SUBARU FF-1 1300G ENGINE MODIFICATION

Subaru FF-1 1300G (1972)

NOTE – Some 1972 1300 models use same system as 1973 1400 series.

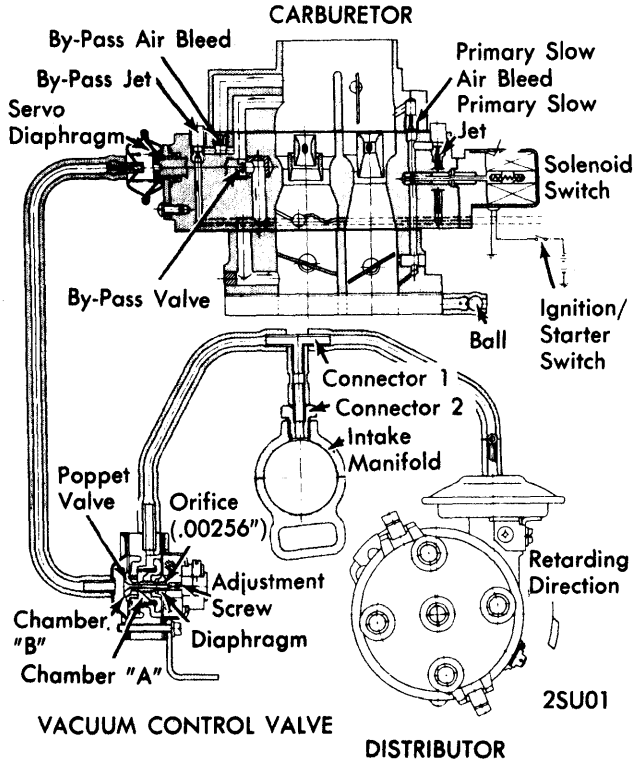
DESCRIPTION

Exhaust emission control is accomplished by an engine modification system. The system consists of: Carburetor modification, vacuum retarding distributor, vacuum control valve and hoses which connect components.

Carburetor – Equipped with a by-pass system which controls air/fuel ratio during periods of deceleration.

Vacuum Control Valve – Vacuum operated valve which operates from intake manifold vacuum. Valve controls operation of by-pass system on carburetor.

Distributor – Distributor has both centrifugal advance and vacuum retard mechanisms, its vacuum retard diaphragm is connected to intake manifold by a hose.



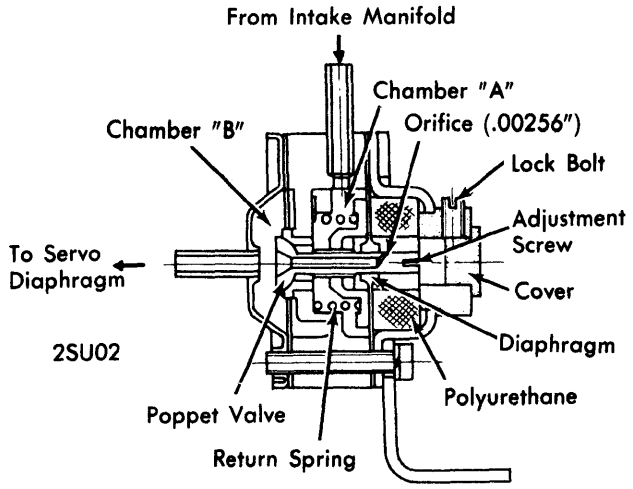
ENGINE MODIFICATION SYSTEM

OPERATION

Engine modification system controls ignition timing advance and retard, controls air/fuel ratio during deceleration, and promotes afterburning of exhaust gases to prevent emissions.

1) When primary throttle valve of carburetor closes during deceleration, vacuum is created in the intake manifold. A hose connecting manifold to vacuum control valve conducts vacuum to valve chamber "A". This causes a diaphragm in valve to open a poppet valve.

2) Vacuum is then conducted to servo diaphragm on carburetor by-pass system. This causes by-pass valve to open, connecting air horn of carburetor to lower portion of secondary throttle valve.



