

Stromberg Carburetors

STROMBERG CDSE TYPE 1-BARREL

Cricket - 150 CDSE (1971-72)

Jaguar

6 Cyl. - 175 CDSE (1968-72)

V-12 - 175 CD2SE (1970-73)

12 Cyl. - 175 CD2SE (1973)

Jensen Healey - 175 CD2SE (1973)

Land Rover - 175 CDSE (1971-72)

Saab - 175 CDSE (1971-72)

Triumph

Spitfire & GT6 - 150 CDSE (1970-73)

TR6 - 175 CDSE (1969-73)

Stag - 175 CDSE (1971-73)

Volvo 6 Cyl. - 175 CDSE (1969-73)

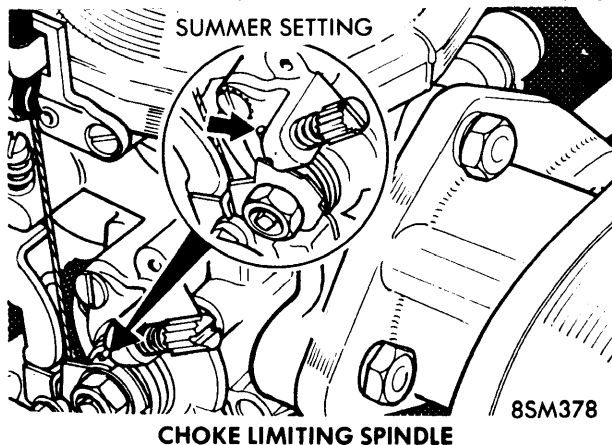
DESCRIPTION

The Stromberg CDSE type carburetor is a development of the constant depression carburetor, which operates on principle of varying effective areas of choke and jet orifice, in accordance with degree of throttle opening, engine speed and engine load. Fuel passes into float chamber, via a needle valve, where flow is controlled by needle valve and twin floats mounted on a common arm. Fuel in jet orifice is controlled, at same level as that in float chamber, by means of cross drillings in jet assembly. Clearance around piston in its vertical bore permits air to "leak" into mixing chamber and thus lower vacuum. A drilling is made in atmospherically vented region beneath diaphragm to meet a second drilling that breaks into mixing chamber downstream of piston. An adjusting screw with a conical tip is inserted into drilling, and is adjusted by manufacturer to bring each carburetor to a common "leak" status. *NOTE - Adjusting screw is sealed with a plug and must not be disturbed under any circumstance.*

OPERATION

CHOKE OPERATION

Actuating the choke control operates a lever, at side of each carburetor, which rotates a disc in starting device in which a series of holes of different diameters are drilled. In fully rich position these holes will be in communication with starting circuit and will provide richest mixture. Gas is drawn from float chamber via a vertical drilling adjacent to central jet, through starting device, and into throttle body between piston and throttle disc. At the same time, cam on choke lever will open throttle disc beyond normal idle position ensuring a faster idle speed and prevent stalling. As choke is pushed off, fewer and smaller holes limit gas feed from float chamber, progressively weakening mixture, to a point where choke is fully closed and mixture strength is governed by factory setting of main jet, and idling speed determined by throttle stop screw. A control in each carburetor allows choke to be set for winter or summer. To check setting, note position of stop cross-pin. If lying in



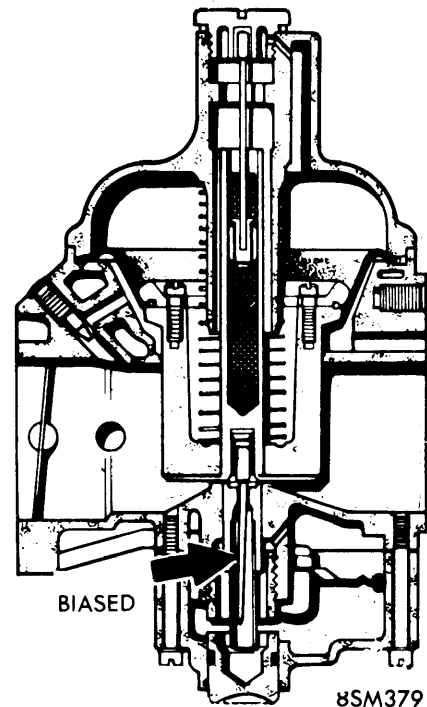
horizontal slot in casting, choke is set for winter. To adjust for summer, depress spring loaded pin and turn through 90°. *NOTE - Do not depress accelerator pedal when starting from cold.*

IDLING

There is no separate circuit for idling. Idle speed is set by adjustment of throttle stop screw, which limits closure of throttle when accelerator pedal is released.

