

2. POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM

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2. POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM

DESCRIPTION

The PCV system serves to prevent the blow-by gas that has leaked into the crankcase from the combustion chamber from discharging out into the atmosphere by leading it back into the intake manifold for recombustion. The ventilation valve in the system controls the flow of blow-by gas in accordance with the engine load.

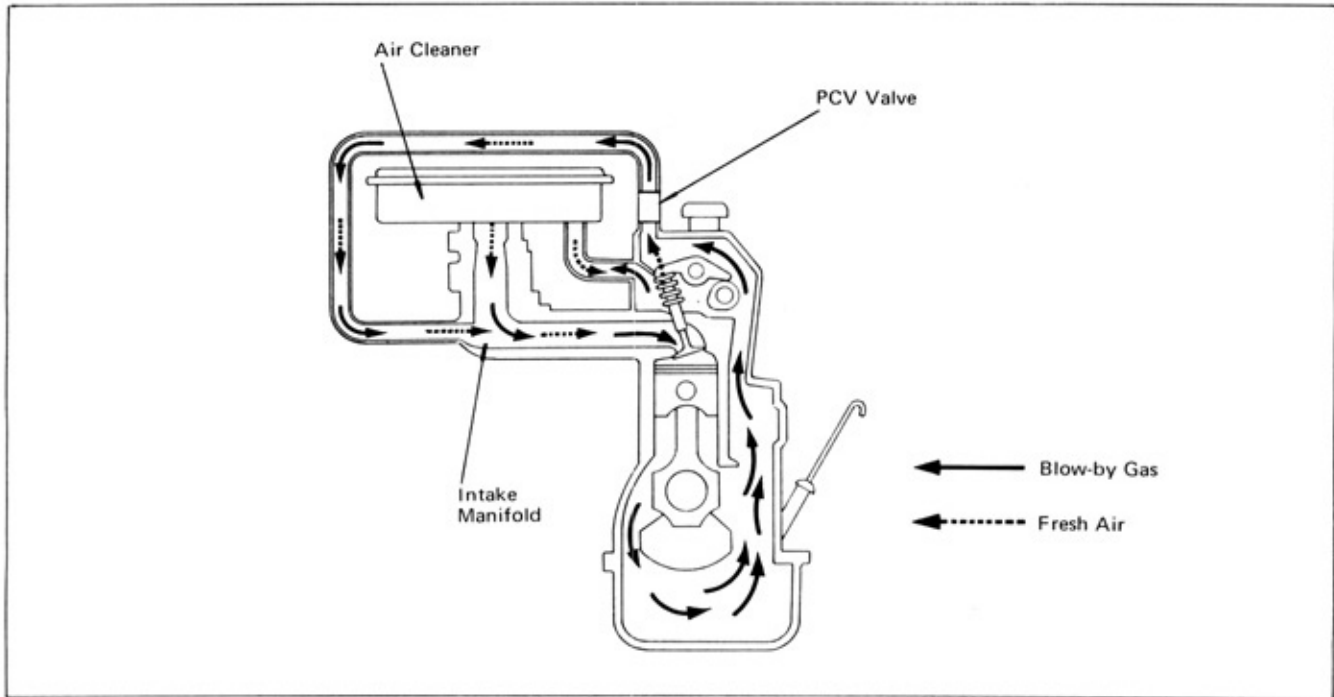


Fig. 2-1 Positive Crankcase Ventilation System

OPERATION

1. Engine not running or in case of backfire.

The valve is held closed by spring tension to close the passage between the intake manifold and crankcase.

