

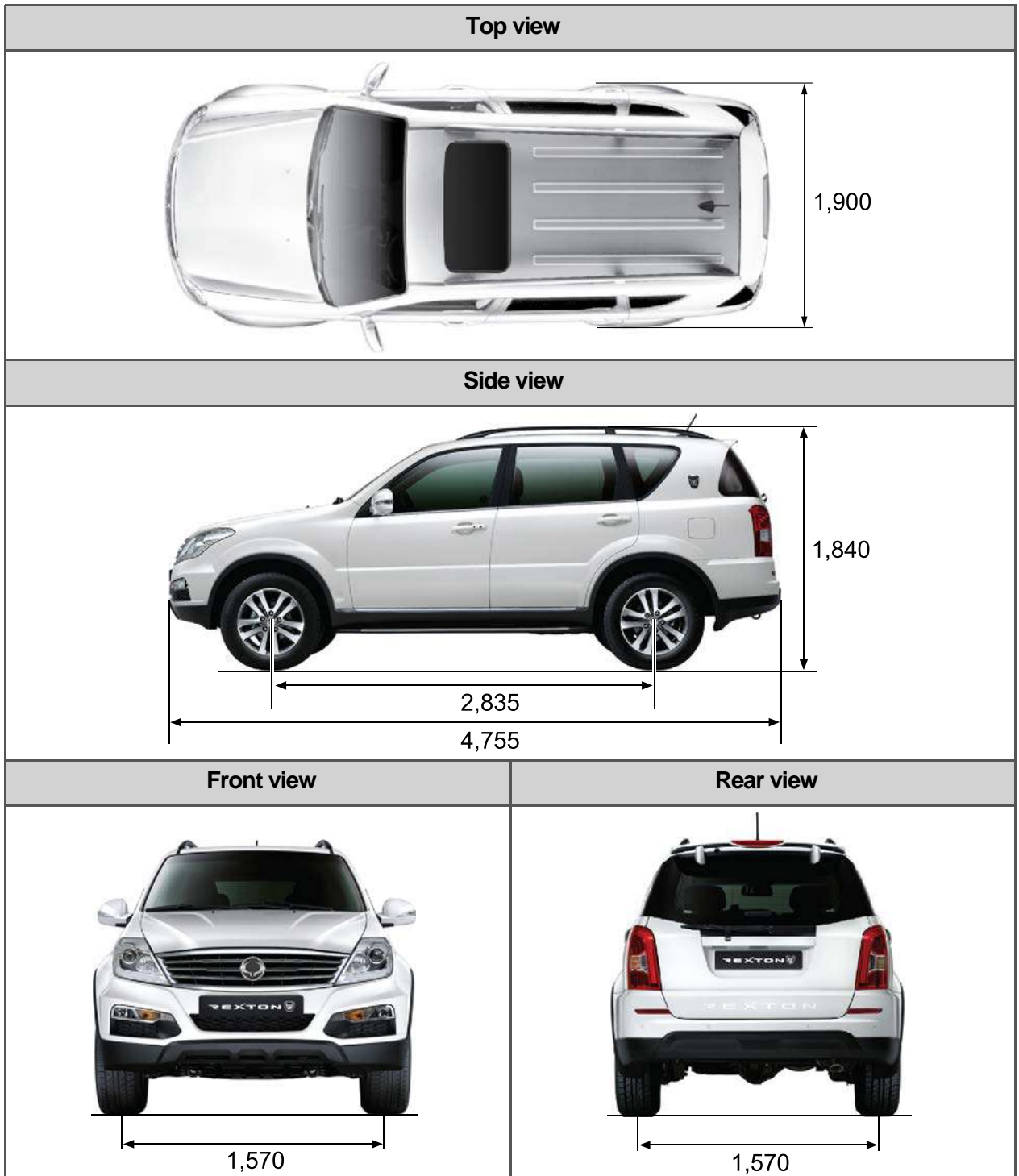
# VEHICLE GENERAL

**0000-00**

## GENERAL INFORMATION

### 1. DIMENSIONS

Unit: mm



Modification basis	
Application basis	
Affected VIN	

### 3) Scheduled Maintenance Services (GEN) - Diesel Engine (D27DT/D27DTP)

\* Use only approved Ssangyong genuine parts.

Maintenance service and record retention are the owner's responsibility. You should retain evidence that proper maintenance has been performed on your vehicle in accordance with the scheduled maintenance service chart.

MAINTENANCE INTERVAL  MAINTENANCE ITEM	Kilometers (miles) or time in months, whichever comes first								
	x1000 km	10	20	30	40	50	60	70	80
	x1000 miles	6.25	12.5	18.75	25	31.25	37.5	43.75	50
	Months	12	24	36	48	60	72	84	96

#### ENGINE CONTROL SYSTEM

Drive belt									
* Engine oil & filter * <sup>1</sup> (1)* (3)* (4)*	Initial change: 5,000 km, change every 10,000 km or 12 months (But, shorten the service interval under severe conditions)								
Cooling system hose & connections									
Engine coolant (3)* (4)*	Change every 200,000 km or 5 years. And, inspect and replenish if necessary.								
* Fuel filter	Direct Injection (Diesel Engine)	Replace every 25,000 km (Draining water from fuel filter: whenever replacing the engine oil)							
Additional water separator (if equipped)	Replace every 150,000 km or 5 years (Drain the water whenever replacing the engine oil)								
Fuel line & connections									
Air cleaner (2)*	Initial clean: 5,000 km, clean every 10,000 km, replace every 30,000 km (But, shorten the service interval under severe conditions)								
Injection timing (See NOTE 1)									

NOTE 1: Adjust as required;

- When excessive smoke is visible (black or white)
- Poor performance/economy

#### Chart Symbols:

I - Inspect these items and their related parts. If necessary, correct, clean, replenish, adjust or replace.

\*1 Check the engine oil level and leak every 3,000 km (2,000 miles) or before starting a long trip.

R- Replace or change.

(1)\* If vehicle is operated under severe condition: Shorten the service interval.

- Frequent stop-and-go traffic, extended idling, short driving distance below 6 km, driving distance below 16 km when the outside temperature remains below freezing
- Driving in a hilly or mountainous terrain, sandy, or dusty area
- High load driving such as trailer towing
- Taxi, patrol service or delivery service (extended idling and excessive driving with low speed)

(2)\* If vehicle is operated under severe condition, driving in dusty condition or sandy condition, pollutant area or off-road driving, frequently inspect the air cleaner, if necessary, change the air cleaner.

(3)\* More frequent maintenance is required if under dusty driving condition.

(4)\* Refer to "Recommended fluids, coolant and lubricants".

