SOLEX 32-35 TDID 2-BARREL

Audi 100LS (1970-72)
Audi S90 (1971-72)

DESCRIPTION

The Solex 32/35 TDID is a downdraft 2-barrel type carburetor. It incorporates an idle by-pass bore and has a fixed minimum throttle valve opening of 2.5°. This slight throttle opening allows vacuum for necessary retarding of ignition system at idle. An acceleration pump provides an initial injection of fuel for immediate engine response. A combined cold start system and automatic choke allow for the necessary fuel enrichment at time of cold start.

OPERATION

COLD START SYSTEM

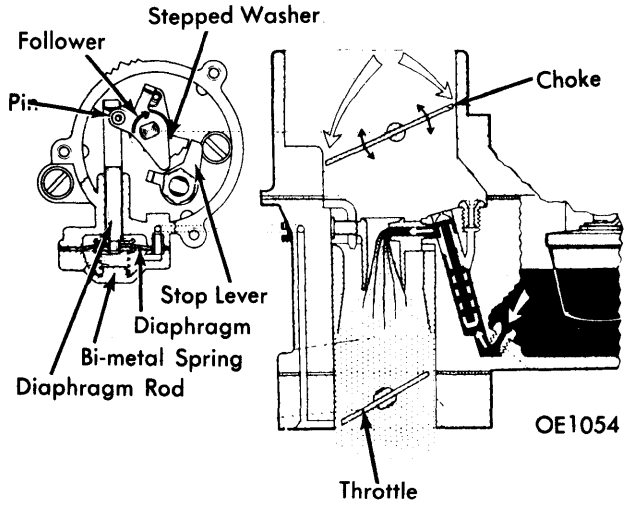
1) Depending on the temperature, the bi-metallic spring tries to turn a follower, which is connected to choke, in a clockwise direction. This will close choke. This is only possible after the gas pedal has been pushed to the floor once, since a stepped washer rests against stop lever before gas pedal is pushed.

2) After releasing the gas pedal, stop lever is located on the highest step of the stepped washer. The throttle is held open a bit by means of a connecting rod. The vacuum built up during the starting operation can be transferred into the mixing chamber. A large amount of fuel can thus be drawn in through the main jets since the choke is closed.

3) After starting the engine, the vacuum increases and the diaphragm and rod are pulled down, allowing a pin of the follower to engage in the diaphragm rod. The follower is turned in a counterclockwise direction and opens choke by acting against the force of the bi-metallic spring.

4) The stepped washer is able to follow the movement of the follower. They are connected by a spring. Due to the off-center location of choke and depending on the air speed in the carburetor as well as the temperature of the coolant flowing through the automatic choke, the choke is subject to a fluctuation between the closing force of the bi-metallic spring and the opening force produced by vacuum.

5) As engine temperature increases, the bi-metallic spring opens choke further by means of a follower. A stop lever continues its decline on the steps of the stepped washer until the engine reaches normal operating temperature. This allows choke valve to open completely with throttle in idle position.