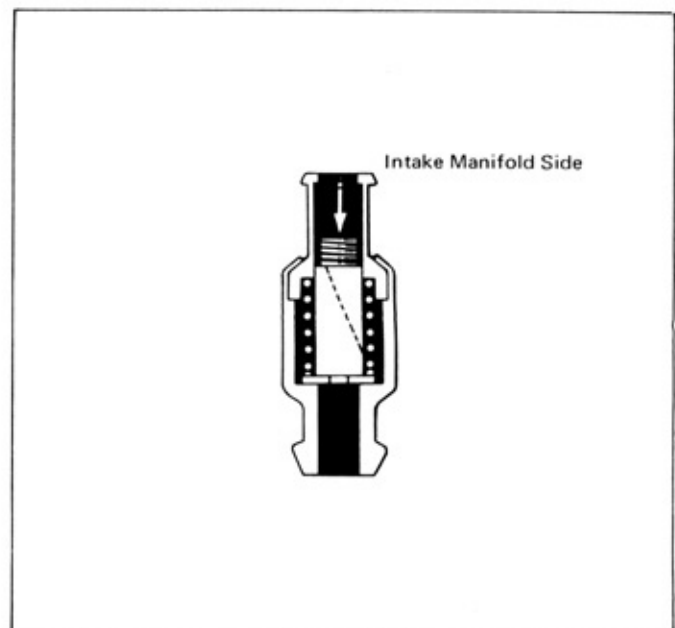


Fig. 2-2 PCV Valve Operation (1)

2. When idling or decelerating

Due to the high vacuum in the manifold at this time, the valve is strongly drawn toward the intake manifold side to reduce the gas passage area and decrease the flow of gas to the intake manifold.

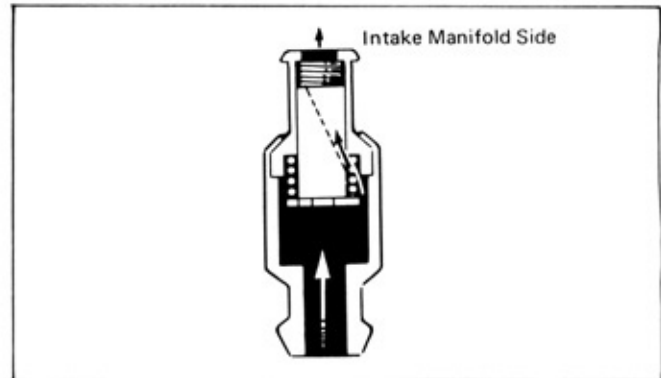


Fig. 2-3 PCV Valve Operation (2)

3. When at normal operation

Since the manifold vacuum is lower than in Case (2) at this time, there is less force drawing the valve so the gas passage becomes larger.

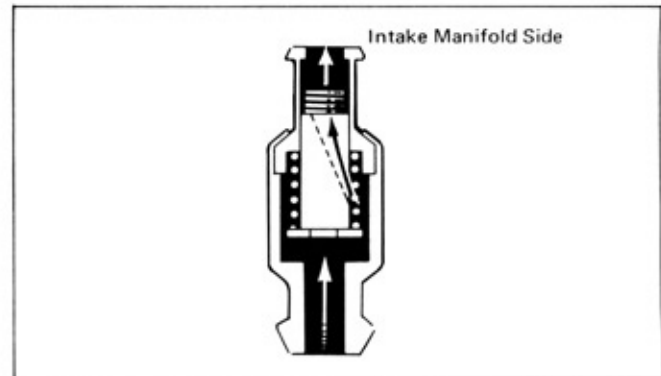


Fig. 2-4 PCV Valve Operation (3)

4. At acceleration or high load

The manifold vacuum is the lowest at this time so there is still less force drawing the valve. Thus, the gas passage area will be maximum to allow large amount of blow-by gas to flow into the intake manifold. If the blow-by gas generated exceeds the valve gas passage capacity, the gas is drawn into the carburetor through the hose passing from the cylinder head cover to the air cleaner.

