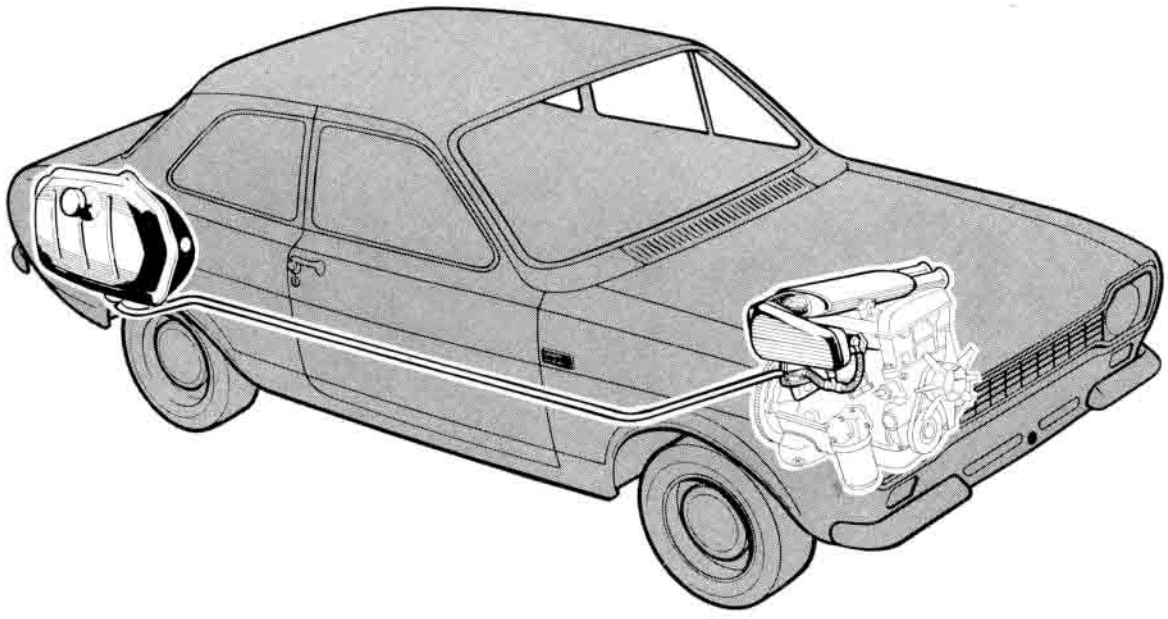
# 9

# FUEL SYSTEM



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## GENERAL DESCRIPTION

The fuel system has a 9 Imp. gallon (10.8 U.S. gallon, 40.9 litre) fuel tank located in the right-hand rear wing inside the luggage compartment. The filler pipe is integral with the fuel tank and has a non-vented filler cap on the wing upper panel. Fuel tank ventilation is by a pipe from the top of the tank. The fuel tank gauge sender unit is located in the front face of the tank.

A nylon fuel line connects the fuel tank to a diaphragm type mechanical fuel pump, mounted on the right-hand side of the engine and operated by the auxiliary shaft. The fuel pump incorporates a gauze screen and an inverted sediment bowl. From the fuel pump a branched pipe delivers fuel to the carburettors.

Two side draught Weber type 40 DCOE 31 carburettors are fitted, these being of the dual barrel type with two venturis in each barrel. A single accelerator pump, which discharges fuel into the barrels, is fitted in each carburettor. Also, a progressive starting device is mounted on top of each carburettor to supply a rich mixture to the barrels for easy cold starting.

A separate inlet manifold is not provided, the carburettors feeding the cylinders by means of inlet tracts cast with the cylinder head. These tracts are not interconnected by a bridge pipe, etc. at any point. It will be appreciated that, since the inlet tracts are completely separate from one another, each carburettor is composed of and functions as, in effect, two carburettors with a separate set of identical jets for each barrel. The layout is, therefore, similar to a system comprised of four single barrel carburettors. Apart from the throttle linkage, the carburettor assemblies are identical.

Between each carburettor barrel and inlet tract there is a metal plate with a rubber 'O' ring in each face. These 'O' rings act as a seal to prevent the ingress of air and, together with the double coil spring washers fitted between the carburettor retaining nuts and carburettor mounting flanges, absorb vibration and thereby prevents frothing in the float chambers.

The air cleaner is of the replaceable paper element type, mounted on top of the engine. A rubber moulded hose connects the air cleaner to an air box mounted on the carburettors.

The fuel gauge, on the instrument panel, registers the quantity of fuel in the tank with the ignition switched on. The gauge is designed to eliminate needle fluctuation whilst the car is in motion, the gauge taking about thirty seconds to reach a true reading after switching the ignition on.

## OP 9000-A FUEL SYSTEM AND CARBURETTOR – CLEAN

1. Raise the bonnet and fit wing covers.
2. Slacken the clip securing the air cleaner to air box hose and remove the hose from the air cleaner.
3. Slacken the four nuts and lift off the air cleaner assembly.
4. Release the air cleaner clips and pull out the end plate complete with the air cleaner element.
5. Unscrew the wing nut and lift off the retainer plate and air cleaner element.
6. Shake the element clean or blow it out with compressed air and replace it on the air cleaner end plate. Replace the retainer plate, washer and wing nut.
7. Push the end plate into the air cleaner body and secure it with the two clips.
8. Disconnect the fuel supply pipes from the carburettors.
9. Unscrew the wing nuts and lift off the two main and idling jet covers.
10. Progressively unscrew the five screws, spring washers and flat brass washers securing the carburettor covers and remove the two covers.
11. Remove the jets and blow them clean with an air line (see Operation No. 9533-A sub-operations 6 to 19 for jet removal and replacement).
12. Clean the floats and float chamber with petrol and blow clean with an air line.
13. Refit the carburettor covers, ensuring that the floats are free to move in the bodies. Secure them with five screws, flat washers and spring washers, tightening them evenly. Refit the small circular main and idling jet covers, ensuring that the cork seal is in place, retain them with the wing nuts.
14. Remove the fuel pump to carburettors fuel pipe and blow it out with an air line. Replace the pipe, at the pump.
15. Disconnect the fuel tank to fuel pump pipe and blow it out with an air line. Replace the pipe, at the pump end.
16. Remove the fuel pump sediment bowl and filter, blow them clean or wash them in petrol and replace them on the pump.
17. Reconnect the fuel supply pipes at the carburettors.
18. Replace the air cleaner on the two camshaft cover mounting brackets and secure it with the four nuts and flat washers. (Ensure that a flat washer is fitted on either side of each slot in the brackets.)
19. Replace the hose on the air cleaner and tighten the retaining clip.
20. Drain the fuel from the tank by syphoning the fuel into a suitable container.
21. Flush the fuel tank and reconnect the pipe.
22. Strain the fuel and return to the fuel tank.
23. Remove the wing covers and close the bonnet.

## OP 9002-A FUEL TANK - REMOVE AND INSTALL

### Tools Required

P. 9082 Fuel tank sender unit lock ring wrench
Bostik model D hand gun

### To Remove

1. Remove the filler cap and drain the fuel from the tank by syphoning into a suitable container.
2. Open the boot and disconnect the fuel feed pipe and the fuel gauge wire from the sender unit.
3. Remove the self-tapping bolts securing the fuel tank and lift it out of the luggage compartment, pulling the vent pipe through the grommet in the rear panel.
4. Slide the vent pipe away from the tank.
5. The fuel tank sender unit can be removed, if necessary, using Tool No. P.9082. Remove the sealing ring from the fuel tank.

### To Install

6. If the fuel tank gauge unit has been removed, fit a new sealing ring in the recess provided in the tank, then fit the gauge unit. Using Tool No. P.9082, tighten the unit to provide an efficient seal.
7. Slide the vent pipe over the tank connection.
8. Fit the fuel tank, remembering to thread the vent pipe through the grommet in the rear panel, and retain with the self-tapping bolts.
9. Reconnect the fuel feed pipe, and the fuel gauge wire to the sender unit and close the boot.
10. Refill the tank after straining the fuel.
11. Check the operation of the fuel gauge, after replacing the filler cap, by switching on the ignition and observing the needle, bearing in mind that the gauge takes about thirty seconds to reach a true reading.

