

# Product Instruction

## For Throttle body

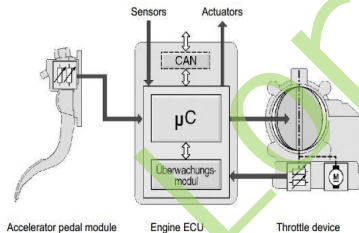
2019 VISION

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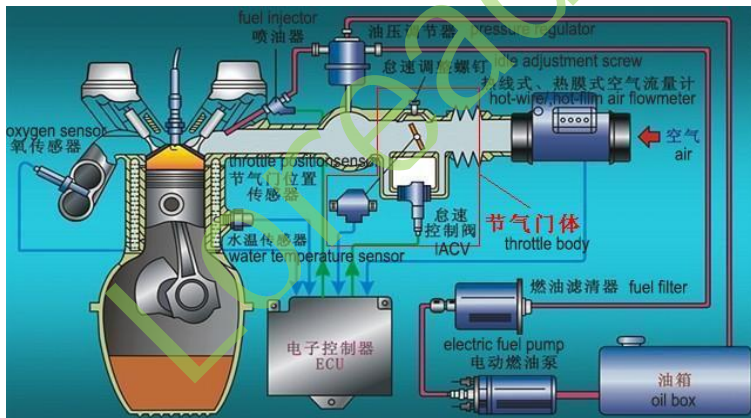
## System and location of throttle body:

1. The throttle body is a key component in the engine system.
2. It is connected to the connecting pipe of the air flow meter or air filter, and is connected to the engine intake manifold, which is called the throat of the car engine.

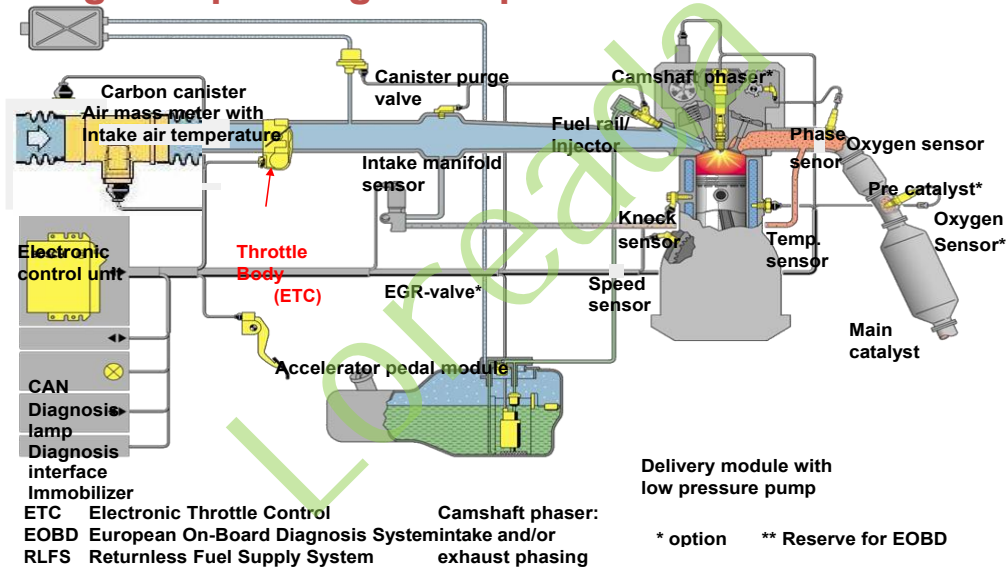


## Engine Operating Principles:

The throttle body is a device for controlling the intake air amount of the engine on the EFI engine. After the air enters the intake manifold, it mixes with the gasoline sprayed from the injector to become a combustible mixture, and then burns in the cylinder to generate engine power.



# Engine Operating Principles:



## Main parts of throttle body( electronic)

Electronic throttle body: mainly through the throttle body position sensor, according to the energy required by the engine, the DC motor on the throttle body is used to control the opening angle of the throttle body, thereby adjusting the amount of intake air.



