

**INTAKE SYSTEM****1742-01****GENERAL INFORMATION****1. SPECIFICATIONS**

Category		Specifications	Remarks
Intake system		Variable control system	
Air cleaner element	Filter type	Dry, filter element	-
	Filtering area	0.3 m <sup>2</sup>	
	Service interval	Clean every 15000 km, change every 30000 km (But, shorten the service interval under severe conditions)	
Air cleaner assembly	Weight	1.5 kg	
	Operating temperature	-30 to 100°C	
	Capacity	9 L	

\* Service more frequently under severe conditions, such as driving on a dusty road or off-road.

Modification basis	
Application basis	
Affected VIN	

INTAKE SYSTEM

TIVOLI 2016.03

ENGINE  
GENERALENGINE  
ASSEMBLYFUEL  
SYSTEMIGNITION  
SYSTEMINTAKE  
SYSTEMEXHAUST  
SYSTEM

LUBRICATION

COOLING  
SYSTEM

CHARGING

STARTING

CRUISE  
CONTROLENGINE  
CONTROL

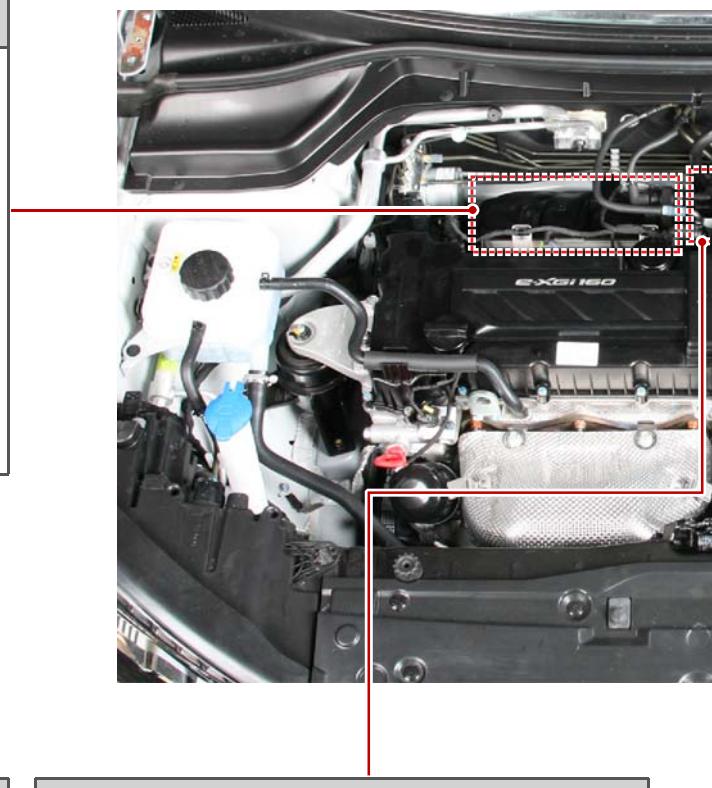
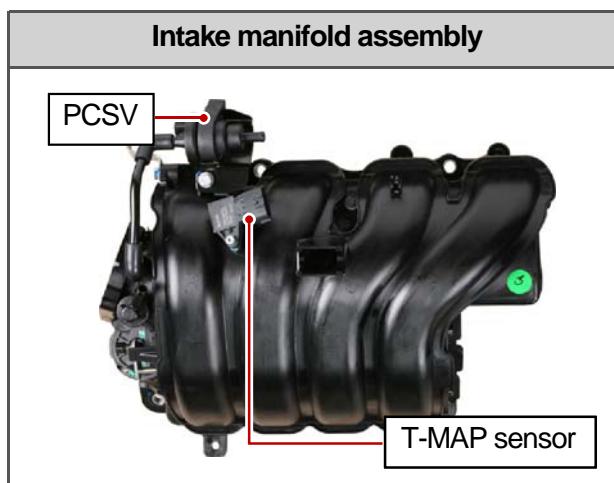
EEM

## OVERVIEW AND OPERATING PROCESS

### 1. OVERVIEW

The intake system filters the air and supplies this to the engine. This system assures the engine performance and the lifetime of the engine. The intake system is equipped with electronic throttle body. The flap of the electronic throttle body is operated by the electric signals to improve the engine performance. The system is also equipped with variable induction system (VIS) which improves engine power across the whole driving conditions by controlling the inlet passage based on the engine rpm and engine load.