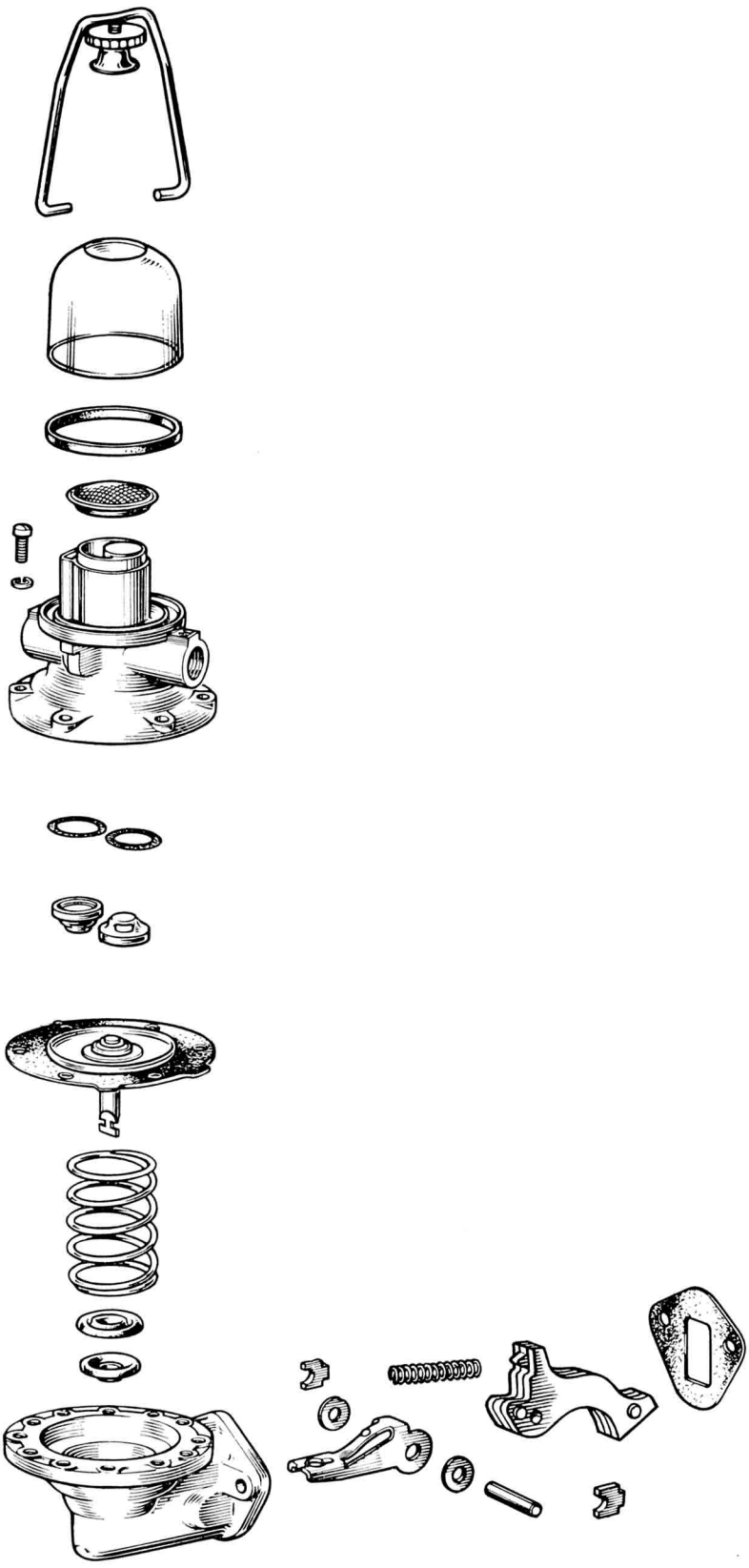
## OP 9350-A FUEL PUMP ASSEMBLY - REMOVE AND INSTALL

### To Remove

1. Raise the bonnet and fit wing covers.
2. Disconnect the fuel lines at the pump. The line should be suitably plugged to prevent loss of fuel or the ingress of foreign matter.
3. Unscrew and remove the two bolts and spring washers securing the fuel pump to the cylinder block and detach the fuel pump, lifting the operating lever to clear the eccentric and the slotted hole in the block. Remove the gasket.

### To Install

4. Clean the mounting face on the cylinder block, removing any trace of gasket which may be adhering to the face. Fit a new gasket to the cylinder block flange, holding it in place with a smear of grease.



**Fuel Pump—Exploded**

5. Insert the rocker arm through the slot in the block wall so that the arm lies on the camshaft eccentric.
6. Secure the fuel pump to the cylinder block with two spring washers and bolts, tightening the bolts evenly to a torque of 12 to 15 lb. ft. (1.66 to 2.07 kg.m.).
7. Ensure that the pipe joints are clean and refit the fuel pipes.
8. Run the engine and check for leaks at the joints.
9. Remove the wing covers and lower the bonnet.

**OP 9350-A1** EXTRA: DIAPHRAGM – RENEW
(Fuel pump removed)

**To Remove**

1. Slacken the clamp nut and remove the sediment bowl and gasket.
2. Remove the filter and clean.
3. Mark the position of the diaphragm tab on both halves of the pump body, remove the screws and separate the two halves of the pump body.
4. Turn the diaphragm, approximately a quarter turn (in either direction), to free the diaphragm rod from the rocker arm link, and detach the diaphragm.
5. Remove the diaphragm spring, oil seal retaining washer and rubber oil seal.

**To Install**

6. Replace the oil seal, oil seal retainer and the diaphragm spring.
7. Insert the end of the rod in the slotted end of the link. Engage the grooves in the pull rod end by turning the diaphragm a quarter of a turn, so that the **smaller tab** on the diaphragm aligns with the mating mark on the lower body flange.
8. Replace the pump upper body, align the mating marks and loosely secure with six screws.

   NOTE – The centre line of the ports should be at 30° to the mounting flange.
9. Operate the rocker arm several times to centralise the diaphragm and fully tighten the screws with the rocker arm raised.
10. Replace the filter.
11. Replace the sediment bowl and gasket and secure with the clamp.

**OP 9350-A2** EXTRA: FUEL PUMP MECHANISM – OVERHAUL

**To Dismantle**

1. Relieve the staking over the two pin retainers and withdraw the retainers. The pin, rocker arm, spring, link and two washers may then be removed as an assembly.

### To Reassemble

2. Position the rocker arm, with the boss between the flanges of the link, ensuring that the central web of the link and the spring seat location on the rocker arm are uppermost. Align the holes in the link and rocker arm and insert the pivot pin.

3. Fit one thrust washer to each end of the pin, next to the link, and carefully insert the assembly into the lower pump body casting, with the spring seat on the rocker arm uppermost. Place the rocker arm spring in position so that the ends are located by the registers on the body and the rocker arm.

4. Insert two new pin retainers, one at each end of the pin, ensuring that these positively locate the pin in the casting. Stake over the casting to the pin retainers in two locations each side. Check the operation of the rocker arm and link.

   NOTE – New pin retainers should always be fitted after dismantling the lower pump body, as service replacement parts are supplied oversize with a shorter shoulder to enable the staking to be carried out satisfactorily. No attempt should be made to refit the old pin retainers.

**OP 9350-A3** EXTRA: VALVES – RENEW
(Fuel pump removed and upper and lower bodies separated.)

### To Remove

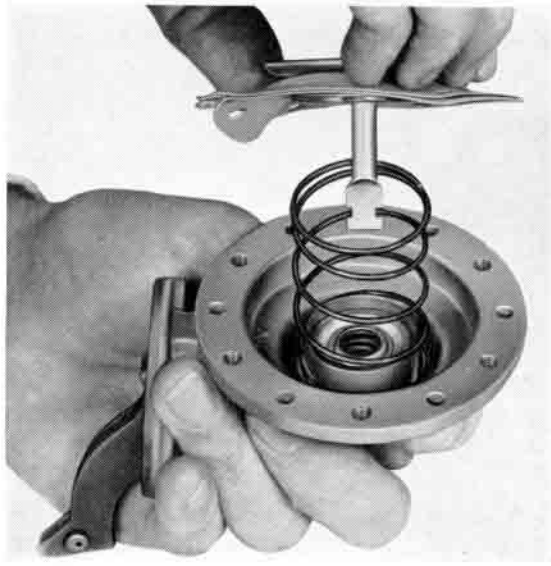
1. Carefully relieve the staking and remove the valves from the upper body.

### To Install

2. Fit the gaskets in the upper body, then fit the two valve assemblies.

   NOTE – The valves will only seat properly when in their correct locations and the right way up.

3. Ensure that the valves are pressed fully home and retain each valve securely by staking at six points around its housing.



