

## SECTION L.

### FUEL SYSTEM

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L.1. - GENERAL DESCRIPTION

The fuel system has a fuel tank located at the rear of the luggage compartment. The filler cap is located on the rear right-hand panel, the filler pipe being connected to the tank by a short length of hose retained with clips. The fuel tank gauge unit is located in the rear face of the tank. The fuel gauge on the instrument panel registers the quantity of fuel in the tank with the ignition switched on.

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

Either two side draught Weber, or from Chassis No. 8600, two side draught Zenith Stromberg carburetters are used (see respective sections dealing with carburetters and also 'Technical Data').

The air cleaner is of the replaceable paper element type, mounted in the nose of the car forward of the radiator. A flexible hose connects the air cleaner to an airbox mounted on the carburetters.

L.2. - FUEL SYSTEMTo Clean

1. Remove the air cleaner and clean (Section 'L.17').
2. Disconnect the fuel supply pipe at both the carburetters and fuel pump locations.

Weber Carburetters

1. Unscrew the wing nuts and lift off the two main and idling jet covers. Remove the screws securing the carburetter covers and remove the two covers.
2. Remove the jets and blow them clean with an air line (Section 'L.10').
3. Clean the floats and float chambers with petrol and blow clean with an air line.
4. Refit the carburetter covers ensuring that the floats are free to move in their bodies. Replace the two main jet covers and secure with their wing nuts. Check float level.

Zenith-Stromberg Carburetters

1. Remove the carburetters from the engine (Section 'L.13').
2. With the carburetters off the engine, remove and clean the float chambers, floats and needle valve assemblies (Section 'L.15').
3. Refit the needle valve assemblies, the floats and float chambers. Ensure that the

needle valves and floats are free to move. Refit the carburettors to the engine.

All Engines

1. Using an air line, blow through the previously disconnected fuel supply pipes between carburettors and fuel pump. Replace the pipe.
2. Disconnect the pipe between the fuel tank and the fuel pump, and blow through using an air line. Replace the pipe.
3. Remove the fuel pump sediment bowl and filter, wash in clean petrol, and refit.
4. Replace the air cleaner.

L.3. - FUEL TANK

To Remove

1. From under the R/H side of the car and above the rear suspension upper wishbone, remove the rubber grommet (not fitted on all models) from the body to expose the fuel tank drain plug. Using a funnel with rubber tube attached, release the plug and drain the petrol into a suitable container.
2. While still under the car, remove the fuel supply pipe from the tank. Remove the cables from the fuel gauge sender unit, noting their locations.
3. From inside the boot, remove the boot floor (see Section 'B'). Release the rubber hose connecting the fuel filler neck to the tank.
4. Remove the nuts from below the boot (underside of body) and pull tank from its location.

To Replace

1. Refit the drain plug into the tank ensuring that it is fully tightened.
2. Push the tank into its location and secure with its nuts and washers.
3. Refit the rubber hose connecting the tank to the filler neck. Replace the cables to the fuel tank sender unit. Replace boot floor. From below the car, refit the fuel supply pipe to the tank. Replace rubber grommet (Part No. W 0210) around tank drain plug.

L.4. - FUEL TANK SENDER UNIT

To Remove

1. Drain the fuel from the tank into a suitable container. (See Section 'L.3').
2. Remove boot backboard. (See Section 'B').
3. Make a note of the wiring positions, then remove cables from sender unit.
4. Unscrew the sender unit lock ring.

To Replace

1. Place a new sealing ring in the recess in the tank, then fit the sender unit tightening its lock ring with a suitable wrench.
2. Reconnect the cables to their correct locations on the sender unit.
3. Replace the boot backboard.

L.5. - FUEL GAUGE

To Remove

1. Remove the radio or its blanking piece (see Section 'B').
2. From behind the fuel gauge, release the nut securing the gauge strap, pull off strap and pull gauge out of facia panel from front.
3. Note position of wiring cables and remove from gauge.

To Replace

1. Reconnect cables to the fuel gauge, push gauge into location in facia panel.
2. From behind facia panel, replace securing strap with its nut.
3. Refit radio or blanking piece.

L.6. - FUEL PUMP

Description

Fuel is drawn from the fuel tank by the pump which is secured to the engine block and is driven by an eccentric on the jackshaft. The pump consists of two main bodies which clamp a diaphragm between their outer flanges.

