Fuel System

CARBURETOR

The Weber carburetor type 26 IMB 4, to suit the engine 110D.000 is of the downdraft design; the Weber carburetor type 26 OC, to suit the engine 120.000, is of the horizontal draft design.

Both these carburetors are fitted with a progressive-action starting device which enables the driver to suit the mixture richness to the most varied conditions of starting, until the engine has reached the rated operation temperature.

The dampened needle valve ensures a smooth engine running since, thanks to its dampening device, it is not affected by vibrations and, therefore, keeps steadily constant the level in carburetor bowl.

The diagrammatic views in figs. 39 and 41 clearly show the operation of subject carburetors; in addition, the following is a detailed description of the starting device which is also illustrated in figures 40 and 42.

Starting Device.

This progressive-action device (choke) has the function of ensuring proper engine cold starting. It is controlled by means of the lever placed behind the gearshift lever and must be gradually set back to rest position as engine is reaching the rated operation temperature.

WEBER CARBURETOR 26 IMB 4.

The starting device (fig. 40) is made up of valve (33) actuated by the lug of rocker (36) connected, through a suitable shaft, to control lever (38).

By pulling the device control to stroke end, through lever (38) and rocker (36), valve (33) is lifted from its seat and brought to the « fully open » position (diagram « A », figure 40).

Under these conditions valve (33) closes air hole (27) and mixture hole (29) and uncovers mixture orifices (30) (32) [which communicate with starting jet (46) through duct (26)] and air holes (35).

With valve (33) **partially opened, hole** (29) **may communicate with carburetor throat, through the valve central slot, duct** (28) **and hole** (31) **drilled in Venturi** (21) **in correspondence with the restriction.**

With throttle (19) in idling speed position, the vacuum of engine cranked by the starter causes the fuel contained in the recess of jet (46), in the jet and in reserve well (45) to be emulsioned with the air coming from holes (43) and (44).

Through duct (26) and holes (30) and (32) the mixture arrives - simultaneously with air from holes (35) - past the throttle through duct (34), thus permitting prompt starting of the engine.

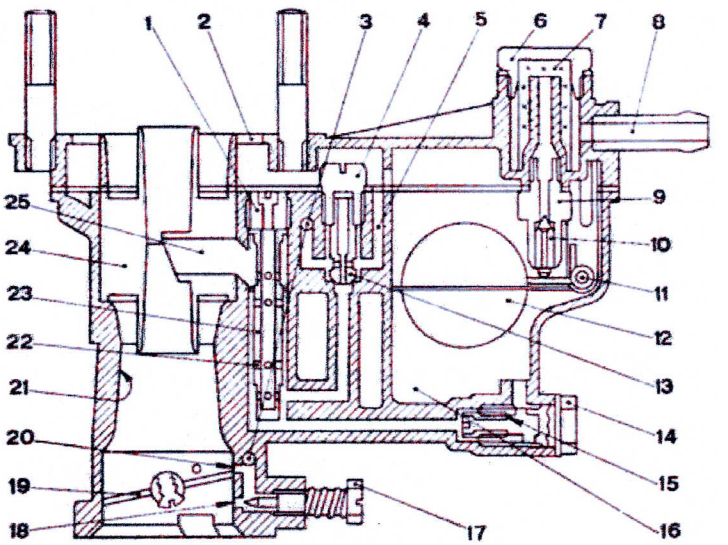

Fig. 39. - Diagrammatic section view of Weber 26 IMB 4 carburetor.

1. Air corrector jet - 2. Air inlet - 3. Idle speed mixture duct - 4. Idle speed jet holder - 5. Idle speed air orifice - 6. Filter cover - 7. Filter - 8. Fuel inlet connection - 9. Needle valve seat - 10. Needle -11. Float pivot -12. Float -13. Idle speed jet -14. Main jet holder -15. Main jet -16. Bowl -17. Idle speed mixture adjustment screw - 18. Idle speed mixture orifice - 19. Throttle - 20. Transition hole - 21. Primary Venturi (not interchangeable) - 22. Emulsion orifices - 23. Emulsion well - 24. Secondary Venturi (not interchangeable) - 25. Main nozzle.

