PEUGEOT ENGINE MODIFICATION

Peugeot 304 Single Carb. (1971-72)
Peugeot 504 Dual Carb. (1971-72)

DESCRIPTION

Peugeot 304 and 504 exhaust emission control system components consists of:

1) Model 504 uses two carburetors, a 32 BICSA 2 and a 34 PBIC 8. This 304 uses a 34 PBISA 4 carburetor. These carburetors are equipped with a device on throttle control which will position throttle in two positions, slow idle of 800 RPM, or fast idle of 1300 RPM (304), 1400 RPM (504). *NOTE — On dual carburetor system, only the 32 BICSA 2 has this device.*

2) A vacuum diaphragm unit connected to accelerator by an adjustable rod.

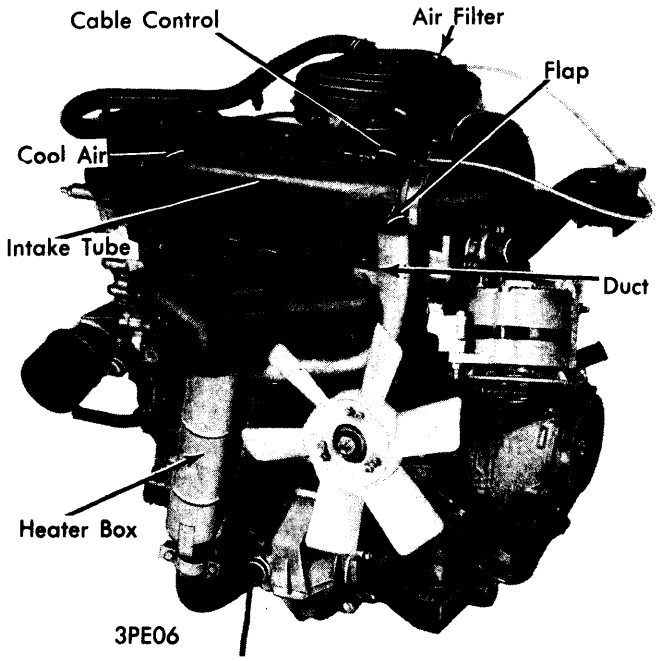
3) On 304 a vacuum connection which controls the vacuum ignition advance limiter.

4) A three-way electro vacuum control valve, which controls diaphragm unit with either intake manifold vacuum or normal atmospheric pressure.

5) A sensing head mounted on rear of transmission of 504 and in differential housing of 304, which controls operation of electro vacuum valve, up to 22 MPH (304), 25 MPH (504) with speed increasing and from 19 MPH (304), 22 MPH (504) with speed decreasing.

6) On 504 a vacuum damper in tube between vacuum unit and electro vacuum control, which slows down vacuum, enabling progressive operation of fast idle and return to normal idling.

7) 504 has two idling electro valves which shut off idling jets when ignition is turned off.

