- Disconnect low tire pressure warning control unit connector.

Does the warning lamp activate?

YES >> Replace low tire pressure warning control unit.

NO >> GO TO 3.

3. CHECK UNIFIED METER AND A/C AMP. POWER SUPPLY CIRCUIT

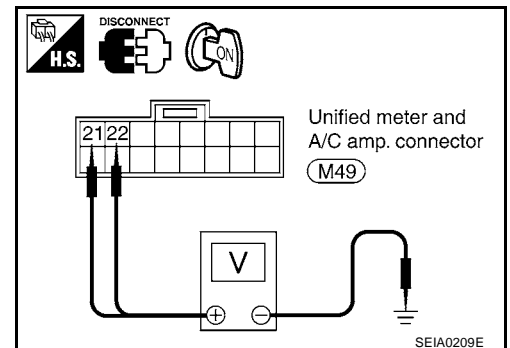
- Check voltage between unified meter and A/C amp. harness connector M49 terminal 21(R/W), 22(Y/G) and ground.

: Battery voltage should exist. (Approx. 12V)

OK or NG?

OK >> GO TO 4.

NG >> Check unified meter and A/C amp. power supply circuit for open or short.



4. CHECK UNIFIED METER AND A/C AMP. GROUND CIRCUIT

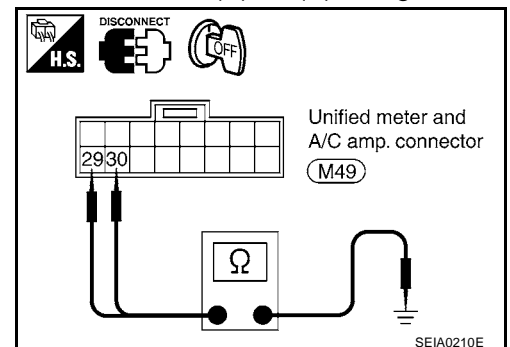
- Check continuity between unified meter and A/C amp. connector M49 terminal 29(B), 30(B) and ground.

: Continuity should exist.

OK or NG?

OK >> Check unified meter and A/C amp. Refer to [DI-50](#).

NG >> Repair or replace unified meter and A/C amp. ground circuit.



TROUBLE DIAGNOSIS FOR SYMPTOMS

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

AES000AS

DIAGNOSTIC PROCEDURE

1. CHECK CONNECTOR

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

Inspection results OK?

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

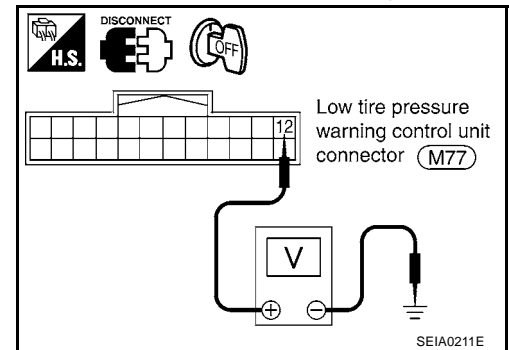
2. CHECK POWER SUPPLY CIRCUIT 1

Check voltage between low tire pressure warning control unit connector M77 terminal 12(R/W) and ground.

: Battery voltage should exist. (Approx. 12V)

OK or NG?

- OK >> GO TO 3.
NG >> Check low tire pressure warning control unit power supply circuit for open or short.



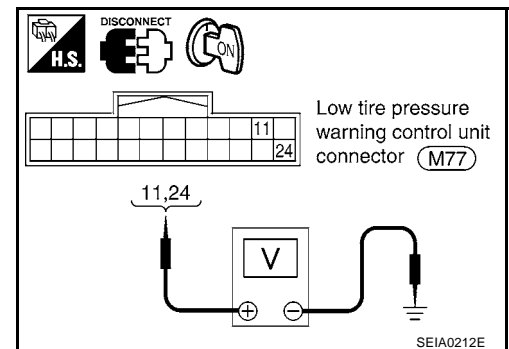
3. CHECK POWER SUPPLY CIRCUIT 2

1. Turn ignition switch ON.
2. Check voltage between low tire pressure warning control unit connector M77 terminals 11(LG), 24(Y/G) and ground.

: Battery voltage should exist. (Approx. 12V)

OK or NG?

