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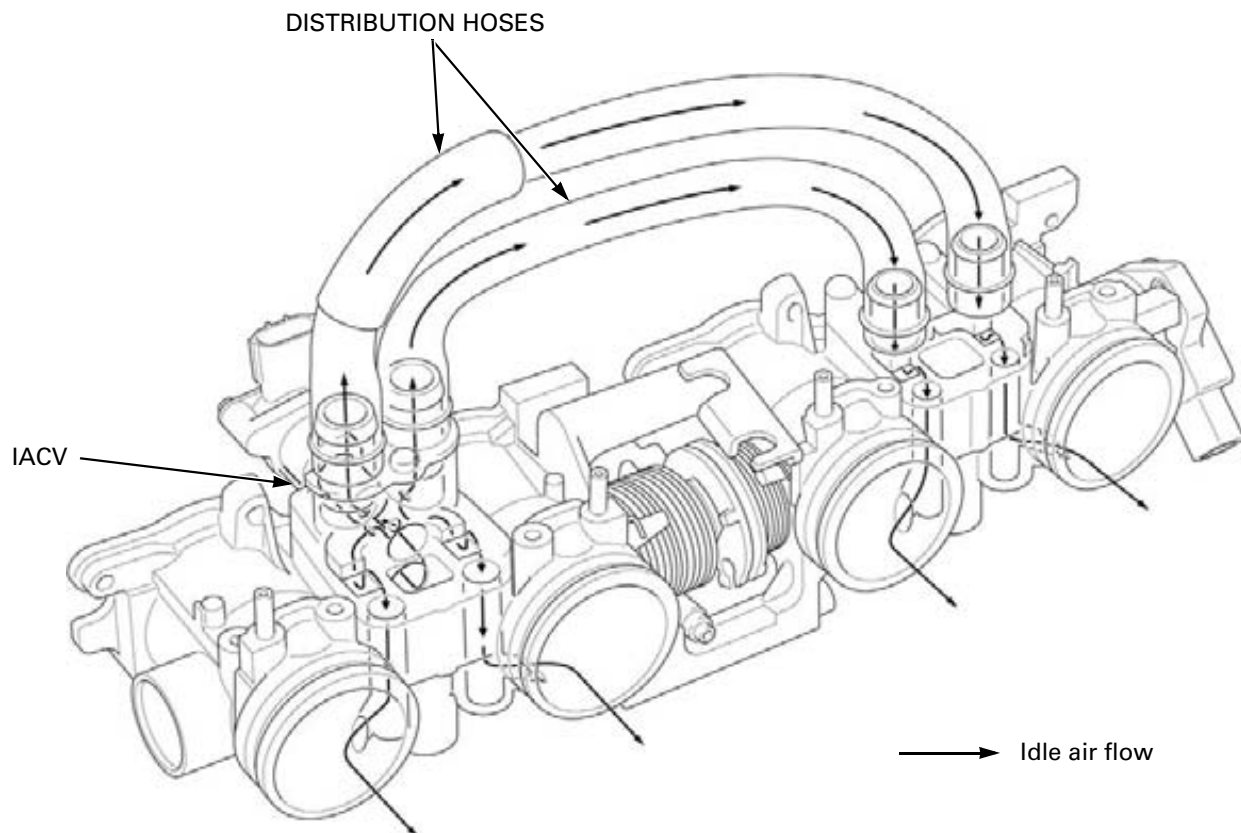
TECHNICAL FEATURES

IACV (Idle Air Control Valve)

SUMMARY

This motorcycle adopts an Idle Air Control system for the inline-four engine, this system is composed the IACV and distribution hoses onto the throttle body. The IACV consists of a step motor and a slide valve, and controls the amount of air bypassed around the closed throttle body. With the ignition switch on, the amount of inlet air is determined from information detected by the ECT sensor. During engine start-up or while maintaining idle (throttle valve closed), the amount of inlet air is corrected by various sensors' information.

This system eliminates the need for manual idle speed adjustment and the air screw adjustment for the throttle body synchronization.



OPERATION

The ECM controls the IACV when engine idling, so the ECM stops to control the IACV operation at closed position in case that the ECM detects the following condition:

- Throttle valve open
- Neutral switch OFF (in gear) and clutch switch OFF (release clutch lever)

When engine idling, from ignition switch ON to warming up, the ECM control the IACV step motor as following operations:

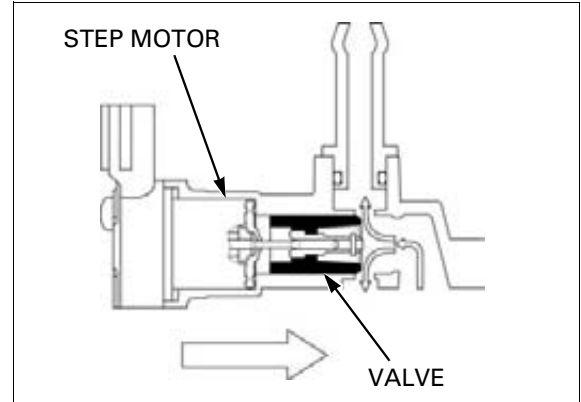
With the ignition switch ON

When the ignition switch ON, the IACV activates initial function, idle – open – idle position. There will be a step motor operating sound.

