SOLEX 34 PICT-3 1-BARREL

Volkswagen Type 1 – All Models (1973)
Volkswagen Type 2 – Single Carb (1970-73)

DESCRIPTION

Single barrel downdraft-type carburetor equipped with an automatic butterfly-type choke valve. Lower part of carburetor houses mixing and float chambers, float, and all jets. At the bottom of mixing chamber is the throttle valve. The accelerator pump is mounted in a housing integral with float chamber.

OPERATION

IDLE BY-PASS SYSTEM

Air brought into carburetor during idling passes through a by-pass drilling, by-passing throttle valve. Bore of by-pass drilling can be altered in size by adjusting by-pass screw, depending upon fuel requirements of engine. Fuel for idling passes through main jet to pilot jet cutoff valve. With ignition on, the pilot jet cutoff valve opens, allowing fuel to pass idle drillings. Fuel is metered through pilot jet and auxiliary fuel jet. Metered fuel is mixed with air from metered air holes. A small portion of this air/fuel mixture passes as an emulsion through idle drilling from pilot jet directly into by-pass bore. The main portion of air/fuel mixture passes through idle drilling from auxiliary fuel jet and is metered by volume control screw to opening below throttle valve.

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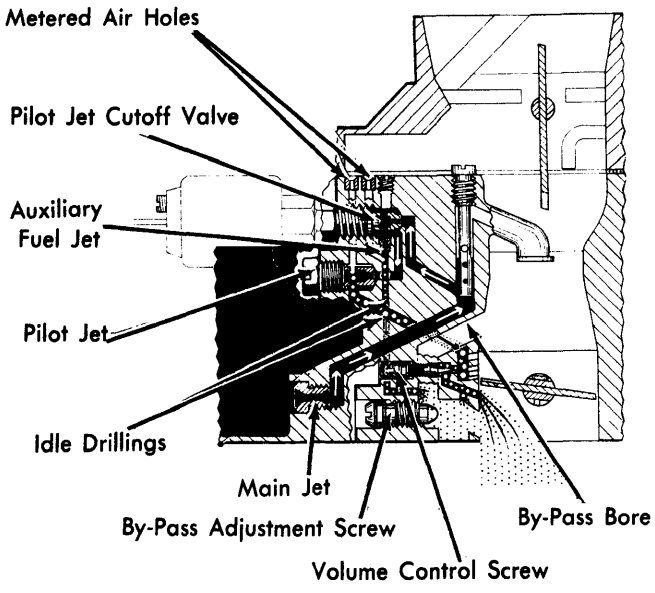

IDLE BY-PASS SYSTEM

PARTIAL THROTTLE OPERATION

With throttle valve partially open, air being pulled into carburetor by vacuum, draws premixed air/fuel mixture from emulsion tube into discharge arm and into intake port. Air which enters through auxiliary air jet prevents mixture from being too rich during full load. Auxiliary fuel jet controls increase of fuel progressively with increase of idle RPM.

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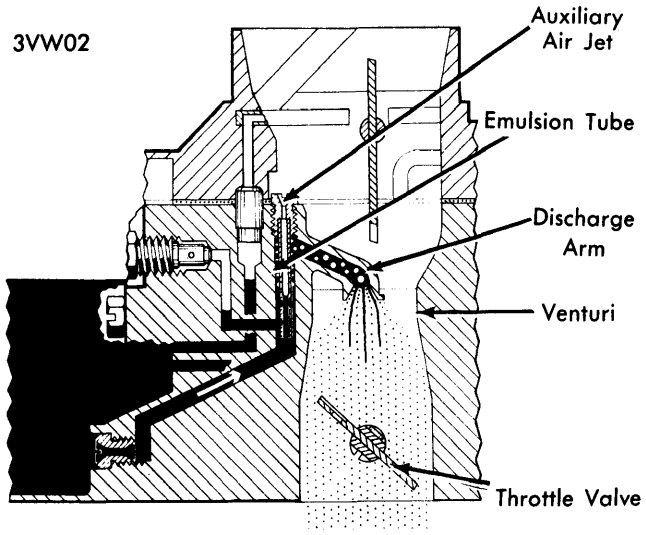