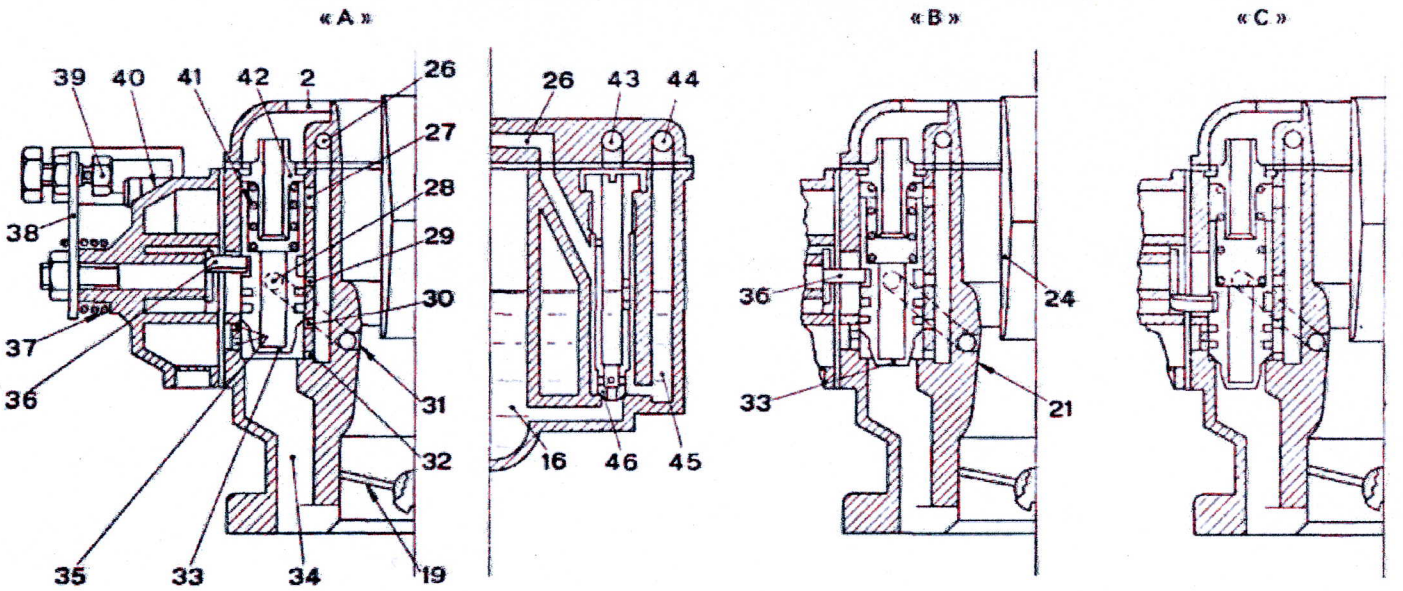

Fig. 40. - Diagrammatic section views of 26 IMB 4 Weber carburetor starting device.

2. Air inlet - 16. Bowl - 19. Throttle - 21. Primary Venturi - 24. Secondary Venturi - 26. Mixture duct - 27. Mixture leaning air orifice - 28. Transition duct - 29. Transition mixture orifice - 30. Starting mixture orifice - 31. Transition orifice - 32. Starting mixture orifice - 33. Starting valve - 34. Mixture duct - 35. Starting device air orifices - 36. Rocker - 37. Lever return spring - 38. Starting device control lever - 39. Control wire screw - 40. Cover with support for starting device control bowden - 41. Starting valve spring - 42. Spring casing - 43. Starting jet emulsion air orifice - 44. Air emulsion reserve well orifice - 45. Starting reserve well - 46. Starting jet.

A. Choke fully inserted - B. Choke partially inserted - C. Choke disinserted.

After engine firing the device delivers a mixture whose fuel/air ratio is such as to permit regular running of engine while still cold. But, as the engine warms up, this mixture would be excessive and too rich; therefore, it becomes necessary to exclude gradually the device as the engine is reaching the rated operation temperature. During this maneuver, valve (33) slowly uncovers hole (27) which permits a greater amount of air to enter through spring guide hole (42) (to weaken the mixture) while, by closing progressively holes (30) and (32) and air holes (35) also the amount of mixture is reduced (see diagram « B », fig. 40).