\* Water separator: When replace the engine oil, also drain the water from the fuel filter.

Modification basis	
Application basis	
Affected VIN	

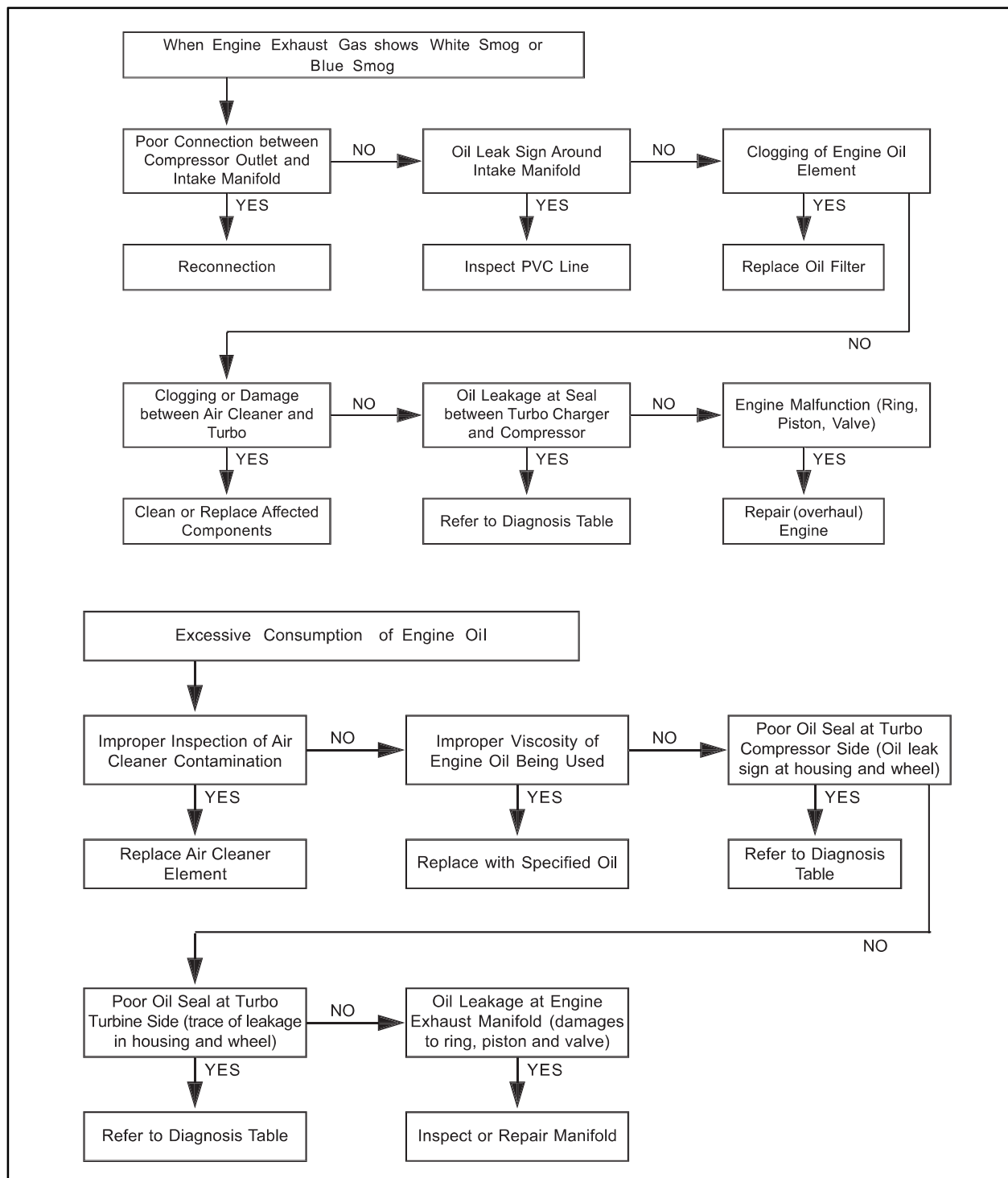
# ENGINE EXHAUST SYSTEM

**1729-01**

## GENERAL INFORMATION

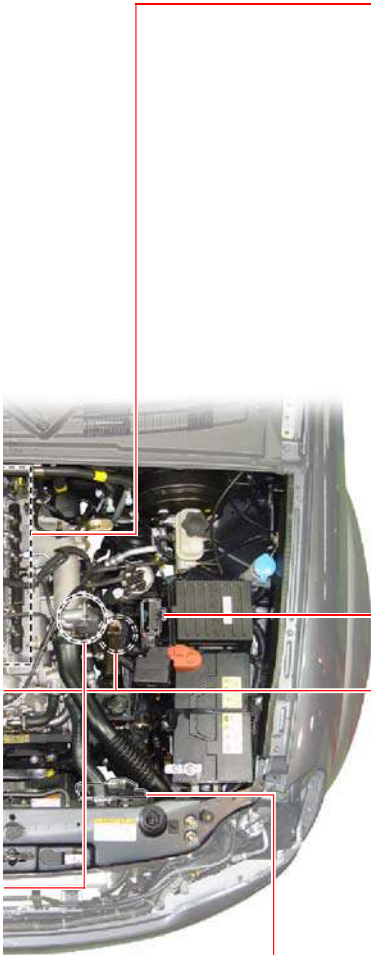
### 1. TROUBLESHOOTING

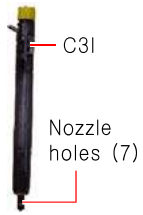





#### 1) Work Flow






Modification basis	
Application basis	
Affected VIN	



- ENGINE GENERAL
- ENGINE ASSEMBLY
- FUEL SYSTEM
- INTAKE SYSTEM
- ENGINE EXHAUST**
- TURBOCHARGER
- LUBRICATION
- COOLING SYSTEM
- CHARGING
- PRE-GLOW
- STARTING
- CRUISE CONTROL
- E-GR SYSTEM
- CDPF SYSTEM
- ENGINE CONTROL



Fuel System		
<b>D27DTP &amp; D27DT (EU IV)</b> Injector  <p>C3I Nozzle holes (7)</p>	<b>D27DTP &amp; D27DT (EU IV)</b> Fuel pipe 	<b>D27DTP &amp; D27DT (EU IV)</b> Common rail  <p>Pulsation orifice</p>
<b>D27DT</b> Injector  <p>C2I</p>	<b>D27DT</b> Fuel pipe 	<b>D27DT</b> Common rail  <p>Pulsation orifice</p>

Preheat System		
AQGS unit 	<b>D27DTP &amp; D27DT (EU IV)</b> Glow plug  <p>Red</p>	<b>D27DT</b> Glow plug  <p>Yellow</p>