PARTIAL THROTTLE OPERATION

ACCELERATOR PUMP SYSTEM

Acceleration from idle to higher engine RPM does not supply enough vacumm to draw sufficient fuel from discharge arm into mixing chamber. As throttle valve is opened further, vacuum decreases causing a lean condition. To prevent a flat spot during acceleration, the accelerator pump injects an additional amount of fuel into mixing chamber through injection tube. Accelerator pump diaphragm is actuated by throttle valve lever pushing on diaphragm lever through connecting rod. Diaphragm draws fuel from float bowl through check ball valve and forces fuel past injection tube check ball valve through injection tube and into mixing chamber. As idle RPM increases to a higher range, vacuum will draw fuel through injection tube out of float blow through accelerator pump.

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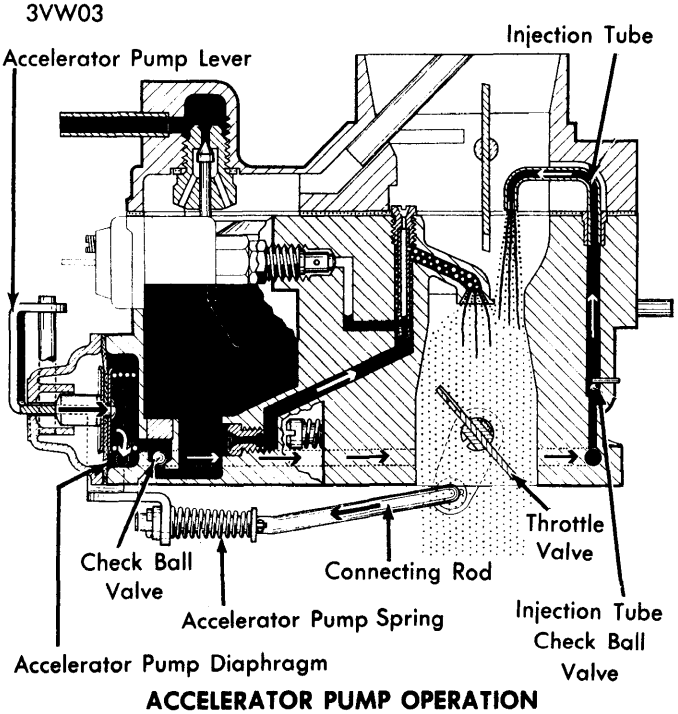