**Refitting the Diaphragm**

**Refitting the Upper Body**

**OP 9350-B** FUEL PUMP DIAPHRAGM – RENEW
(Includes OPS 9350-A and A1)

**OP 9350-C** FUEL PUMP MECHANISM – OVERHAUL
(Includes OPS 9350-A, A1 and A2)

**OP 9350-D** FUEL PUMP VALVES – RENEW
(Includes OPS 9350-A and A3)

**OP 9350-E** FUEL PUMP DIAPHRAGM AND VALVES – RENEW
(Includes OPS 9350-A, A1 and A3)
(Using diaphragm and valve kit)

**OP 9350-F** FUEL PUMP – OVERHAUL
(Includes OPS 9350-A, A1, A2 and A3)
(Using fuel pump repair kit)

**OP 9350-G** FUEL PUMP – TEST

**Tools Required**

500 X Gang gauge

1. Raise the bonnet and fit wing covers.

**Fuel Pump Inlet Depression Test**

2. Fill the carburettor float chamber with petrol. If necessary, a separate gravity feed fuel supply can be connected to the carburettor.
3. Disconnect the fuel line from the tank fuel at the pump inlet, suitably plugging the end of the pipe to prevent loss of fuel from the tank or the ingress of foreign matter.
4. Connect the vacuum gauge to the inlet connection.
5. Start the engine and allow it to run at idling speed, when a vacuum reading of at least $8\frac{1}{2}$ in. (21.59 cms.) mercury should be obtained.
6. Stop the engine, when the gauge needle should take at least one minute to return to zero.
7. Disconnect the vacuum gauge from the pump and reconnect the fuel line to the pump inlet.

**Fuel Pump Delivery Pressure Test**

8. Fill the carburettor float chamber with petrol. If necessary a separate gravity feed fuel supply can be connected to the carburettor.
9. Disconnect the fuel line from the pump to the carburettor.
10. Connect the pressure gauge to the pump outlet.
11. Start the engine and observe the pressure when running at idling speed. Momentarily race the engine and observe the pressure. This should be $1\frac{1}{4}$ to $2\frac{1}{2}$ lb./sq. in. (0.087 to 0.176 kg./sq. cm.).
12. Stop the engine.
13. Disconnect the pressure gauge from the pump and reconnect the fuel pump to carburettor pipe.
14. Remove the wing covers and close the bonnet.

## OP 9364-A FUEL FILTER SEAL AND/OR BOWL - RENEW

### To Remove

1. Slacken the clamp nut and remove the sediment bowl and gasket.
2. Remove the filter and clean.

### To Install

3. Carefully refit the filter.
4. Replace the sediment bowl and gasket and secure with the clamp.

## OP 9428-A EXHAUST MANIFOLDS - REMOVE AND INSTALL

### To Remove

1. Raise the bonnet and fit wing covers.
2. Remove the eight nuts securing the exhaust manifolds to the cylinder head.
3. Slacken the two clamps securing the exhaust manifolds to the exhaust pipe.
4. Pull the manifolds away from the cylinder head to clear the mounting studs and pull the manifolds forward to release them from the exhaust pipe.

### To Install

5. Clean the manifold and cylinder head mating surfaces and position four new gaskets on the cylinder head.
6. Enter the manifolds into the exhaust pipes and position the flanges on the cylinder head mounting studs.
7. Secure the manifolds with the eight brass locknuts, tightening the nuts to a torque of 12 to 15 lb. ft. (1.66 to 2.07 kg.m.) and tighten the manifolds to exhaust pipe clamps.
8. Remove the wing covers and close the bonnet.

## OP 9448-A EXHAUST MANIFOLD GASKET - RENEW
(Includes OP 9428-A)

## OP 9510-A CARBURETTORS AND/OR GASKETS - REMOVE AND INSTALL

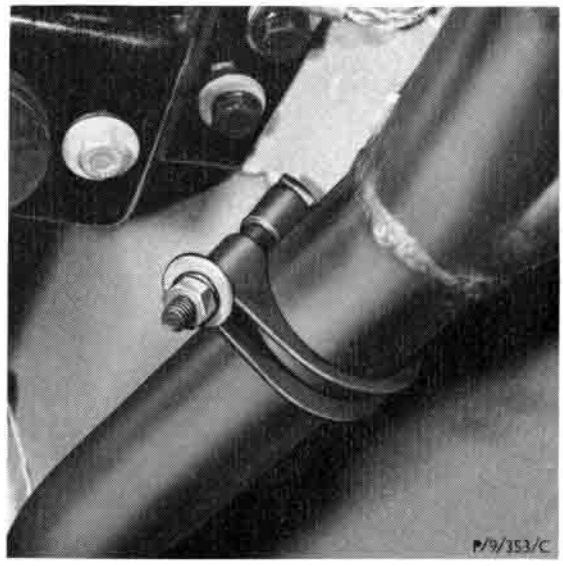
### To Remove

1. Raise the bonnet and fit wing covers.
2. Remove the clip securing the hose, from the air cleaner to the air intake, at the air box end and remove the air intake cover by unscrewing the three bolts.
3. Remove the air box backplate assembly by unscrewing the eight nuts, withdrawing the spring washers, air intake trumpet retaining plates and intake trumpets.
4. Detach the throttle cable from the carburettors and unlatch the return spring.
5. Disconnect the fuel supply pipes from the fuel pump at the carburettors.
6. Detach the choke cable from the starting devices.

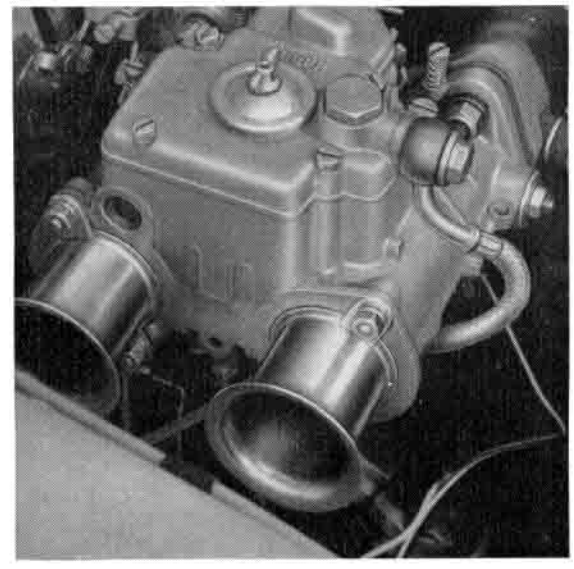
7. Progressively unscrew the eight nuts retaining the carburettors to the inlet tracts. Four can readily be seen from above, the other four are below the carburettors. Withdraw from each stud a flat washer and a double coil spring washer. Carefully remove the carburettors, ensuring that the synchronising linkage between the two is not distorted. Remove the gaskets and 'O' rings from the inlet tract studs.

**To Install**

8. Carefully examine each carburettor to inlet tract gasket, ensuring that the metal mounting plate is not damaged and that the 'O' rings in the faces of the plate are in position. Fit the gaskets to the inlet tracts.
9. Fit the carburettors, ensuring that the synchronising linkage is correctly positioned so that the lug on the rear carburettor throttle linkage is between the spring-loaded plunger and adjusting screw on the front carburettor. To each stud fit a double coil spring washer, a flat washer and nut. Tighten the eight nuts progressively until a 0.040 in. (1.016 mm.) clearance exists between the coils of the double coil spring washers. This clearance should be checked with feeler blades. Do not overtighten the nuts otherwise the 'O' rings will be flattened into the recesses in the plate.
10. Refit the fuel supply pipes to the carburettors.
11. Reconnect the choke control by securing the cable casing in the cast arm of each starting device cover with the clamp screw. Ensure that the choke control on the instrument panel is pushed fully home and that the starting device operating levers are in the off position. Retain the inner cable in the operating levers with the clamp screws.
12. Fit the backplate assembly of the air box to the carburettors, ensuring that the cork gasket is not distorted, then an intake trumpet in each barrel and retain with eight retaining plates, spring washers and nuts.
13. Refit the throttle cable to the throttle linkage and refit the return spring.
14. Adjust the carburettor slow-running as in Operation No. 9510-C.
15. Replace the air box cover and secure it with the three bolts. Reposition the hose on the air box and tighten the clip.
16. Remove the wing covers and lower the bonnet.