Switchable Engine Mounting (SEM)	
<b>D27DTP</b> LH 	RH 
<b>D27DT (EU IV) &amp; D27DT</b> 	

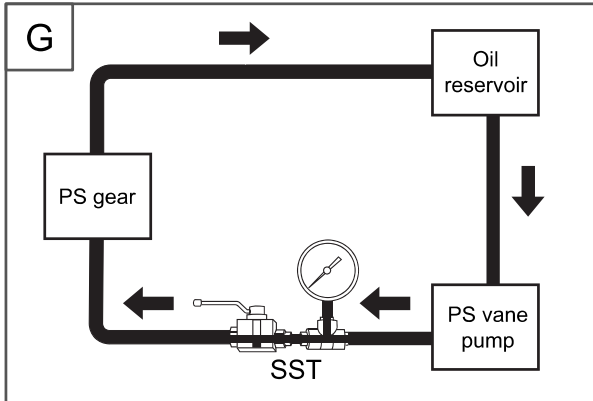
Cooling System	
<b>D27DTP &amp; D27DT (EU IV)</b> Large water pump  <p>* EGR cooler port included</p>	<b>D27DT</b> 

Modification basis	
Application basis	
Affected VIN	

## 2. SPECIAL SERVICE TOOLS

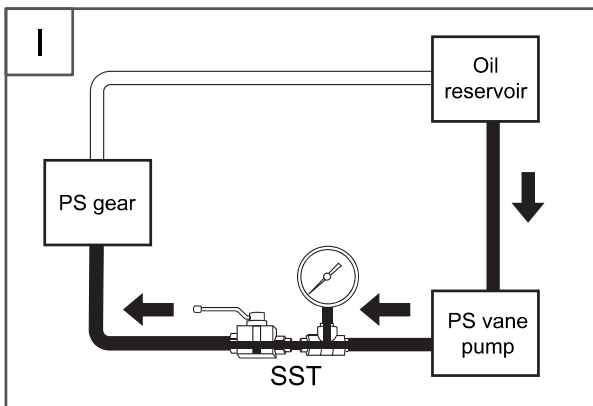
Part No. & Name	Appearance	Description
<p><b>Part No.:</b> SSM00203-005</p> <p><b>Name:</b> Main shaft 1st sleeve installer</p>		<ul style="list-style-type: none"> <li>- Install the main shaft 1st gear sleeve</li> <li>- Install the drive pinion assembly front ball bearing</li> <li>- Install the main shaft double angular ball bearing</li> </ul>
<p><b>Part No.:</b> SSM00203-006</p> <p><b>Name:</b> Main shaft reverse sleeve installer</p>		<ul style="list-style-type: none"> <li>- Install the main shaft reverse sleeve and bearing</li> <li>- Install the main drive pinion assembly front ball bearing</li> <li>- Install the main shaft double angular ball bearing</li> <li>- Install the 3rd &amp; 4th synchronizer hub</li> <li>- Install the main shaft 5th gear</li> <li>- Install the main shaft 6th gear</li> </ul>
<p><b>Part No.:</b> SSM00203-002</p> <p><b>Name:</b> Main shaft 5th sleeve installer</p>		<ul style="list-style-type: none"> <li>- Install the main shaft 5th gear sleeve</li> <li>- Install the counter shaft 6th gear sleeve</li> <li>- Install the counter shaft reverse gear</li> <li>- Install the main shaft ball bearing</li> </ul>
<p><b>Part No.:</b> SSM00203-003</p> <p><b>Name:</b> Oil seal installer</p>		<p>Install the extension housing oil seal</p>
<p><b>Part No.:</b> SSM00203-004</p> <p><b>Name:</b> Oil seal installer</p>		<p>Install the control shaft oil seal</p>

Modification basis	
Application basis	
Affected VIN	



G. Measure the oil pressure with the gauge valve fully open.

<b>Pressure at no load</b>	3 ~ 5bar
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H. If the pump pressure is in specified range, the pump is normal. If not, replace the power steering pump

<b>Oil pressure</b>	78 ~ 83Bar
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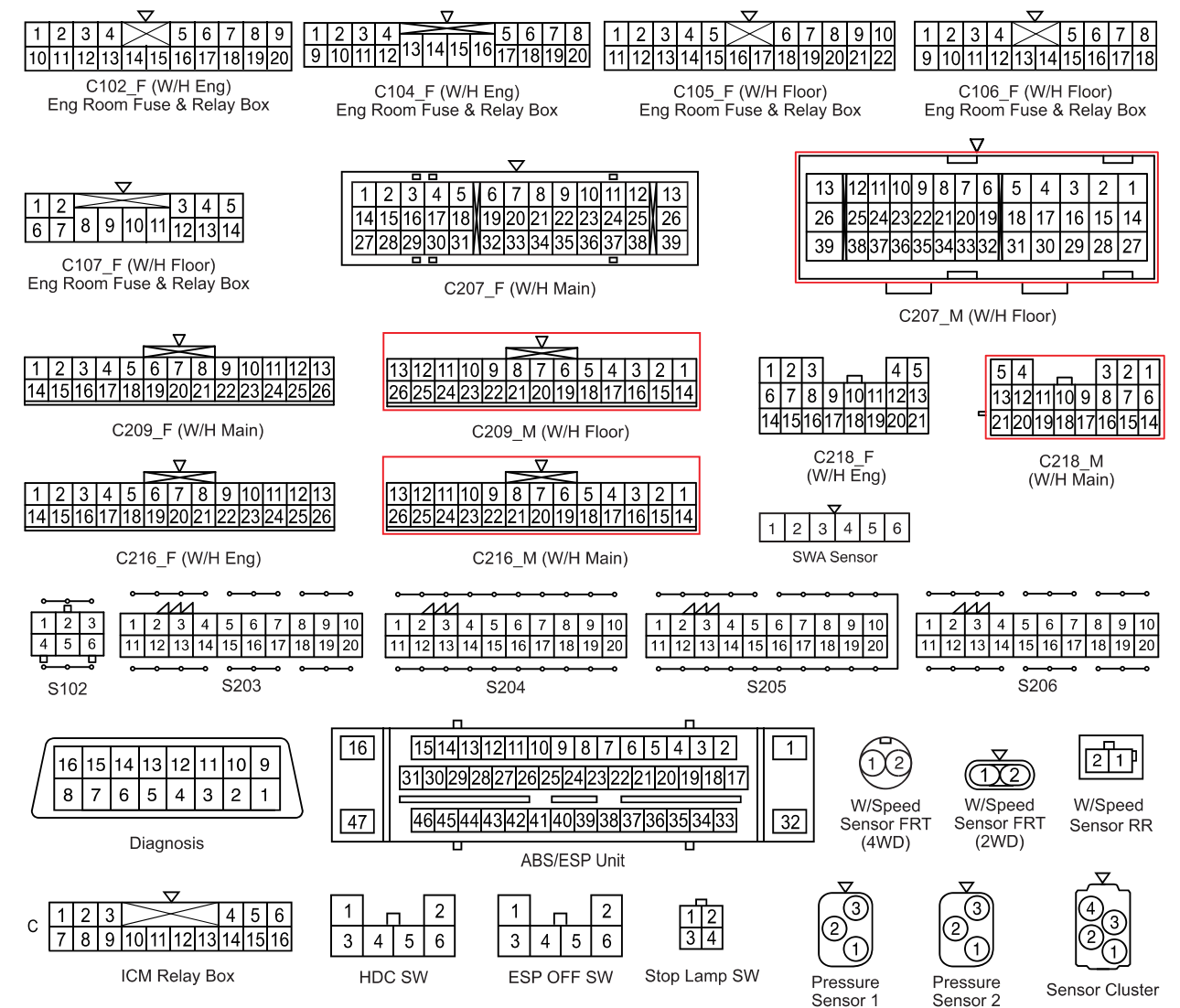
I. Turn the steering wheel right or left until it stops with the engine idling and valve fully open.