Hole (29), duct (28), and hole (31), drilled in Venturi (21), have the task of permitting a regular progression of acceleration also with cold engine. By opening throttle (19) to speed up the engine the vacuum acting on duct (34) is reduced. This would cause a reduction in the amount of fuel delivered through said duct (34), with consequent irregular running of the engine, but, through hole (31), duct (28) and hole (29) (from which air is drawn when throttle is closed), some mixture is sucked in by the vacuum formed in the restriction of the Venturi consequent to the opening of the throttle and this compensates for the reduction in delivery through duct (34).

When the starting device is excluded, valve (33) covers also hole (29) and prevents the entrance of mixture (diagram « C », fig. 40).

WEBER CARBURETOR 26 OC

Referring to the operation diagram fig. 42, the fuel from bowl (23) reaches starting jet (37) through duct (35).

By pulling the choke lever (31) to stroke end, valve (30) is lifted from its seat and brought to the «fully open » position (diagram « A », fig. 42). Under these conditions valve (30) uncovers both starting mixture ducts (28) and (29).

With throttle in idling speed position, the vacuum of engine cranked by the starter causes the fuel contained in the recess of jet (37), in the jet and in reserve well (36) to be emulsioned with the air coming from air jet (38).

Through ducts (28) and (29) the mixture arrives — simultaneously with air from holes (34) — past the throttle, thus permitting prompt starting of the engine.

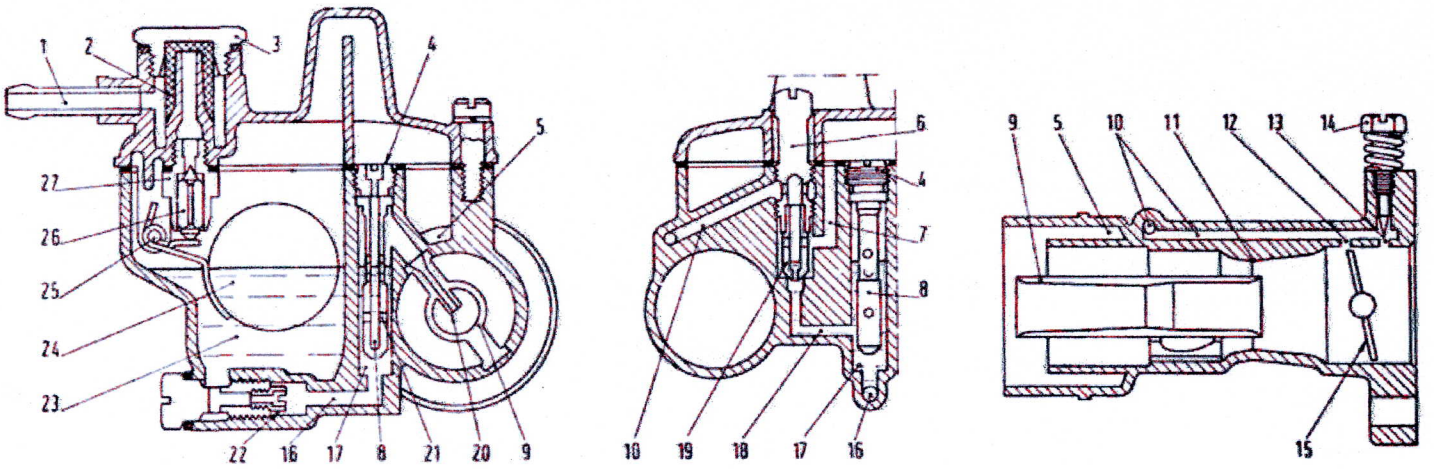

Fig. 41. - Diagrammatic section views of 26 OC Weber carburetor.