**Exhaust to Manifold Clamp**



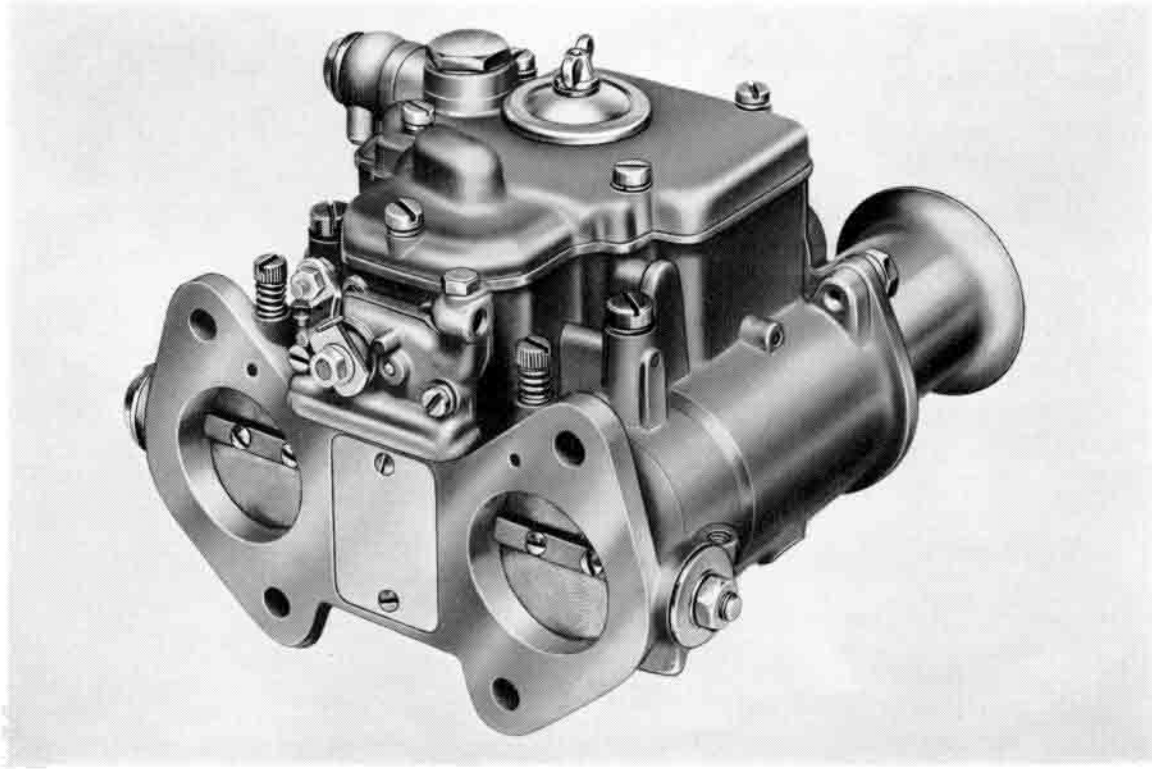
**Air Intake Trumpets**

**OP 9510-A1** EXTRA: CARBURETTOR GASKET – RENEW

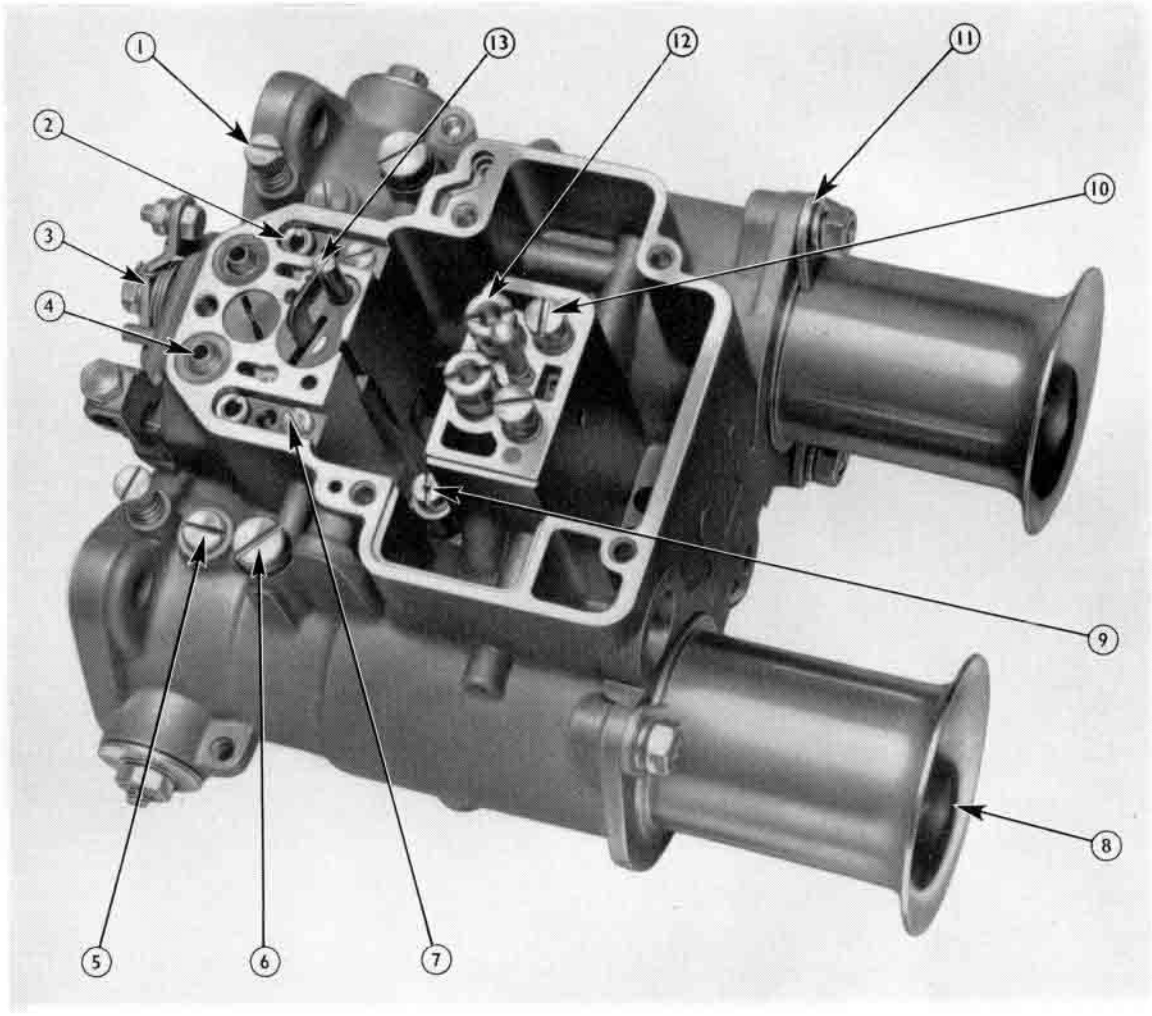
A gasket kit is not available for this carburettor. However, the following instructions detail the procedure for the replacement of all gaskets which may be obtained individually.

Before fitting a new gasket, ensure that the mating faces are clean and free of old gasket material.

1. Unscrew the fuel filter retaining plug from the top cover.
2. Fit a new washer to the plug then replace the plug.
3. Unscrew the wing nut, retaining the main and idling jet cover, and remove the five screws to release the top cover. Lift off the top cover and gasket.
4. Carefully push out the float fulcrum pin and remove the float assembly, needle valve and cover gasket.
5. Unscrew the needle valve seat from the cover, fit a new sealing washer and refit the valve seat.
6. Locate a new gasket on the cover, the needle valve within its seat and refit the float assembly.
7. Remove the four screws retaining the jet inspection cover to the base of the carburettor.
8. Locate a new gasket on the cover, then refit the cover.
9. Remove the two screws retaining the body plate, located between the carburettor mounting flanges, and withdraw the plate and gasket.
10. Locate a new gasket on the plate and secure the plate and gasket to the body.
11. Remove the accelerator pump jet retaining screw, and withdraw the pump jet.
12. Fit a new washer to the pump jet then relocate the jet within the body.
13. Fit a new 'O' ring to the jet retaining screw and refit the screw.
14. Carefully position the cover on the body and secure with screws.