Main parts



DC motor



Sensor



Transmission gear



throttle plate pin



Valve plate

# Main parts of throttle body(semi-electronic)

**Mechanical and semi-electronic throttle body:** The traditional engine throttle body is operated by a cable (soft wire) or a pull rod that connects the accelerator pedal to one end and the other end to the throttle body puller.



Main parts



DC motor



sensor



Transmission gear



throttle plate pin



Valve plate



Cable runner

## Main parts of throttle body(mechanical)

Mechanical and semi-electronic throttle body: The traditional engine throttle body is operated by a cable (soft wire) or a pull rod that connects the accelerator pedal to one end and the other end to the throttle body puller.



Main parts



Stepper motor



rottle position sensor



Cable runner



Throttle plate pin



Valve plate



# Correct installation and use of throttle body

## I . Installation

1. Clean the intake manifold mounting end face, install the throttle body assembly to the intake manifold port, and tighten the screw according to the specified torque;
2. Installation of circulating water pipes and other hoses;
3. Install the throttle cable lock pin, adjust the throttle cable to a reasonable position, and fit tightly (mechanical and semi-electronic throttle body)
4. Plug in the position sensor and stepper motor (mechanical throttle body); plug in the throttle body (semi-electronic and electronic throttle body)
5. Connect the intake hose and tighten the locking ring

**Special reminder: Please install by trained professionals**



## Correct installation and use of throttle body

II. Matching: After installing the throttle body, the unmatched engine fault light is on.



After completing the installation, a dedicated computer must be connected to the car ECU to clear the fault code and restore the initial state.

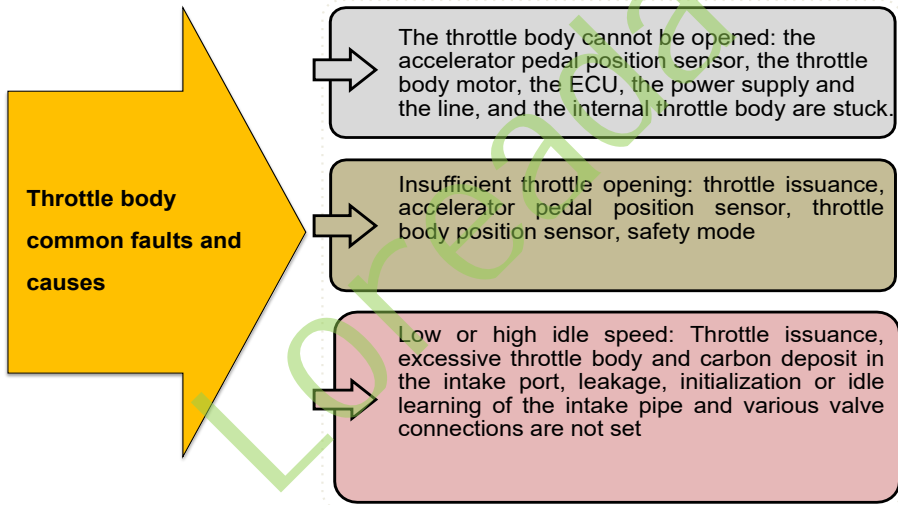
Precautions:

1. Confirm that the throttle body wiring plug is inserted
2. Fault code clear
3. The throttle cable is suitable for elastic tightening (mechanical and semi-electronic throttle body)



Special reminder: Please install by trained professionals

## How to determine throttle body faults and causes



## Quality problems and phenomena appearing in the throttle body itself

### Incorrect throttle body intake air volume:

1. (Electronic and semi-electronic) throttle body valve issuing  
Judgment method: Pull the throttle valve piece in the direction of full opening and full closing by hand and slowly put it back, and check whether the throttle valve piece returns to the initial correct position smoothly.
2. Excessive carbon deposit in the intake



Full opened



Full closed



Excess carbon accumulation

## Quality problems and phenomena appearing in the throttle body itself

### Throttle body position sensor output signal error:

#### Voltage division ratio

##### New

At UMA(lower mechanical stop)

At OMA(upper mechanical stop)

##### After lifetime

At UMA(lower mechanical stop)

At OMA(upper mechanical stop)

	TPS1	TPS2
At UMA(lower mechanical stop)	10%±4%	90%±4%
At OMA(upper mechanical stop)	93%±4%	7%±4%
At UMA(lower mechanical stop)	10%±5%	90%±5%
At OMA(upper mechanical stop)	93%±5%	7%±5%

The signal from the sender is read out in percent on the associated measured valve block.