The lower body assembly comprises a rocker arm and link, both of which pivot on a pin located in the body; attached to the link is the pull rod incorporated in the diaphragm assembly. To protect the diaphragm from crankshaft oil splash, an oil seal is located at the point in the lower body where the push rod passes through. A return spring is interposed between the undersides of the diaphragm and the lower body, the spring determining the pump output pressure, (see 'Technical Data'). A further spring is fitted between the rocker arm and the body for the purpose of ensuring that the rocker arm is in constant contact with the eccentric on the jackshaft.

Assembled in the upper body are two valve assemblies, one being opened by suction, the other by pressure. Both valves are held in position by a recess in the upper body which is then staked.

Both inlet and outlet valve assemblies are identical in construction and are renewable and interchangeable.

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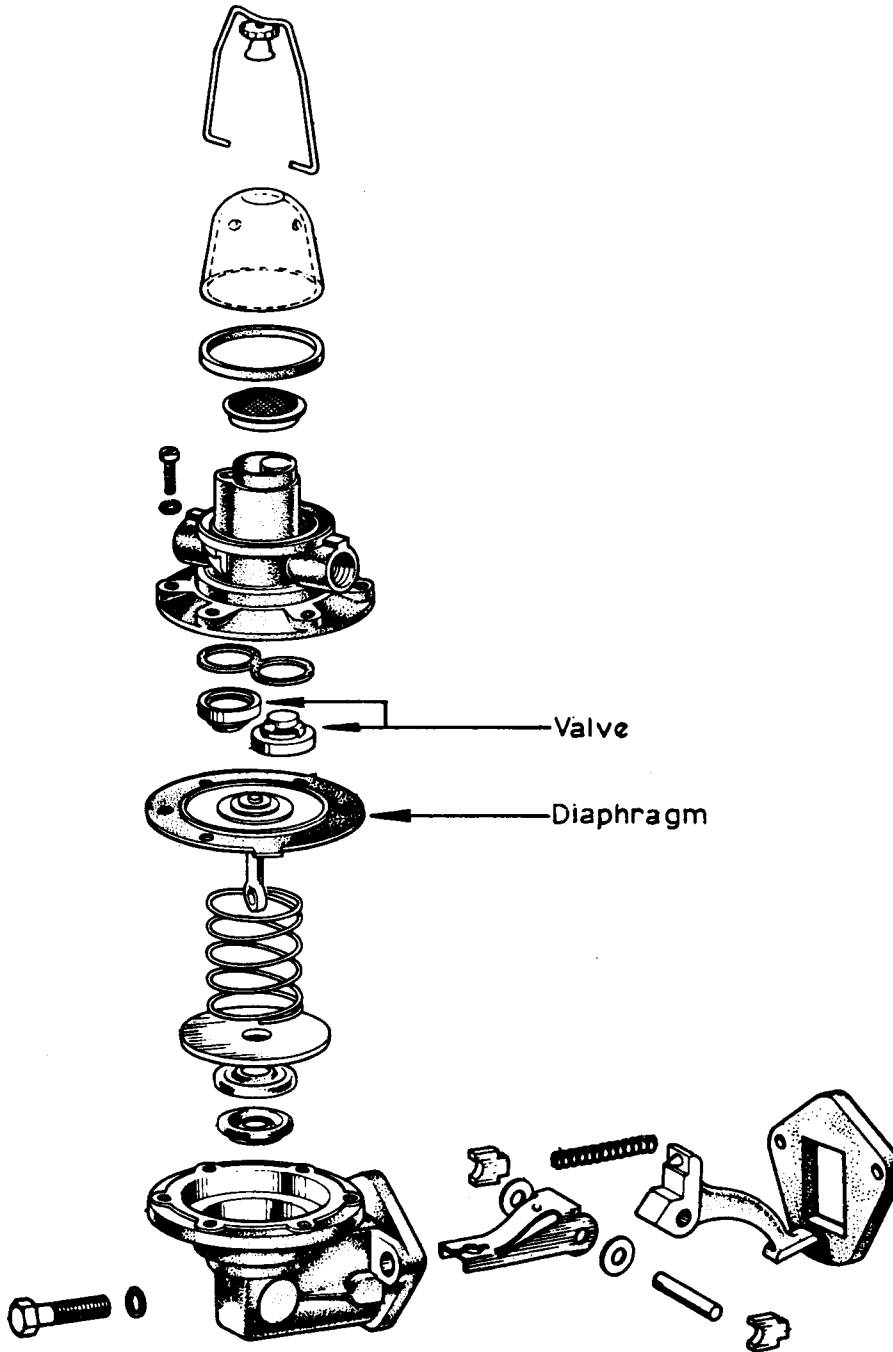