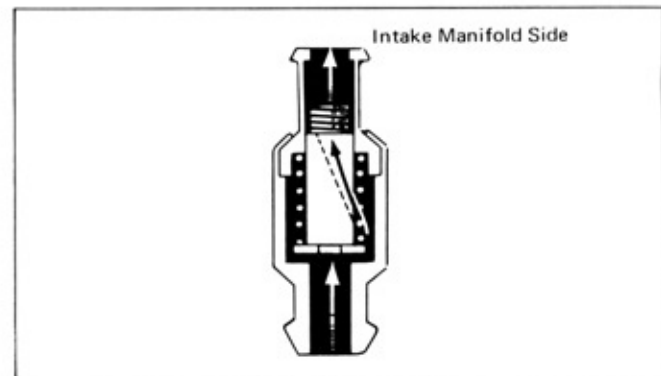


Fig. 2-5 PCV Valve Operation (4)

INSPECTION

1. PCV valve inspection

When air is blown in from the crankcase end of PCV valve, it should flow out smoothly from the intake manifold end. In contrast, when air is blown in from the intake manifold end, there should be no air leakage.

Caution

Directly sucking or placing the PCV valve in the mouth for testing will be injurious to health. Thus, the test should be made by fitting a hose on the PCV valve and blowing in air as illustrated.

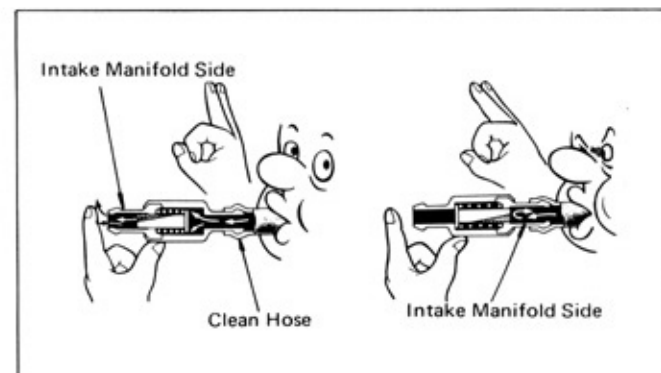


Fig. 2-6 PCV Valve Inspection

2. PCV line inspection

- a. Inspect the hoses for deterioration and loose connections.
- b. Inspect the cylinder head gasket, oil filler cap, oil level gage tube, timing chain cover, and oil pan gasket for oil leakage. If present, repairs should be made as there will be danger of the gas leaking out at the same time.