- OK >> GO TO 4.
NG >> Check low tire pressure warning control unit power supply circuit for open or short.



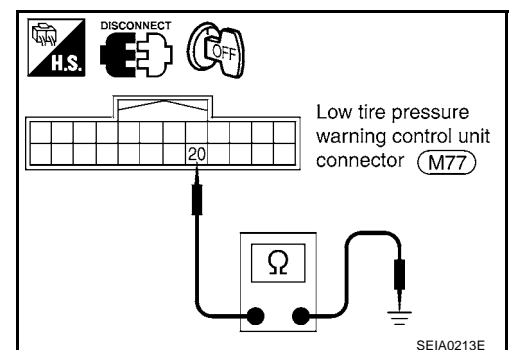
4. CHECK GROUND CIRCUIT

- Check continuity between low tire pressure warning control unit connector M77 terminal 20(B) and ground.

: Continuity should exist.

OK or NG?

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



TROUBLE DIAGNOSIS FOR SYMPTOMS

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

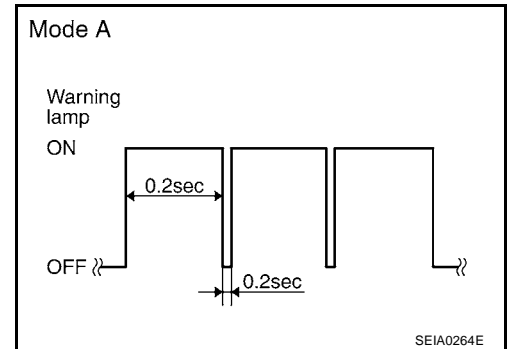
AES000DB

NOTE:

If warning lamp blink below, the system is normal.

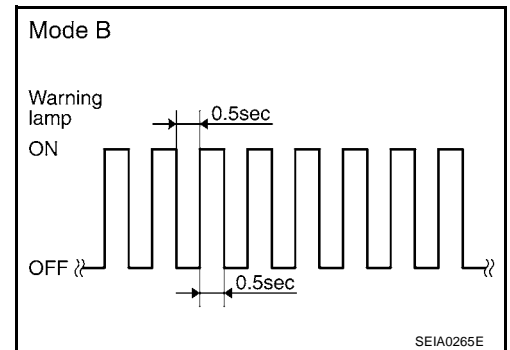
Blink Mode A

- This mode shows transmitter status is OFF-mode. Carry out transmitter wake up operation. Refer to [WT-24, "How To Transmitter Wake Up Operation"](#).



Blink Mode B

- This mode shows ID registration has not done yet. Carry out ID registration of all transmitter. Refer to [WT-23, "ID Registration Procedure"](#).



DIAGNOSTIC PROCEDURE

1. CHECK CONNECTOR

- Disconnect low tire pressure warning control unit connector.
- Check terminals for damage or loose connections.

Inspection results OK?

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

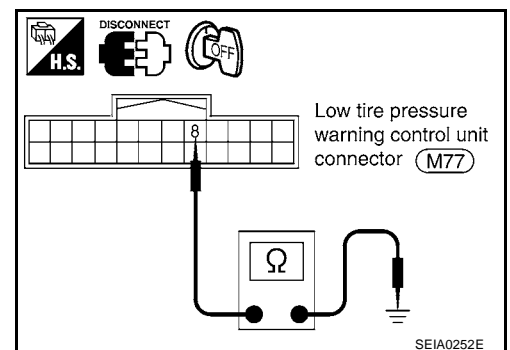
2. CHECK GROUND CIRCUIT

- Check continuity between low tire pressure warning control unit harness connector M77 terminal 8(G) and ground.

: Continuity should exist.

OK or NG?

- OK >> Replace low 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 .

AES000DC

DIAGNOSTIC PROCEDURE

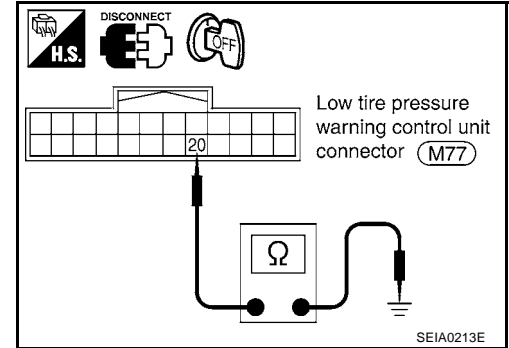
1. CHECK GROUND CIRCUIT

- Check continuity between low tire pressure warning control unit harness connector M77 terminal 20(B) and ground.