ACCELERATOR PUMP OPERATION

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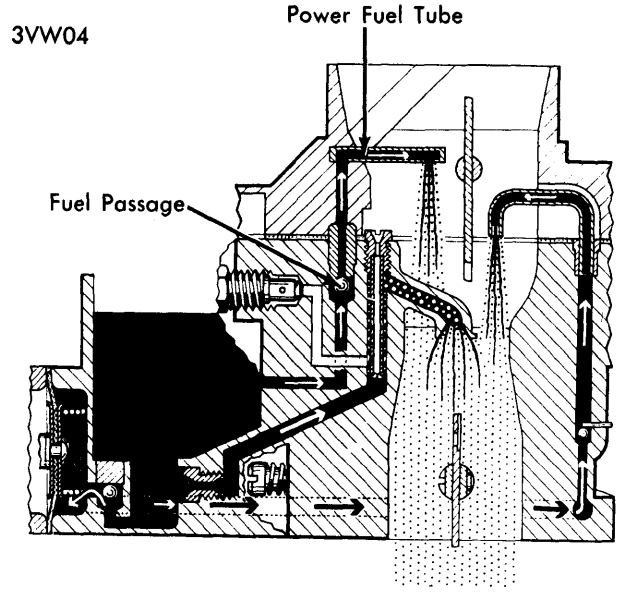
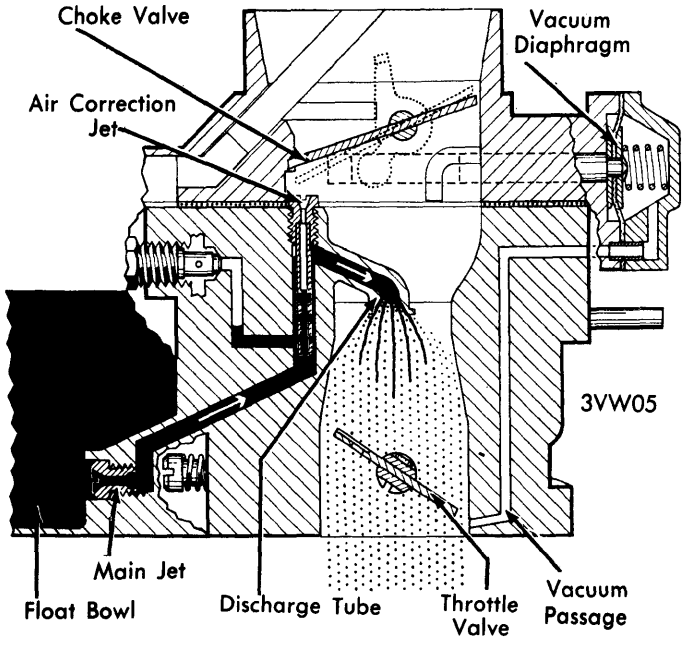
FULL THROTTLE OPERATION

At full throttle, vaccuum at power fuel tube is so great that an additional amount of fuel is drawn from float bowl through fuel passage. This extra amount of fuel supplies a rich enough mixture to allow engine to reach maximum power output. Vacuum at lower engine speeds is not sufficient enough to draw fuel from power fuel tube.



FULL THROTTLE OPERATION



AUTOMATIC CHOKE SYSTEM

AUTOMATIC CHOKE SYSTEM

Throttle is depressed slightly before starting vehicle when engine is cold. Tension of bimetal spring closes choke valve, placing idle adjusting screw on one step of fast idle cam. As starter is actuated, vacuum is created in carburetor. Vacuum draws fuel from float bowl, through main jet, emulsion tube and out of discharge arm into mixture chamber. Vacuum opens choke valve slightly, against tension of bimetal spring. Vacuum diaphragm opens choke valve as vacuum increases to a certain amount. As bimetal spring heats up, choke valve slowly opens and is fully open after 2 or 3 minutes. When choke valve is fully open, idle adjusting screw rests on lowest step of fast idle cam as engine idles.

ADJUSTMENT

IDLE SPEED ADJUSTMENT

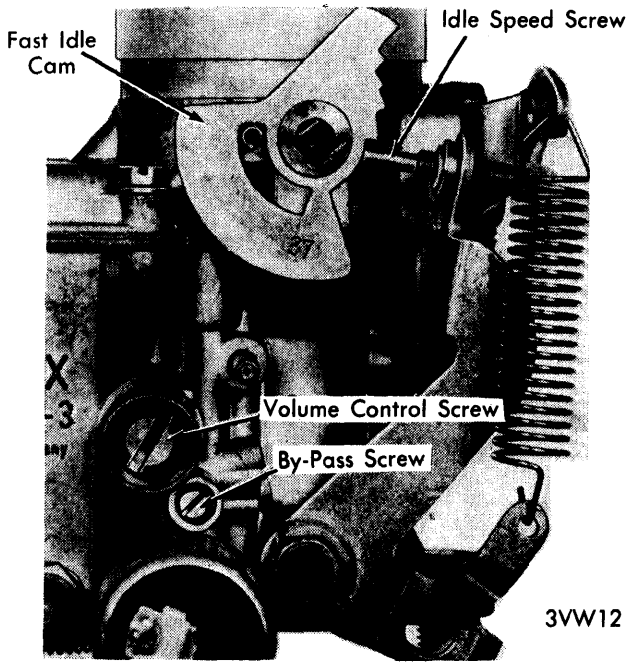
1) Adjust idle screw (see illustration) until clearance between screw and lowest step on fast idle cam. Adjust screw in until it just touches lowest step on fast idle cam then turn in ¼ turn further.