**Weber Carburettor**




1. Volume Control Screw
2. Starting Jet
3. Starting Device Control Lever
4. Starting Device Piston Spring Guide/Retainer
5. Progression Hole Inspection Plug
6. Accelerator Pump Jet Retaining Screw
7. Accelerator Pump Delivery Valve Screw
8. Air Horn
9. Accelerator Pump Inlet Valve
10. Idling Jet Holder
11. Air Horn Retaining Plate
12. Emulsion Tube, Air Correction and Main Jet Holder
13. Accelerator Pump

**Jet Positions**

15. Locate a new gasket within the main and idling jet cover then secure to the top cover with the wing nut.

**OP 9510-A2** EXTRA: EACH CARBURETTOR – OVERHAUL

**To Dismantle**

1. Remove the auxiliary venturi followed by the main venturi from each barrel. Auxiliary venturi size:—4.5, Main venturi size:—30.
2. To remove the fuel filter first unscrew the hexagon-headed retainer from the carburettor cover, noting that there is a sealing washer beneath the retainer head. Withdraw the gauze filter from the cover, taking care not to lose the brass seat in the top of the filter.
3. The carburettor cover can be withdrawn after removing the small circular main and idling jet cover retained by a wing nut and then the five screws (slacken evenly) with their spring washers and flat brass washers.
4. Remove the floats and needle valve from the cover. Gently push out the float fulcrum pin from the cover, after which the needle valve may be removed from its seat. Withdraw the cover gasket and unscrew the needle valve seat from the cover, a sealing washer being fitted between the needle valve seat and cover. Float weight:—26 grams. Needle valve size:—1.75.
5. Remove the accelerator pump from the carburettor body. Pull out the inverted 'U' shaped control rod which will withdraw the split retainer, spring and piston. To dismantle the assembly, first compress the spring, slightly rotate the piston and withdraw from the hooked end of the control rod, followed by the spring and split retainer.
6. Unscrew the accelerator pump inlet valve from the base of the float chamber. Shake the inlet valve to ensure that the ball inside the valve body slides freely. Inlet valve size:—35.
7. Remove the idling jet holders (two per carburettor) and pull the idling jets from the holders. Idling jet size:—45F9.
8. Unscrew the emulsion tube holders (two per carburettor). Pull each emulsion tube from its holder and then the main jet from one end of the emulsion tube and the air corrector jet from the other. Jet sizes:—Main—110, Air corrector—155, Emulsion tube—F11.
9. Remove each accelerator pump delivery valve retaining screws (two per carburettor) and invert the carburettor to extract the balls and weights.
10. Unscrew the pump jet retaining screws (two per carburettor) and examine the rubber seal around each screw. Extract each pump jet from the body. Pump jet size:—35.
11. Remove the starting jets (two per carburettor). Jet size:—100F5.
12. The progression holes in each barrel may be inspected by removing the two progression hole inspection plugs. Size:—1 × 120, 2 × 100.
13. Unscrew the volume control screws and throttle stop screw, if fitted. Examine the springs.
14. The starting device cover on the side of the carburettor may be removed after unscrewing the two retaining screws which have spring and flat washers beneath their heads.
15. Carefully prise out the combined starting device piston spring guide/retainer circlips (two per carburettor). Withdraw the guides and springs and invert the carburettor to extract the starting device pistons.
16. Remove the throttle plates, one from each barrel, by unscrewing the two screws securing each plate in its shaft.

17. Remove the throttle spindle. A new carburettor body is supplied complete with the throttle spindle, pump operating arm, bearings, etc. They can be dismantled, if required, as follows. Remove the nuts, after bending back the tab washers, each end of the throttle spindle. Remove the flat washer from one end and the throttle linkage from the other. Withdraw the plate and gasket, secured by two screws, from the engine side of the carburettor to gain access to the accelerator pump control arm. Tap out the pin retaining this arm to the spindle. Ensuring that the threads are not damaged, knock out the spindle which will also remove, from one end of the spring retainer, the spring, dust cover and bearing. After carefully prising out the spring retainer from the other end the spring and dust cover can be extracted.

**Cleaning and Inspection**

After dismantling and prior to reassembling, the carburettor, filter and the jets should be cleaned and checked for size, see Specification. The seating of the idling jets, starting jets, starter pistons and main jets in the carburettor body should also be examined, together with the seating faces of the jets and tubes themselves.

It is physically impossible to inter-change air correction jets with main jets, starting jets with idling jets, etc., and similarly their positions in the carburettor.

Inspect the various gaskets, also the sealing rings fitted to the accelerator pump jet screws, needle valve seat and filter retainer. Clean the filter and ensure that the gauze is undamaged.

Shake the accelerator pump inlet valve to check that the ball is free to slide.

If it is suspected that any of the ducts in the carburettor are blocked then the lead plugs which close the ducts should be removed, the ducts blown out and new lead plugs fitted. These plugs must be a good fit to prevent fuel leakage and the ingress of air which might affect mixture strength. After fitting, the plugs must not stand proud on mating faces, since if they are proud air leaks may result due to surfaces not seating.

**To Reassemble**

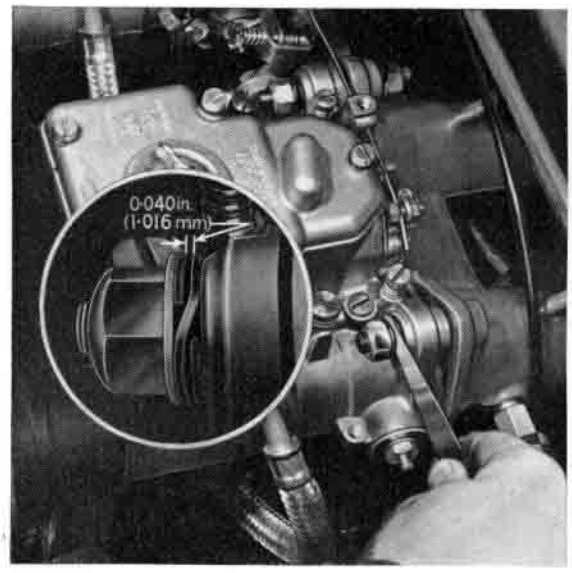
18. If removed, refit the throttle spindle across the barrels, ensuring that accelerator pump operating arm is fitted on the shaft so that the shouldered end is by a barrel and the curved end of the arm is uppermost. Retain the arm to the spindle with a tension pin. Fit a dust cover, spring and spring retainer at each end of the shaft and, depending on the end of the shaft, fit a flat washer on the throttle linkage. Secure with new tab washers and nuts, operating the throttle spindle whilst tightening the nuts to ensure ease of movement. It may be necessary to lightly tap either end of the shaft to obtain this condition. Refit the accelerator arm access plate and gasket, securing with two screws.

19. Fit the throttle plates, noting that the edges of the plates are chamfered, the plates being fitted so that they can completely close the barrels. If a new throttle plate is being fitted, check that the angle stamped on the plate is 79° 30'. If a throttle plate with a different angle is fitted then the carburettor's low speed progression will be affected, since the distance between the throttle plate's edge and adjacent progression hole will be altered with the result that vacuum at the progression hole will be either too strong or too weak with consequential irregular running. Retain the plates in the shaft with new screws, the shaft holes being countersunk for the heads; do not tighten these screws at this time. Close the throttle shaft to centralise the plates with the barrels, tighten the screws.

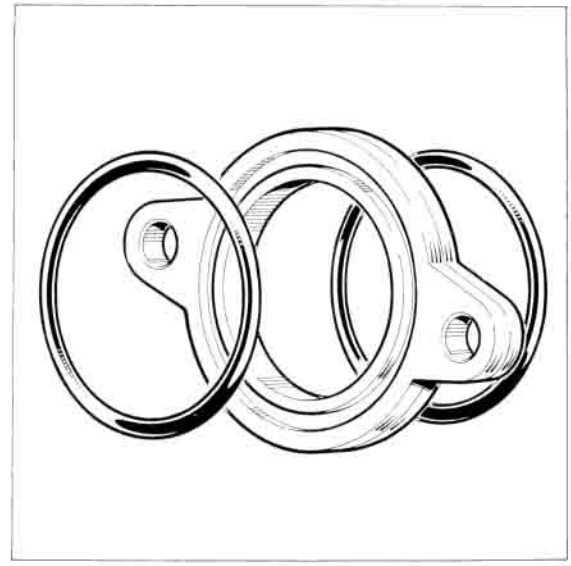
20. Using a 0.002 in. (5.08 mm.) feeler gauge in the gap between the throttle body and the throttle plate (on the centre line of the throttle plate and at right-angles to the throttle spindle) at the progression hole side of the throttle barrel, hold the throttle control lever firmly against the stop screw, and adjust the screw until a light pull is required to withdraw the feeler blade. Next, trap the feeler blade on the opposite side of the throttle plate and if the concentricity is correct then the same effort will be required to withdraw the blade with the

stop screw in the same position. If the concentricity is incorrect the clamping screws must be backed off and the plate moved as required. Repeat the above procedure on the second throttle plate until concentricity is obtained on this also. Peen the threaded ends of the screws to retain them.