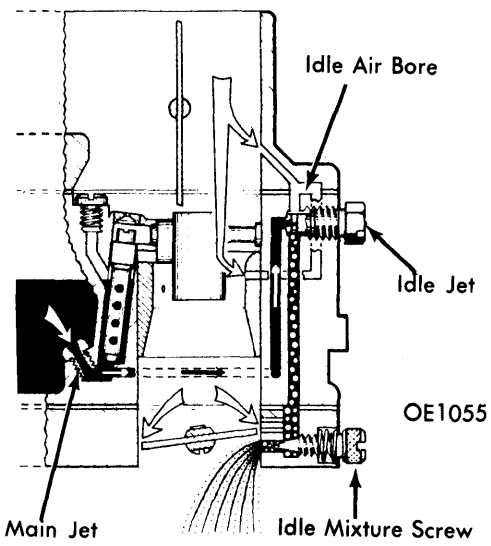


COLD START SYSTEM

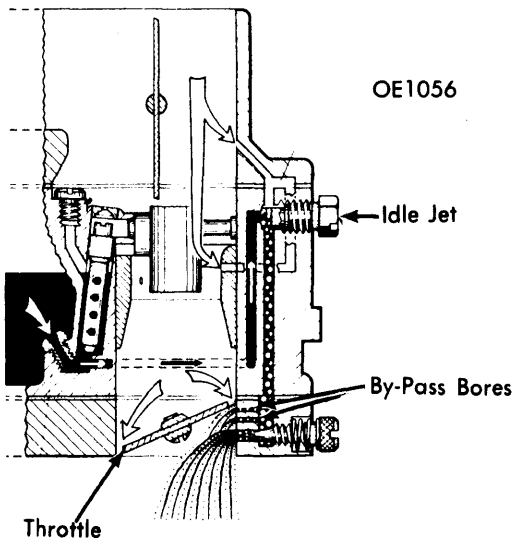
6) In addition to the automatic choke, this carburetor is equipped with a thermo starting valve (1972 only); which serves as a winter starting aid. This is a bimetal valve that controls air/fuel mixture composition by increasing vacuum applied to the idle circuit. Valve operates below 23°F, and remains operational until satisfactory coolant temperature is reached. At this time the valve opens, and idle circuit is then controlled by automatic choke.

IDLE SYSTEM

If throttle is at idle position with the engine running, considerable vacuum is built up below the throttle and fuel flows out of main jet into idle jet via a bore. At this point this point the fuel is mixed with air by means of idle air bore. This mixture continues to idle mixture regulating screw. The screw limits the amount of fuel/air mixture flowing into the intake manifold.



IDLE SYSTEM



TRANSITION SYSTEM

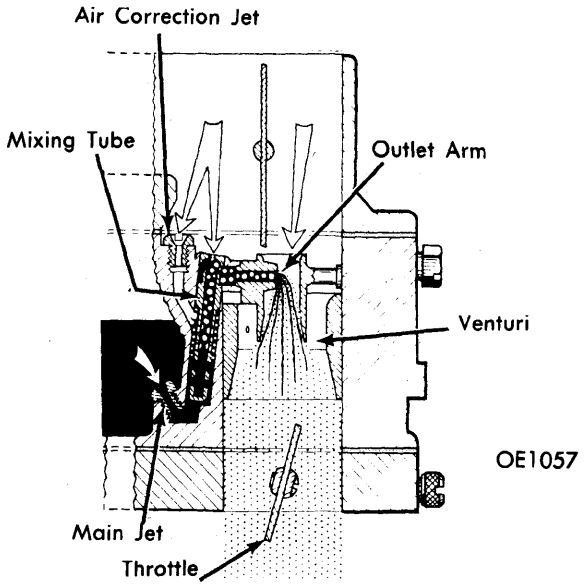
SOLEX 32-35 TDID 2-BARREL (Cont.)

TRANSITION SYSTEM

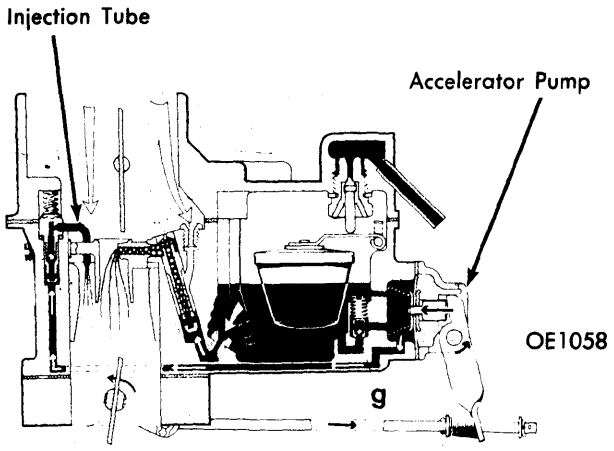
If throttle is opened beyond the idle position, bypass bores are cleared more and more. This allows an additional amount of mixture to be fed into intake manifold from idle jet. In this manner a constant composition of mixture is assured for the transition from idle to full load.

NORMAL OPERATION

As throttle continues to open, the air speed in the venturi increases to the point that fuel is drawn in from the bore in outlet arm. The fuel flows into the mixing tube via the main jet. Here it is mixed with the right amount of air from the air correction jet. The mixture continues to the atomizer in the outlet arm. The fuel is atomized with intake air in the mixing chamber and intake manifold. The secondary barrel functions in the same manner as above. However, it comes into action when the throttle of the primary barrel is open more than 2/3.