2) Turn volume control screw (see illustration) in to stop then back out 2½ to 3 full turns. With engine at normal operating temperature, attach a suitable tachometer and check that choke valve is fully open.

3) Start engine and adjust by-pass screw (see illustration) until idle speed is 900 RPM. Now adjust volume control screw until engine reaches highest idle speed then back off until idle speed drops 20 to 30 RPM. Now readjust by-pass screw until specified RPM is obtained.

Idle RPM Specifications

Application	Idle RPM
Man. Trans.	800-900
Auto. Trans.	900-1000



IDLE SPEED & MIXTURE ADJUSTMENT

IDLE MIXTURE ADJUSTMENT

1) Idle mixture is checked with an exhaust gas analyzer. Before checking or adjusting idle mixture, idle speed, or valve clearance, ignition timing must be correctly adjusted. There must be no leaks in muffler system.

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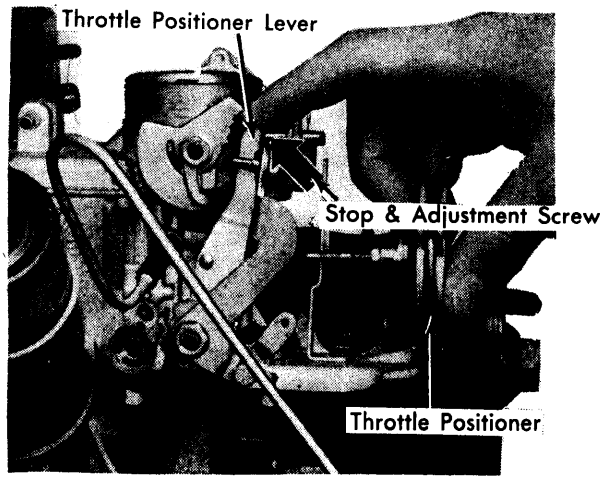
2) Connect a suitable exhaust gas analyzer to engine and check CO level. Correct CO level is 3 ± 1%. If CO level is not to specifications, adjust volume control screw until specified CO level is obtained. Recheck idle speed after correct CO level is obtained.

THROTTLE VALVE POSITIONER ADJUSTMENT

1) Check fast idle speed and, if necessary, adjust to 1550 ± 100 RPM. Pull throttle positioner lever (see illustration) out against stop and adjusting screw. With engine at normal operating temperature, engine speed should not exceed 1700 RPM.

2) If engine speed exceeds 1700 RPM, adjust screw on stop until 1700 RPM is obtained. Pull out on throttle lever by hand, then release. If positioner is correctly set, it should require 3.5 ± 1 seconds for engine speed to reduce from 3000 RPM to normal idle speed.

3) If it takes longer than specified time, turn adjustment screw on altitiude corrector to the left. If time is less than specified, turn adustment screw on altitude corrector to the right. Altitude corrector is located on side of engine compartment to left of engine and is connected to throttle positioner by a vacuum hose.



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THROTTLE POSITIONER ADJUSTMENT

DASHPOT ADJUSTMENT

With engine at normal idle speed, clearance between stem of daspot (if equipped) and throttle lever should be .04". If clearance is not as specified, loosen lock nut on dashpot and rotate dashpot until specified clearance is obtained.

ACCELERATOR PUMP ADJUSTMENT

To correct for "flat spots" on acceleration, it may be necessary to measure the amount of fuel injected by the accelerator pump and to correct it. Using a suitable tool (VW 119), it will be possible to measure fuel quantity.