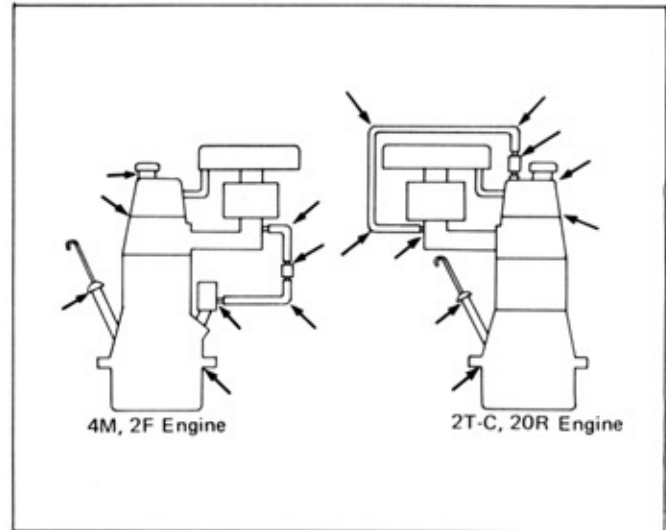


Fig. 2-7 PCV Line Inspection

PCV SYSTEM SCHEMATIC DRAWINGS

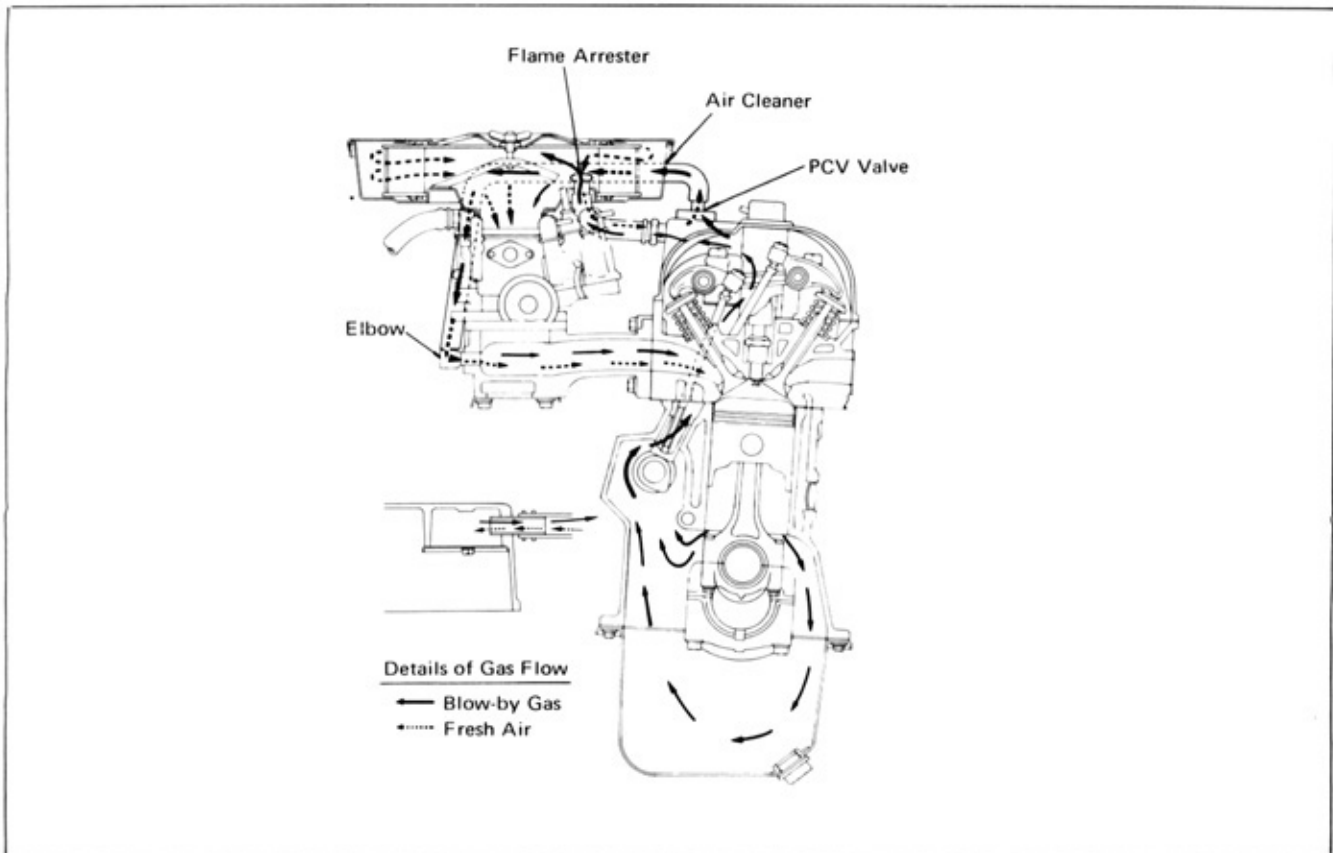