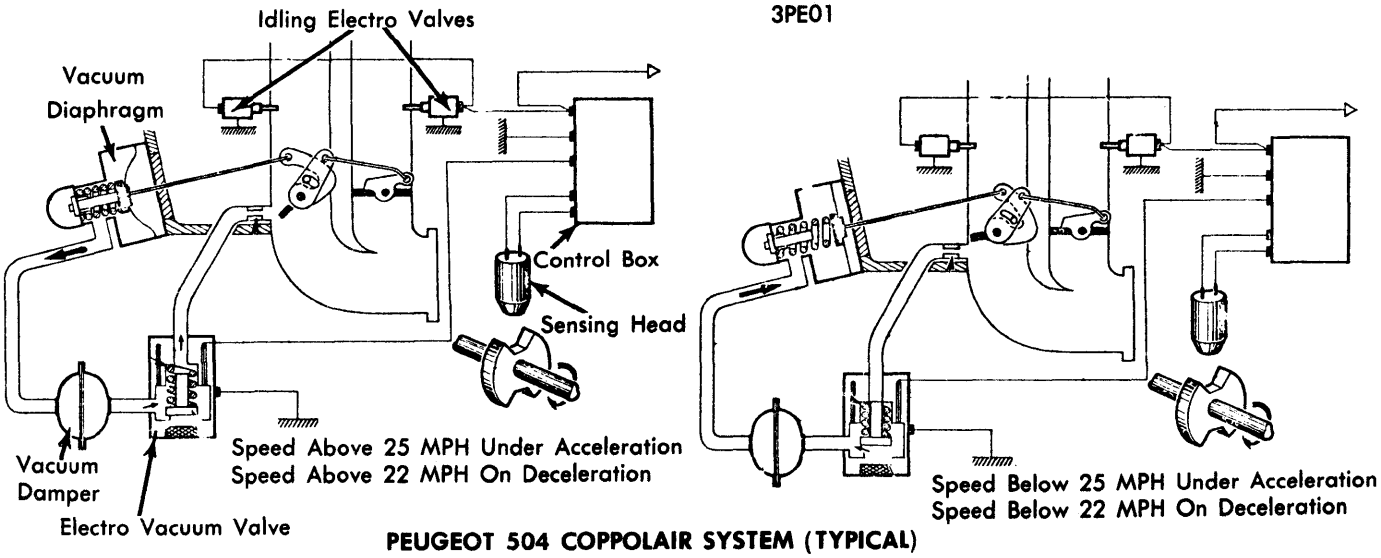


PEUGEOT 304 HEATED AIR SYSTEM

8) On 304 a heater box is attached to exhaust pipe and is linked to an air intake tube by a duct. An expanding wax thermostatic element is attached to air filter cover. This element opens or closes a flap (through a cable) which is located in air intake tube.

9) On 504 a heater box is attached to exhaust pipe and is linked to a mixing box which is attached to air intake of engine. Metering of hot and cold air is accomplished by a flap in mixing box. This flap is controlled by a wax thermostatic element.

3PE01



PEUGEOT 504 COPPOLAIR SYSTEM (TYPICAL)

PEUGEOT ENGINE MODIFICATION (Cont.)

OPERATION

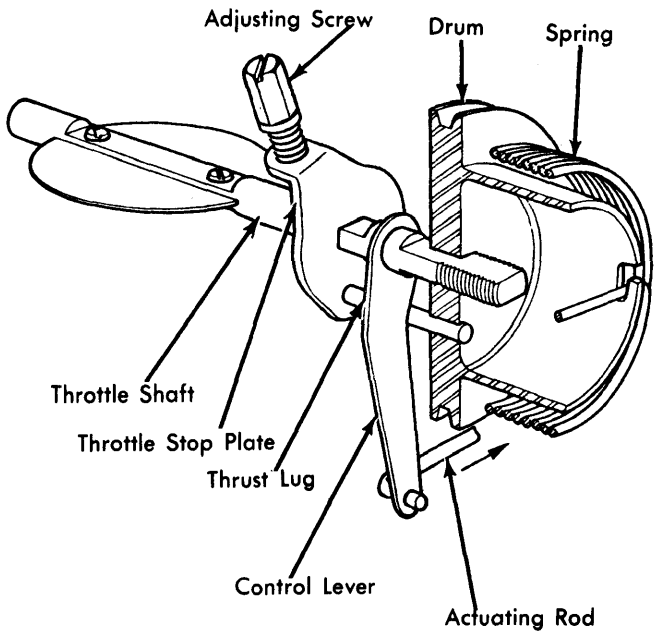
1) When starting, transistor in control box turns on electro valve, closing valve to carburetor which subjects vacuum unit to atmospheric pressure. In this condition device has no influence on engine.

2) When vehicle reaches a speed of 22 MPH (304), 25 MPH (504) sensing head turns off transistor in control box. This closes electro valve opening to atmospheric air. Unit is now subjected to engine vacuum. Vacuum diaphragm pulls on rod, activating lever on carburetor until it abuts on adjuster screw.

3) When accelerator pedal is released, throttle closes, reverting system to fast idle position. Under these conditions, when throttle is slightly open, manifold vacuum is reduced eliminating too rich a mixture.