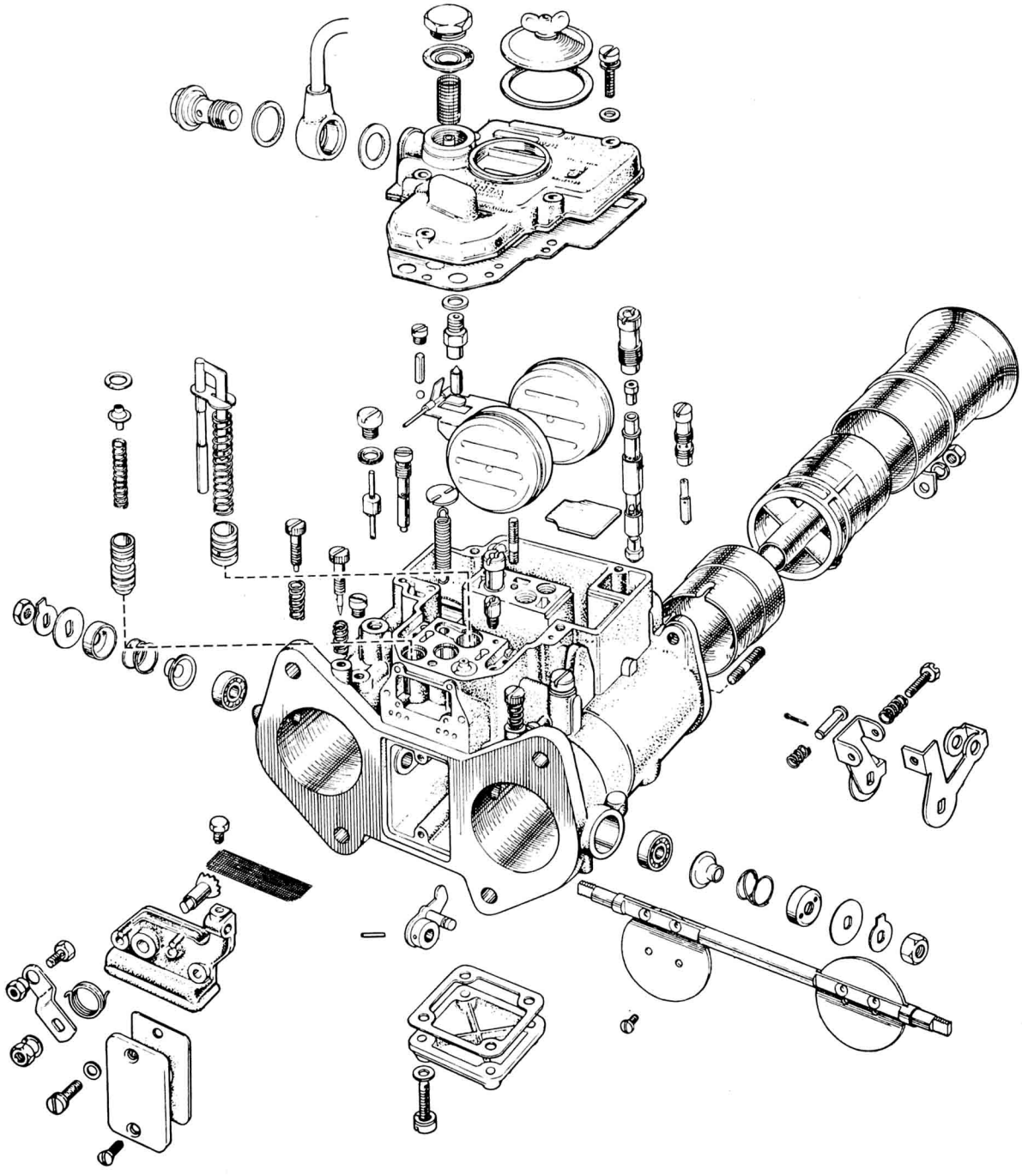
21. Having checked (and set if necessary) the concentricity of the two throttle plates, they should now be checked for synchronisation. Using a 0.002 in. (5.08 mm.) feeler blade positioned between the throttle body and the plate on the progression hole side of the barrel and holding the throttle control lever hard against the stop screw, adjust the screw until a light pull is required to withdraw the feeler. Without disturbing the stop screw, the same effort should be required to withdraw the feeler from between the second plate and throttle barrel. In cases where the concentricity of the two throttle plates has been set but synchronisation is incorrect, check first that all the throttle plates are identical with respect to the degree number stamped on them (i.e. 79° 30 mins). If these are correct this normally indicates a twisted throttle spindle and this is corrected by holding one end of the spindle and turning the other end in the required direction.
22. Fit the starting device pistons in the carburettor body tapered ends first, followed by the coil springs and combined spring guide/retainers, the latter being held in position by circlips.
23. Secure the starting device cover to the carburettor, dowels being provided on the cover for locating purposes, and retain with two screws, flat washers and spring washers, tightening them evenly to avoid distorting the cover. By looking through the spring guide/retainers and operating the lever a check can be made to ensure that the pistons are raised by the operating lever and lowered by the springs when the lever is released.
24. Fit the progression hole inspection plugs, one in each barrel.
25. Fit the starting jets, two per carburettor. Jet size:—100F5.
26. Replace the accelerator pump jets (two per carburettor), noting that the smaller diameter enters first and the flat on the large diameter is to the engine side of the carburettor. Check the condition of the retaining screw rubber seals and refit together with these screws. Pump jet size:—35.
27. Refit the accelerator pump delivery valves (two per carburettor) by fitting a ball first, then a weight, concave face to the ball, and finally the retaining screws.
28. Fit the emulsion tube holders. Push a hexagonal head main jet (size 110) into the large diameter end of an emulsion tube (F11) and a circular-headed air corrector jet (size 155) in




**Double Coil Spring Washer Clearance**



**Carburettor Gasket**



**Carburettor - Exploded**

the other end. Insert the assembly, air corrector jet first, into the emulsion tube holder and screw into position.

29. Replace the idling jets (two per carburettor) in their holders and fit them in the carburettor. (Jet size:—45F9).

30. Check that the accelerator pump inlet valve nylon ball moves freely and screw the valve into the base of the float chamber. Inlet valve size:—40.

31. Reassemble and fit the accelerator pump. Slide the split retainer on the accelerator pump control rod, with the dishing toward the hook end of the control rod. Pass the spring over the hooked end of the control rod, compress the spring and then locate the piston on the control rod. Position the assembly in the carburettor and press the split retainer into position. Check the operation of the pump by actuating the throttles.

32. Screw the needle valve seat into the cover, after ensuring that the seat sealing washer fitted between the seat and cover is in good condition. This sealing washer also affects the float level.

33. Refit the needle valve and floats. Check the needle valve damping ball for free operation and then place the needle valve in its seat. Place a new gasket on the cover and then push the float fulcrum pin through the cover 'legs' and float hinge. Needle valve size:—1.75. Float weight:—26 grams.

34. Check the float level. Hold the carburettor cover in the vertical position with the floats hanging down and with the tab which abuts the needle valve in light contact with the ball and perpendicular. The distance between both floats and the cover, including gasket, should be 8.5 mm. If necessary, bend the needle valve tab to obtain this measurement. After levelling the floats check that the stroke is 6.5 mm., i.e. 15 mm. from the cover. If necessary, adjust the position of the other tab, which abuts the needle valve seat, to obtain this movement.

    The float level and stroke should be checked whenever the floats, needle valve, needle valve seat or sealing washer are renewed.

35. Refit the carburettor cover, ensuring that the floats are free to move in the body. Secure with five screws, flat washers and spring washers, tightening them evenly. Refit the small circular main and idling jet cover and cork seal retained by a wing nut.

36. Place the gauze fuel filter in the top cover, then the brass seat in the gauze filter and finally screw the retainer, with a sealing washer beneath its head, into the cover.

37. Carefully screw the volume control screws (two per carburettor) into position until each just contacts its seat and then unscrew one turn.

38. Fit the throttle stop screw, if fitted, until it just contacts the throttle stop lever and then screw in a further half-turn.

39. Fit the main venturis (size 30), smaller external diameter first, so that the brass pin in the larger external diameter slides in the barrel's channel.

40. Replace the auxiliary venturis (size 4.5), larger external diameter first, engaging the venturi spring tongue in the barrel channel.

