

INSPECTION

1. INSPECT TIRES

- (a) Check the tires for wear and proper inflation pressure.

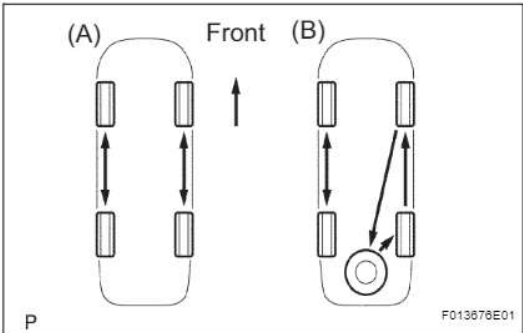
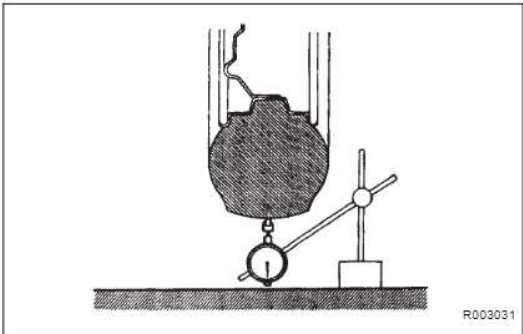
Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
P215/60R16 94V	200 (2.0, 29)	200 (2.0, 29)
P215/55R17 93V	220 (2.2, 32)	220 (2.2, 32)

- (b) Using a dial indicator, check the tire runout.

Tire runout:

1.0 mm (0.039 in.) or less



2. ROTATE TIRES

- (a) Rotate tires as shown in the illustration.
(b) Rotate as shown in (B) if the spare tire is included in the rotation.



3. INSPECT WHEEL BALANCE

- (a) Check and adjust the off-the-car balance.
(b) If necessary, check and adjust the on-the-car balance.

Imbalance after adjustment:

8.0 g (0.018 lb) or less

4. INSPECT BEARING BACKLASH

HINT:

See page [DS-9](#)

5. INSPECT AXLE HUB DEVIATION

HINT:

See page [AH-1](#)

TIRE AND WHEEL SYSTEM

HOW TO PROCEED WITH TROUBLESHOOTING

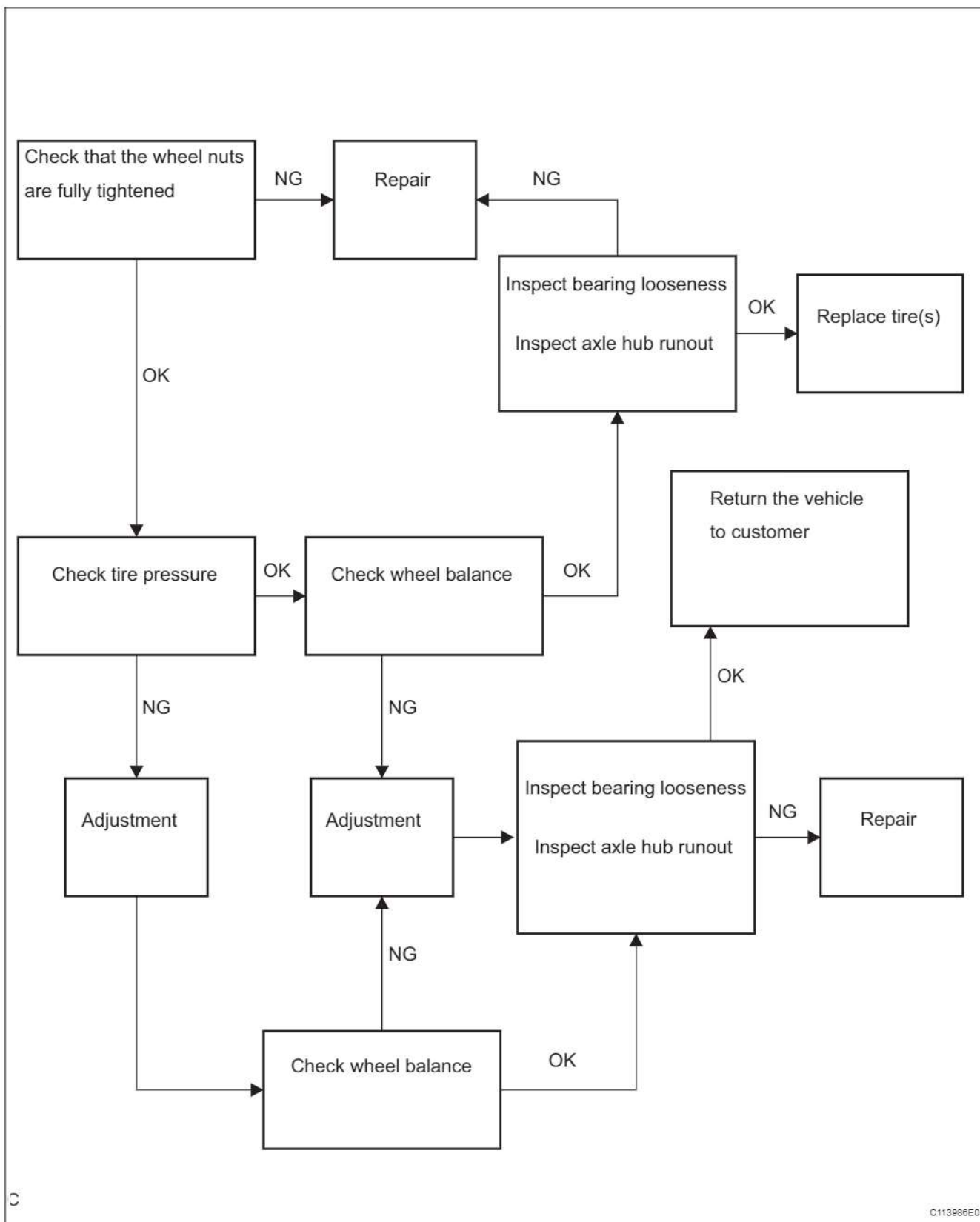
1. VEHICLE PULLING DIAGNOSIS (See page [SP-8](#))

TW

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TIRE AND WHEEL – TIRE AND WHEEL SYSTEM