JET/NEEDLE RELATIONSHIP

Jet/needle relationship governs correct idle mixture and correct mixture strength throughout range. *NOTE - The needle has been biased permanently on one side of jet, to rub lightly against jet orifice.* The needle profile has been evolved to compensate for known air leak, therefore a constant air/fuel ratio is maintained. On throttle opening, piston rises withdrawing tapered jet metering needle, held in its base, from jet orifice so that fuel flow is increased proportionate to greater air flow. The metering needle is variable along its length and has been machined to very close limits. *NOTE - It is very important, to maintain correct emission control, that only recommended needle be used.*



JET/NEEDLE RELATIONSHIP

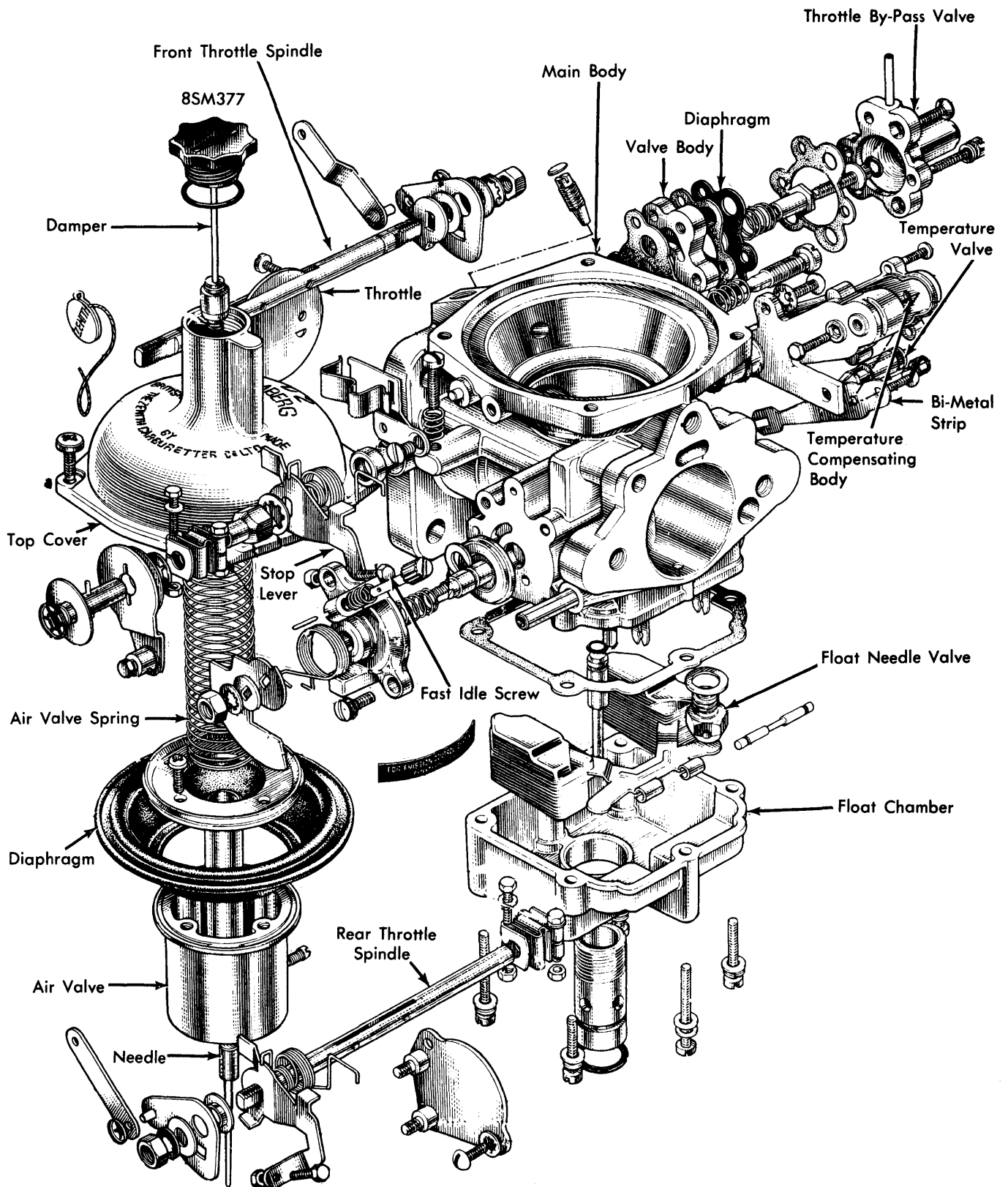
TEMPERATURE COMPENSATOR

A temperature compensator is incorporated to adjust to variations in mixture strength caused by heat transfer to carburetor castings. An air flow channel permits air passing through carburetor to by-pass bridge section. A bi-metallic blade regulates movement of a tapered plug, which adjusts quantity of air by-passed to mixing chamber. Two screws attach temperature compensator to body, and two seals are provided to ensure that no leakage can occur at joint with body. The assembly is preset, and unless necessary due to the tapered plug sticking, should not be readjusted in service. If malfunctioning is suspected and tapered plug moves freely when checked by hand, compensator assembly must be changed for a new unit.

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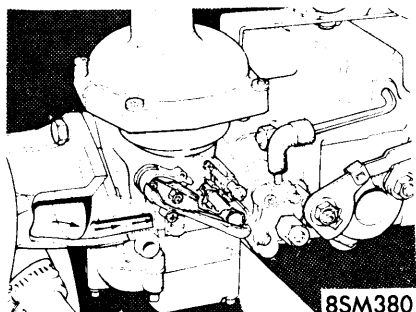
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STROMBERG CDSE EXPLODED VIEW