### 2. COMPONENTS

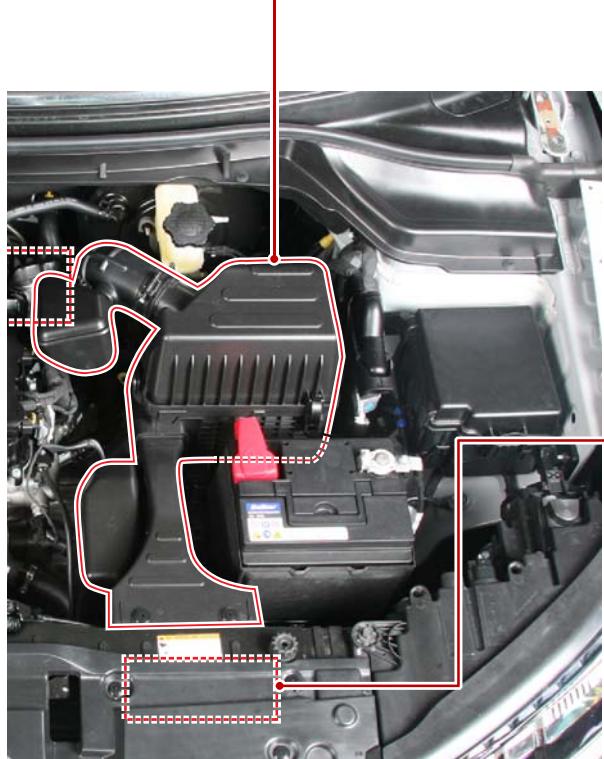


Modification basis	
Application basis	
Affected VIN	

Air cleaner assembly &amp; Snorkel