2. DIAGNOSIS OF TIRE VIBRATION

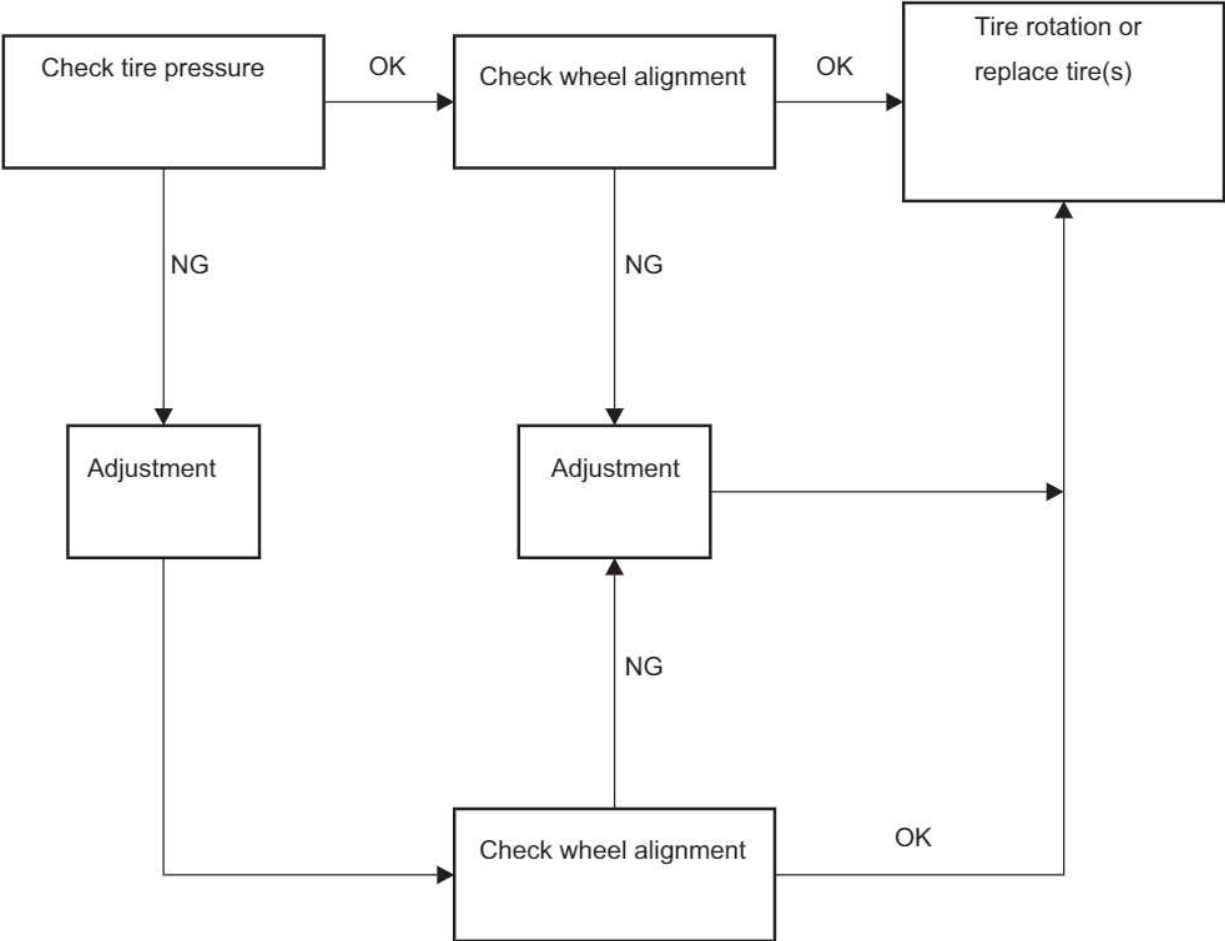


3. DIAGNOSIS OF IRREGULAR TIRE WEAR

TIRE AND WHEEL – TIRE AND WHEEL SYSTEM

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TW



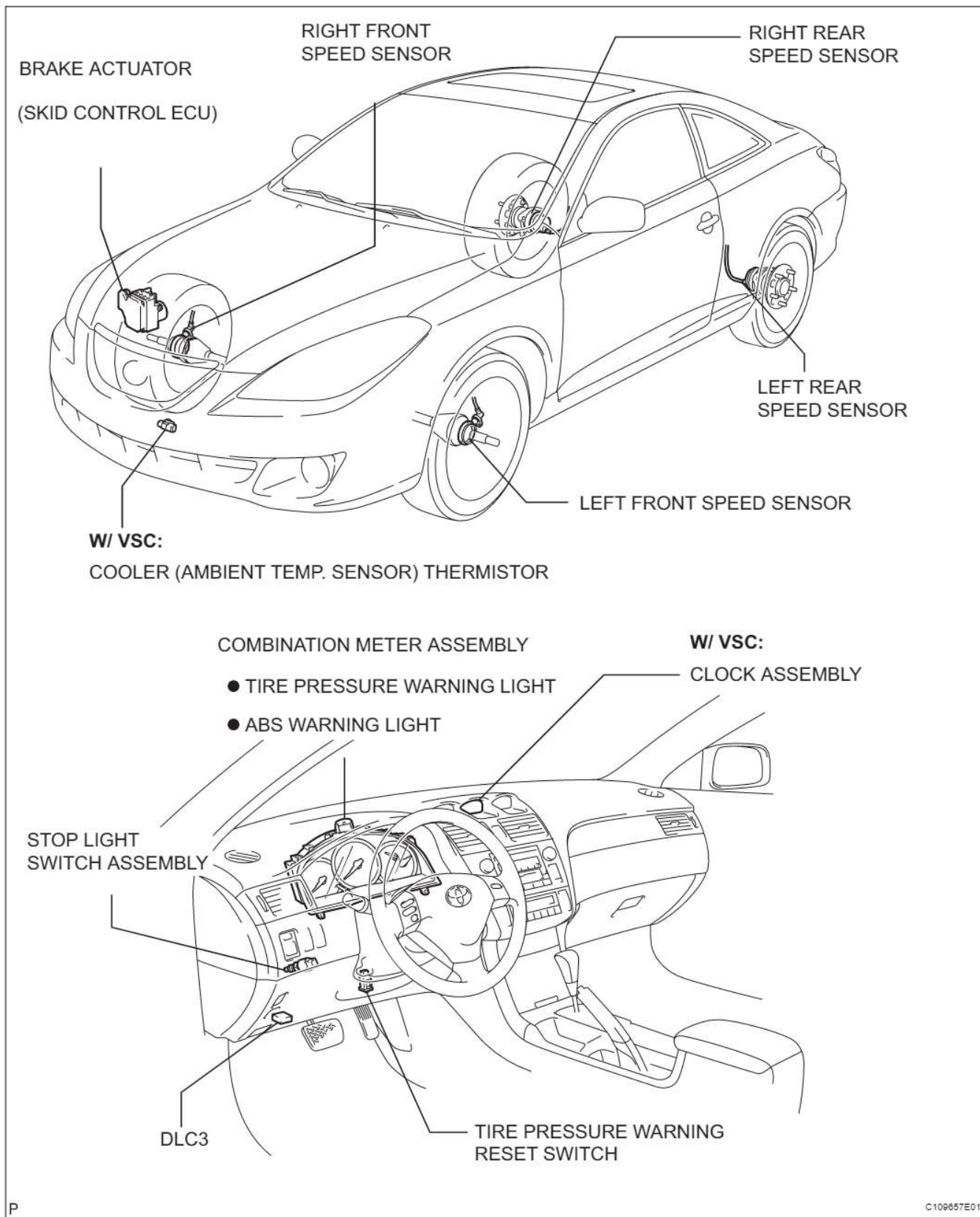
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TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

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PARTS LOCATION

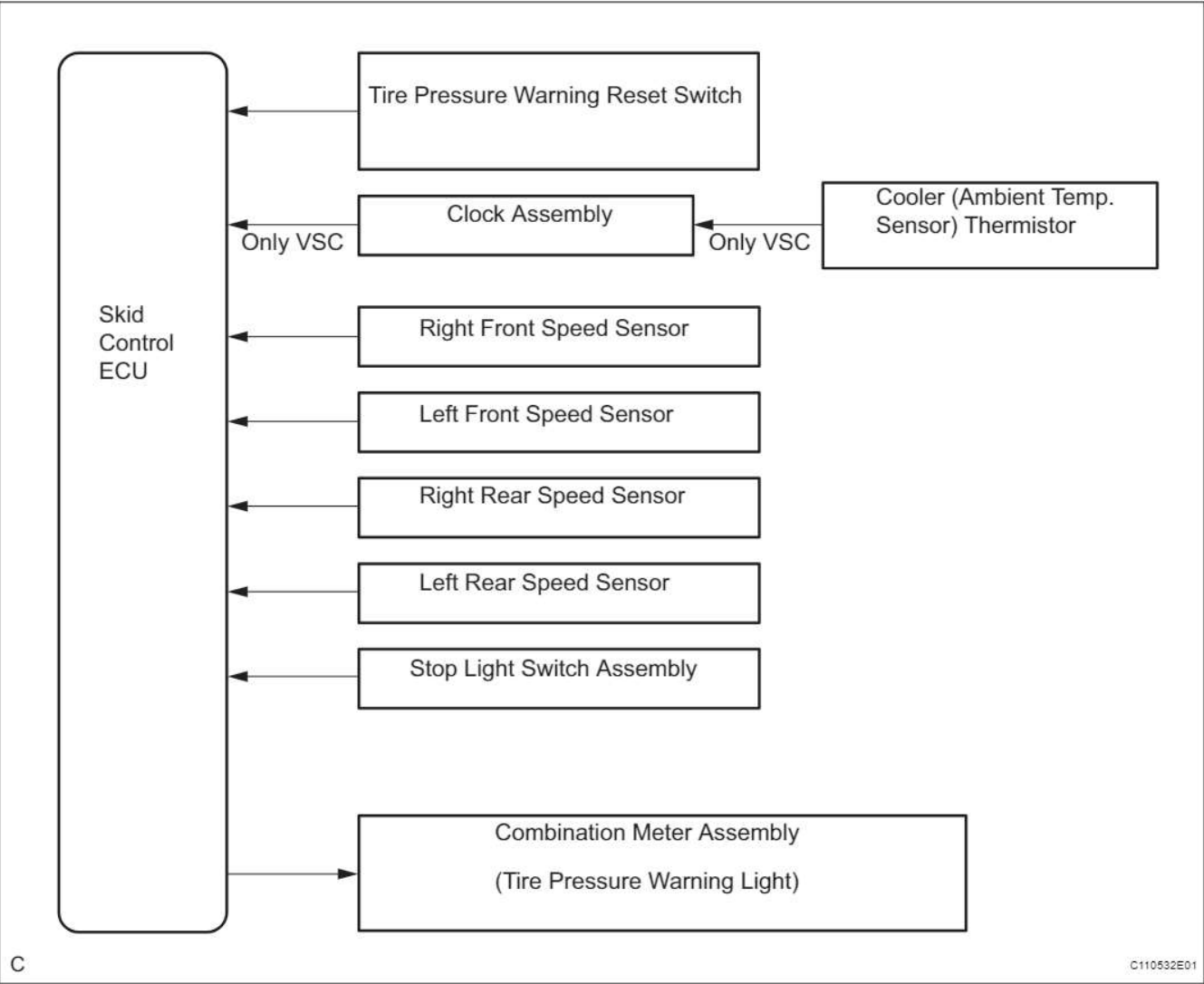


TW

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TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

1. TIRE PRESSURE WARNING SYSTEM DESCRIPTION

- (a) The tire pressure warning system informs the driver if it detects a low tire pressure. When the tire pressure warning system detects low tire pressure in any of the 4 wheels, which affects safe driving, the tire pressure warning light comes on.

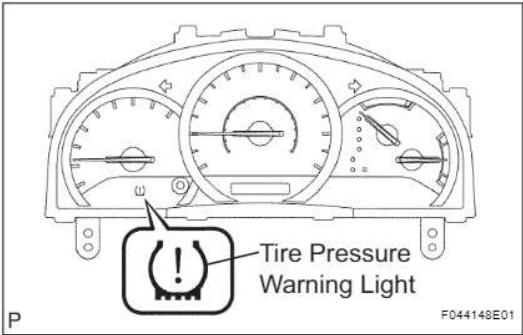
Tire Size	Specified Value
P215/60 R16 94V	200 kpa (2.0 kgf/cm ² , 29 psi)
P215/55 R17 93V	220 kpa (2.2 kgf/cm ² , 32 psi)

- (b) Tire pressure warning system is controlled by the ABS ECU.
HINT:
When the tire pressure reset switch is push, the tire pressure warning light goes off.

TW

2. TIRE PRESSURE WARNING DISPLAY FUNCTION

- (a) The tire pressure warning light comes on according to the condition of the tire pressure warning system, as shown in the DIAGNOSIS SYSTEM table (See page)



HOW TO PROCEED WITH TROUBLESHOOTING

The intelligent tester can be used at step 5 and 8.

1	VEHICLE BROUGHT TO WORKSHOP
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2	CUSTOMER PROBLEM ANALYSIS
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3	CHECK TIRE PRESSURE WARNING LIGHT CONDITION
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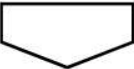
- (a) Turn the ignition switch to the ON position.
- (b) Record the condition of the tire pressure warning light on the combination meter assembly.
- (c) Refer to the "TIRE PRESSURE WARNING DISPLAY FUNCTION" section of the DIAGNOSIS SYSTEM for checking the condition of the tire pressure warning light (see page TW-15).



4	PROBLEM SYMPTOMS TABLE
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5	CIRCUIT INSPECTION
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6	IDENTIFICATION OF PROBLEM
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7	REPAIR
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TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

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8	CONFIRMATION TEST
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END

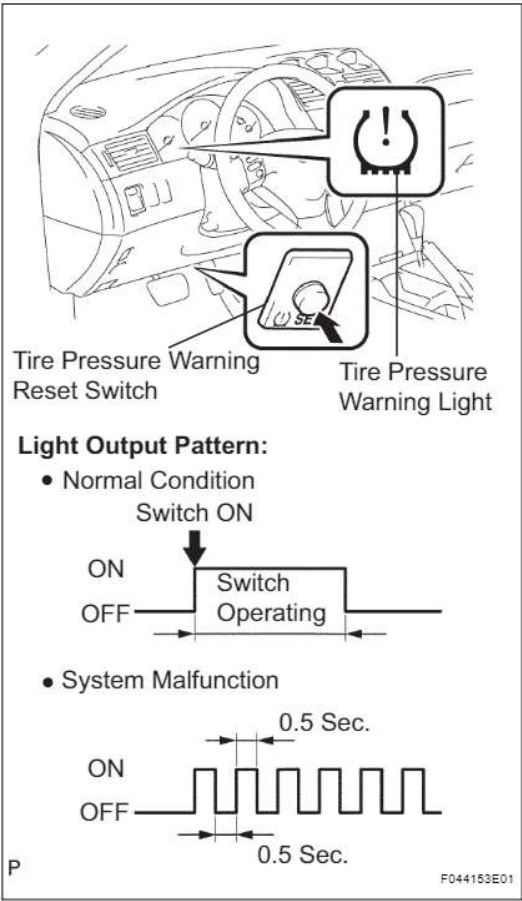
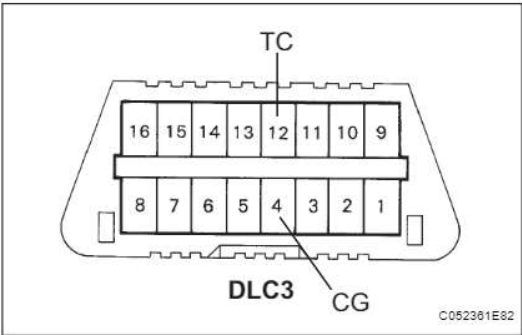
TW

OPERATION CHECK

HINT:
As for an ABS vehicle, perform procedure from "TEST MODE (USING THE INTELLIGENT TESTER)"

1. TEST MODE (USING SST CHECK WIRE)

- (a) Make sure the ignition switch is OFF.
- (b) Using SST, connect terminals TS and CG of the DLC3.
- SST 09843-18040**
- (c) Turn the ignition switch to the ON position.