Fig. 2-8 2T-C Engine PCV System

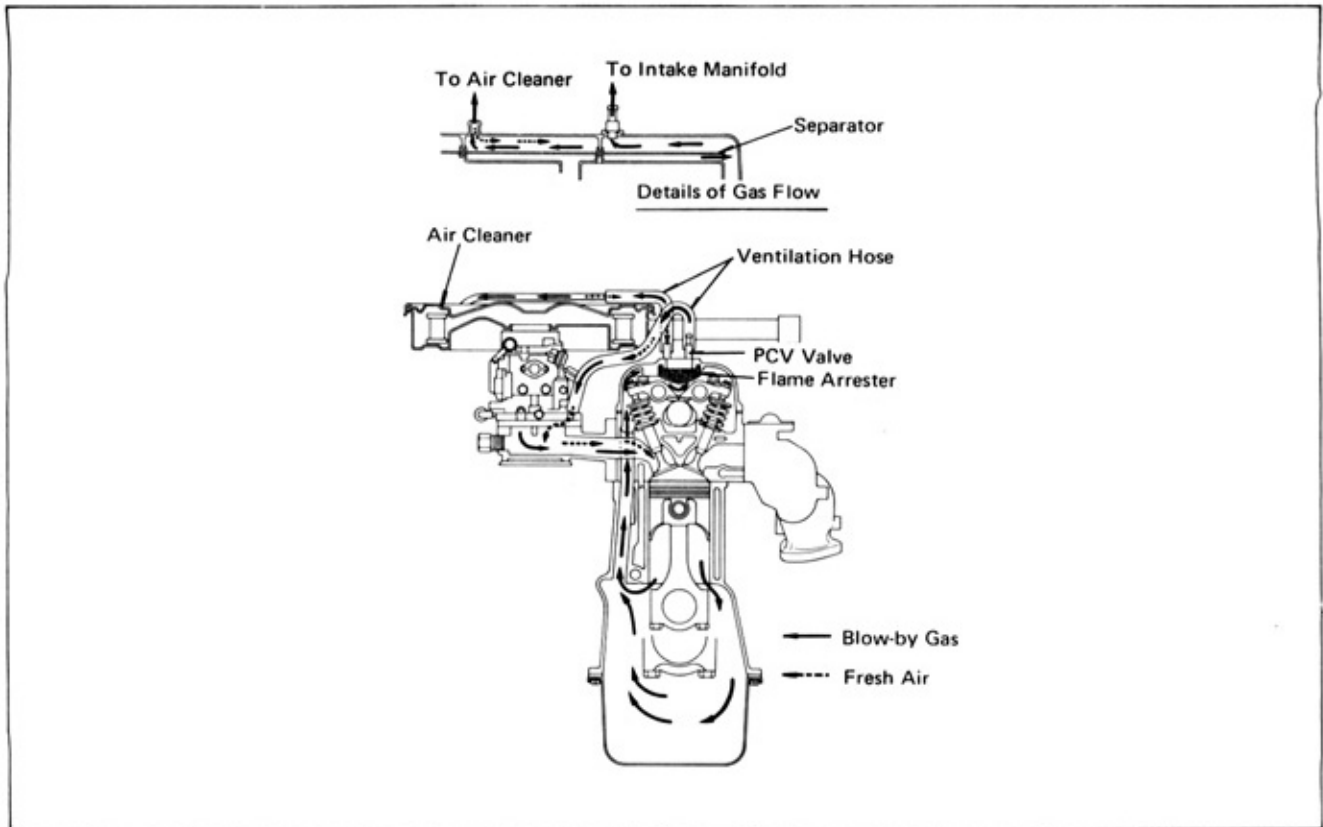


Fig. 2-9 20R Engine PCV System

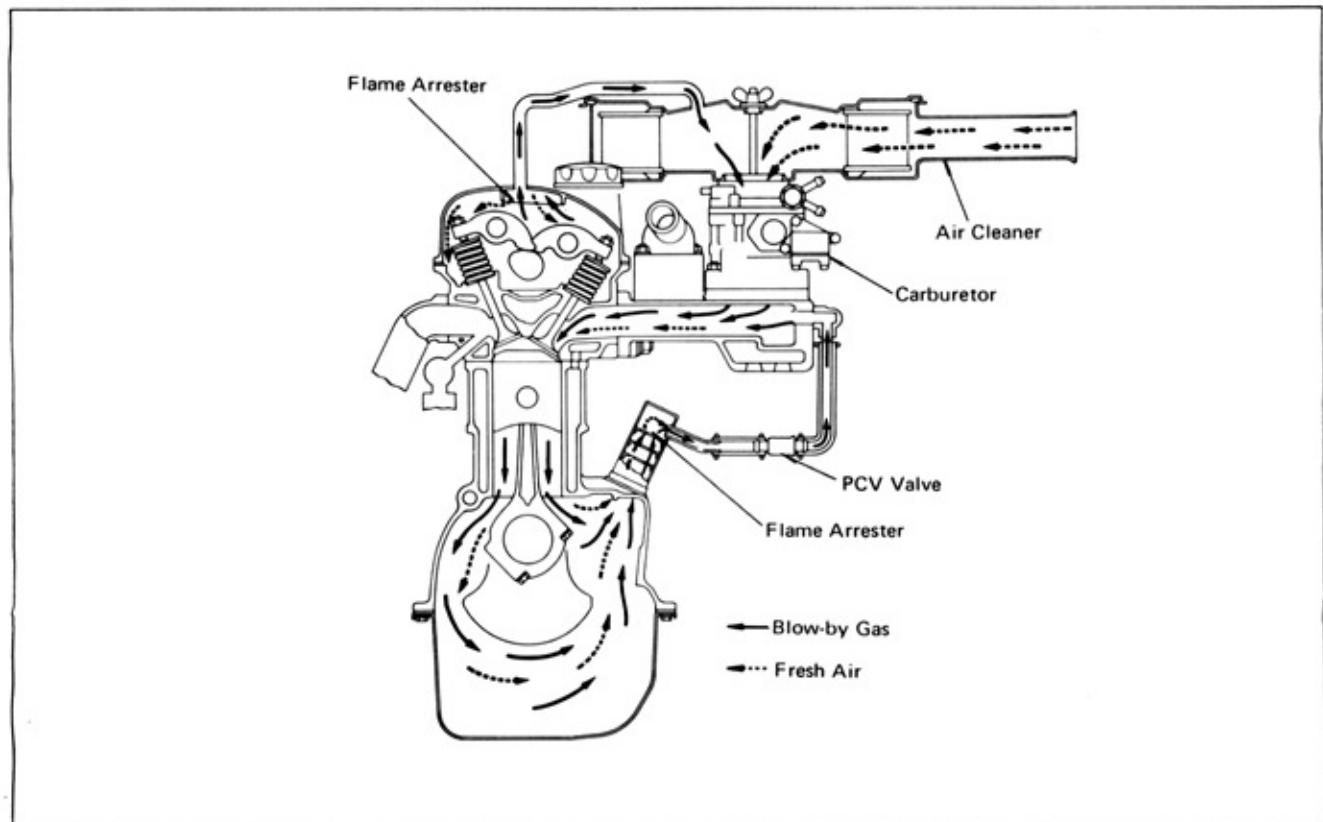