1. Fuel inlet connection - 2. Filter gauze - 3. Filter inspection plug - 4. Air corrector jet - 5. Air intake - 6. Idle speed jet holder - 7. Idle air duct - 8. Emulsion tube - 9. Secondary Venturi - 10. Idle mixture duct - 11. Primary Venturi - 12. Progression hole - 13. Idle orifice to duct - 14. Idle mixture adjustment screw - 15. Throttle - 16. Bowl-to-well duct - 17. Emulsion tube housing well - 18. Well-to-idle jet duct - 19. Idle speed jet - 20. Nozzle - 21. Emulsion orifices - 22. Main jet - 23. Bowl - 24. Float - 25. Float pivot - 26. Valve needle - 27. Needle valve.

After engine firing the device delivers a mixture whose fuel/air ratio is such as to permit regular running of engine while still cold. But, as the engine warms up, this mixture would be excessive and too rich: therefore, it becomes necessary to exclude gradually the device as the engine is reaching the rated operation temperature.

During this maneuver, valve (30) gradually blanks mixture duct orifice (28) so as to weaken the mixture while, by closing progressively duct (29), it also reduces little by little the amount of mixture delivered by carburetor (see diagram « B », fig. 42).

When the starting device is excluded, valve (30) covers hole (29) and prevents the entrance of mixture (diagram « C », fig. 42).

Choke Use Directions.

To avail yourself of all the advantages the progressive-action starting device may offer, use it as follows:

ENGINE STARTING

Cold start: fully throw in the device (position « A », figs. 40 and 42); after engine fires push the control part way in.

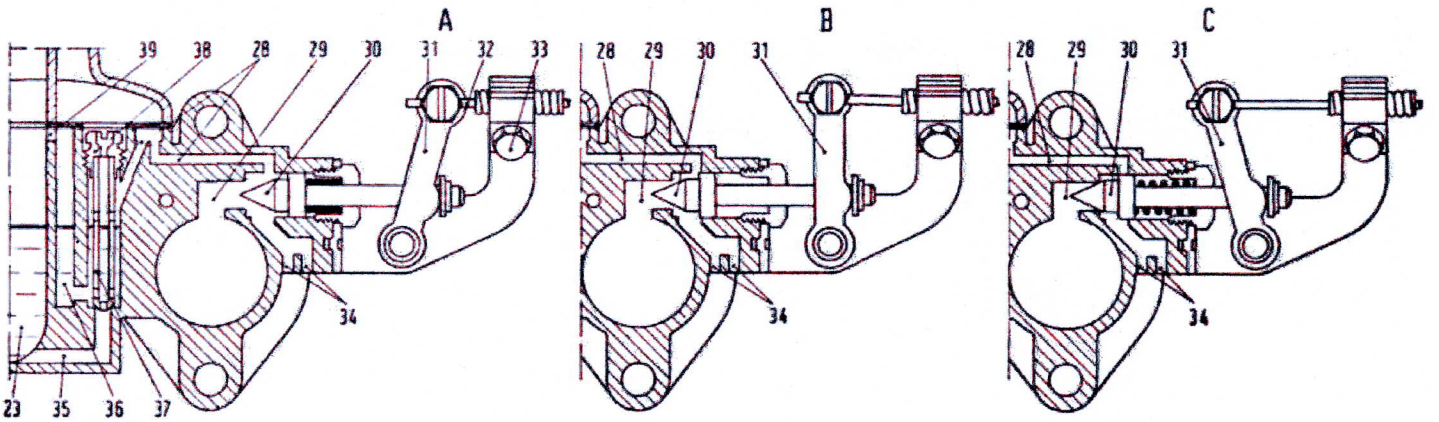

Fig. 42. - Diagrammatic section views of 26 OC Weber carburetor through the starting device.

23. Bowl - 28. Starting mixture duct - 29. Starting mixture duct - 30. Starting valve - 31. Starting device control lever - 32. Starting device control wire - 33. Bowden fixing screw - 34. Emulsion air orifices - 35. Bowl-to-starting jet duct - 36. Starting reserve well - 37. Starting jet - 38. Starting air corrector screw - 39. Reserve well emulsion air slot.

A. Choke fully inserted - B. Choke partially inserted - C. Choke disinserted.

Warm starts: throw in the device only partially (position « B », figs. 40 and 42).

ENGINE WARM-UP

During engine warming-up period, even with car running, push home gradually the starting device lever through successive stages so as to supply the engine with a supplementary amount of mixture as strictly necessary for a regular and smooth engine operation (position « B », figs. 40 and 42).