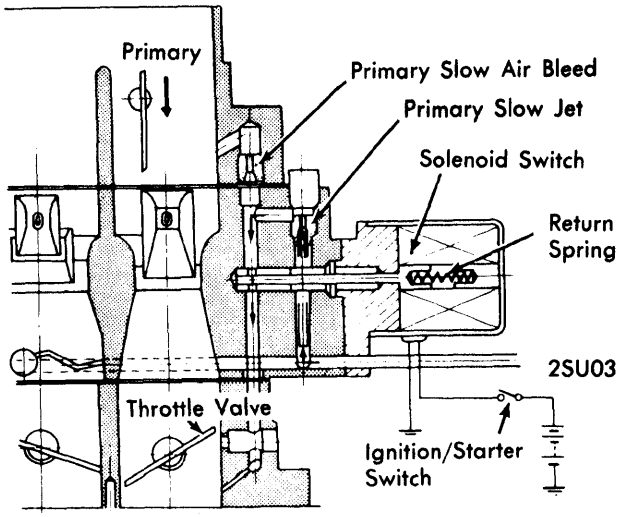
VACUUM CONTROL VALVE

3) After by-pass valve is opened, air is conducted to by-pass valve from air horn. Air and Fuel are metered at each by-pass jet and by-pass air bleed. Calibrations insure that proper air-/fuel ratio is delivered to combustion chambers.

4) Ignition timing retard is brought about at this time by means of the vacuum created in intake manifold. A vacuum line connecting manifold to distributor retard diaphragm conducts vacuum to distributor to promote afterburing.

5) During normal operation (acceleration, cruising and idling), a vacuum of 7.9 in. Hg is required to retard ignition timing, and 18.7 in. Hg is required to operate by-pass valve.

6) In addition to vacuum operated modification system, an electrically controlled fuel shut-off is provided. A solenoid switch is installed in the primary slow passage of carburetor and is operated through ignition/starter switch.



SOLENOID SWITCH (FUEL CUTOFF)

SUBARU FF-1 1300G ENGINE MODIFICATION (Cont.)

MAINTENANCE

Maintaining correct functioning of emission control system is dependent not only upon condition of components of emission system, but upon general engine condition and tune-up as well. Carburetor and distributor adjustments are particularly important to correct functioning of system.

Carburetor Adjustment with CO Meter – Adjust engine idling speed to 800 RPM and set ignition timing to 6° BTDC. Using CO meter, check that CO percentage is between 1-3%. If CO is not correct, readjust engine idling speed to 700-800 RPM and then readjust ignition timing to 4-6° BTDC to achieve CO level as specified.

Carburetor Adjustment Without CO Meter – Adjust idle speed to the best idling at 850 RPM by turning throttle adjustment screw and idle mixture screw. Then turn idle mixture screw clockwise so that idling speed drops to 800 RPM. This should correspond to a CO level of 1-3%.

Distributor Adjustment & Ignition Timing – Make sure that distributor and its components are in good condition and that point gap is correctly set to .018"-.022". Disconnect vacuum hose at distributor and plug pipe on distributor. Using timing light, adjust to 6° BTDC with engine idle set at 800 RPM.

Vacuum Control Valve Adjustment – With engine at normal operating temperature and using a stop watch or watch with sweep second hand, raise engine speed to 3000 RPM (without load) and then immediately release throttle. It should take 3-5 seconds for engine speed to lower from 3000 RPM to 800 RPM. If time required is less than three seconds, turn adjustment screw on control valve clockwise. If time is more than five seconds, turn adjustments screw counterclockwise.

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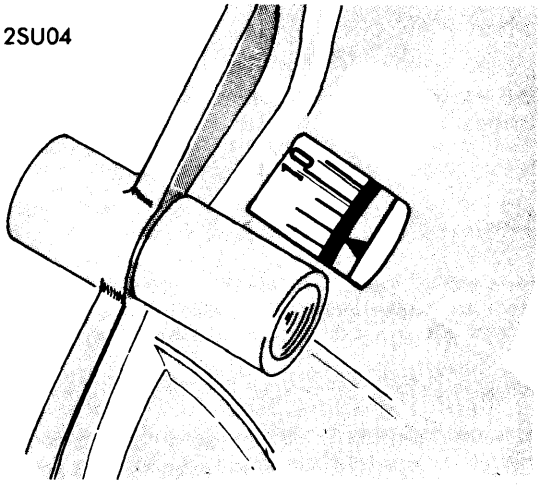

SUBARU FF-1 1300G TIMING MARKS

Vacuum Control Valve Orifice – Inspect orifice of control valve every 12,000 miles. It is important that orifice remain clear and open. If it clogs, operation of control valve will be faulty.

Periodic Maintenance – Check engine tune-up every 6,000 miles and check all components of emission system every 12,000 miles.