: **Continuity should exist.**

OK or NG?

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



TROUBLE DIAGNOSIS FOR SYMPTOMS

Inspection 5: "TIRE PRESSURE" Information In Triple Meter Does Not Exist.

AES000DA

Before carrying out the inspection on the following diagnostic procedure, perform the CAN communication line check. Refer to [WT-36, "Inspection 7: CAN Communication Line"](#).

DIAGNOSTIC PROCEDURE

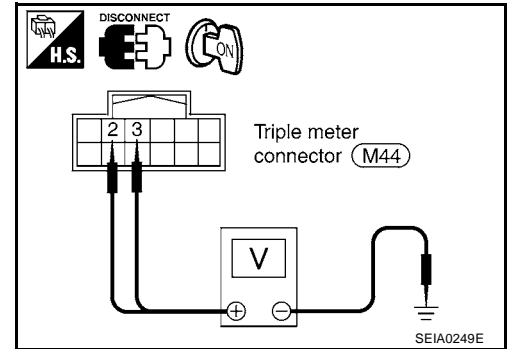
1. CHECK TRIPLE METER POWER SUPPLY CIRCUIT

1. Disconnect triple meter connector.
2. Check voltage between triple meter harness connector M44 terminal 2(R/W), 3(G/Y) and ground.

: **Battery voltage should exist. (Approx. 12V)**

OK or NG?

- OK >> GO TO 2.
NG >> Check triple meter power supply circuit for open or short.



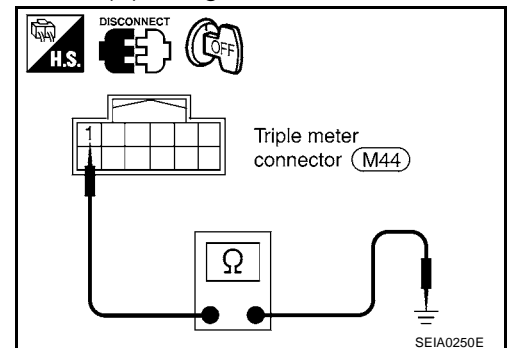
2. CHECK TRIPLE METER GROUND CIRCUIT

- Check continuity between triple meter harness connector M44 terminal 1(B) and ground.

: **Continuity should exist.**

OK or NG?

- OK >> Check triple meter. Refer to [DI-41, "Diagnosis Flow"](#).
NG >> Repair or replace triple meter ground circuit.



Inspection 6: ID Registration Can Not Be Completed

AES000AU

DIAGNOSTIC PROCEDURE

1. ID REGISTRATION (ALL)

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

OK or NG?

- YES >> INSPECTION END.
NO >> GO TO "TROUBLE DIAGNOSIS FOR SELF-DIAGNOSTIC ITEMS".

TROUBLE DIAGNOSIS FOR SYMPTOMS

Inspection 7: CAN Communication Line

AES000DD

DIAGNOSTIC PROCEDURE

1. SELF-DIAGNOSTIC RESULT CHECK

④ With CONSULT-II

1. Select "AIR PRESSURE MONITOR" on "SELECT SYSTEM" screen.
2. Select "SELF-DIAG RESULTS" on "SELECT DIAG MODE" screen.
3. Check display content in self-diagnostic results.

CONSULT-II display code	Diagnosis item
U1000	CAN COMM
	CAN CIRC 1
	CAN CIRC 2

Contents displayed?

No malfunction >> INSPECTION END.

Malfunction in CAN communication system >> GO TO 2.

2. SYMPTOM CHECK

④ With CONSULT-II

- Select "CAN DIAG SUPPORT MNTR" in "DATA MONITOR".
- Select "START" and check display content.

Diagnosis item	Self-diagnostic result content	
	Normal	Not normal (Example)
CAN COMM	CAN COMM	NG
CAN CIRC 1	CAN CIRC 1	UNKWN
CAN CIRC 2	CAN CIRC 2	UNKWN

>> After printing the monitor items, go to "CAN System". Refer to [LAN-4, "Precautions When Using CONSULT-II"](#).