Air cleaner element



Water protector



VIS solenoid valve

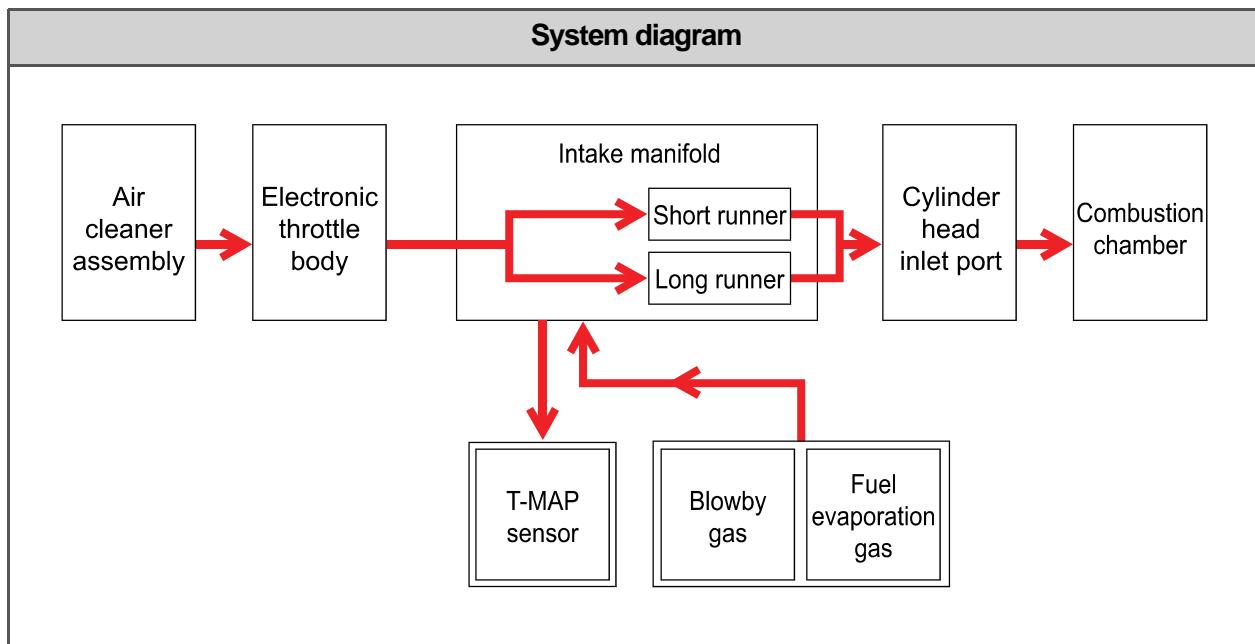
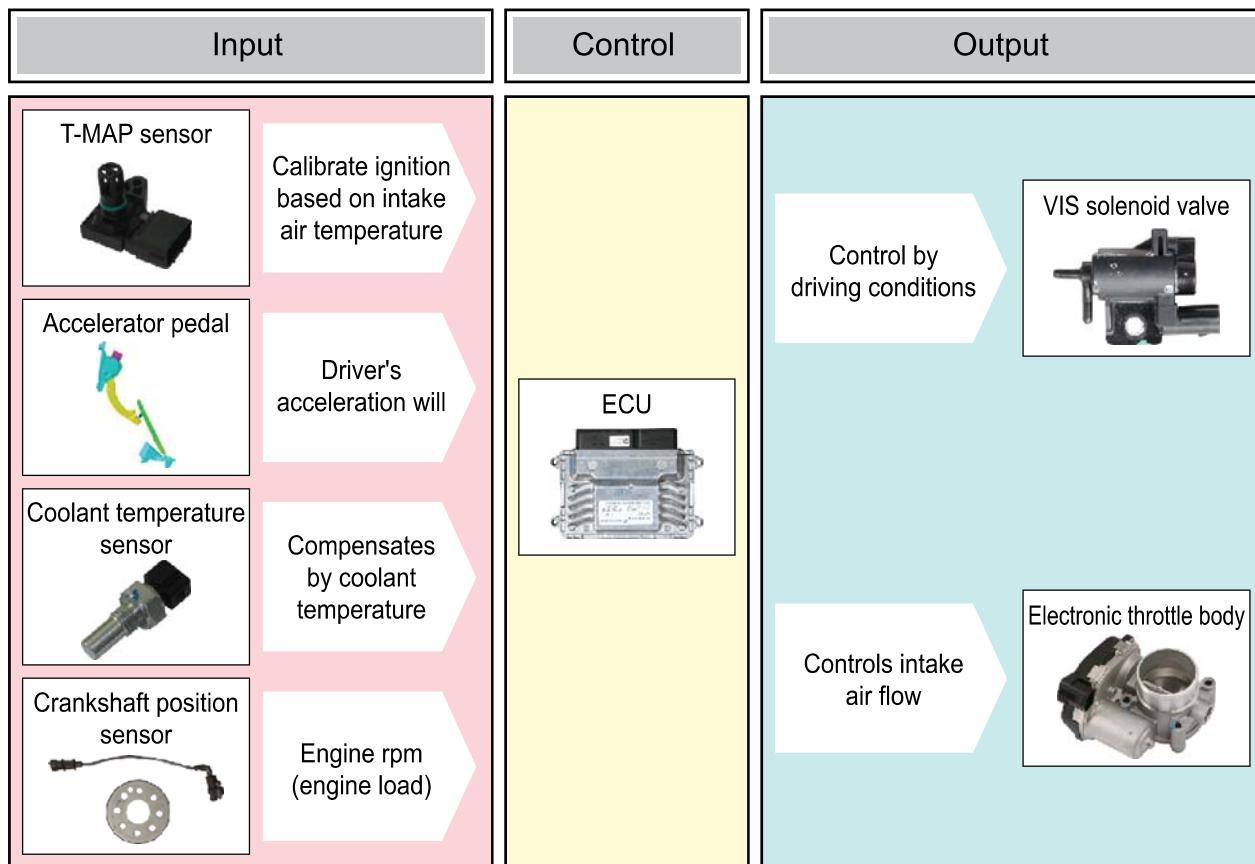


