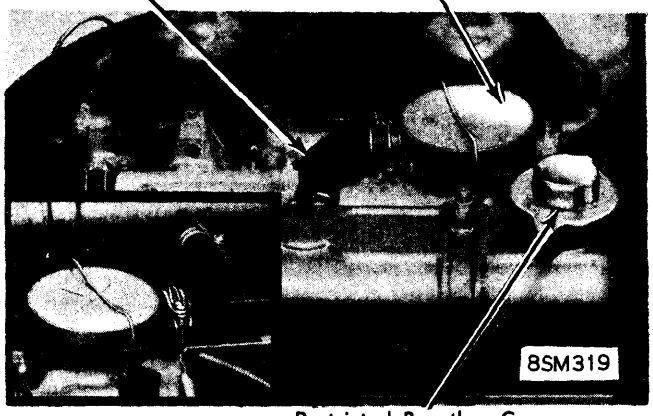
Crankcase Ventilation

TRIUMPH CLOSED

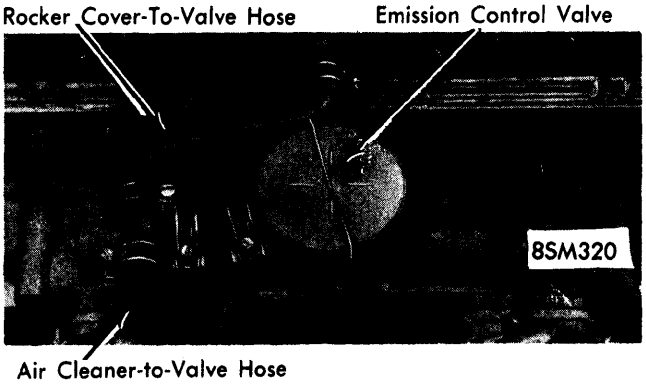
DESCRIPTION

1965-69 Models – Two crankcase emission control devices are used by Triumph. One device used is the "restricted TYPE II" device. This system consists of a diaphragm type valve placed between crankcase and intake manifold and a restricted breather cap. A "Special TYPE II" device is also used. This system is similar to the above restricted system except it has a sealed breather cap and a line from the clean side of the air cleaner to the emission valve with a restricted orifice. *NOTE – The dipstick oil hole must be sealed on both systems.*

1970-73 Models – All models incorporate a wire gauze filter in valve cover to prevent oil sludge from forming in connecting hose or crankcase emission control valve. On all models, except 1970-71 GT-6+, a crankcase emission control valve is no longer used. Crankcase ventilation is now achieved through a hose connecting rocker arm cover to constant vacuum areas of each carburetor. Crankcase ventilation system also serves to purge canister in Fuel Evaporative Emission Control System.



CRANKCASE EMISSION CONTROL SYSTEM (1965-69 SPITFIRE, TR-4A & GT-6)



CRANKCASE EMISSION CONTROL SYSTEM (TR-250 & 1969 TR-6)

1970-73 (Spitfire, TR-6 & Stag) & 1973 (GT-6) – Blow-by gas is drawn through a gauze filter in rocker arm cover and into constant vacuum area of each carburetor and mixed with incoming fuel/air mixture. This constant vacuum is also used to purge charcoal canister of fuel vapor, through a purge line which is integrated with crankcase emission system.

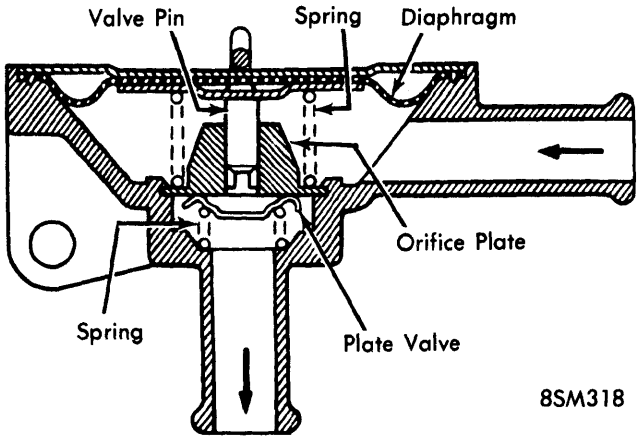
Crankcase Emission Control Valve – The valve is the same on both types of crankcase vents. It controls the flow of crankcase fumes being drawn into the intake manifold. The valve is operated by crankcase vacuum. The assembly consists of two valves; a needle valve and a spring loaded non-return plate valve. The needle valve is operated by diaphragm depression against a pre-determined spring load. It controls a constant state of vacuum in the crankcase. When intake manifold vacuum is high during engine idle, the valve tends to close to prevent excessive amounts of air from entering intake system which would give rough engine idle. The spring loaded non-return plate valve serves two purposes. During cold starting it seals off flow of air from crankcase. In event of backfire it seals off the crankcase from excessive pressures which could cause engine damage.

OPERATION

1965-69 Restricted Type II System (Spitfire, GT-6 & TR-4A) – Air enters system through an orifice in air filter on the oil filler cap. Air circulates through crankcase mixing with blow-by gases. Air and blow-by gas are then drawn through emission valve and into intake manifold.