Modification basis	
Application basis	
Affected VIN	

(1) CONNECTOR INFORMATION

Connector Number (Pin Number, Color)	Connecting Wiring Harness	Connector Position	Remark
C102 (20Pin, White)	W/H Floor - Eng Room Fuse & Relay Box	Eng Room Fuse & Relay Box	
C104 (20Pin, White)	W/H Floor - Eng Room Fuse & Relay Box	Eng Room Fuse & Relay Box	
C105 (22Pin, White)	W/H Floor - Eng Room Fuse & Relay Box	Eng Room Fuse & Relay Box	
C106 (18Pin, White)	W/H Floor - Eng Room Fuse & Relay Box	Eng Room Fuse & Relay Box	
C107 (14Pin, White)	W/H Eng - Eng Room Fuse & Relay Box	Eng Room Fuse & Relay Box	
C207 (39Pin, Gray)	W/H Main - W/H Floor	Driver Cowl Side C/Holder	C/Holder
C209 (26Pin, Black)	W/H Main - W/H Floor	Driver Cowl Side C/Holder	C/Holder
C216 (26Pin, White)	W/H Main - W/H Eng	Passenger Cowl Side C/Holder	C/Holder
C218 (21Pin, White)	W/H Main - W/H Eng	Passenger Cowl Side C/Holder	C/Holder
G105	W/H Eng	Beside Coolant Reserve Tank	ABS/ESP
G201	W/H Main	Under the Driver Cowl Side PNL	
S102 (6Pin)	W/H Eng	Under the ABS/EPS Unit	CAN
S203 (20Pin)	W/H Main	Backside A/V Head Unit (Inside LH Protector)	CAN/GND/TAIL
S204 (20Pin)	W/H Main	Backside A/V Head Unit (Inside LH Protector)	GND
S205 (20Pin)	W/H Main	Backside A/V Head Unit (Inside LH Protector)	TAIL/IG1
S206 (20Pin)	W/H Main	Backside A/V Head Unit (Inside RH Protector)	STOP/TURN LP/BAT+