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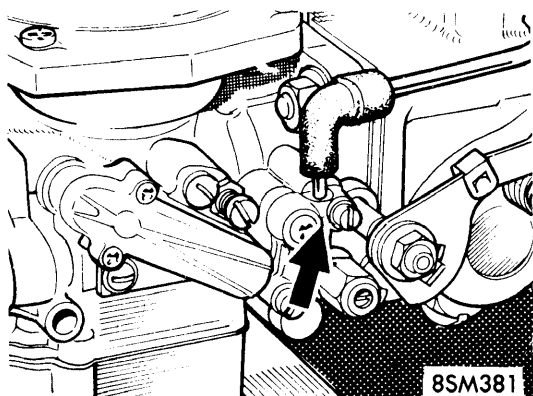
STROMBERG CDSE TYPE 1-BARREL (Cont.)



TEMPERATURE COMPENSATOR

THROTTLE BY-PASS

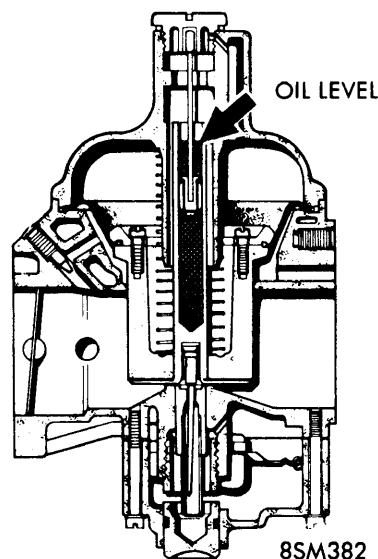
During periods of deceleration exhaust emissions exceed the permissible allowance. To prevent this, a throttle by-pass valve is incorporated in system. The valve is preset, and provided it is free from air leaks, should require no attention. At times foreign matter may lodge under valve seating causing leakage and high idle speed. If this occurs, valve cover should be removed, valve and seat cleaner and the parts reassembled. It is important not to vary mixture ratio when by-pass valve is in operation. Manifold vacuum, acting on valve diaphragm, will cause valve to open when a value is reached that will overcome coil spring tension.



THROTTLE BY-PASS VALVE

HYDRAULIC DAMPER

A temporary enrichment is required when throttle is suddenly opened. To provide this, a hydraulic damper is located inside hollow guide rod of air valve. The rod is filled with suitable oil to within 1/4" of end of rod in which damper operates. When throttle is suddenly opened, immediate upward motion of air valve is restricted by damper. For this brief period, a temporary increase in vacuum over jet orifice is achieved and mixture is enriched.



DAMPER OIL LEVEL

MAINTENANCE

Service Every 1000 Miles – Adjust idle trimming screws to give best quality idle. Check ignition timing with timing light. **NOTE** – Only two adjustments can be made to emission carburetors in field. Idle speed, adjusted by rotation of throttle stop screw and idle mixture, adjusted over very fine limits by trimming screw for best quality idle. (This is not a normal mixture adjustment).