NORMAL CAR DRIVING

As soon as the engine has reached the rated operation temperature, exclude completely the starting device by bringing the control lever to position « C », (figs. 40 and 42).

Idle Speed Adjustment.

Idling speed is adjusted by throttle setscrew and mixture setscrew. Throttle screw allows of adjusting the throttle opening: conical mixture setscrew has the purpose of metering the amount of mixture coming from idling speed passage, which will then blend with the air flowing past the throttle that, in idle speed setting, leaves a gap between its edges and the throat walls.

This makes possible a rating of mixture best suited to engine requirements and smooth operation.

Always adjust idling speed with engine running and warm by first setting throttle to minimum opening by throttle setscrew so as to ensure steady operation.

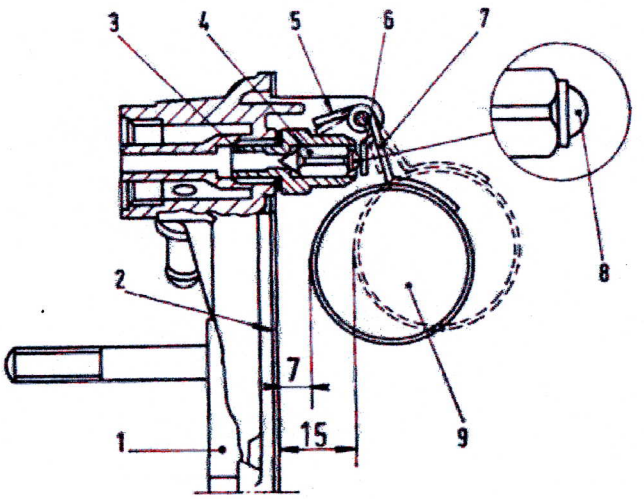

Fig. 43. - Float level setting diagram - Weber carburetor type 26 IMB 4.

1. Carburetor cover - 2. Cover gasket - 3. Needle valve - 4. Valve needle - 5. Lug - 6-7. Arms - 8. Needle ball - 9. Float.

7 = .2756" - 15 = .5906"

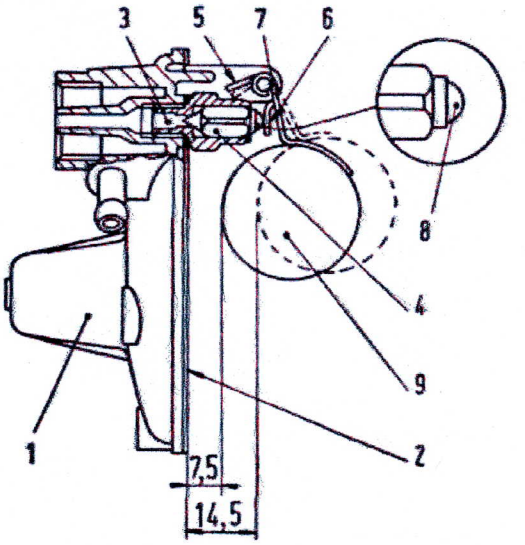

Fig. 44. - Float level setting diagram - Weber carburetor type 26 OC.

7,5 = .2953" - 14,5 = 5709"

1. Carburetor cover - 2. Cover gasket - 3. Needle valve - 4. Valve needle - 5. Lug - 6-7. Arms - 8. Needle ball - 9. Float.

Next, by turning mixture setscrew in or out, set mixture richness to the most suitable ratio for said throttle opening, thus accomplishing a fast and steady idling; reduce minimum throttle opening some more, by throttle setscrew, until best idling speed is obtained.

NOTE - For the setting data of carburetors, see the table page 9.

Setting Float Level in Bowl.