(2) CONNECTOR IDENTIFICATION SYMBOL & PIN NUMBER POSITION



Modification basis	
Application basis	
Affected VIN	

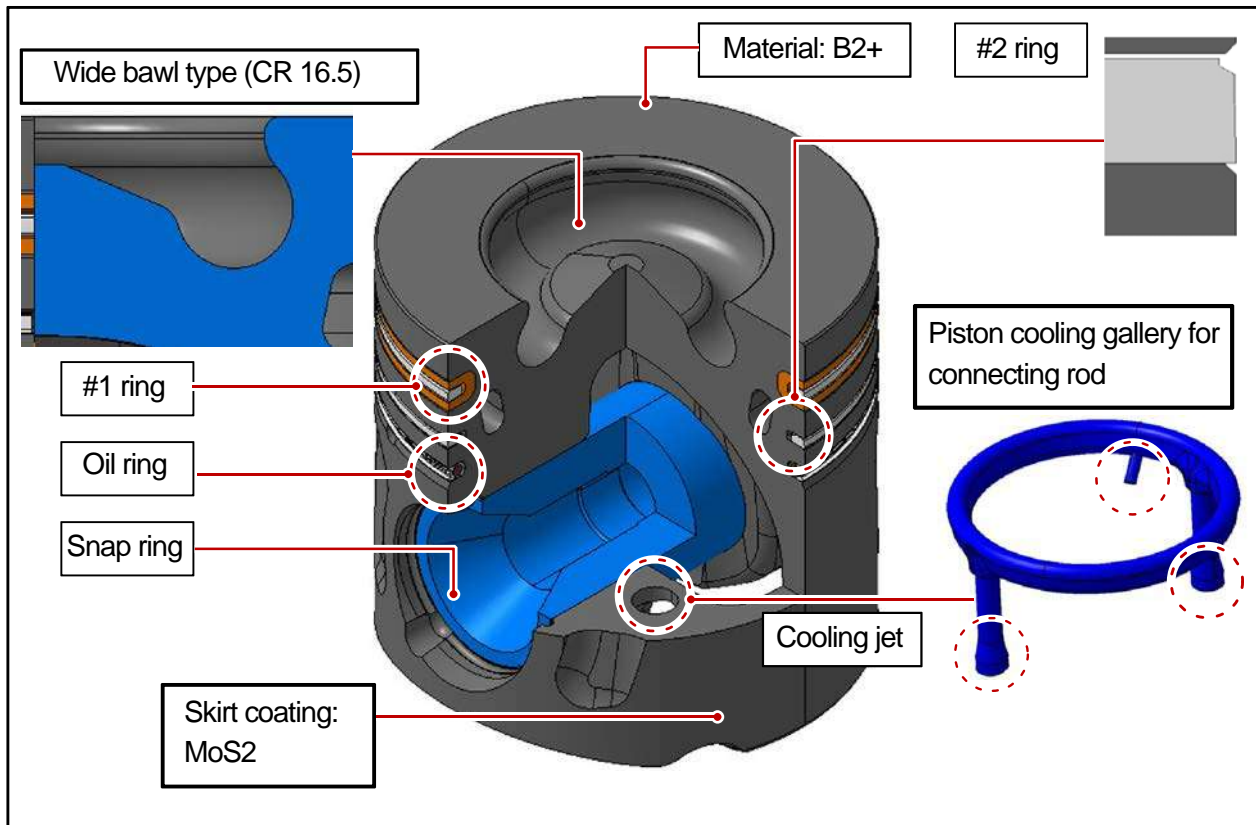
# 1) Piston

## (1) Overview



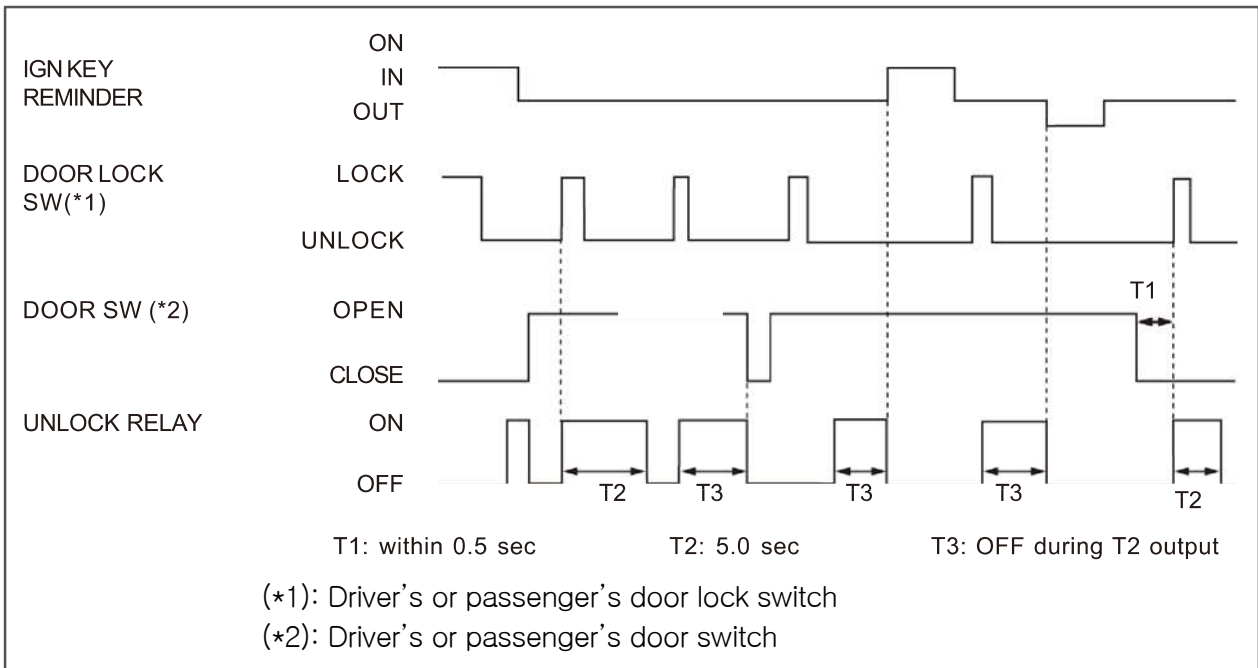
Piston assembly contains piston, #1 ring, #2 ring, oil ring, piston pin and snap ring. The expansion energy from engine is transferred to the crankshaft through connecting rod to convert the linear movement to rotating energy.

## (2) Layout



Modification basis	
Application basis	
Affected VIN	

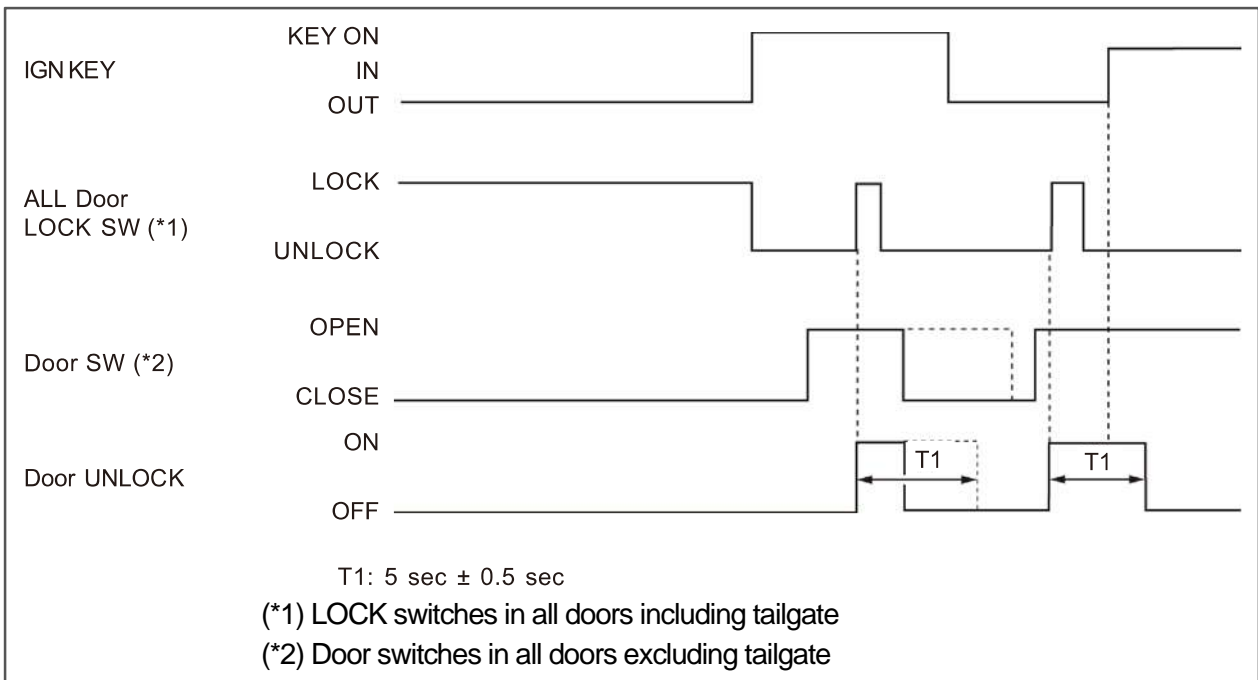




- FUSE REALY
- STICS
- IMMOBILIZER
- SPWM
- SEAT WARMER
- INSTRUMENT
- SWITCH
- LAMP
- WIPER AND
- RAIN SENSOR
- PAS
- AUDIO SYSTEM
- ELECTRIC