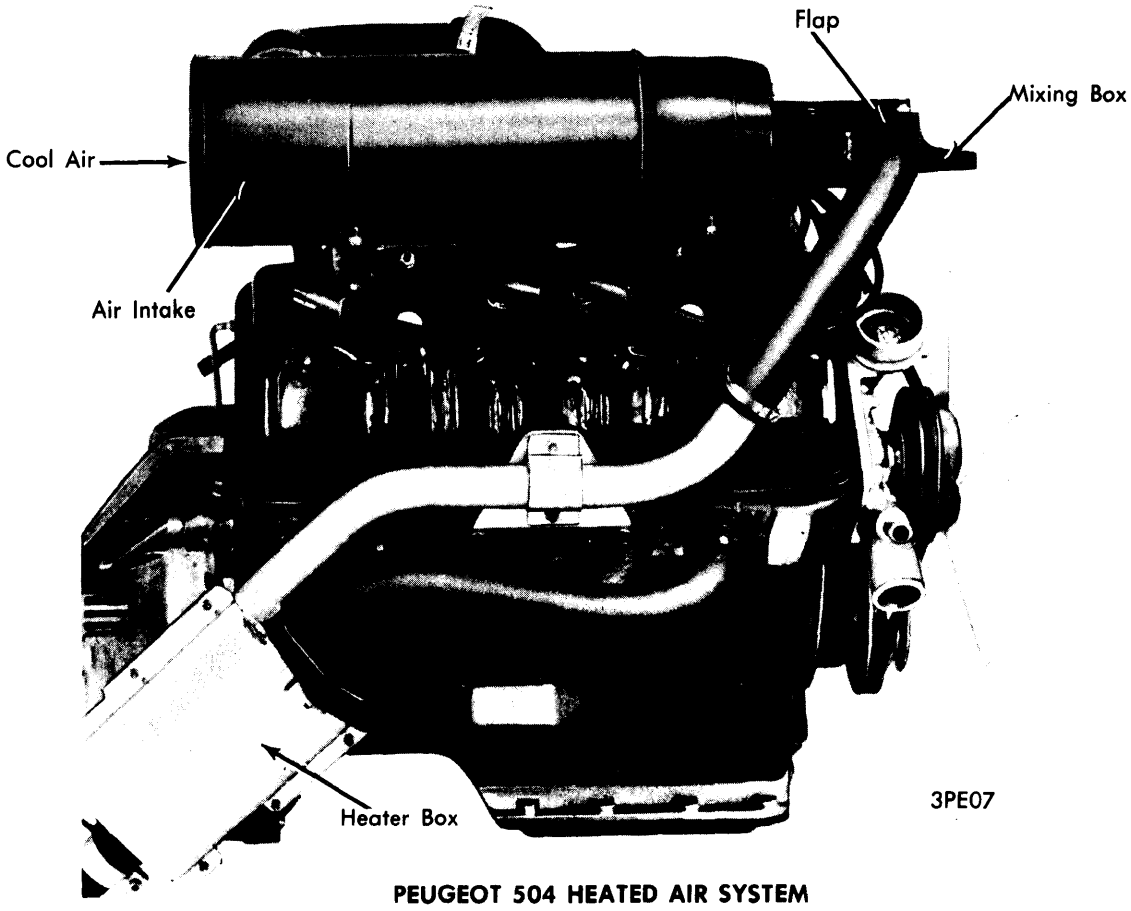
4) When vehicle slows to 19 MPH (304), 22 MPH (504) sensing head turns on transistor in control box, this reopens electro valve, which opens valve to atmospheric pressure. This returns vacuum diaphragm to a resting position. Throttle butterfly closes to normal idling position (800 RPM).

5) On both 304 and 504, air flap is controlled by a wax thermostat. When intake air is cold, the element contracts and holds flap closed, cutting off cold air and opening hot air intake. When element becomes heated, it expands and closes hot air intake, opening cold air duct. In use, flap provides a way for mixing heated air and underhood air to provide an even intake air temperature even at low ambient temperatures.



3PE02

FAST IDLE CONTROL (304)



3PE07

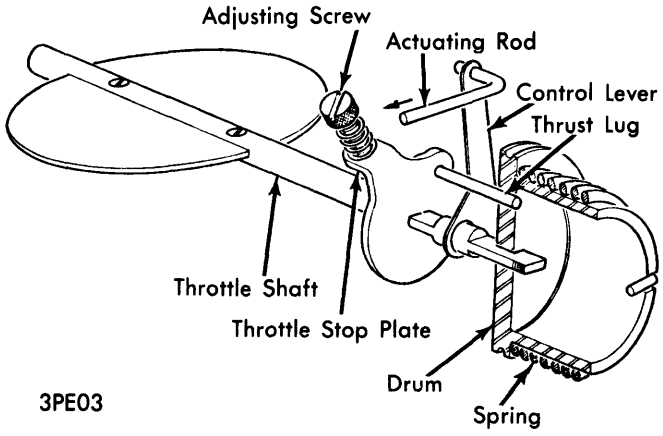
PEUGEOT 504 HEATED AIR SYSTEM

PEUGEOT ENGINE MODIFICATION (Cont.)