Fig. 2-10 4M Engine PCV System

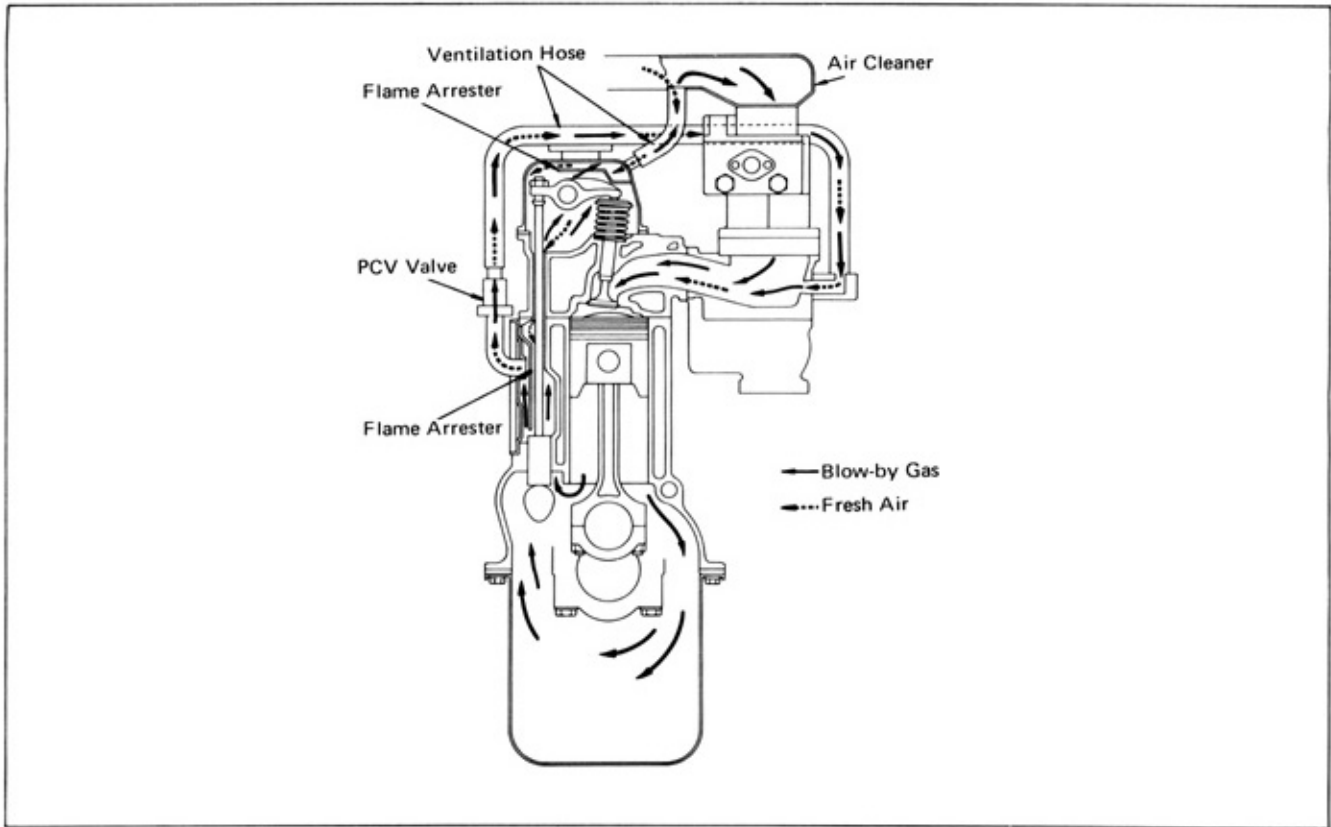


Fig. 2-11 2F Engine PCV System

TROUBLESHOOTING

1. Defective engine idle

- Check the hose connected to the intake manifold to see if damaged or disconnected.
- Check the PCV valve to see if stuck open.
- Check the other systems.