► All Door Lock Prevention Function when a Door is Open

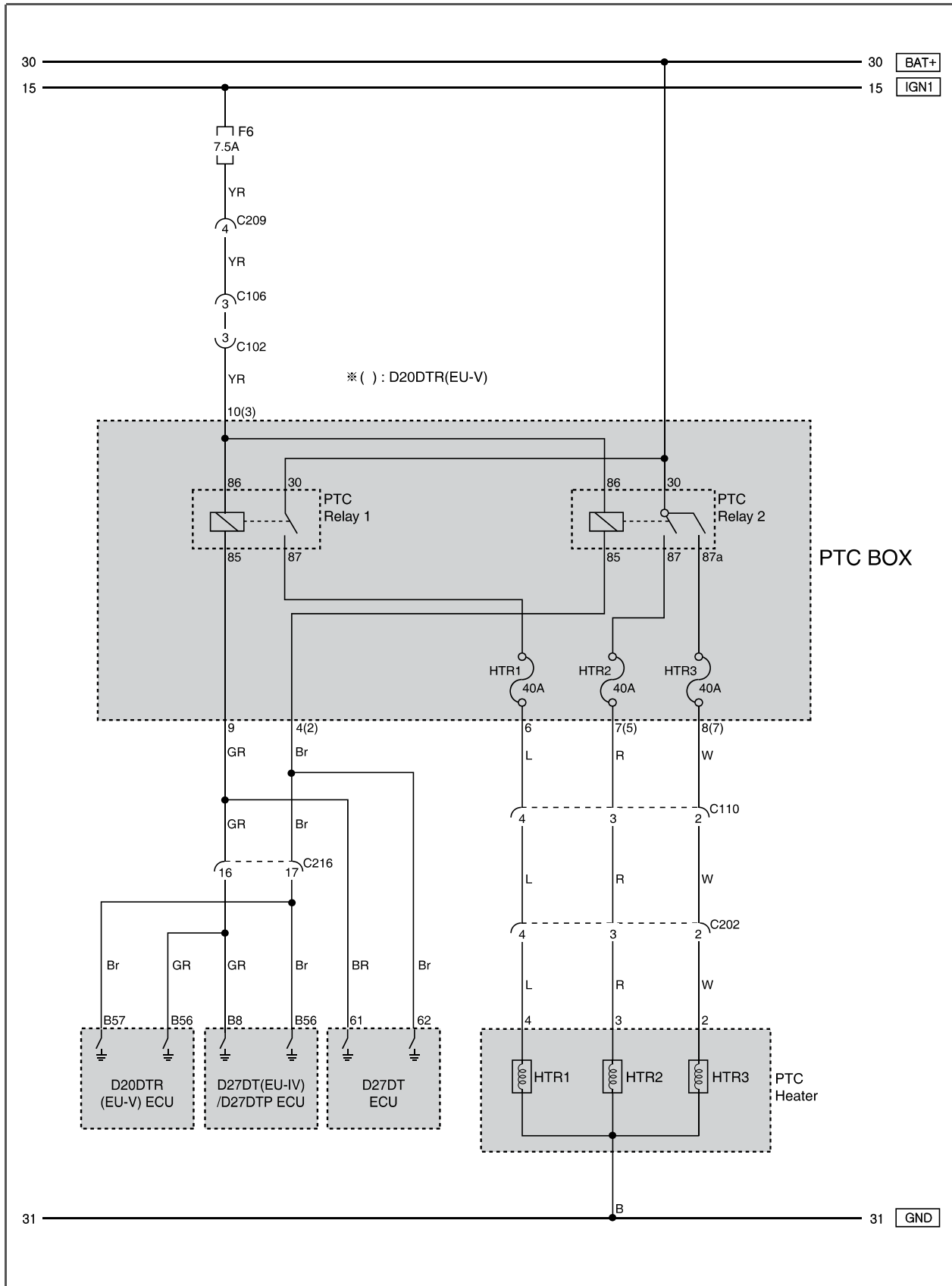
1. All doors, except the tailgate and hood, output "UNLOCK" signal for 5 seconds when the "LOCK" signal is inputted (while the ignition key is removed and one of any doors is open).
2. When the door is closed during the UNLOCK output, the UNLOCK output stops immediately.
3. When the ignition key is inserted during the UNLOCK output, the output continues for approx. 5 seconds.
4. If the ignition switch is in the "ON" position or the ignition switch is removed, the above steps are performed. If the key is in the key cylinder, the ignition key reminder function is activated.
5. This function does not work if the vehicle speed is over 10 km/h.



Modification basis	
Application basis	
Affected VIN	

S.G.N.