- (d) Press the tire pressure warning reset switch.
- (e) Check that the tire pressure warning light comes on.

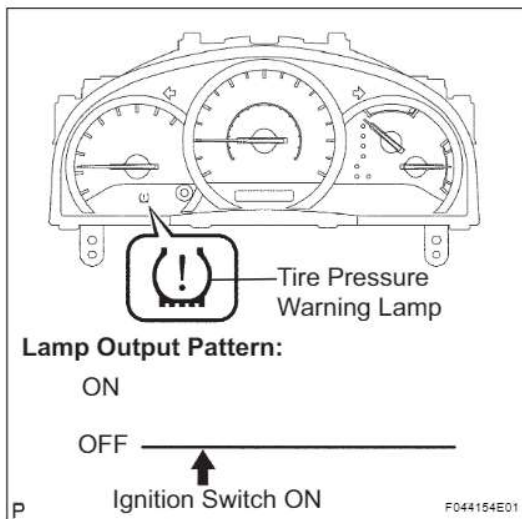
HINT:
• Unless (d) above is done, the tire pressure warning light remains off while in TEST mode.
• When there is a problem with the tire pressure warning system, the tire pressure warning light blinks at 0.5 second intervals.
If the light output result is not normal, proceed to the problem symptoms table or TS terminal circuit.

Item	See procedure
Problem symptoms table	TW-12
TS and CG terminal circuit	BC-61

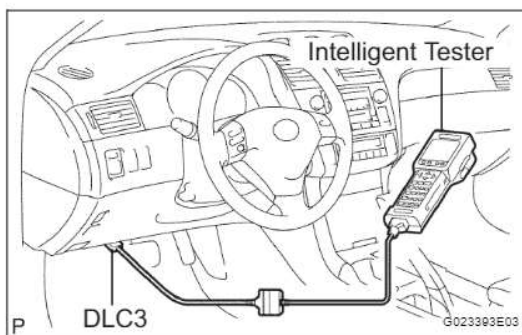
- (f) Turn the ignition switch off.
- (g) Remove the SST from the DLC3.
- SST 09843-18040**

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

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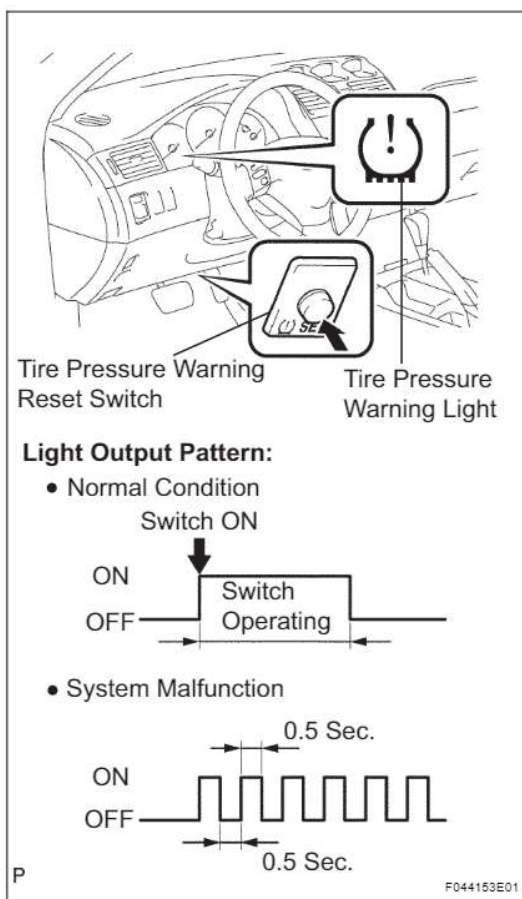


- (h) Turn the ignition switch to the ON position.
- (i) Check that the tire pressure warning light goes off.
- (j) Initialize the tire pressure warning system (See page TW-11).



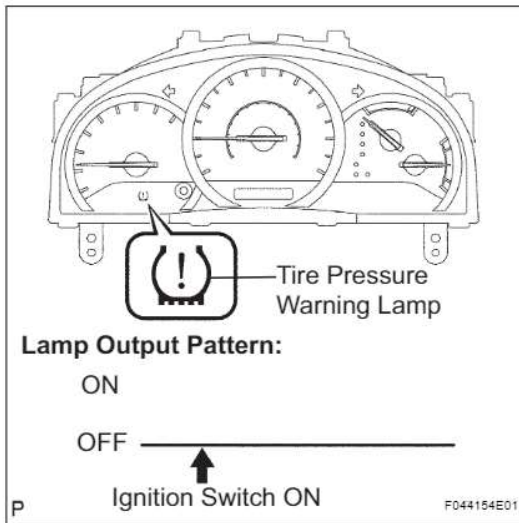
2. TEST MODE (USING THE INTELLIGENT TESTER)

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch to the ON position.
- (c) Select "SIGNAL CHECK", and proceed checking with the intelligent tester.



- (d) Press the tire pressure warning reset switch.
 - (e) Check that the tire pressure warning light comes on.
- HINT:**
- Unless (d) above is done, the tire pressure warning light remains off while in TEST mode.
 - When there is a problem with the tire pressure warning system, the tire pressure warning light blinks at 0.5 second intervals.
- If the light output result is not normal, proceed to the problem symptoms table (See page TW-12).
- (f) Turn the ignition switch off.

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- (g) Turn the ignition switch to the ON position.
- (h) Check that the tire pressure warning light goes off.
- (i) Initialize the tire pressure warning system (See page [TW-11](#)).

INITIALIZATION

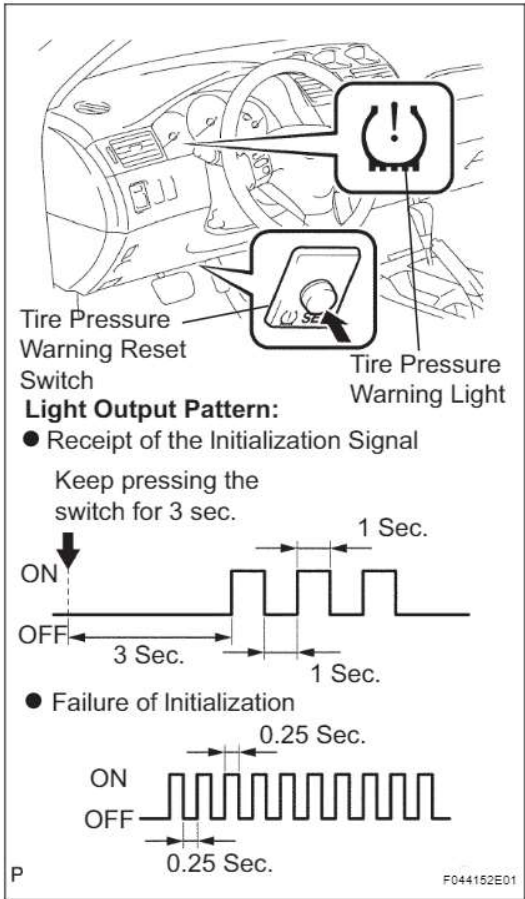
NOTICE:

- This system requires initializing after changing tires or wheels, or after rotating the tires.
- Be sure to adjust the tire air pressure to the specified value before initialization.

1. INITIALIZING THE TIRE PRESSURE WARNING SYSTEM

- (a) Check and adjust the tire pressure to the specified value (procedure "A").

Tire Size	Specified Value
P215/60 R16 94V	200 kpa (2.0 kgf/cm ² , 29 psi)
P215/55 R17 93V	220 kpa (2.2 kgf/cm ² , 32 psi)



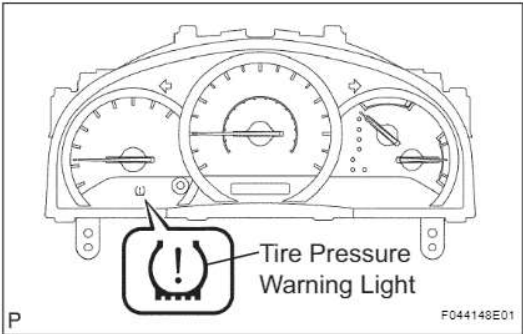
- (b) With the vehicle stopped, turn the ignition switch to the ON position (procedure "B").
- (c) Press and hold the tire pressure warning reset switch until the tire pressure warning light blinks 3 times at 1 second intervals.
- HINT:**
- If the tire pressure warning light does not blink, perform the initialization again (with the ignition switch off, perform the procedure above starting at procedure "B").
- (d) Drive the vehicle at 19 mph (30 km/h) or more, to complete the initialization of the skid control ECU. (It takes about 0.5 to 1.0 hour.)
- HINT:**
- If the tire pressure warning light blinks at 0.25 second intervals while the vehicle is being driven, the initialization may have failed. If so, perform the initialization again (Turn the ignition switch OFF and retry from procedure "A").
- (e) After initialization is completed, the skid control ECU monitors the tire pressure by using the wheel speed sensors.
- (f) To verify the system has been initialized check the length of time the tire pressure warning light is on after turning the ignition switch to the ON position.
- Not initialized: 4 sec.
 - Initialized: 3 sec.

TIRE PRESSURE WARNING SYSTEM

PRECAUTION

NOTICE:
When disconnecting the negative (-) battery terminal, initialize the following systems after the terminal is reconnected.

System Name	See procedure
Power Window Control System	IN-24
Sliding Roof System	



1. TIRE PRESSURE WARNING SYSTEM PRECAUTION

- (a) When the tire pressure warning light comes on, immediately check the air pressure of all tires and adjust to the specified pressure (See page TW-4)
- (b) This system requires initializing after changing tires or wheels, or after rotating the tires (See page TW-4).
Set tire pressure within the specified range before initializing. If the tire air pressure is not within the specified range, the tire pressure warning system will not function.
- (c) In the following cases, the system may not operate normally.
 - A compact spare tire, snow tire, or tire chains are used.
 - The tire inflation pressure is excessively higher than specified or tire inflation pressure suddenly drops due to bursting or other causes.
 - The vehicle is driven on a slippery road surface such as rough or frozen roads.
 - The vehicle speed is less than 19 mph (30 km/h) or more than 62 mph (100 km/h), and the driving duration is less than 5 minutes.
 - The tires differ in tread pattern or manufacture.
 - The tires are not the specified size.
 - The tread wear is very different among the installed tires.
 - The pressure of two or more tires drops at the same time.
 - Rapid acceleration/deceleration or sharp turns is continued.
 - The loading is over the limit or imbalanced.
 - Initialization was not performed correctly after replacing or rotating tires or wheels.
 - The outside temperature is below 32°F (0°F) or above 104°F (40°C).