1965-69 Special Type II System (TR-250 & TR-6) – Air and blow-by gas is drawn through emission valve into the intake manifold with the air fuel mixture. Blow-by exceeding emission valve capacity reverses the cycle escaping into the air cleaner where it is drawn back into the engine with fresh air from the carburetor.

1970-71 (GT-6) – Blow-by gas is drawn through a gauze filter in rocker cover, through emission valve and into intake manifold. Manifold vacuum is also used to purge the charcoal canister of fuel vapor, through a purge line which is integrated with the crankcase emission system.



CRANKCASE EMISSION CONTROL VALVE

TRIUMPH CLOSED (Cont.)

SERVICE PROCEDURES

It is important that the crankcase ventilation system be kept in proper working order to insure proper engine operation. Every 12,000 miles or 12 months the system should be serviced as follows:

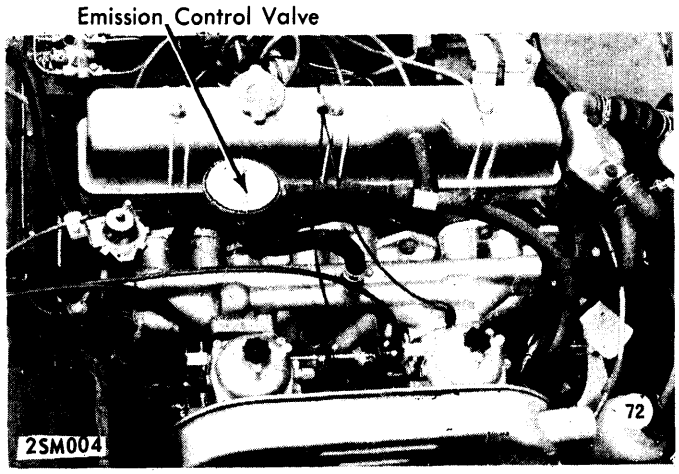
1) Disassemble valve and wash all components in gasoline. Dry all parts with compressed air.

2) The lower plate-valve cannot be disassembled, so it is important to check that valve is properly seating.

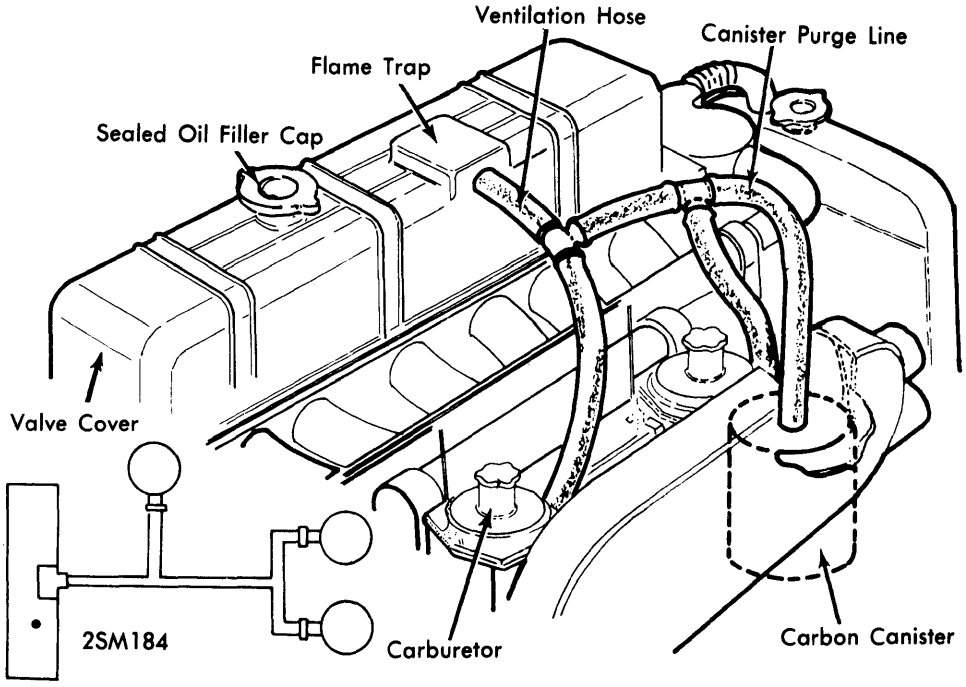
3) The hose connections must also be cleaned and rubber checked for cracks to ensure against particles of rubber getting into the valve assembly.

4) Remove valve cover and clean wire gauze filter on all 1970-73 models.

System Checking – With engine at proper idle speed, remove oil filler cap. If valve is working normally idle speed will noticeably change. If no change in engine speed is noted, valve is faulty. If engine idles unevenly or will not start, the valve pin is not closing fully and excess air is being drawn past lower plate valve and into the intake manifold. Remove clip and check for correct assembly of valve and diaphragm. Check diaphragm for any punctures.



CRANKCASE EMISSION CONTROL SYSTEM (1970-71 GT-6)



1970-73 TRIUMPH CRANKCASE VENTILATION SYSTEM (TYPICAL)