NORMAL OPERATION



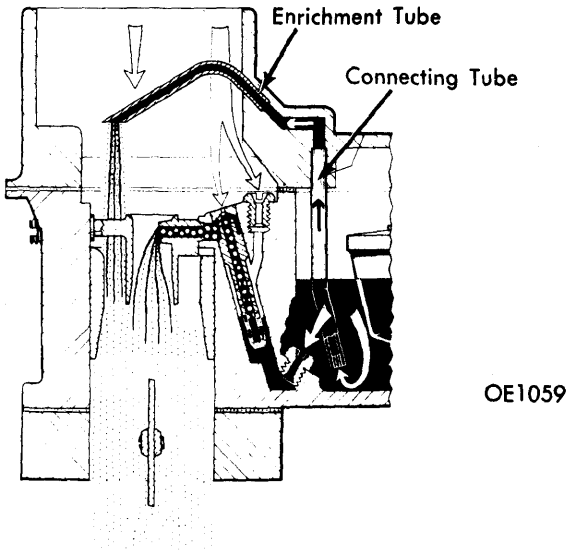
ACCELERATION SYSTEM

ACCELERATION SYSTEM

To avoid a leaner mixture during sudden acceleration, the acceleration pump injects an additional amount of fuel into the mixing chamber of the primary barrel of the carburetor.

FULL LOAD ENRICHMENT SYSTEM

With engine running at full load and high speed, the increased air speed and volume must be enriched in order to obtain maximum engine performance. An enrichment tube is provided that supplies fuel to the mixture chamber during full load and high speed operation.

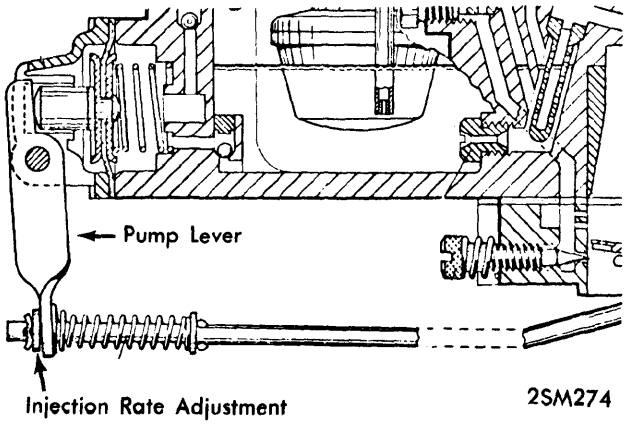


FULL LOAD SYSTEM

ADJUSTMENT

CLEANING & REPLACING JETS

Access to jets is possible by removing carburetor cover. Do this by prying off clamping ring. Remove jets, clean in gasoline, and blow dry with compressed air. Do not attempt to clean jets with sharp metal tubes.



INJECTION PUMP ADJUSTMENT

SOLEX 32-35 TDID 2-BARREL (Cont.)

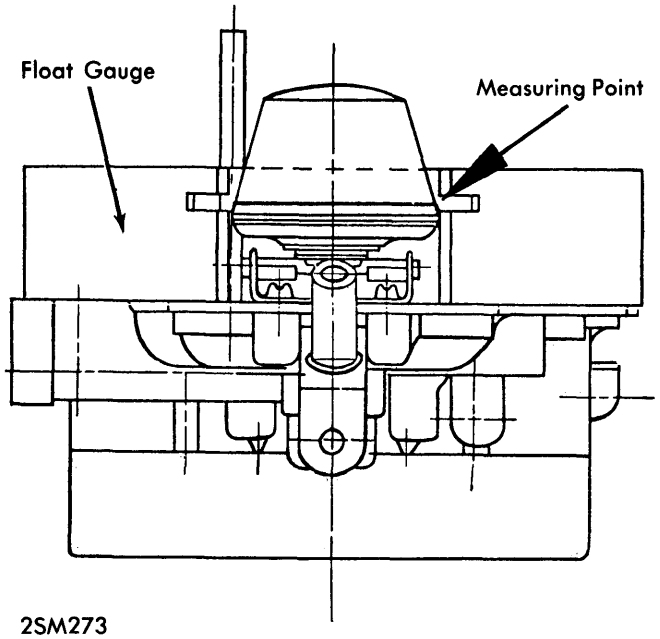
ACCELERATION PUMP

1) Make sure that throttle gap is open 2.5°, and there is sufficient fuel in float chamber. First measure output of primary barrel by placing carburetor over a container and moving throttle lever to a point where definite resistance is present. *NOTE — Do not move lever from stop to stop.* Repeat 10 to 20 times. Measure the amount of fuel in the container. Divide that amount by the number of strokes given to throttle lever. This amount should be 1.2 ± .15 cc.