2. FAIL-SAFE FUNCTION

- (a) When a system malfunction occurs in the tire pressure warning system, the tire pressure warning light blinks.

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- (b) The result of this diagnosis is stored in the skid control ECU.

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TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

PROBLEM SYMPTOMS TABLE

Check the circuits for each problem symptom in the order given in the table below, and proceed to the relevant troubleshooting page.

HINT:

- Inspect each circuit in numerical order for the corresponding symptom. If the malfunction still exists even after checking and confirming that all the circuits are normal, replace the brake actuator assembly.
- When a malfunction is found in the skid control ECU, replace the brake actuator assembly.
- When the tire pressure warning light blinks and the ABS warning light comes on, check the ABS system first.

TIRE PRESSURE WARNING SYSTEM

TW

Symptom	Suspected area	See page
Tire pressure warning light does not come on after ignition switch is turned ON.	1. Tire pressure warning light circuit	TW-26
	2. Brake actuator assembly	-
Tire pressure warning light remains on after ignition switch is turned ON.	1. Tire pressure warning light circuit	TW-26
	2. Brake actuator assembly	-
Tire pressure warning light blinks at 0.5 sec. intervals.	1. Stop light switch circuit	TW-20
	2. Vehicle speed sensor (w/ VSC)	BC-91
	3. Vehicle speed sensor (w/ ABS)	BC-17
	4. ABS system malfunction	TW-19
Tire pressure warning light blinks at 0.25 sec. intervals.	1. Initialize the tire pressure warning system	TW-11
	2. Brake actuator assembly	-
ECU is initialized (tire pressure warning switch is ON), but tire pressure warning light remains lit.	1. Check initialization	TW-11
	2. Tire pressure warning reset switch circuit	TW-24
	3. Brake actuator assembly	-
Tire pressure warning light comes on while driving, but light goes off without supplying tire air pressure	1. Check tire pressure warning light	TW-15
	2. Tire pressure warning light circuit	TW-26
	3. Brake actuator assembly(*1)	-
Tire pressure warning light comes on, but tire air pressure is within the standard value.	1. Check if vehicle has the appropriate size tire.	-
	2. Ambient temperature sensor circuit	TW-30
	3. Tire pressure warning light circuit	TW-26
	4. Brake actuator assembly(*2)	-
Tire pressure warning light remains off, even when tire air pressure decreased.	1. Check if vehicle has the appropriate size tires.	-
	2. Ambient temperature sensor circuit	TW-30
	3. Tire pressure warning light circuit	TW-26
	4. Brake actuator assembly(*3)	-
Tire pressure warning light comes on while driving, and light remains lit after correcting tire pressure.	1. Check tire pressure warning light	TW-15
	2. Tire pressure warning light circuit	TW-26
	3. Ambient temperature sensor circuit	TW-30
	4. Brake actuator assembly	-
Test mode cannot be completed (only VSC system).	1. ABS system malfunction	TW-19
	2. TS terminal circuit	BC-176
	3. Brake actuator assembly	-

HINT:

- *1: Tire pressure may be affected by the driving environment. When any of the detected pressures reach standard tire pressure value, the warning light go OFF.
- *2:

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM**TW-17**

- Using inappropriate size tires, or not using the indicated tires.
- Tire pressure is not adjusted at initialization.
- *3:
 - Using inappropriate size tires.
 - Tire pressure may be affected by the driving environment. Since tire pressure decreases in cold weather, the pressure warning light may come on.
 - Tire pressure is not adjusted at initialization.

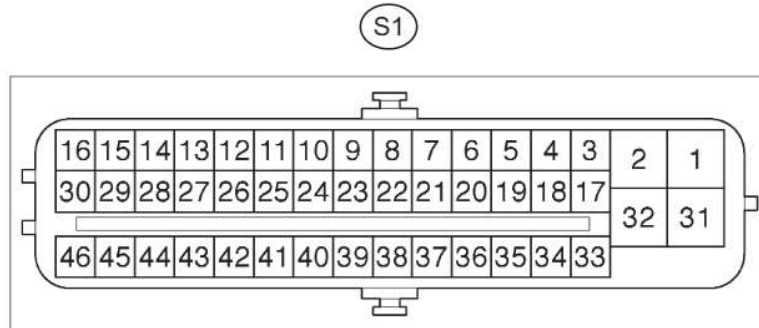
TW

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TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TERMINALS OF ECU

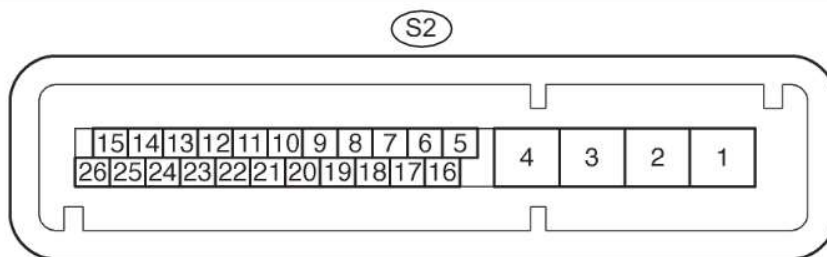
1. SKID CONTROL ECU (w/ VSC):



F045156E01

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
TSI (7) - GND1 (32)	G-R - W-B	Outside temperature sensor input from clock assembly	Ignition switch ON	Pulse generation
D/G (13) - GND1 (32)	W - W-B	Diagnosis tester communication line	Ignition switch ON	10 to 14 V
STP (27) - GND1 (32)	G-W - W-B	Stop light switch assembly input signal	Brake pedal depressed	10 to 14 V
STP (27) - GND1 (32)	G-W - W-B	Stop light switch assembly input signal	Brake pedal released	Below 1.5 V
GND1 (32) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω ;
INIT (41) - GND1 (32)	V-W - W-B	Tire pressure warning switch signal	Ignition switch ON and tire pressure warning reset switch ON	Below 3 V
INIT (41) - GND1 (32)	V-W - W-B	Tire pressure warning switch signal	Ignition switch ON and tire pressure warning reset switch OFF	10 to 14 V

2. SKID CONTROL ECU (w/o VSC):



F045089E02

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND1 (4) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
D/G (11) - GND1 (4)	W - W-B	Diagnosis tester communication line	Ignition switch ON	8 to 12 V
INIT (13) - GND1 (4)	V-W - W-B	Tire pressure warning switch signal	Ignition switch ON and tire pressure warning reset switch ON	Below 3 V

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

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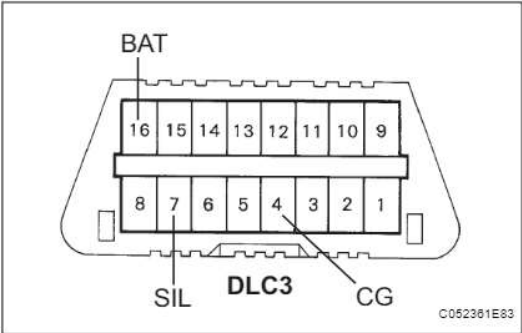
Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
INIT (13) - GND1 (4)	V-W - W-B	Tire pressure warning switch signal	Ignition switch ON and tire pressure warning reset switch OFF	10 to 14 V
STP (20) - GND1 (4)	G-W - W-B	Stop light switch assembly input signal	Brake pedal depressed	10 to 14 V
STP (20) - GND1 (4)	G-W - W-B	Stop light switch assembly input signal	Brake pedal released	Below 3 V

TW

DIAGNOSIS SYSTEM

1. DIAGNOSTIC SYSTEM

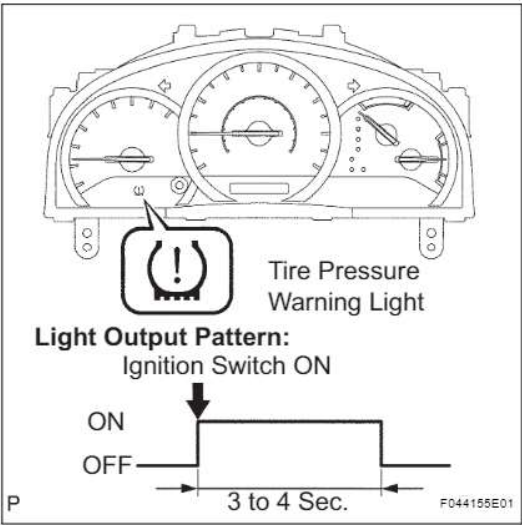
- (a) Inspect the battery voltage.
Battery voltage:
11 to 14 V
If voltage is below 11 V, recharge the battery before proceeding.
- (b) Check the DLC3.
The vehicle's skid control ECU uses ISO 9141-2 for communication. The terminal arrangement of the DLC3 complies with SAE J1962 and matches with the ISO 9141-2 format.
Verify conditions listed in the table below:



Terminal No.	Terminal name	Connection / Voltage or Resistance	Condition
7	SIL	Bus + Line / Pulse generation	During transmission
4	CG	Chassis Ground to Body Ground / 1 Ω or less	Always
16	BAT	Battery Positive to Body Ground / 10 to 14 V	Always

HINT:
If the intelligent tester displays "UNABLE TO CONNECT TO VEHICLE" when the cable of the intelligent tester is properly connected to the DLC3, the ignition switch is turned to the ON position and the tester is operated, there is either a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tester itself. In this case, consult the Service Department listed in the tester's instruction manual.



- 2. CHECK WARNING LIGHT**
- (a) Turn the ignition switch to the OFF position.
 - (b) When the ignition switch is turned to the ON position, the light should come on for 3 to 4 seconds and then go off.
- HINT:**
If the tire pressure warning light has a defect, check the tire pressure warning light output patterns and the problem symptoms table (See page).