REMOVAL AND INSTALLATION

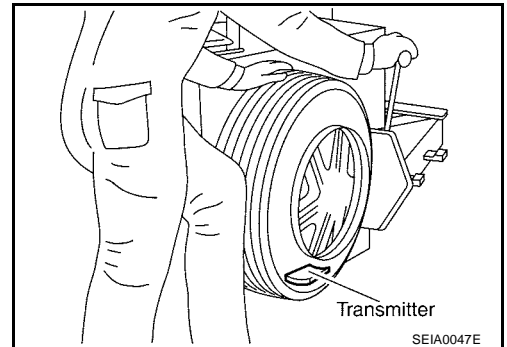
REMOVAL AND INSTALLATION

PFP:00000

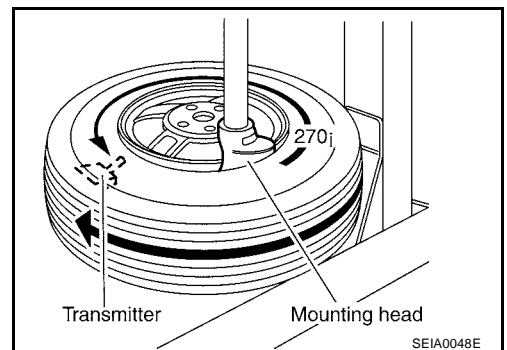
Transmitter REMOVAL

AES00057

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.

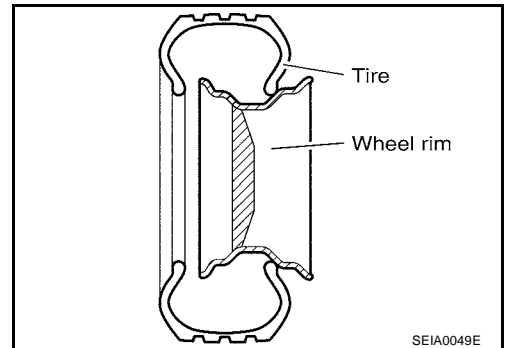


3. Turn tire so that valve hole is at bottom and bounce so that transmitter is near valve hole. Carefully lift tire onto turntable and position valve hole (and transmitter) 270 degree from mounting/dismounting head.
4. Lubricate tire well and remove first side of the tire. Reach inside the tire and remove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

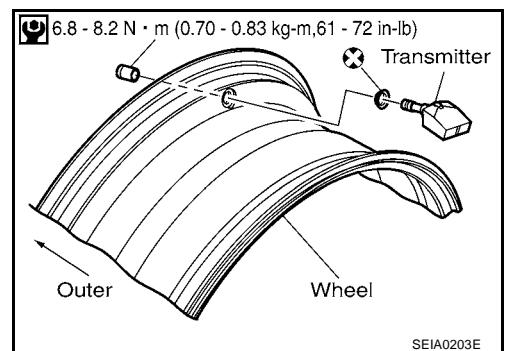


INSTALLATION

1. Put first side of tire onto rim.



2. Mount transmitter on rim and tighten nut.

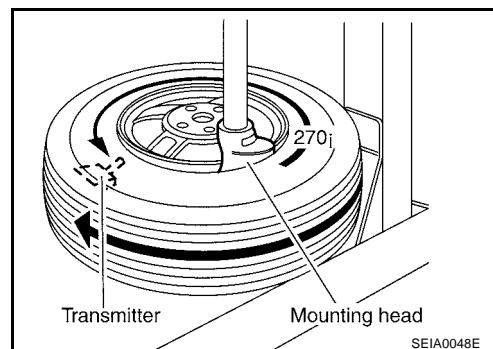


REMOVAL AND INSTALLATION

3. 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.



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

SERVICE DATA

SERVICE DATA

PPF:00030

Road Wheel

AES00058

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

Tire

AES00059

Unit: kPa (kg/cm², psi)

Tire size	Air pressure	
	Front wheel	Rear wheel
225/50R17 94W 225/45R18 91W	240 (2.4, 35)	—
235/50R17 06W 245/45R18 96W	—	240 (2.4, 35)
T145/96D16 T155/80R17	420 (4.2, 60)	420 (4.2, 60)

Tightening Torque

AES000DK

Wheel nut	98.1 - 127 N·m (10 - 12 kg-m, 73 - 93 ft-lb)
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SERVICE DATA