## **OP 9510-A3** EXTRA: CARBURETTOR TO MANIFOLD STUDS - RENEW

### Tools Required

Stud Remover and Replacer

### To Remove

1. Using the stud remover and replacer in the prescribed manner, remove the studs.

**To Install**

2. Fit the new studs, again using the stud remover and replacer.

**OP 9510-B** CARBURETTOR GASKETS – RENEW
(Includes OPS 9510-A and A1)

**OP 9510-C** CARBURETTOR – ONE – OVERHAUL
(Includes OPS 9510-A and A2)

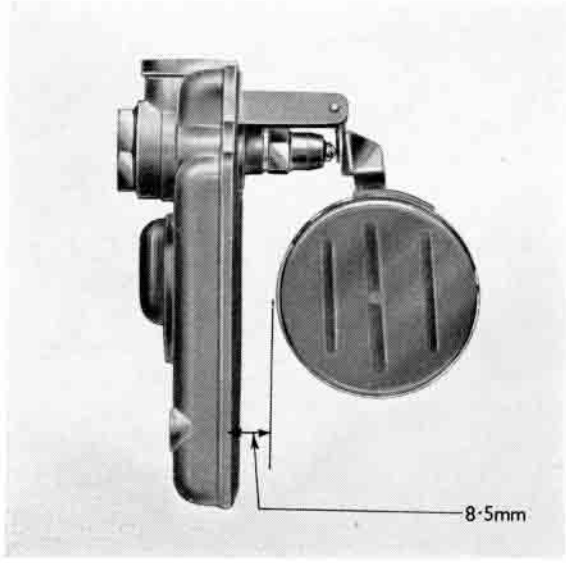
**OP 9510-D** CARBURETTOR – BOTH – OVERHAUL
(Includes OPS 9510-A and A2 × 2)

**OP 9510-M** CARBURETTORS – ADJUST

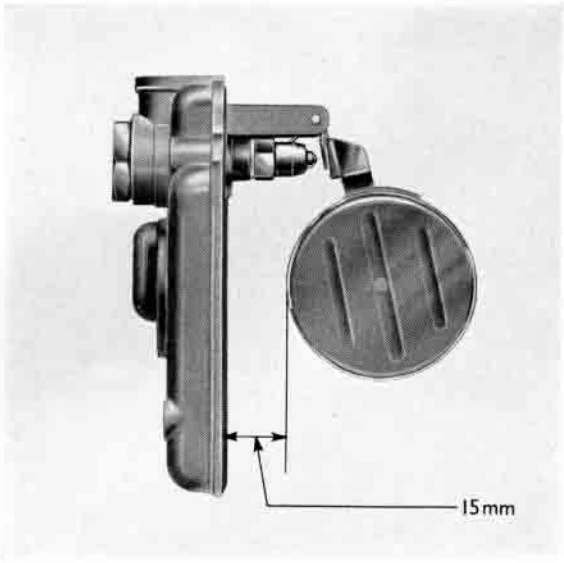
1. Remove the outer part of the air box which is secured by three bolts and spring washers.

*Float Level and Float Stroke Setting.*

2. Disconnect the fuel pipe to each carburettor.
3. Remove the jet cover wing nut and the five screws to release the top cover.
4. Lift off the top cover.
5. Carry out the following checks:—
   (*a*) Floats are not punctured.
   (*b*) Float swings freely about its pivot.
   (*c*) Ensure that the needle valve housing is screwed fully home.
   (*d*) The ball pin moves freely when the float is raised and lowered.
   (*e*) The contact face of the tab located between the float arms is not pitted.
6. With the top cover held in a vertical position check that the dimension between the cover, with the gasket in position, and each float is 8.5 mm. Adjust the float arms and/or the tab, located between the float arms, to obtain this dimension.
7. With the float level correctly set and the float moved fully away from the cover, check that the dimension between the cover and float is 15 mm. Adjust the tab which contacts the needle valve housing to obtain this dimension.




**Float Level**




**Float Stroke**

8. Refit the top cover, jet cover and reconnect the fuel line to each carburettor.

*Slow Running Adjustments*

9. Carefully screw in each volume screw until it just contacts its seat then unscrew ¾ of a turn.
10. Start the engine and set the throttle stop screw of the rear carburettor so that the slow-running speed is slightly higher than normal (1,000 to 1,200 rev./min.).
11. Adjust the synchronising screw of the throttle spindle connecting linkage to match the throttle openings. This adjustment, which is most important, can be checked by placing one end of a piece of flexible tube against the ear and the other at the carburettor intake. Since the throttle plates in each carburettor are on a common spindle, it is only necessary to place the tube in the intake of one barrel of each carburettor. If the hiss of one carburettor is louder than the other, adjust the rear carburettor throttle stop screw and synchronising screw to equalise the intensity of the hiss and therefore the intake of air. *Once the front and rear carburettor throttle plates are synchronised, do not touch the synchronising screw of the throttle spindle connecting linkage.*
12. The four volume control screws should then be adjusted together an eighth of a turn at a time, allowing time for each adjustment to take effect, until the engine runs evenly.

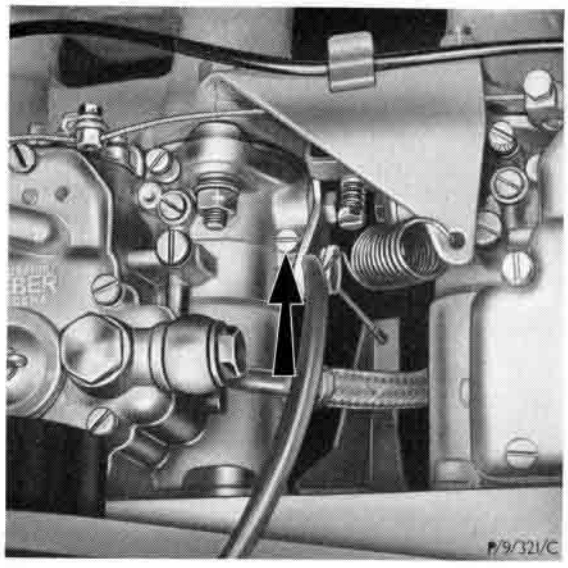
    Whilst one volume control screw should not normally be adjusted without adjusting the other three a similar amount, if necessary, on final adjustment, a slight variation between each volume control screw is permissible, to achieve a satisfactory idling condition. However, this variation should not exceed one quarter of a turn between each screw.

    If, after setting the volume control screws, the engine idling speed is too fast (above 800 – 1,000 rev./min.), slacken the rear stop screw until the idling is satisfactory and, if necessary, readjust the volume control screws and ignition setting.
13. Refit the air box cover.

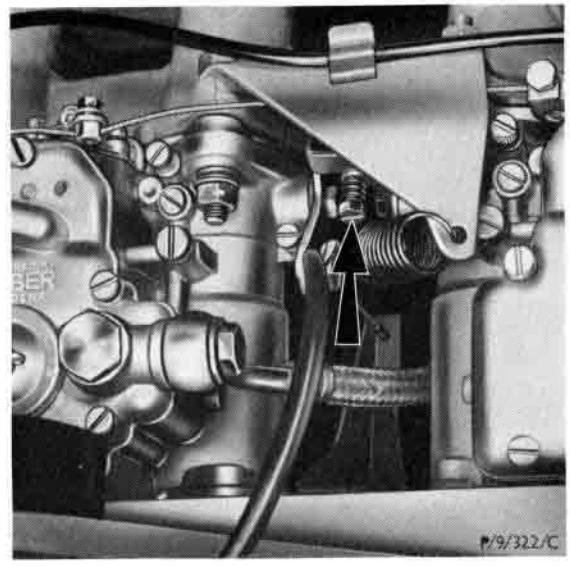
## OP 9533-A CARBURETTOR JETS AND FLOAT CHAMBERS - CLEAN

### To Remove

1. Slacken the two clips and remove the air cleaner to air box hose.
2. Unscrew the three bolts and remove the air box cover.