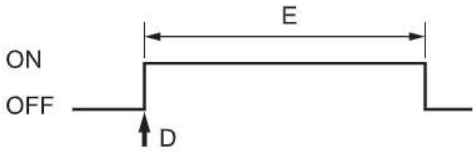
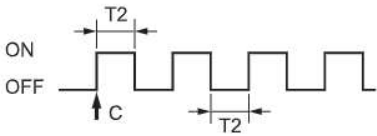
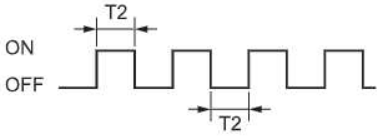
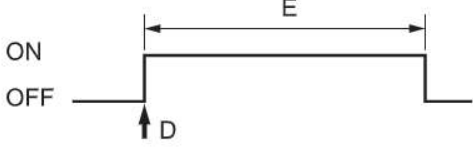
3. TIRE PRESSURE WARNING LIGHT CHART:

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Priority	Condition	Tire Pressure Warning Light Output Pattern
1	Ignition switch is in the ON position	Tire pressure warning light comes on for 3 seconds when the ignition switch is turned to the ON position. (However, during initialization, the light comes on for 4 seconds.) ON OFF A T1 - T1: 3 or 4 sec. - A: Ignition switch ON
2	System abnormal 1 Tire pressure warning light signal is open. HINT: When the tire pressure warning light drive signal circuit opens due to a skid control ECU malfunction, communication error, open circuit in the wire harness, etc., the tire pressure warning light comes on. (Active Light Circuit)	Tire pressure warning light comes on ON OFF B B: Signal circuit open
3	System abnormal 2 ABS system malfunction Speed sensor malfunction Stop light switch assembly malfunction HINT: The skid control ECU monitors the speed sensor signal and the stop light switch signal, and the tire pressure warning light blinks.	The pressure warning light blinks (Goes on and off repeatedly at 0.5 second intervals.) ON OFF C T2 T2 - T2: 0.5 sec. - C: Malfunction Occurs HINT: When the skid control ECU detects a system abnormal 2 malfunction, check the ABS DTCs and proceed to the pages on which the ABS DTCs are described.

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TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

Priority	Condition	Tire Pressure Warning Light Output Pattern
4	Tire pressure warning reset switch is turned on during TEST mode. (Press and hold the tire pressure warning reset switch.)	Tire pressure warning light comes on when the tire pressure warning reset switch is turned on.  - E: Switch operating - D: Switch ON
5	Initialization mode is received. HINT: See step 3 for initialization procedure.	Tire pressure warning light blinks 3 times (Turning on and off repeatedly at 1 second intervals.)  - T2: 1 sec. - C: Switch ON
6	Failure to initialize when driving the vehicle. HINT: 3 conditions will indicate this pattern: 1. New vehicle from factory 2. ECM replacement 3. Failure to initialize	Tire pressure warning light blinks (Turning on and off repeatedly at 0.25 second intervals.)  T2: 0.25 sec.
7	Outputs tire air pressure check result. HINT: The result is output only when driving at 19 mph (35 km/h) or more.	Tire pressure is judged to be normal: Warning switch is OFF Tire pressure is judged to be low:  B: Judging low tire pressure

HINT:
When the skid control ECU does not operate properly, the ABS warning light comes on as an ABS system malfunction.

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

By accessing the ABS DATA LIST displayed by the intelligent tester, you can read the value of the switches and sensors without removing any parts. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Following the display on the tester, select the ABS "DATA LIST".

ABS:

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
STOP LIGHT SW	Stop light switch / ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
WHEEL SPD FR	Front right wheel speed reading / min.: 0 km/h (0 mph) max.: 326.4 km/h (202 mph)	Actual wheel speed	Speed indicated on speedometer
WHEEL SPD FL	Front left wheel speed reading / min.: 0 km/h (0 mph) max.: 326.4 km/h (202 mph)	Actual wheel speed	Speed indicated on speedometer
WHEEL SPD RR	Rear right wheel speed reading / min.: 0 km/h (0 mph) max.: 326.4 km/h (202 mph)	Actual wheel speed	Speed indicated on speedometer
WHEEL SPD RL	Rear left wheel speed reading / min.: 0 km/h (0 mph) max.: 326.4 km/h (202 mph)	Actual wheel speed	Speed indicated on speedometer
VEHICLE SPD	Vehicle speed reading / min.: 0 km/h (0 mph) max.: 326.4 km/h (202 mph)	Actual vehicle speed	Speed indicated on speedometer
TEST MODE	Test mode / NORMAL or TEST	NORMAL: Normal mode TEST: During test mode	-

TW

2. ACTIVE TEST LIST

HINT:

Perform the ACTIVE TEST using the intelligent tester to operate the ABS warning lights. Performing the ACTIVE TEST is one of the methods to shorten labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Following the display on the tester, perform the "ACTIVE TEST".

ABS:

Item	Vehicle Condition / Test Details	Diagnostic Note
ABS WARN LIGHT	ABS warning light / ON or OFF	-

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TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

ABS System Malfunction

DESCRIPTION

The skid control ECU outputs DTCs when a speed sensor malfunction occurs or there is an open in the stop light switch assembly circuit of the ABS system. If ABS system has a malfunction, tire pressure warning system will not function.

1 CHECK DIAGNOSTIC TROUBLE CODE OUTPUT

- (a) Check that the normal code is output by ABS system
(See page BC-15 for ABS, BC-88 for VSC)

OK:

Normal code output.

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REPAIR CIRCUIT INDICATED BY OUTPUT CODE

OK

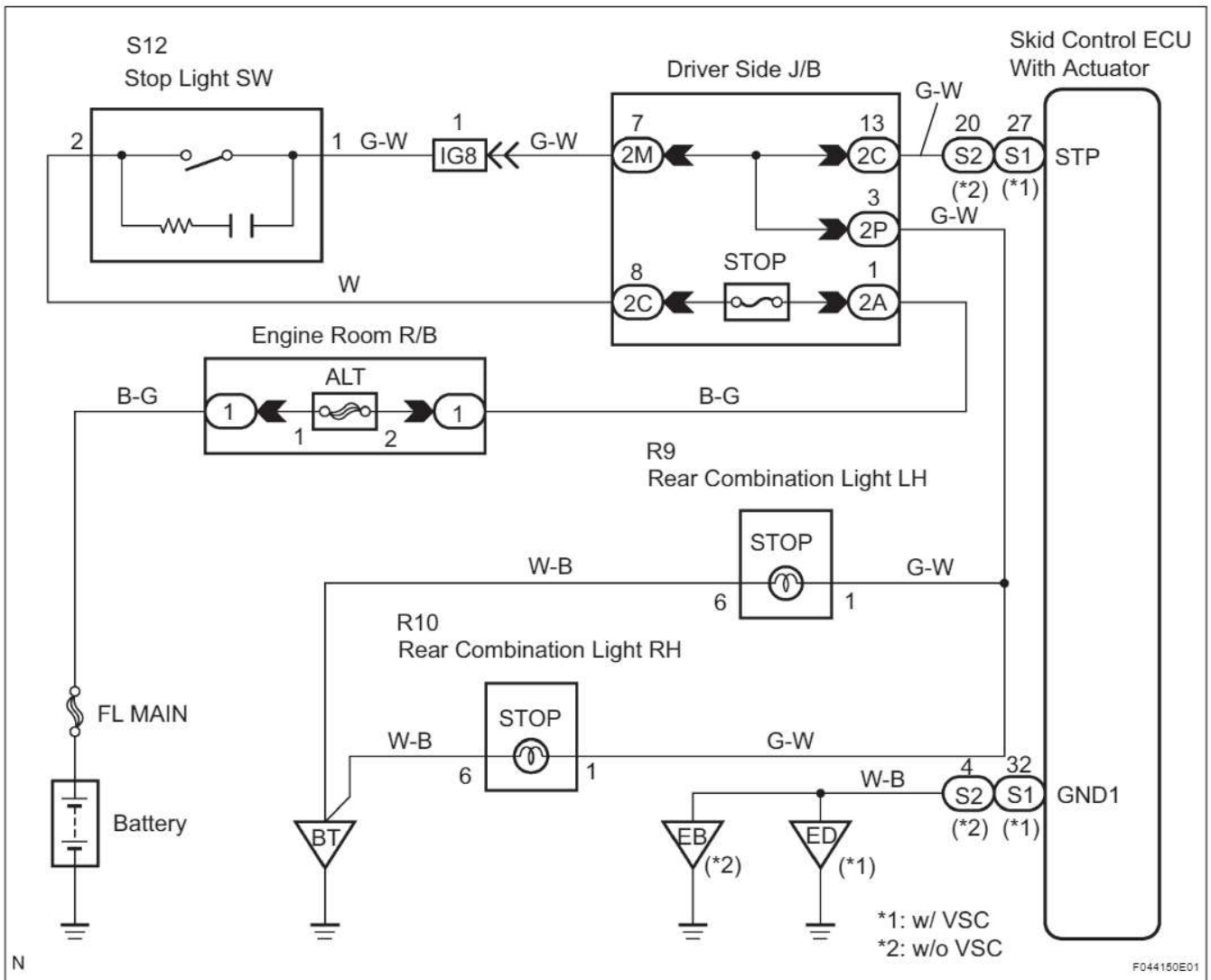
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE

Stop Light Switch Circuit

DESCRIPTION

When the stop light switch is ON (brake pedal depressed), the skid control ECU suspends the tire pressure warning system.

WIRING DIAGRAM



1 CHECK STOP LIGHT SWITCH OPERATION

- (a) Check that the stop light comes on when the brake pedal is depressed, and goes off when the brake pedal is released.

OK:

Stop light functions normally.

NG

Go to step 3

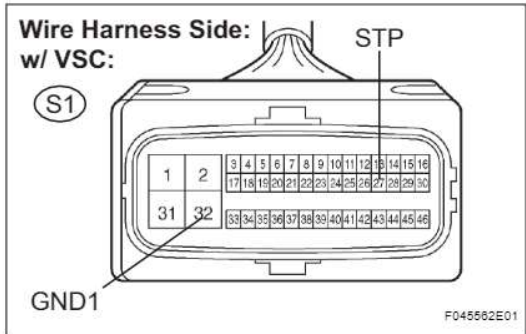
TW-26

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

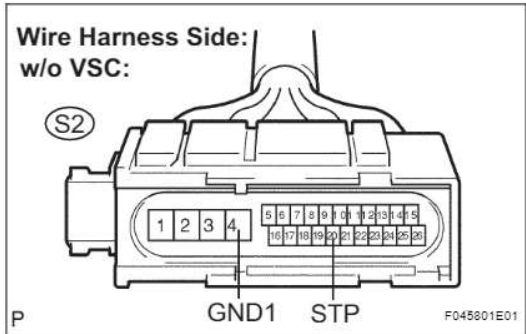
OK

2

CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - STOP LIGHT SWITCH ASSEMBLY)



(a) Disconnect the brake actuator assembly connector.



(b) Measure the voltage according to the value(s) in the table below.