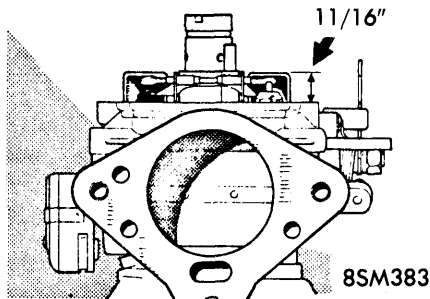
Yellow Service Every 12,000 Miles – Required for this service is one yellow emission pack "A" for each carburetor. This pack contains; 1 floatchamber gasket (red), 1 "O" ring for floatchamber plug, 1 needle valve washer, and 1 manifold/carburetor gasket. To install:

1) Remove air cleaners and gas pipes from floatchambers. Remove throttle and choke lever connections. Disconnect vacuum pipe which operates by-pass valve. Disconnect central link between throttle valve shaft and carburetor spindles. Remove carburetors, separate units by slacking clamps on throttle spindles. **NOTE** – Disassemble and reassemble each carburetor individually to avoid possibility of similar parts being interchanged between carburetors.

2) Remove floatchamber fixing screws and remove floatchambers vertically from body to clear float mechanism. Remove floatchamber gaskets. Unclip float pivot pin. Note position of float assembly, flat portion of float must be uppermost when refitted, with carburetor in an inverted position. Unscrew hexagon bodied needle valve from floatchamber body. Remove "O" ring from center plug and wash all metal parts in cleaning solvent.

3) Refit needle valve with new washer to floatchamber body and screw in tightly. After inspecting for damage or distortion, replace float assembly. To ensure correct float level, invert carburetor so float tag closes needle valve. Measure from face of carburetor body (with gasket removed) to top of each float. Correct height should be 11/16 in.

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CHECKING FLOAT HEIGHT

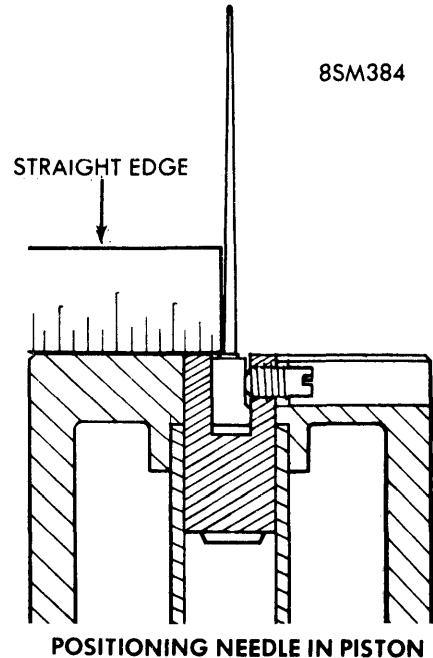
4) Fit a new "O" ring to center plug. With new gasket in position, refit floatchamber and tighten screws from center outward. Refit carburetors to manifold with new gaskets and spacers. Reconnect carburetors to manifold with new gaskets and spacers. Reconnect carburetor linkage and gas lines. Fill hydraulic piston chamber to within 1/4 in. of top of center rod with a suitable oil.

Red Service Every 24,000 Miles — A more comprehensive service for which one red emission pack "B" is required for each carburetor. This pack contains; 1 floatchamber gasket, 1 "O" ring, 1 needle valve, 1 diaphragm, 2 throttle spindle seals, 2 temperature compensator seals, 1 by-pass valve body gasket, and 1 flange gasket. Also required are 4 secondary throttle housing/carburetor gaskets and spacers, 1 secondary throttle housing/manifold gasket, 1 primary mixture pipe/exhaust mixture housing gasket. *NOTE — Disassemble and reassemble each carburetor individually to avoid possibility of interchanging similar parts between carburetors. To carry out 24,000 mile service:*

1) Remove carburetors as detailed on 12,000 mile service. Remove nuts and washers holding primary mixture pipe to secondary throttle housing, and nuts and washers holding mixture pipe to exhaust mixture housing. Remove mixture pipe. Release nuts holding secondary throttle housing to intake manifold. Disconnect clamping bolt holding front throttle slave shaft to rear throttle slave shaft. *NOTE — If automatic transmission, disconnect link between automatic transmission throttle control shaft and front throttle slave shaft. Withdraw secondary throttle housing, together with front throttle slave shaft.*

2) For each carburetor, carry out instructions detailed under 12,000 mile service, in addition fit new needle valve assemblies with new washers. Remove damper assembly from top cover. Unscrew cover holding screws and carefully lift off cover. Remove piston return spring and lift out piston assembly. Drain oil from damper reservoir. Slacken metering needle screw and withdraw needle from piston. Place needle to one side to avoid damage. Remove screws attaching diaphragm. Fit new diaphragm into top of piston, ensuring locating tab is recessed into aperture provided. Secure in position with retaining ring and screws.