VIS actuator



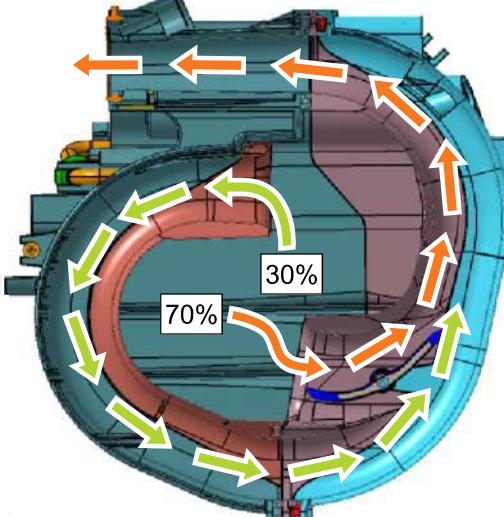
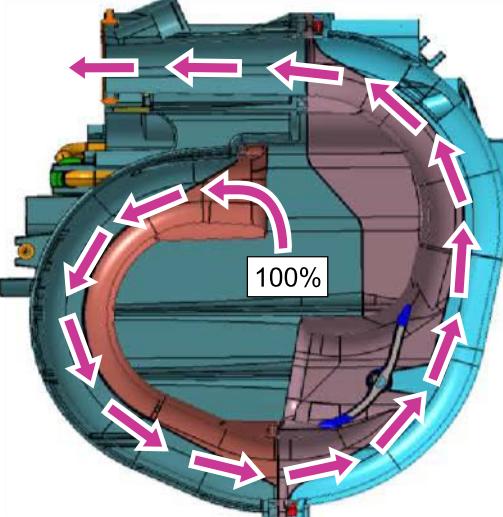
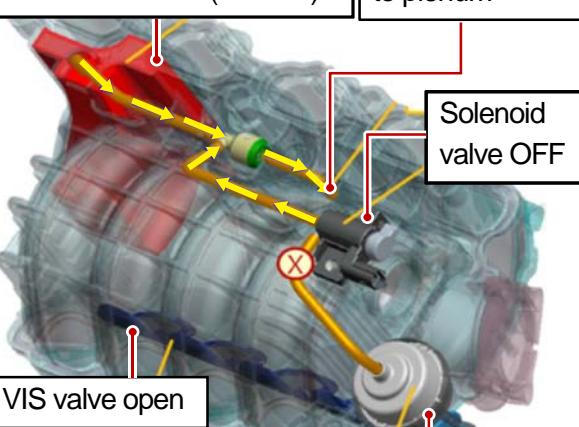
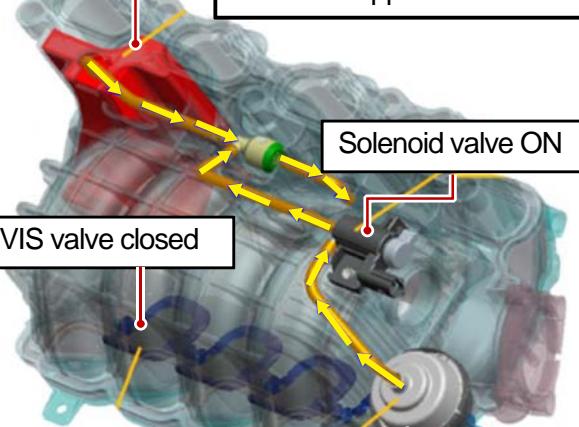
Modification basis	
Application basis	
Affected VIN	

### 3. INPUT/OUTPUT DIAGRAM



Modification basis	
Application basis	
Affected VIN	

## ► Operating process

Low/High speed range (short runner)	Moderate speed range (long runner)
Flap open/VIS solenoid valve OFF	Flap closed/VIS solenoid valve ON
 Runner length: 330 mm	 Runner length: 610 mm
Negative pressure in vacuum chamber (-80 kPa) VIS valve open Actuator not activated with no negative pressure supplied	Air flow forced to plenum Solenoid valve OFF VIS valve closed Actuator driven by negative pressure
	
<b>VIS actuator (open/closed)</b> Rod moves in the direction of arrow when negative pressure is supplied to actuator Lever arm position with valve open Lever arm position with valve closed Locus of travel of lever arm	Lever arm position with valve open Short runner (VIS open) Long runner (VIS closed)

Modification basis	
Application basis	
Affected VIN	

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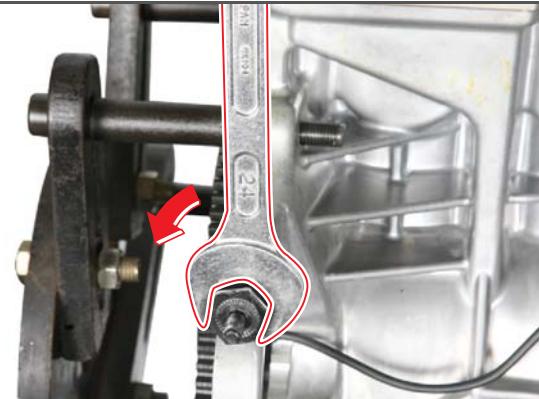
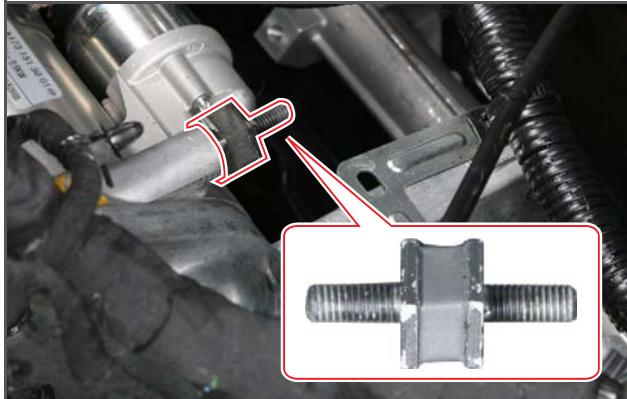
20. Install in the reverse order of removal.

**NOTE**

Replace the intake manifold gasket with a new one when installing.

#### Removing intake manifold damper mounting

Remove the intake manifold damper mounting by rotating it counterclockwise using a 24 mm spanner.



Modification basis	
Application basis	
Affected VIN	