Voltage (w/ VSC)

Switch condition	Tester connection	Specified condition
Brake pedal depressed	S1-27 (STP) - S1-32 (GND1)	10 to 14 V
Brake pedal released	S1-27 (STP) - S1-32 (GND1)	Below 1.5 V

Voltage (w/o VSC)

Switch condition	Tester connection	Specified condition
Brake pedal depressed	S2-20 (STP) - S2-4 (GND1)	10 to 14 V
Brake pedal released	S2-20 (STP) - S2-4 (GND1)	Below 1.5 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE

3

CHECK REAR COMBINATION LIGHT ASSEMBLY LH

HINT:
See page

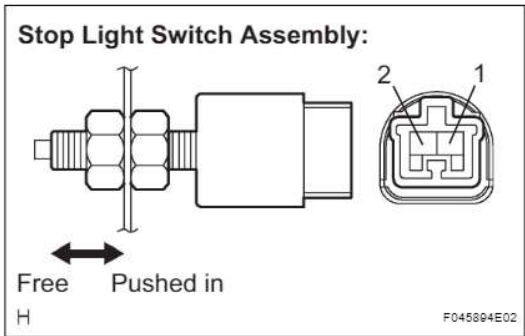
NG

REPLACE REAR COMBINATION LIGHT ASSEMBLY LH

OK

4

INSPECT STOP LIGHT SWITCH ASSEMBLY



- (a) Disconnect the stop light switch assembly S13 connector.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Switch condition	Tester connection	Specified condition
Switch pin free	1 - 2	Below 1 Ω
Switch pin pushed in	1 - 2	10 kΩ or higher

NG

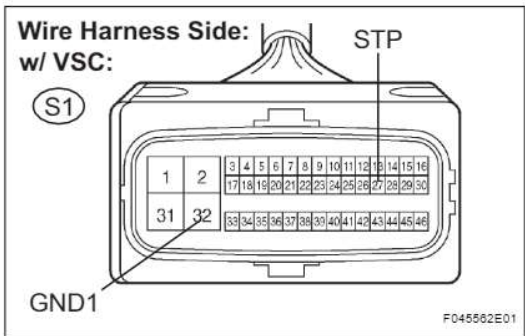
REPLACE STOP LIGHT SWITCH ASSEMBLY

OK

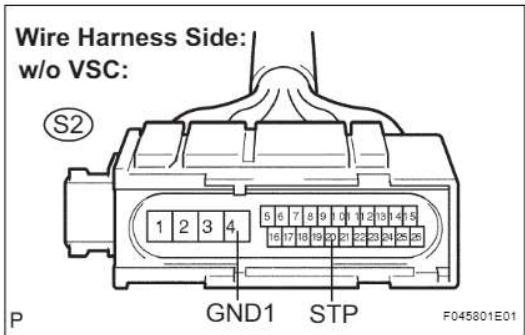
TW

5

CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - STOP LIGHT SWITCH ASSEMBLY)



- (a) Connect the stop light switch assembly S13 connector.



- (b) Disconnect the brake actuator assembly connector.
- (c) Measure the voltage according to the value(s) in the table below.

Voltage (w/ VSC)

Switch condition	Tester connection	Specified condition
Brake pedal depressed	S1-27 (STP) - S1-32 (GND1)	10 to 14 V
Brake pedal released	S1-27 (STP) - S1-32 (GND1)	Below 1.5 V

Voltage (w/o VSC)

Switch condition	Tester connection	Specified condition
Brake pedal depressed	S2-20 (STP) - S2-4 (GND1)	10 to 14 V
Brake pedal released	S2-20 (STP) - S2-4 (GND1)	Below 1.5 V

NG

REPAIR OR REPLACE HARNESS OR
CONNECTOR

TW-28

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



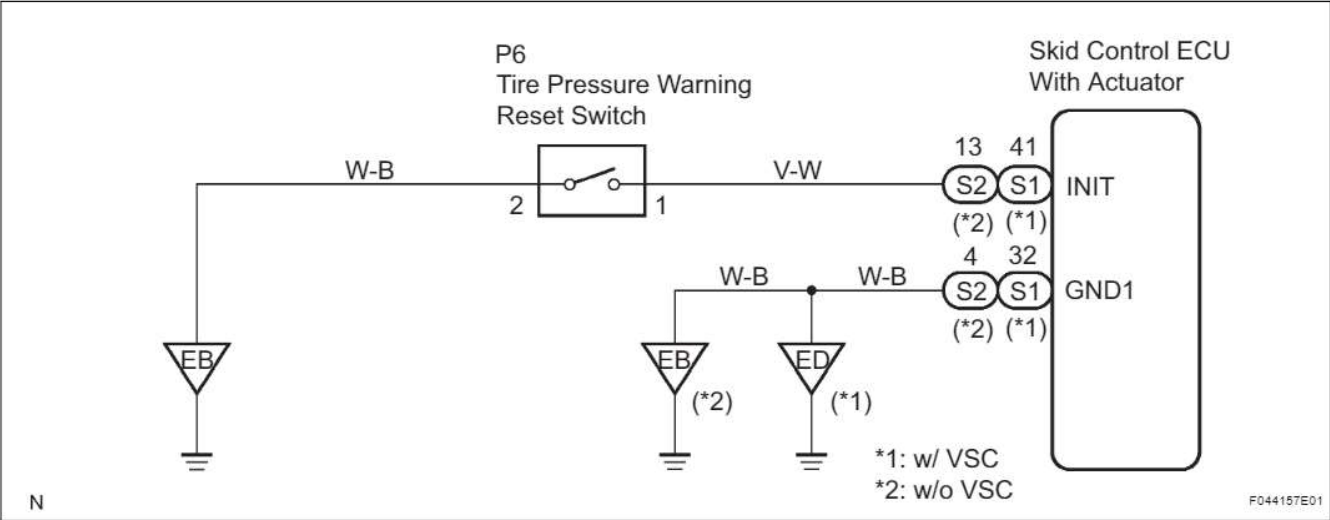
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE

TW

Tire Pressure Warning Reset Switch Circuit

DESCRIPTION
Receiving the signal from the tire pressure warning reset switch, the skid control ECU indicates initialization of the tire pressure warning system.

WIRING DIAGRAM



1

CHECK IN THE TEST MODE

OK:
Tire pressure warning reset switch functions normally.

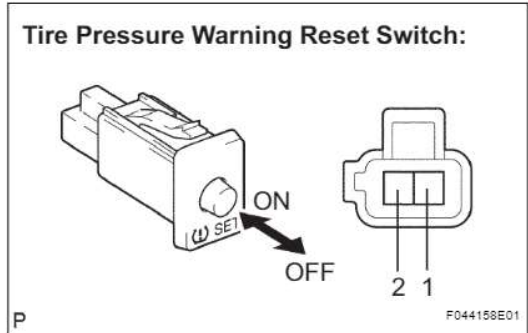
NG **Go to step 2**

OK

CORRECT TIRE PRESSURE TO THE SPECIFIED PRESSURE, THEN INITIALIZE THE SYSTEM

2

INSPECT TIRE PRESSURE WARNING RESET SWITCH



- (a) Disconnect the tire pressure warning reset switch P6 connector.
(b) Measure the resistance according to the value(s) in the table below.

Switch condition	Specified condition
ON	Below 1 Ω
OFF	10 kΩ or higher

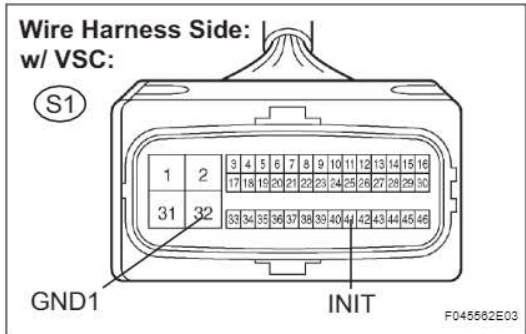
NG **REPLACE TIRE PRESSURE WARNING RESET SWITCH**

TW-30

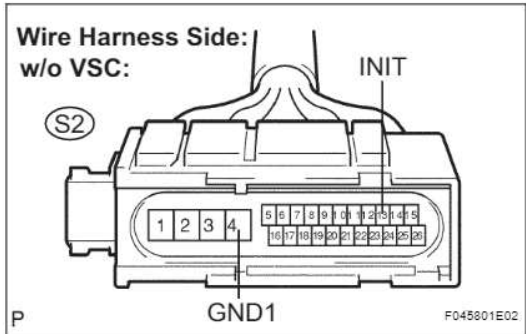
TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

OK

3 CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING RESET SWITCH - BRAKE ACTUATOR ASSEMBLY)



(a) Reconnect the tire pressure warning reset switch P6 connector.



(b) Disconnect the brake actuator assembly connector.
(c) Measure the resistance according to the value(s) in the table below.

Resistance (w/ VSC)

Switch condition	Tester connection	Specified condition
ON	S1-41 (INIT) - S1-32 (GND1)	Below 1 Ω
OFF	S1-41 (INIT) - S1-32 (GND1)	10 kΩ or higher

Resistance (w/o VSC)

Switch condition	Tester connection	Specified condition
ON	S2-13 (INIT) - S2-4 (GND1)	Below 1 Ω
OFF	S2-13 (INIT) - S2-4 (GND1)	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Tire Pressure Warning Light Circuit