To set the float level in the carburetor bowl, proceed as follows:

a) Check that needle valve (3, figs. 43 and 44) is screwed tight in its seat.

b) Keep carburetor cover (1) upright or else the weight of float (9) would lower ball (8) fitted on needle (4).

c) Check that with cover held vertical and float arm (6) in slight contact with ball (8) of needle (4), the float is .2756" (7 mm) (engine 110 D.000 fig. 43) or .2953" (7.5 mm) (engine 120.000, fig. 44) away from cover with gasket (2) flat against cover face.

d) Check the float travel: at travel end the float should be respectively .5906" (15 mm) and .5709" (14.5 mm) from the cover face; if necessary, bend lug (5) as required.

e) If float (9) is not correctly positioned, bend float arm (7) until the correct adjustment is obtained. See that arm (6) is perpendicular to needle (4) axis and does not show rough spots or indents which might impair free sliding of the needle.

f) Check that float (9) rotates freely around ist pivot pin.

CAUTION!

Should replacement of the needle valve (3, figs. 43 and 44) be required, make sure first that the new valve is screwed tight in its lodging with a new seal interposed. This will mean that the level check must be repeated.

TEST RANGE OF REBUILT ENGINES

A rebuilt engine should be submitted to a proper testing range on bench; when doing so, comply with the following data.

Test Speed Rate - rpm	Time - Min.	Brake Load
500	15'	no load
2,000	15'	half load
2,000	5'	full load
Grand total	35 minutes	

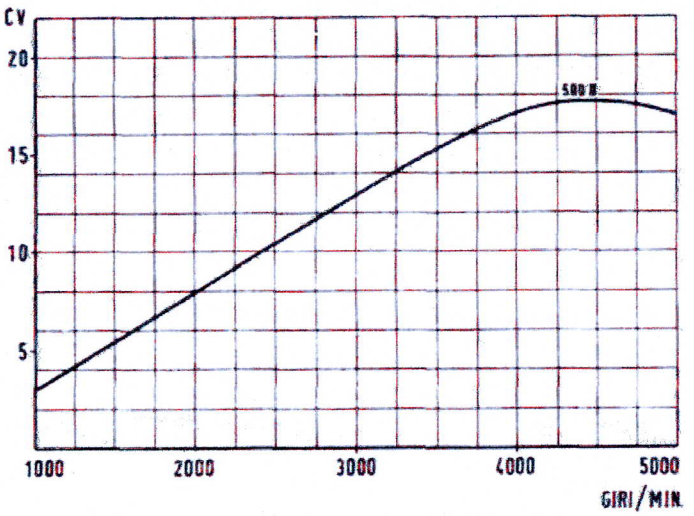

Fig. 45. - Bench power curve of 110 D.000 engine. GIRI/MIN = R.P.M. - CV = H.P.

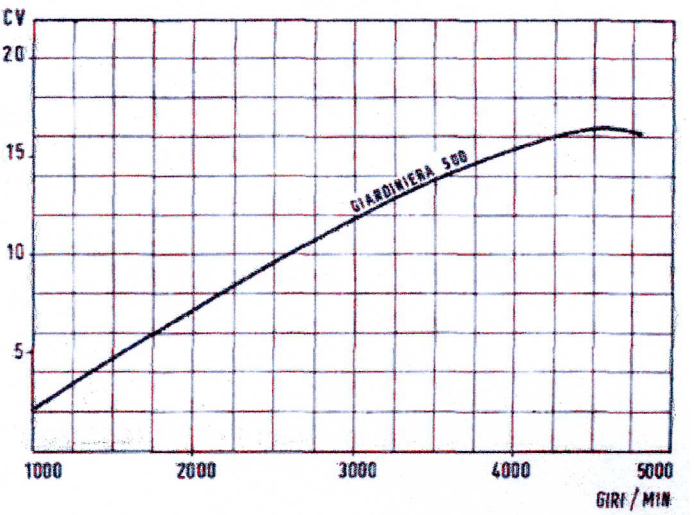

Fig. 46. - Bench power curve of 120.000 engine.
Giardiniera 500 = 500 Station Wagon - GIRI/MIN = R.P.M. - CV = H.P.

When bench testing a rebuilt engine, use care not to run it to top speed limits in an effort to reach the power specified in power charts.

Engine break-in will be completed by the Owner who is bound not to drive the car beyond the speed rates recommended for the initial use.

NOTICE - Power curves shown in figs. 45 and 46 are minimum specifications for a run-in engine with fan and without exhaust silencer.