3) Check spring action of needle in its housing at top of shank. Fit needle into base of piston, lining up flat portion with locking screw. Using a straight edge placed against shoulder on needle, press assembly into piston until straight edge aligns shoulder of needle with flat surface of piston. Lightly tighten locking screw, take care not to collapse needle housing. Shoulder alignment of needle is critical and care must be taken during this operation. Correctly fitted, needle will be biased towards throttle, and shoulder of needle will be exactly flush with piston face.



POSITIONING NEEDLE IN PISTON

4) Carefully enter piston and diaphragm assembly into main body, guiding needle into jet with a finger in air intake. Locate outer tab of diaphragm into recess at top of body. Check by looking down piston to ensure two vacuum transfer holes are towards and in line with throttle spindle and needle is biased towards throttle. Replace piston spring, hold piston against spring with a finger through air intake and fit cover. Cover must be fitted with damper ventilation boss towards air intake. Replace cover screws and tighten down evenly. Check movement of piston, freedom of movement over full travel is essential and when released from uppermost position, piston should fall with sharp click onto bridge of carburetor. Fill piston damper, fit new seal and refit damper assembly.

5) Remove screws securing temperature compensator unit to body and withdraw assembly. Remove inner seal from carburetor body and outer seal from valve. Replace both seals and refit assembly to carburetor body. Tighten screws evenly. Remove screws and detach compensator cover. Check for free movement of valve by lifting plug from its seat. When released valve should return freely. Do not strain bi-metal strip, or attempt to alter adjustment. It is permissible to ensure there is a consistent radial clearance around valve to allow for thermal expansion. If valve is sticking, remove securing nut and screw. Clean bore and plug with a gasoline moistened cloth. Refit bi-metal strip and retension by tightening nut until valve is just seated. *NOTE — Do not tighten beyond this point.*

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6) Unscrew setscrews securing by-pass valve body and lift assembly from its seat. Pry out throttle spindle seal and renew before replacing by-pass body with a new gasket. Replace throttle spindle seal on other side of carburetor spindle. Refit secondary throttle housing with new gaskets and spacers. Reconnect throttle spindle controls and adjust carburetors.

ADJUSTING CARBURETORS

Idling quality and acceleration depend to a large extent upon general engine condition. To adjust carburetors:

1) Loosen clamping bolts on throttle spindle. Unscrew throttle stop screws to permit primary throttles in each carburetor to close completely. Screw in stop screws to a point where ends of screws are just contacting casting. Rotate each screw 1 1/2 turns to open throttles an equal amount and to provide a basis from which final idling speed can be set. Make sure fast idle screw is clear of choke cam otherwise incorrect synchronizing will result. Check both choke cams are in contact with stops. With choke cable pushed home fully, reconnect choke cables to cams. Check both cams operate simultaneously.

2) Start engine and warm up to normal operating temperature. Check synchronizing of throttles with a balance gauge, and tighten clamping bolts on throttle spindles. Set throttle stop screws to give correct idling speed. Turn each screw by an equal amount.

3) Adjust position of choke control cam by operating lever until cable swivel on cam, cam securing nut and fast idle abutment screw are in line. Tighten locknut to secure location of screw.

TROUBLE SHOOTING

1) Incorrect fuel level caused by maladjustment of floats or worn or dirty needle valves. Check float level. Wash needle valve in clean gas, replace valve if worn.

2) Piston sticking. Check free movement of spring loaded metering valve needle. Clean piston rod and guide. Lubricate rod and guide with a few drops of oil.

3) Metering needle incorrectly fitted. Check that shoulder of needle is flush with face of piston and that needle is biased towards throttle. Check that correct needle is fitted. Check that needle housing has not been distorted by over-tightening of screws.

4) Partially or fully obstructed diaphragm ventilation holes. Check air cleaner element and casing are correctly fitted and that carburetor air horn gaskets are not causing obstruction.

5) Diaphragm incorrectly fitted or damaged. Check location with vacuum chamber cover removed. Two depression holes at base of piston should be in line with and towards throttle spindle. Replace diaphragm if damaged.

6) Throttles not synchronized. Reset correctly using a balance meter.

7) Temperature compensator not working properly. Remove cover from temperature compensator. With engine cold and tapered valve off its seat, valve should return freely when released.

HESITATION or FLAT SPOT

Damper inoperative. Check oil level, if necessary top off with light engine oil. Check to see that piston return spring has not been omitted.

NOTE — Jet assembly, piston, vacuum chamber cover and position of metering needle must not be changed. The temperature compensator must not be adjusted.