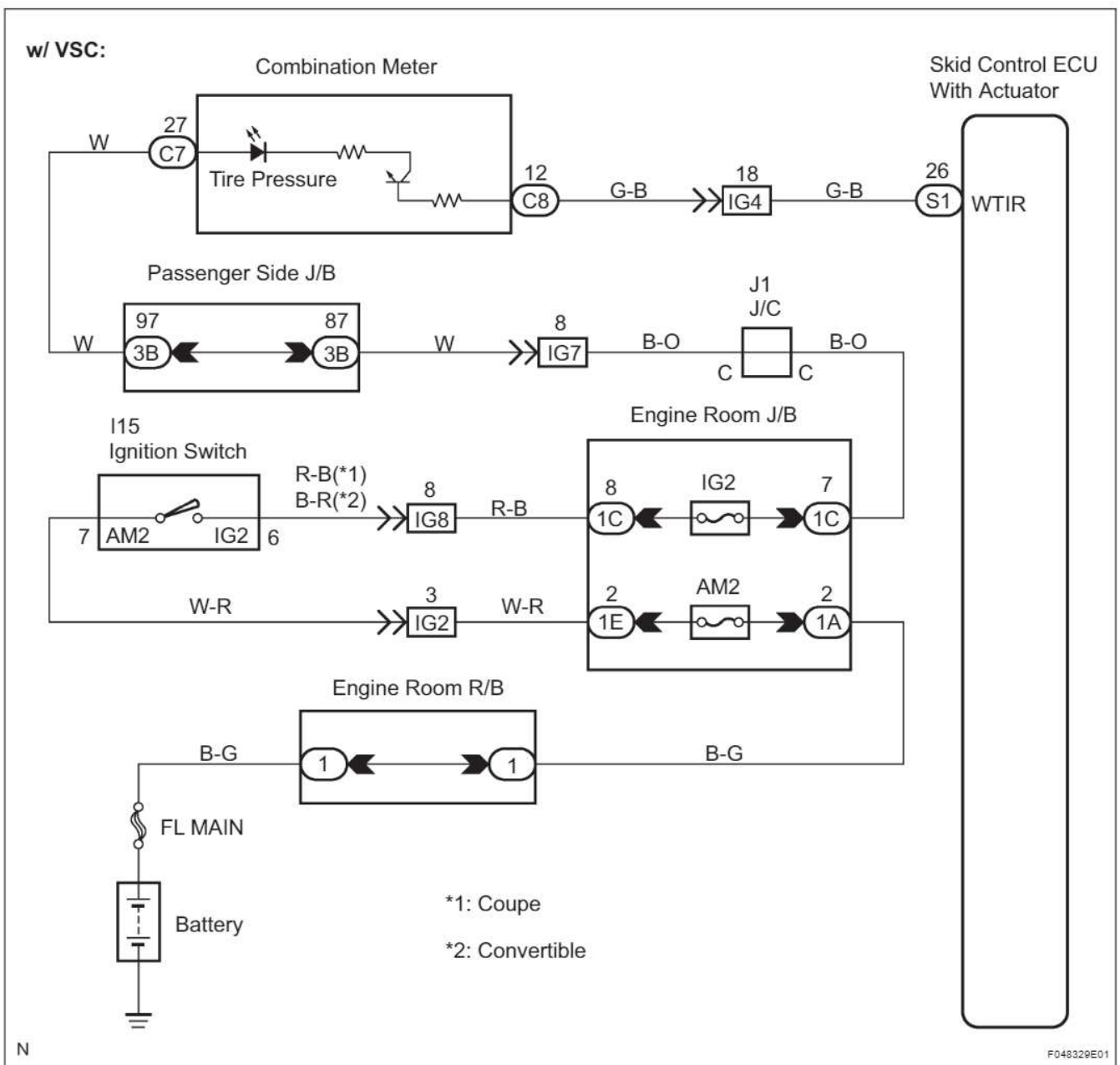
DESCRIPTION

When the tire pressure decreases, the skid control ECU illuminates the tire pressure warning light on the combination meter assembly.

HINT:

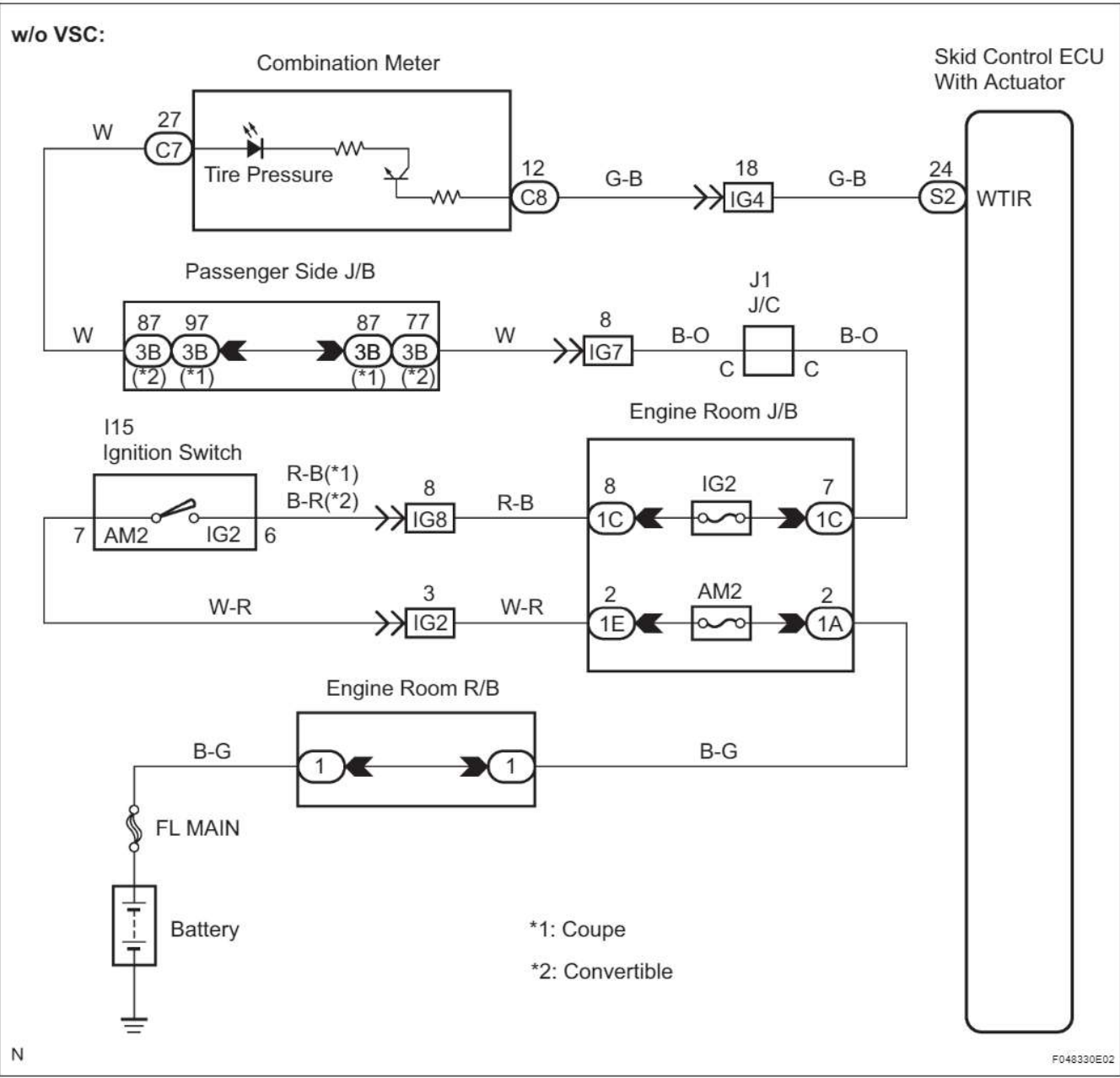
Refer to the "TIRE PRESSURE WARNING LIGHT CHART" section in the "DIAGNOSIS SYSTEM" for the tire pressure warning light (See page [TW-9](#)).

WIRING DIAGRAM

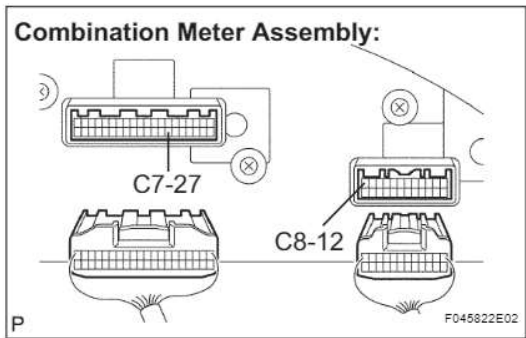


TW

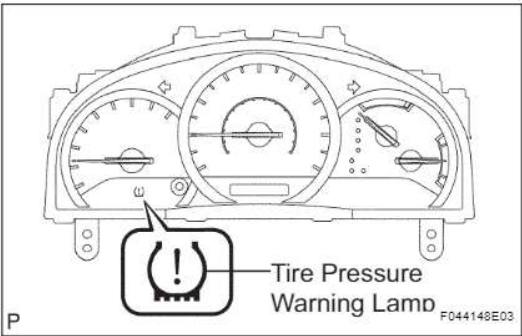
TW-32 **TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM**



1 INSPECT COMBINATION METER ASSEMBLY (TIRE PRESSURE WARNING LIGHT)



- (a) Remove the combination meter assembly.
- (b) Disconnect combination meter assembly C7 and C8 connector.



- (c) Check warning light on the combination meter assembly.
- (1) Check that the tire pressure warning light comes on the combination meter assembly when positive battery voltage is applied to the terminals as shown in the chart below.

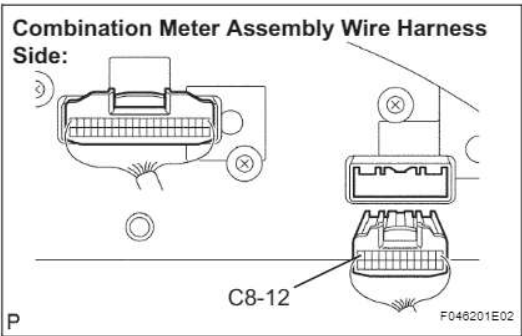
Warning Light	Battery Positive	Battery Negative
Tire pressure	C7-27	C8-12

OK:
Tire pressure warning light comes on.

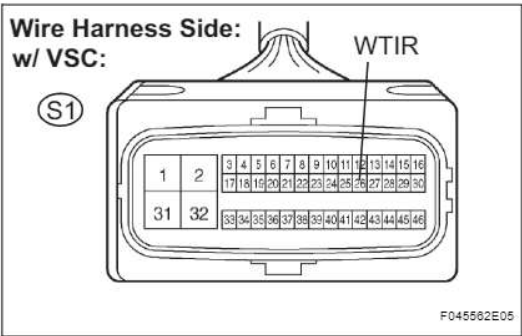
NG
REPLACE COMBINATION METER ASSEMBLY

TW

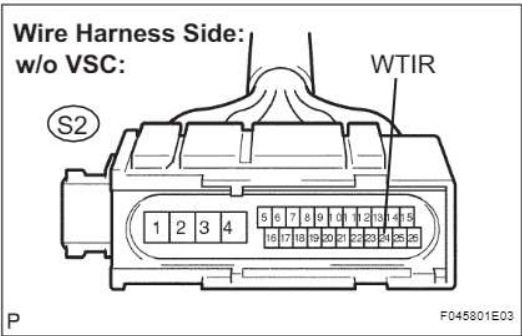
2 CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - COMBINATION METER ASSEMBLY)



- (a) Reconnect the connector to the combination meter C7.



- (b) Disconnect the skid control ECU connector.



- (c) Measure the resistance according to the value(s) in the table below.