**Throttle Stop Screw**

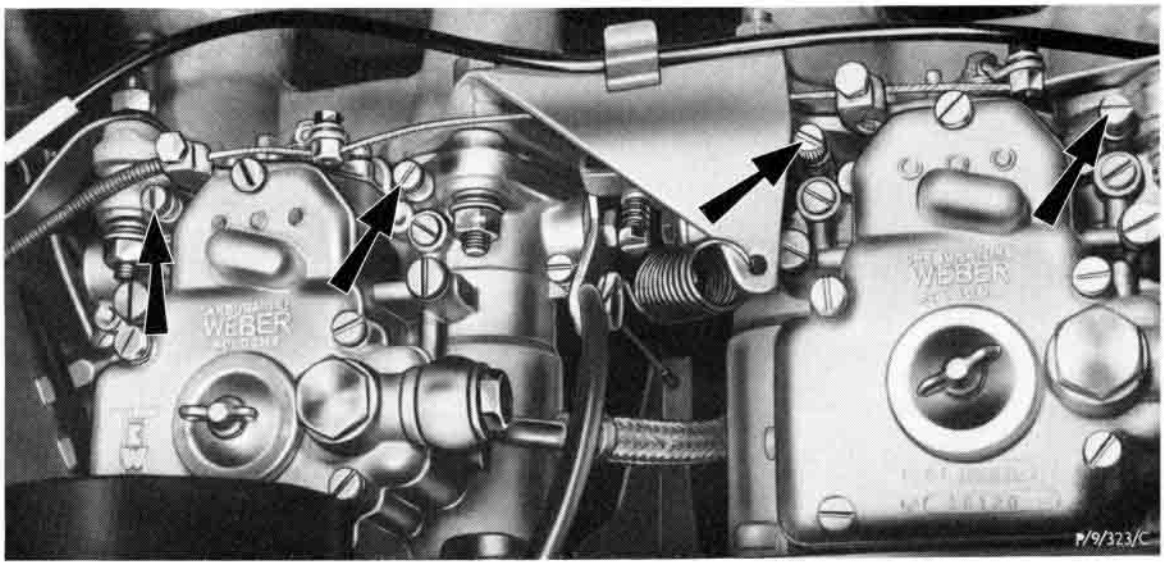



**Throttle Synchronising Screw**

3. Disconnect the fuel supply pipes from the carburettors.
4. Unscrew the wing nuts and lift off the two main and idling jet covers.
5. Progressively unscrew the five screws, spring washers and flat brass washers securing the carburettor covers and remove the two covers.
6. Unscrew the accelerator pump inlet valve from the base of the float chamber.
7. Remove the idling jet holders (two per carburettor) and pull the idling jets from the holders.
8. Unscrew the emulsion tube holders (two per carburettor). Pull each emulsion tube from its holder and then the main jet from one end of the emulsion tube and the air corrector jet from the other.
9. Remove each accelerator pump delivery valve retaining screws (two per carburettor).
10. Unscrew the pump jet retaining screws (two per carburettor) and examine the rubber seal around each screw. Extract each pump jet from the body.
11. Remove the starting jets (two per carburettor).
12. Remove the accelerator pump from the carburettor body. Pull out the inverted 'U' shaped control rod which will withdraw the split retainer, spring and piston.
13. Blow the accelerator pump, the jets and their housings clean. Wash the floats and the float chambers in clean petrol and blow clean.

**To Install**

14. Fit the starting jets (two per carburettor).
15. Replace the accelerator pump jets (two per carburettor), noting that the smaller diameter enters first and the flat on the large diameter is to the engine side of the carburettor. Check the condition of the retaining screw rubber seals and refit together with these screws.
16. Refit the accelerator pump delivery valves (two per carburettor) by fitting a ball first, then a weight, concave face to the ball, and finally the retaining screws.
17. Fit the emulsion tube holders. Push a hexagonal head main jet (size 110) into the large diameter end of an emulsion tube (F11) and a circular-headed air corrector jet (size 155) in the other end. Insert the assembly, air corrector jet first, into the emulsion tube holder and screw into position.




**Volume Control Screws**

18. Replace the idling jets (two per carburettor) in their holders and fit them in the carburettor.
19. Check that the accelerator pump inlet valve ball moves freely and screw the valve into the base of the float chamber.
20. Reassemble and fit the accelerator pump. Slide the split retainer on the accelerator pump control rod, with the dishing toward the hook end of the control rod. Pass the spring over the hooked end of the control rod, compress the spring and then locate the piston on the control rod. Position the assembly in the carburettor and press the split retainer into position.
21. Refit the carburettor covers, ensuring that the floats are free to move in the bodies. Secure them with five screws, flat washers and spring washers, tightening them evenly. Refit the small circular main and idling jet covers retained by wing nuts.
22. Reconnect the fuel supply pipes to the carburettors.
23. Replace the air box cover and secure it with the three bolts and spring washers.
24. Position the air cleaner to air box hose on the two components and tighten the two retaining clips.

## OP 9600-A AIR CLEANER ASSEMBLY – REMOVE AND INSTALL

### To Remove

1. Slacken the four nuts securing the air cleaner body to the rocker cover brackets and the hose clip adjacent to the body. Lift off the body.

### To Install

2. Locate the air cleaner body on its supporting brackets and tighten the four retaining nuts.
3. Position the hose on the cleaner body and tighten the clip.

## OP 9700-A CHOKE CONTROL – RENEW

### To Remove

1. Raise the bonnet and fit wing covers.
2. Disconnect the choke inner cable from the operating levers by unscrewing the clamp screws. Release the outer cable from the cast arms of each starting device cover.
3. Remove the choke control from the facia by pulling out the inner cable sufficiently to unscrew the chrome bezel and remove the outer cable and inner cable assembly complete.

### To Install

4. Feed the cable assembly through the facia aperture and tighten the chrome bezel to retain it.
5. Secure the cable casing in the cast arm of each starting device cover with the clamp screw. Ensure that the choke control on the facia is pushed fully 'home' and that the starting device operating levers are in the off position. Retain the inner cable in the operating levers with the clamp screws.
6. Remove the wing covers and close the bonnet.

## OP 9725-A THROTTLE CABLE – REMOVE AND INSTALL

### To Remove

1. Raise the bonnet and fit wing covers.
2. Unlatch the throttle return spring from the bracket on the inlet tracts.

3. Disconnect the throttle cable from the throttle control lever on the carburettor and release the inner cable from the anchor bracket.
4. Release the cable from the throttle pedal upright by pulling it out of the slot.
5. Feed the cable through the grommet in the bulkhead and remove it from the passenger compartment side.

**To Install**

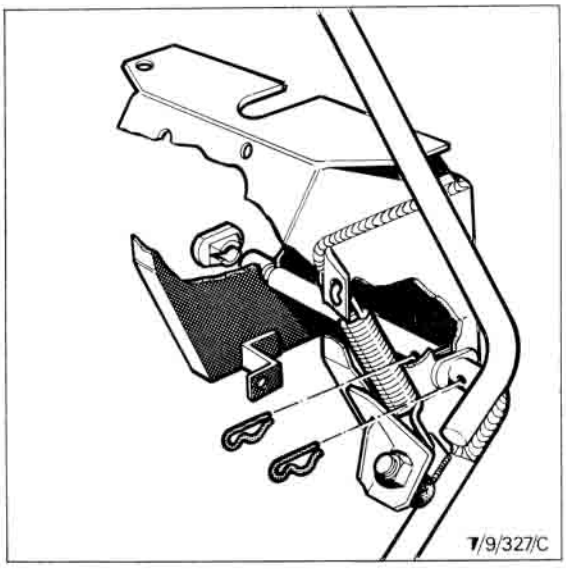
6. Feed a new cable through the grommet in the bulkhead from the passenger compartment side.
7. Connect the cable to the throttle pedal by locating it in the slot.
8. Connect the cable to the carburettor throttle control lever and reconnect the return spring. Locate the inner cable in the anchor bracket.
9. Remove the wing covers and lower the bonnet.

## OP 9735-A ACCELERATOR PEDAL AND SHAFT ASSEMBLY – REMOVE AND INSTALL

**To Remove**

1. Remove the throttle cable and clip and disconnect the throttle cable from the lever on the accelerator pedal shaft.
2. Disconnect the accelerator pedal return spring.
3. Extract the retaining pins from each side of the right-hand bush.
4. Withdraw the accelerator pedal and shaft assembly from the pedal mounting bracket.

   NOTE – The left-hand bush clips into a groove in the shaft and slight pressure will be necessary to disengage the shaft. It may be necessary to turn the right-hand bush through 45° to disconnect it from the pedal mounting bracket to enable the accelerator pedal and shaft to clear the wheel arch as it is withdrawn.




**Accelerator Pedal Bushes**

**To Install**

5. Locate the right-hand bush, if removed, over the accelerator pedal shaft. Slide the accelerator pedal shaft through the mounting bracket and the left-hand bush, applying pressure as necessary to spring the bush into the location groove.
6. Insert the right-hand bush into its location and turn through 45° to lock into position.
7. Refit the two retaining pins on each side of the right-hand bush.
8. Connect the accelerator pedal return spring.
9. Connect the throttle cable to the lever and refit the clip.

**OP 9735-A1** EXTRA: ACCELERATOR PEDAL AND SHAFT BUSHES – RENEW
(Accelerator pedal shaft removed)

**To Remove**

1. Turn each bush through 45° and remove from the pedal mounting bracket.

**To Install**

2. Insert each bush from outside of the bracket into the square holes provided for the bushes, and turn through 45° to lock into position.

   NOTE – The left-hand bush is coloured black and the right-hand bush is white. **Do not transpose these bushes.**

**OP 9735-B** ACCELERATOR PEDAL AND SHAFT BUSHES – RENEW
(Includes OPS 9735-A and A1)