Start the engine – warming up

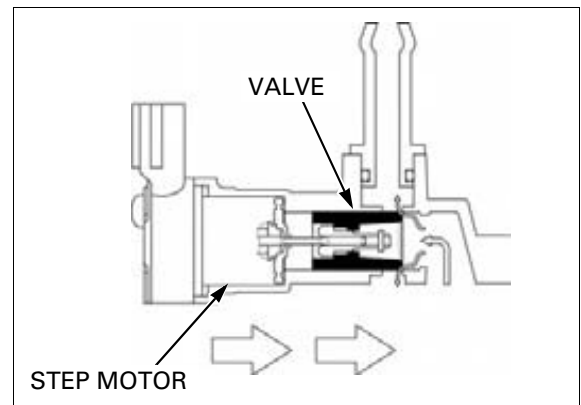
This optimizes the bypass opening with the throttle valve closed, and the corrected amount of inlet air passes through allowing proper engine start up.

After the engine has started, the ECM controls the IACV slide valve position and adjust the amount of inlet air in response to the engine coolant temperature.



After warming up – idling

When the ECM denotes the engine warming-up by the engine coolant temperature, it operates the step motor to move the slide valve to the closed position. This results in a reduced amount of bypassed air compared to the amount during engine warm-up, which allows proper engine idle to be maintained.



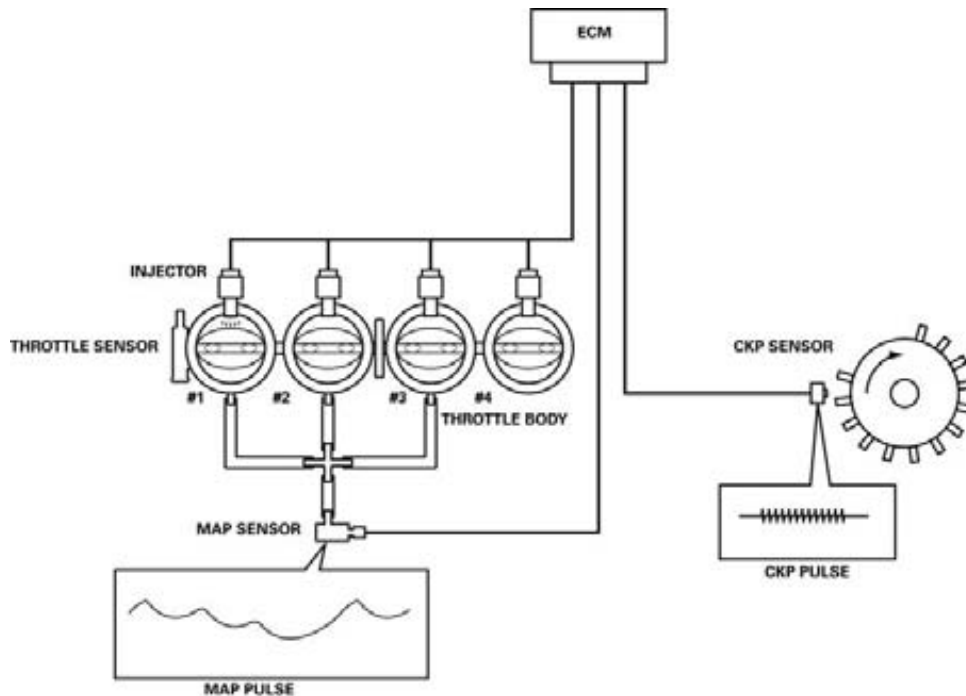
TECHNICAL FEATURES

CAMSHAFT POSITION DETECTION WITH MAP SENSOR

SUMMARY

For PGM-FI, it is necessary to detect the stroke position not only of the crankshaft (TDC position) but also of the camshaft (TDC position in compression stroke). Existing PGM-FI for inline-4 engine, the system uses the CKP sensor and CMP sensor for the injection timing control. This motorcycle adopts the PGM-FI system that has the new detection system of the camshaft position. This PGM-FI system allows for the camshaft position detection with the MAP sensor and CKP sensor, and eliminates CMP sensor.

The detection system consists of the crankshaft rotor and CKP sensor for the crankshaft position (TDC position) detection, and MAP sensor connected to No.1, 2, 3 throttle manifold via vacuum hoses for the camshaft position (TDC position in compression stroke) detection.



DETECTION SYSTEM

The ECM always monitors the manifold pressure by the MAP sensor signal and figures it. In response to the camshaft position (TDC position in compression stroke), the MAP figure changes its wave profile. The ECM recognizes these wave profile repetition and combined with the CKP sensor, then detects the camshaft position.