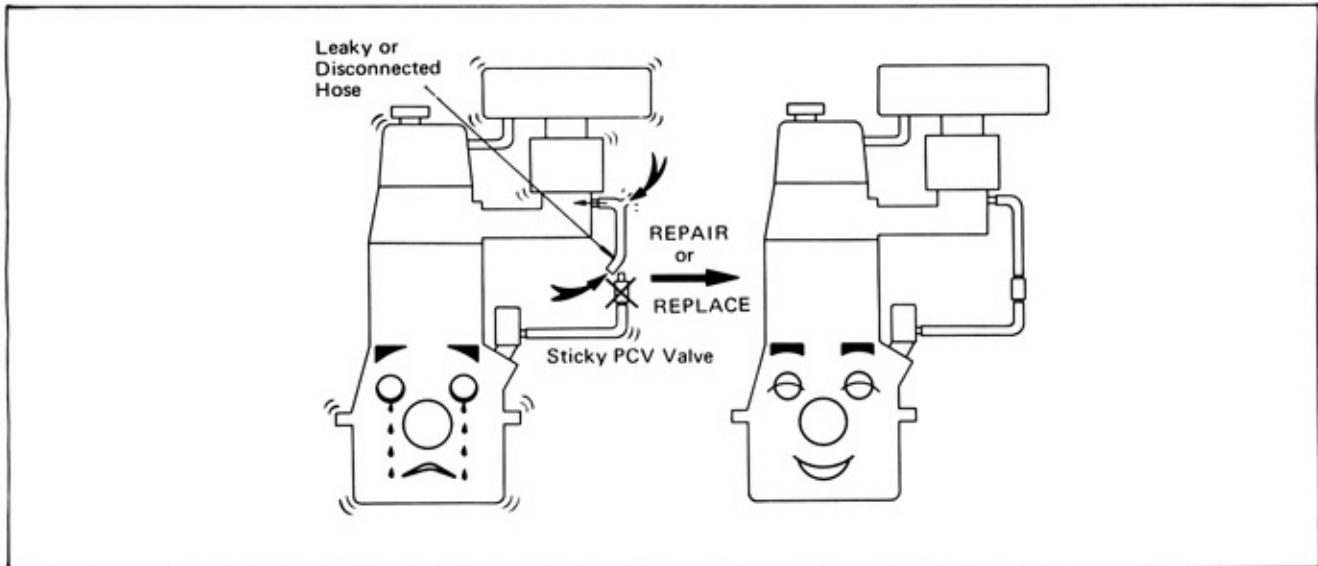


Fig. 2-12 PCV Line Inspection

2. Insufficient power and excessive fuel consumption

- Check the air cleaner to see if there is engine oil adhering in the inside.
- Check the flame arrester to see if in properly installed state.
- If there is oil on the air cleaner, check the PCV valve to see if stuck closed.
- Check the other systems.

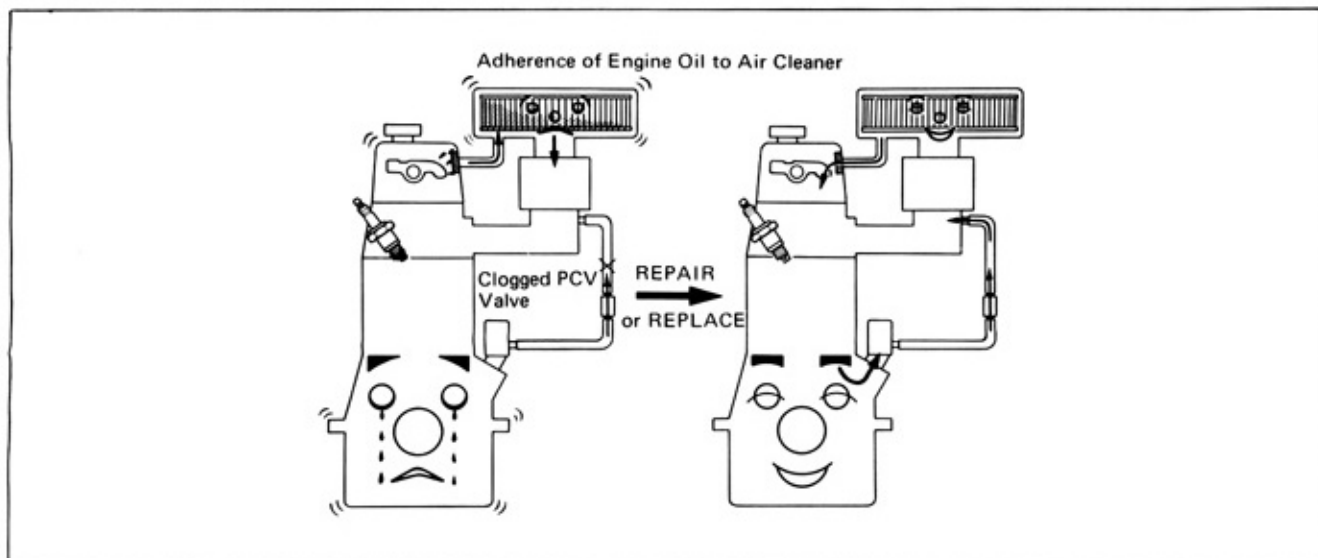


Fig. 2-13 PCV Line Inspection