Hence, 100%=5volts.



## Quality problems and phenomena appearing in the throttle body itself

### Power line is not powered properly:

1. The throttle body plug is in poor contact
2. the built-in line is broken or shorted



**Built-in line break**



**Visually check if the pin is skewed**

## Quality problems and phenomena appearing in the throttle body itself

(Electronic and semi-electronic) damage to key parts of the throttle body:

1. transmission gear wear
2. brush and substrate damage



Transmission gear wear



Brush and substrate damage

## Quality problems and phenomena appearing in the throttle body itself

### Problems with mechanical throttle bodies:

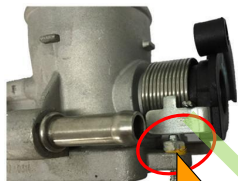
1. Stepper motor and position sensor failure
2. idle adjustment screw loose
3. water temperature valve failure
4. the seal leaks



Step motor failure



Position sensor failure



Loose screws affect idle intake air flow and voltage



Water temperature valve failure affects air flow

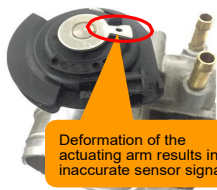


Seal leakage affects intake air flow



## Quality problems and phenomena appearing in the throttle body itself

Accidental collision and damage occurred during transportation or before installation:



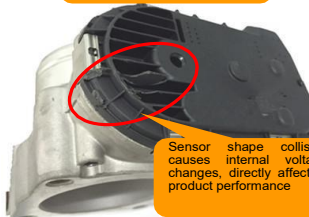
Deformation of the actuating arm results in inaccurate sensor signals



The rupture of the side cover causes the internal mechanism to be seriously affected, directly affecting product performance.



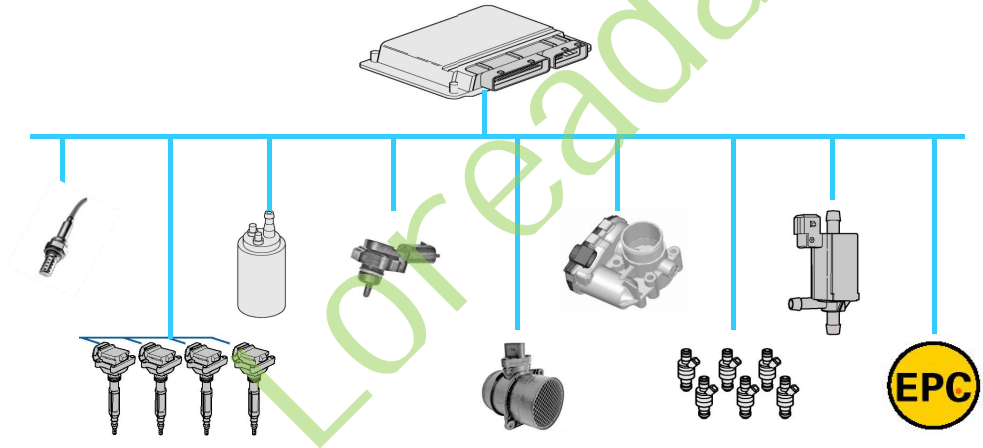
Damage to the socket directly affects the wiring harness, which may lead to poor contact and intermittent signal



Sensor shape collision causes internal voltage changes, directly affecting product performance

# Influence of other relevant accessories

In addition to the product quality problems of the throttle body itself, if other related accessories fail, it will affect the normal use or failure of the throttle body.



# THANK YOU

**Disclaimer: Please note that the above content is not perfect, we have been working hard!**

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