# 6810-15 CIRCUIT DIAGRAM OF PTC HEATER



Modification basis	
Application basis	
Affected VIN	



**Air Bag Warning Lamp (Meter Cluster)**



**Seat Belt Pretensioner**



**Side Air Bag Module**



**Driver's Air Bag Module**



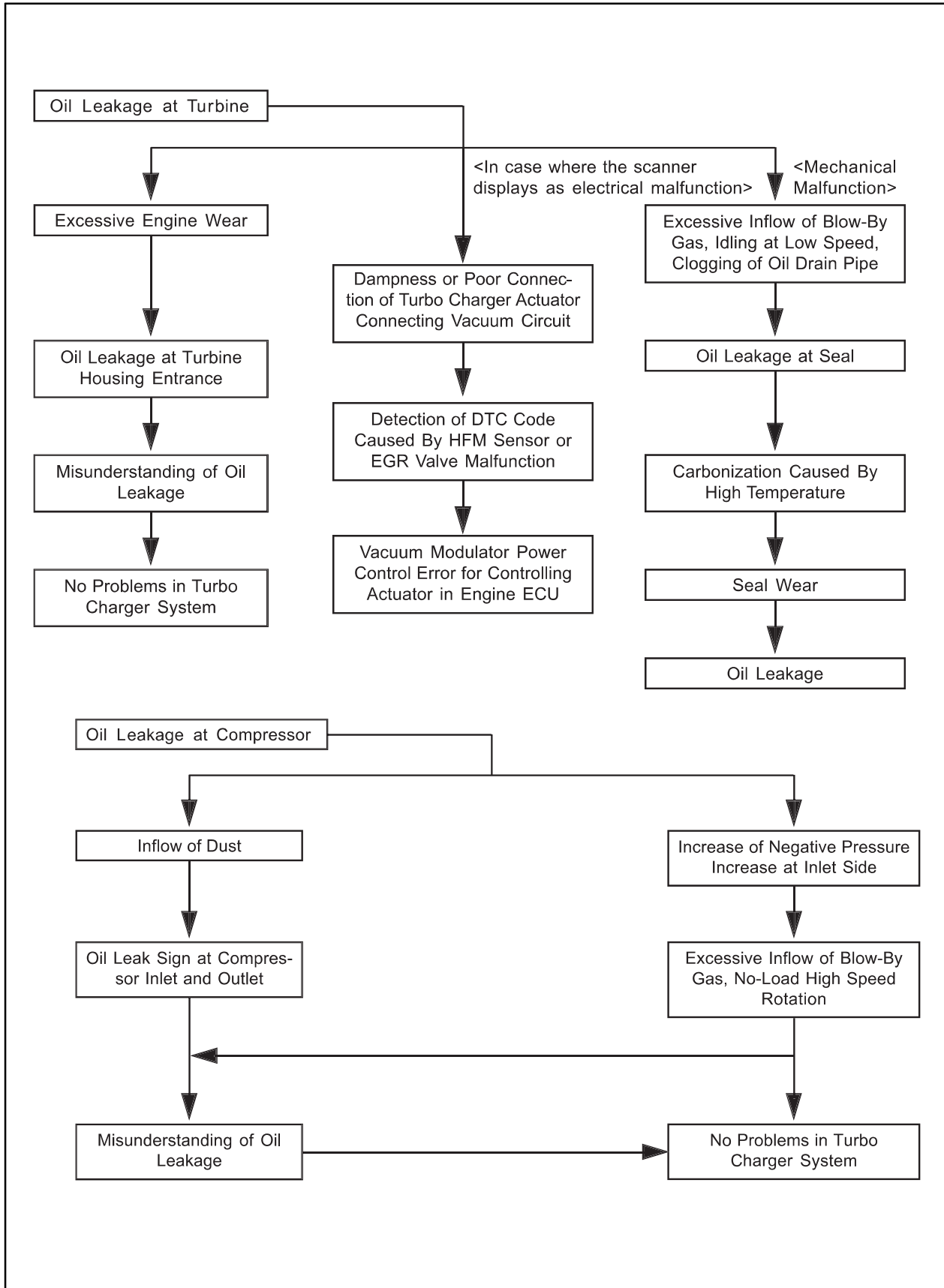
**Side Air Bag Sensor Assembly**



Modification basis	
Application basis	
Affected VIN	

AIR CONDITIO  
 AIR BAG  
 SEAT  
 SUNROO F  
 BODY INTERIOR  
 BODY EXTERIO  
 BODY DIMENSI

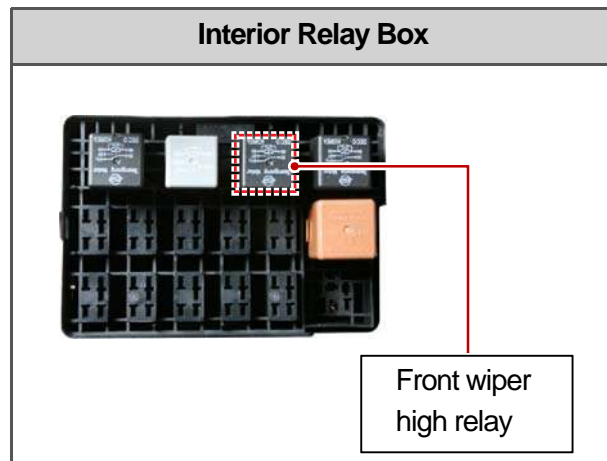
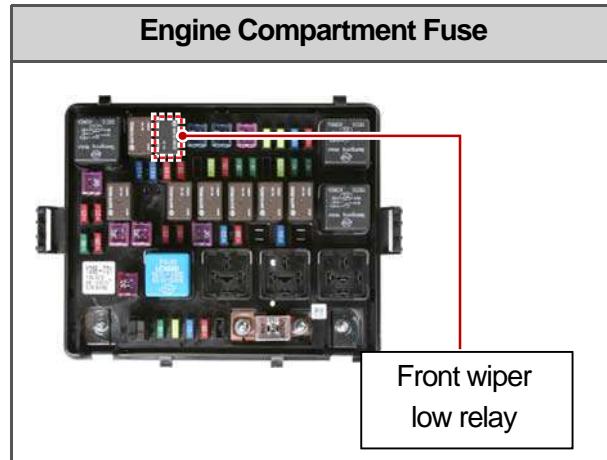
4. Defects caused by reasons other than that of the turbocharger.



Modification basis	
Application basis	
Affected VIN	

## ► STICS

The rain sensing unit detects the amount of rain drops and sends the operating signal to STICS, and STICS drives the wiper directly. At this moment, STICS determines the wiper operation mode (washer, MIST, AUTO), then sends the information to the rain sensor.



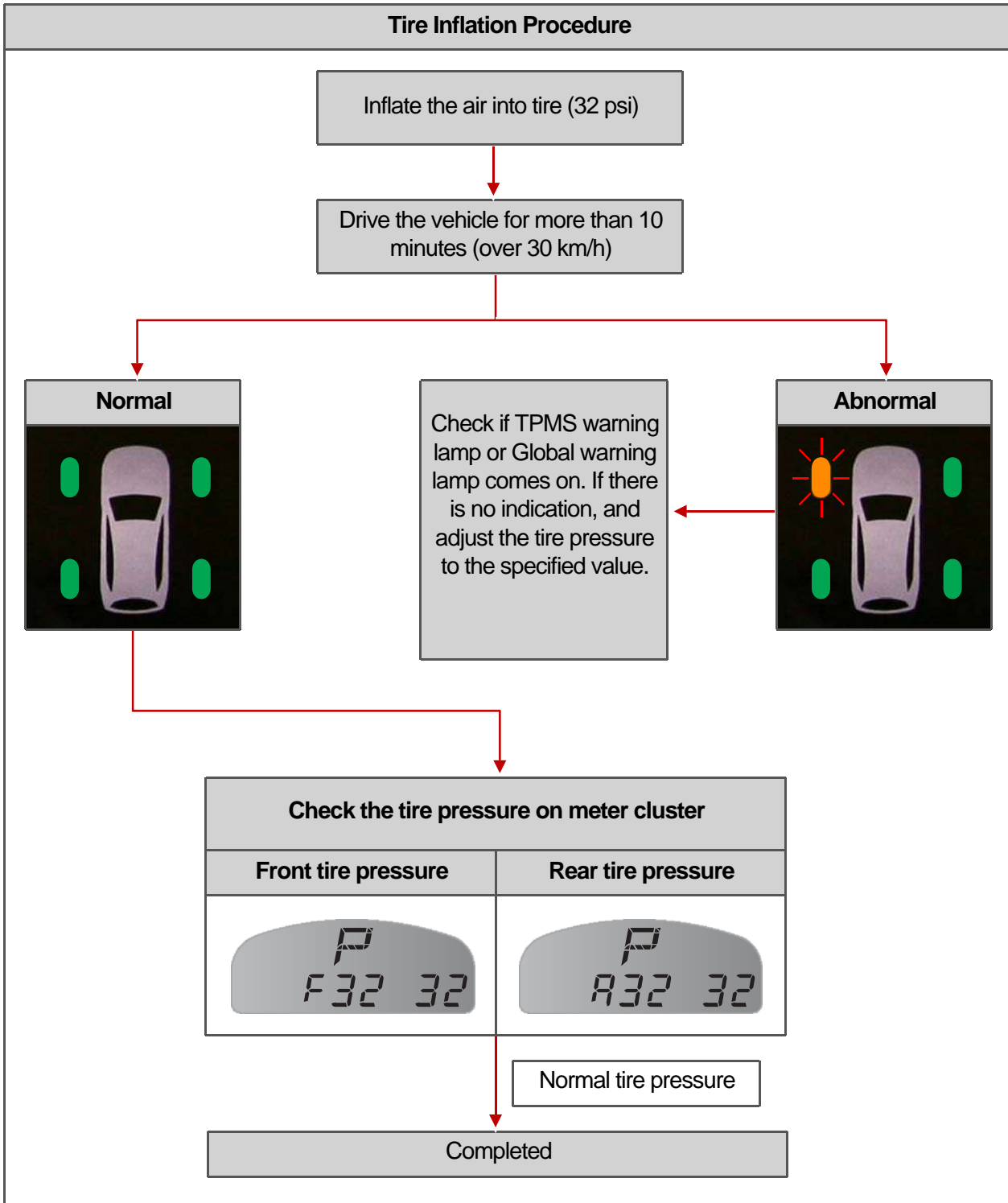
## ► Auto Light Sensor and Rain Sensor Coupled Control