1) Start engine and run for a brief period to insure there is sufficient fuel in the carburetor. Remove air cleaner. For carburetors without a by-pass air drilling, turn idle adjusting screw back until throttle valve is completely closed.

2) Push extension pipe over injection tube in carburetor. Open choke valve and lock it in position with the plastic piece. Operate the throttle valve until fuel is ejected from the pipe. Hold glass vial under the pipe and operate throttle valve rapidly 5 or 10 times.

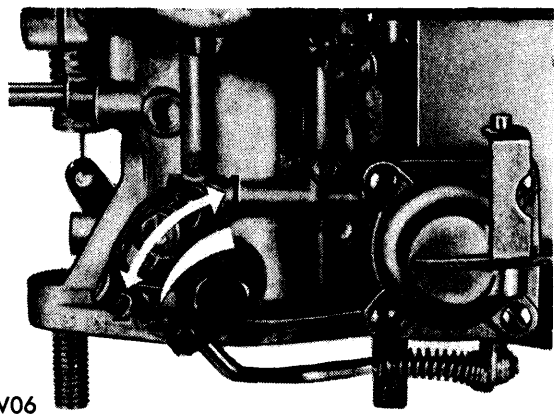
3) Divide amount of fuel caught by 5 or 10 and compare with a specified figure of 1.3-1.6 cc/stroke. If amount varies considerably, make all the following adjustments:

4) Install thicker or thinner washers between pump lever and cotter pin (thinner washer for too much fuel; thicker washer for too little fuel). Use .008" (0.2 mm) thick washers.

5) Move cotter pin in connecting link: If injection quantity is too large, move pin to outer side; if too small, move to inner side.

6) Adjust bell crank lever: If quantity is too large, adjust toward direction "1"; if too small, adjust toward direction "2".

7) Finally, check direction of fuel jet; it must be on collar of discharge arm.



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ACCELERATOR PUMP BELLCRANK ADJUSTMENT

CHECKING FUEL LEVEL IN FLOAT CHAMBER

1) Position vehicle on a level surface. Run engine briefly. Detach fuel hose from upper part of carburetor. Remove upper part complete with gasket. Hold feed pipe closed to prevent more fuel flowing into chamber as upper part is lifted.

2) Measure fuel level from body joint with a depth gauge, holding gauge in a verticle position. Measurement is taken when tip of gauge just touches surface of the fuel. Reading should be 0.47-0.55" (12-14 mm). If level is too high, increase thickness of washer under needle valve. If level is too low, decrease washer thickness.

OVERHAUL

GENERAL REPAIRS

1) Disconnect battery ground cable before attempting any repairs of the carburetor. When carburetor is disassembled, wash all part, except the automatic choke cover, in gasoline. Sticky deposits may be removed with acetone.

2) Check that vacuum piston for the automatic choke moves freely. Blow out jets, valves, and drillings with compressed air. *NOTE — Never attempt to clean jets with pins or wire.* When replacing jets, note jet flow directions: Jets marked "O" have flow direction opposite jets marked "X" (see illustration).

3) Replace all gaskets and sealing washers. Check float needle valve for leakage. It should not be possible to blow air through the valve when needle is pressed lightly onto its seat. Check that needle moves freely and note thickness of washer under valve.