2) To increase amount of injection, add additional shims between cotter pin and pump lever or by repositioning cotter pin in inner hole. To decrease, remove shims or replace with thinner ones, or move cotter pin to outer hole. To check the combined delivery of both barrels, move throttle lever from stop to stop. Measure fuel output. The total amount should be about .2-.4 cc higher per stroke than for the primary barrel alone.

CHECKING & ADJUSTING FUEL LEVEL

The carburetor cover must be held at an angle of 45° since float needle valve is fitted with a damper ball. The distance between the carburetor cover surface and the upper edge of the bead on the float should be .65" (16.5 mm ± .1mm). Using suitable tool (No. 059 012 525) the points of the gauge must align with the edge of the float. If adjustment necessary, bend tongue of float until upper edge of float head is aligned with float gauge points on both sides.



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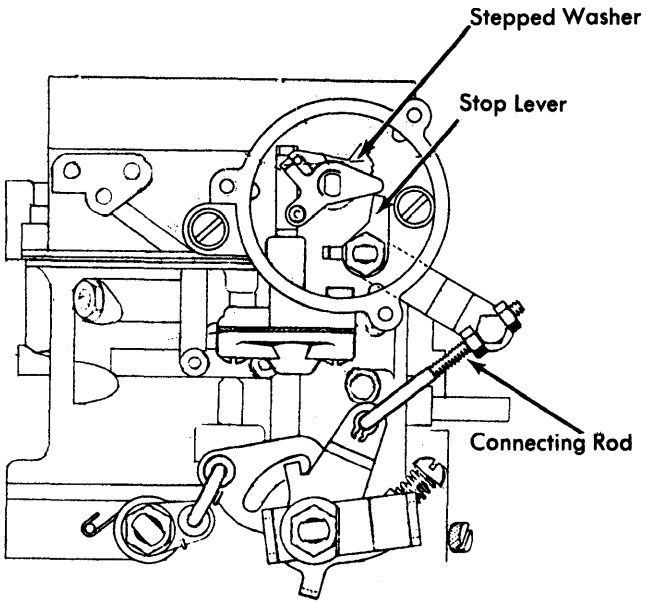
FUEL LEVEL MEASUREMENT

CHOKE GAP

Clamp carburetor in a vise, but still allow throttle to open completely. Close choke tight. Press downward on diaphragm rod until it rests against stop. At the same time, hold choke follower against stop in closed position. Check that gap between choke valve and housing wall is .14±.006" (.09±.006" in 1970). To correct, bend pin with thin pliers.



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CHOKE GAP ADJUSTMENT

IDLE ADJUSTMENT

All Models — With engine at normal operating temperature and with a timing light and tachometer connected, proceed as follows:

1) Disconnect both vacuum hoses at distributor and plug hoses. Check ignition timing for specified setting at specified RPM and adjust if necessary. Reconnect vacuum hoses at distributor.

2) Connect a CO analyzer as per manufacturer's instructions. With air cleaner installed, use a screwdriver and turn idle air control screw all the way in, then back off ⅜ of a turn to obtain engine speed of approximately 950 RPM. *NOTE — Do not confuse idle air control screw secured with paint. This factory setting should never be altered.*

3) Adjust CO content to approximately 1±0.2% by adjusting idle mixture screw (located between idle air control screw and idle adjusting screw).

4) On 100 LS model only, with distributor vacuum hoses connected and idle speed set at 950 RPM. Check and set ignition timing at 8° ATDC.

5) Final setting of specified idle is made by turning idle air control screw as required. Maintain CO content by carefully turning idle mixture screw.

NOTE — Manufacturer does not indicate any overhaul procedures.

CARBURETOR SPECIFICATIONS (1972)

Throttle Gap	.055 ±.004" (1.4 ±.1 mm)
Choke Gap	.098 ±.006" (2.5 ±.15 mm)
Acclerator Pump Discharge	1.2 ±.15cc
Throttle Starting Valve	20 ohm
Fuel Level	.61-.68"