- Rain detected headlamp:  
If it rains heavy which requires the intermediate INT speed, the headlamps are turned on automatically.
- Night detected wiping:
- When the auto light control turns on the headlamps and the rain sensor detects the rain, the wiper sensitivity is automatically increased by one level.  
(For example, the AUTO wiper switch is at the 3rd level, but the wiper operates at the 4th level.)

Modification basis	
Application basis	
Affected VIN	

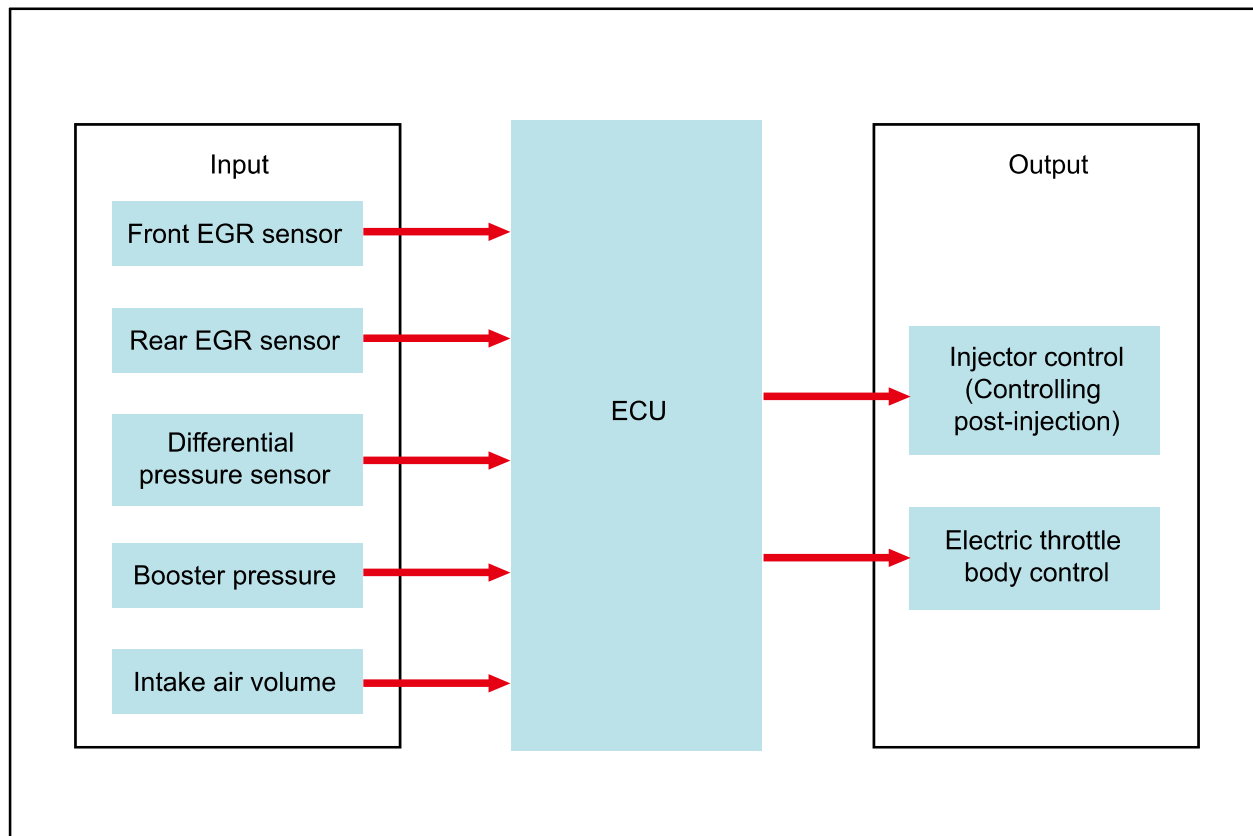
B. Tire Inflation and Inspection for Tire Pressure

- Inflate the air into the tire according to the specified procedure.



Modification basis	
Application basis	
Affected VIN	

### 3. INPUT/OUTPUT DEVICES



1. Front temperature sensor: This sensor is installed at the inlet of DOC and detects whether the DOC can burn (oxidize) the post-injected fuel or not.
2. Rear temperature sensor: This sensor is installed at the inlet of DPF and monitors that the temperature of the exhaust gas is kept at 600 °C .
  - If the temperature exceeds 600 °C , the life of CDPF can be reduced. So the amount of fuel post-injection is decreased.
  - If the temperature drops under 600 °C , the rate of regeneration can be decreased. So the amount of fuel post-injection is increased.
3. Differential pressure sensor: This sensor checks the amount of PM collected by calculating the pressure difference between before and after the CDPF.
4. Electric throttle valve: This valve reduces the intake air flow to raise the temperature of the exhaust gas when the CDPF is operating during idling.

Modification basis	
Application basis	
Affected VIN	