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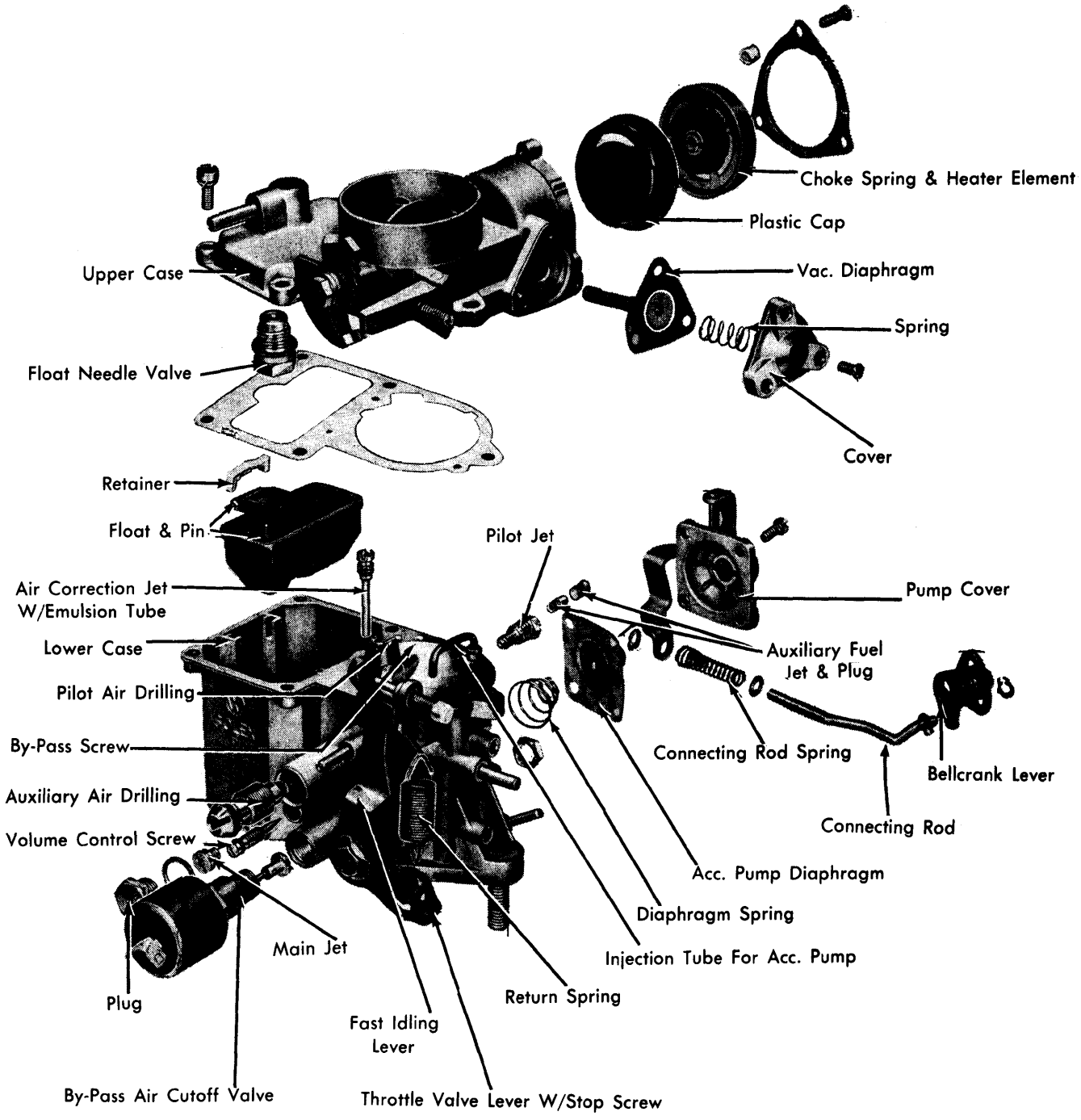

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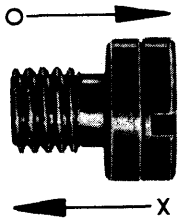
SOLEX 34 PICT-3 CARBURETOR

SOLEX 34 PICT-3 1-BARREL (Cont.)



JET FLOW DIRECTIONS 3VW10

4) Place float in hot water and check for leaks. If bubbles appear, replace float.

5) When checking the electromagnetic pilot jet cutoff valve, the pilot jet can be screwed off the cutoff valve, as illustrated, and blown out. Check valve by switching current off and on and listening for clicking noise which indicates valve is moving in and out.