Resistance (w/ VSC)

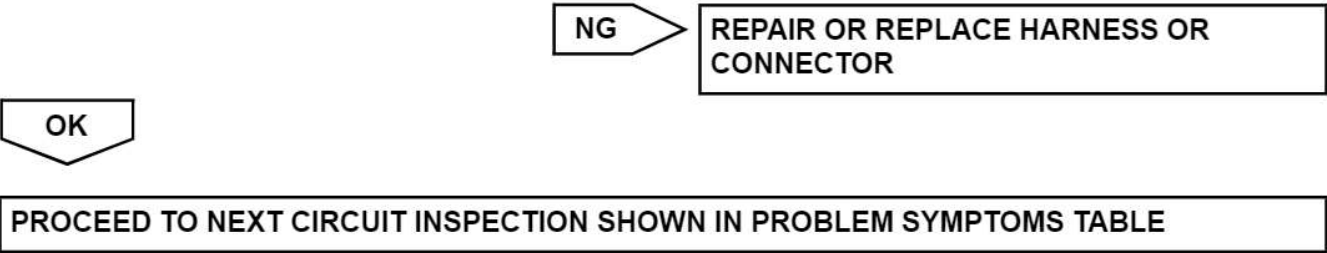
Tester Connection	Specified Condition
S1-26 (WTIR) - C8-12	Below 1 Ω
S1-26 (WTIR) - Body ground	10 kΩ or higher

Resistance (w/o VSC)

Tester Connection	Specified Condition
S2-24 (WTIR) - C8-12	Below 1 Ω
S2-24 (WTIR) - Body ground	10 kΩ or higher

TW-34

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



TW

Ambient Temperature Sensor Circuit

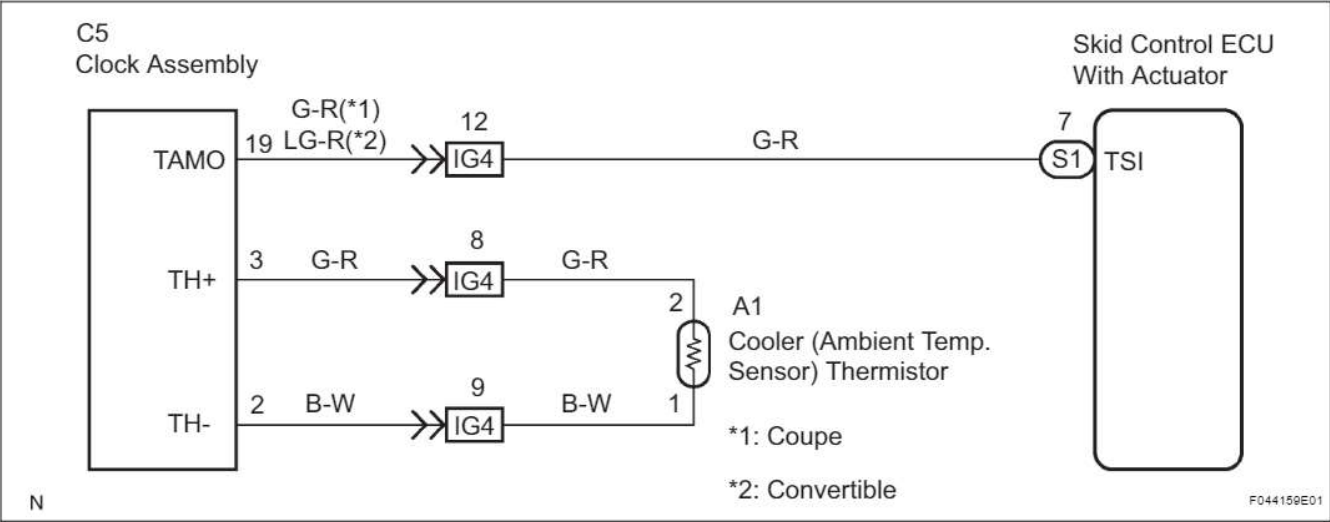
DESCRIPTION

The ambient temperature sensor sends the outside temperature signal to the clock. The clock transmits the signal to the skid control ECU as a communication signal. The skid control ECU controls the tire pressure warning system, depending on the changes in the outside temperature.

HINT:

- The signal sent from the ambient temperature sensor is also used in the A/C.
- This circuit is only for VSC vehicle.

WIRING DIAGRAM



TW

1 INSPECT CLOCK ASSEMBLY

(a) Check if the outside temperature read of the clock assembly is equal to the actual temperature.

NG

Go to step 3

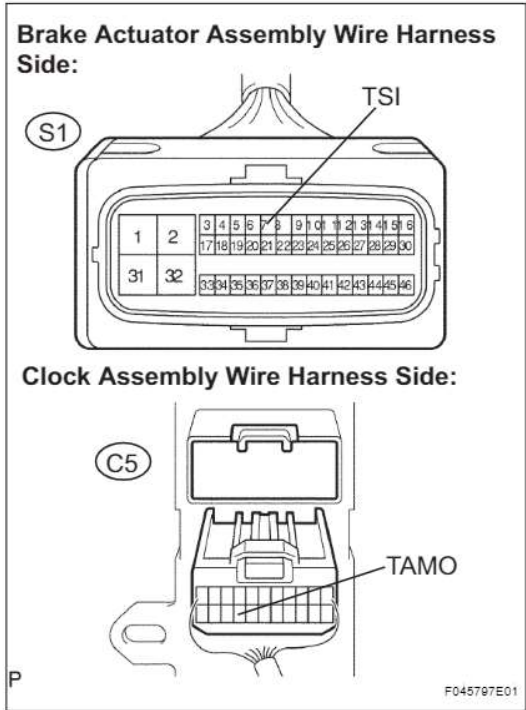
OK

TW-36

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

2

CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY - CLOCK ASSEMBLY)



- (a) Disconnect the brake actuator assembly S1 connector.
(b) Measure the resistance according to the value(s) in the table below.

Tester connection	Specified condition
S1-7 (TSI) - C5-19 (TAMO)	Below 1 Ω
S1-7 (TSI) - Body ground	10 k Ω or higher

NG

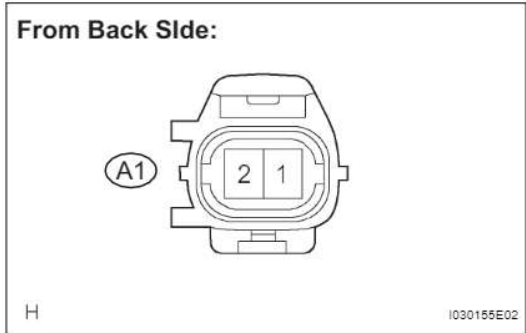
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE

3

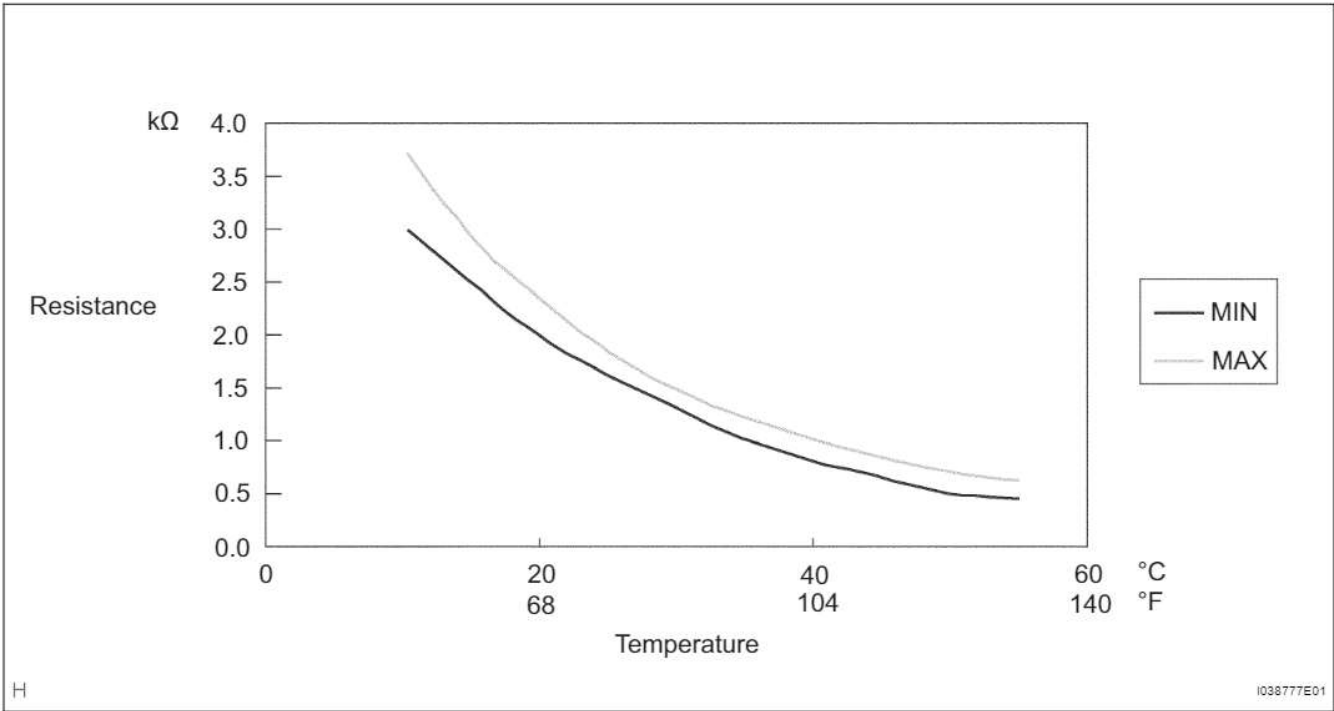
INSPECT COOLER (AMBIENT TEMP. SENSOR) THERMISTOR



- (a) Remove the cooler (ambient temp. sensor) thermistor and disconnect the A1 connector.
(b) Measure the resistance according to the value(s) in the table below.

Tester connection	Condition	Specified condition
A1-1 - A1-2	10°C (50°F)	3.00 to 3.73 k Ω
A1-1 - A1-2	15°C (59°F)	2.45 to 2.88 k Ω
A1-1 - A1-2	20°C (68°F)	1.95 to 2.30 k Ω
A1-1 - A1-2	25°C (77°F)	1.60 to 1.80 k Ω
A1-1 - A1-2	30°C (86°F)	1.28 to 1.47 k Ω
A1-1 - A1-2	35°C (95°F)	1.00 to 1.22 k Ω
A1-1 - A1-2	40°C (104°F)	0.80 to 1.00 k Ω
A1-1 - A1-2	45°C (113°F)	0.65 to 0.85 k Ω
A1-1 - A1-2	50°C (122°F)	0.50 to 0.70 k Ω
A1-1 - A1-2	55°C (131°F)	0.44 to 0.60 k Ω
A1-1 - A1-2	60°C (140°F)	0.36 to 0.50 k Ω

HINT:
As the temperature increases, the resistance decreases
(see the chart).



NOTICE:
Even slightly touching the sensor may change the resistance value. Be sure to hold the connector of the sensor.

NG

REPLACE COOLER (AMBIENT TEMP. SENSOR) THERMISTOR

OK

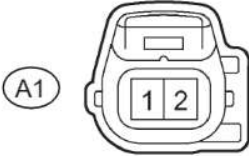
TW-38

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

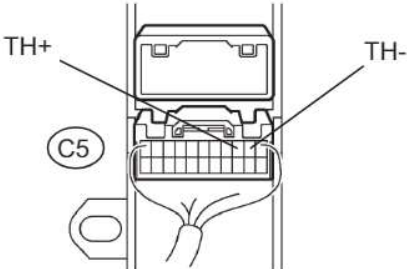
4

CHECK HARNESS AND CONNECTOR (CLOCK ASSEMBLY - COOLER THERMISTOR)

Wire Harness Side:



Wire Harness Side:



H

F045799E01

- (a) Disconnect the clock assembly C5 connector.
- (b) Measure the resistance according to the value(s) in the table below.

Resistance

Tester connection	Condition	Specified condition
C5-3 (TH+) - A1-2	Always	Below 1 Ω
C5-2 (TH-) - A1-1	Always	Below 1 Ω
C5-3 (TH+) - Body ground	Always	10 k Ω or higher
C5-2 (TH-) - Body ground	Always	10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE CLOCK ASSEMBLY