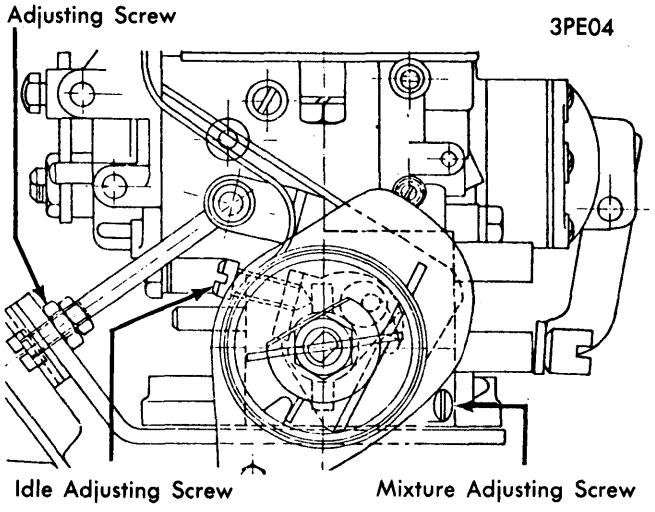
MAINTENANCE

Before adjusting idle or fast idle, ignition timing must be adjusted to 5° BTDC. Engine must be at normal operating temperature, and regulator supply lead disconnected, eliminating engine speed variations due to charging rate of alternator which can interfere with tachometer readings.

Idle Adjustment – Connect tachometer, adjust idle to obtain 820 RPM. Turn mixture adjusting screw until engine speed is stable. Using idle adjusting screw, adjust idle to 870 RPM. Finally, screw in mixture control screw until an idle of 800 RPM is obtained.



FAST IDLE CONTROL (504)



IDLING ADJUSTMENTS

Fast Idle Adjustment – Disconnect three pin connector from electronic control box, remove the dome nut. Loosen the lock nut, adjust stop-screw to obtain an engine speed of 1300 RPM (304), 1400 RPM (504) using a 3mm Allen wrench. Tighten lock nut, reinstall dome nut and refit three pin connector. The engine will return to idling (800 RPM).

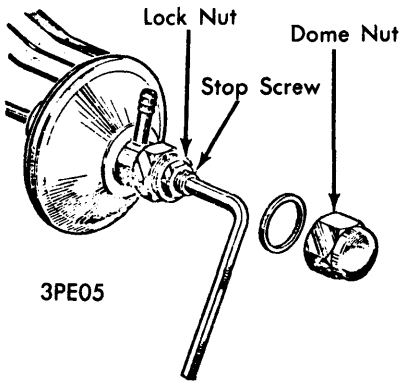
NOTE – The above adjustments should be carried out at 3,000, 9,000, 18,000 miles and every 18,000 miles thereafter.

Replacing Electro-Vacuum Valve – Remove connecting pipes and power lead. Loosen lower nut, remove valve by sliding it towards front to remove it from support lug. Slide new electro-vacuum valve into support lug. Tighten locking nut, reconnect pipes and power lead.

Replacing Sensing Head – Disconnect battery, drain differential (304) or transmission (504), disconnect two pin connector, remove circlip. Withdraw "Cribo" washer and slide it along the sensing head cable. Withdraw sensing head. Remove the "O" ring and replace with a new "O" ring. Reverse procedure to install.

Replacing Vacuum Diaphragm Unit – Disconnect vacuum pipe, remove vacuum diaphragm unit securing screws. Unscrew vacuum diaphragm unit from control rod. Tighten new vacuum diaphragm unit on control rod, secure it to its support. Connect vacuum pipe: Adjust both idle and fast idle.

Electronic Control Box – Disconnect battery, three pin connector and two pin connector. Remove two self tapping screws securing control box. *WARNING – When checking electronic control box use a voltmeter. Never use a test lamp or ground the electrovalve feed wire, immediate destruction will result to control box.*



VACUUM DIAPHRAGM ADJUSTMENT