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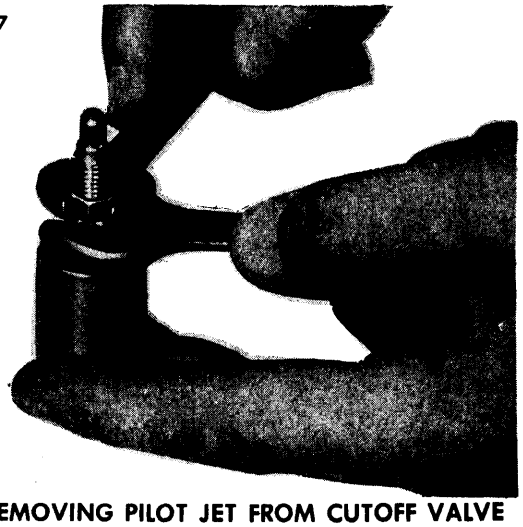
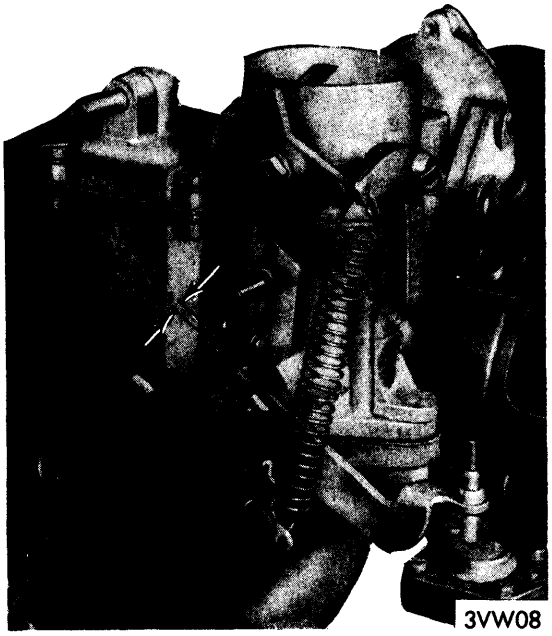


REMOVING PILOT JET FROM CUTOFF VALVE

6) Carburetor bodies with worn choke valve and throttle valve bearings should be replaced. Oil all bearing points lightly. Lubricate all bearings and ball joints of linkage with a molybdenum disulfide-base paste.

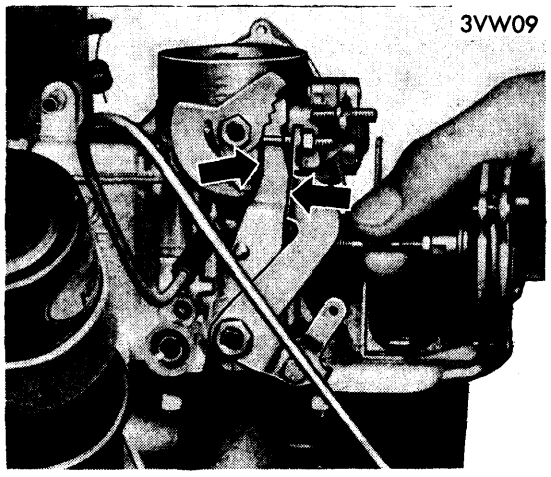
7) When replacing large sealing plug on side of carburetor body, lightly coat sealing face of plug with D3 compound. Remove all burrs from the drilling. Install plug with groove at the bottom. Expand the plug by peening.

8) When reinstalling accelerator cable, secure it after placing throttle in full open position and insuring there is a gap of approximately .04" (1 mm) between throttle valve lever and its stop on carburetor body (see illustration: measurement "a").



SECURING ACCELERATOR CABLE

9) When installing a new throttle valve positioner, the pull rod must be adjusted. The special lever must not touch the carburetor body or throttle valve lever when throttle valve is closed (see illustration).



INSTALLING THROTTLE VALVE POSITIONER