Fig. 1. FUEL PUMP COMPONENTS

Also incorporated in the upper body is a filter gauze which is held in position with a domed glass top cover and gasket, this in turn being held by a centre screw clamping the cover to the upper body.

To Remove Fuel Pump

1. Disconnect the pipes from the inlet and outlet bosses of the fuel pump. Seal off the ends of the pipes to prevent the ingress of foreign matter.
2. Remove two fuel pump retaining bolts and lockwashers, and withdraw fuel pump and gasket from cylinder block.

To Dismantle

1. Before commencing to dismantle, clean exterior of pump and scribe a line across the lower and upper body flanges of the pump for location purposes during re-assembly.
2. Remove domed glass top cover of pump also gasket and filter gauze.
3. Remove the screws and spring washers securing the lower and upper bodies together and separate the two bodies.
4. The valve assemblies are 'staked' in position and it is necessary to relieve this 'staking' in order to remove valves.
5. From the lower body remove the diaphragm and pull rod assembly, first turning the assembly through an angle of  $90^{\circ}$  in order to free the rod from the link in the rocker arm assembly.

NOTE: The diaphragm and pull rod are a permanent assembly and no attempt should be made to separate the two parts.

6. Lift out the diaphragm return spring and, where fitted, remove oil seal retaining washer and oil seal.
7. Providing that the rocker arm pin is held firmly in the lower body it should not be necessary to remove the rocker arm pin or associated parts unless undue wear is in evidence.

Should it be necessary to remove the rocker arm from body, the following procedure should be adopted:-

The rocker arm and associate parts are located by two retainers, which are fitted into slots at engine face of castings, the retainers in turn being held by punch indentations at each end of retaining pins.

To remove the rocker arm assembly, hold rocker arm firmly in suitable vice

and with two flat bars approximately 12 in. long (30.5 cm.), insert one each side in the gap between the casting and vice, lever the body away from the rocker arm and pin.

NOTE: Care should be taken that the type of removing bars used are flat to ensure that the body machined face is not damaged.

### Inspection and Overhaul

1. Thoroughly wash all parts in clean paraffin, ensuring that valves are cleaned separately if being used again.
2. Check the diaphragm for hardening or cracking and examine the lower extremity of the pull rod, where it connects with the rocker arm link, for wear. Renew the diaphragm assembly if any of these signs are in evidence.
3. Check diaphragm return spring, if corroded or damaged, it should be replaced.
4. Visually check valve assemblies, if any doubt exists, replacement valves should be fitted. The two valves are identical and can be used for either application by inverting their positions.
5. Examine the rocker arm face pad for wear. Slight wear is permissible but should not exceed a depth of .010 in. (.254 mm.). Check rocker arm pin and link holes for wear, also the underside of link where diaphragm pull rod engages for wear. Badly worn or damaged parts should be renewed. Check rocker arm return spring.
6. Discard old oil seal and gaskets.
7. Examine upper and lower bodies for cracks or damage. If either the diaphragm or engine mounting flanges are distorted, these should be lapped to restore their flatness. Renew if either distortion is excessive.

### To Re-assemble

The re-assembly of the rocker arm into the body is as follows:-

Assemble rocker arm, link and spacing washers onto rocker arm pin, place rocker arm return spring into body and insert rocker arm assembly into body of pump. Ensure that the rocker arm return spring is properly engaged between locating 'pips' on casting and rocker arm. Tap two new pin retainers into slots in the body and, while holding the retainers hard against the rocker arm, pin punch over the end of the slots with a 1/8 in. (3.17 mm.) pin punch to prevent retainers working loose.

NOTE: When refitting rocker arm pins, always use new service replacement

retainers (coloured copper for identification). These are slightly shorter than the original type to allow for new staking.

Fit new oil seal washer and steel retaining washer into the lower body.

Place the diaphragm return spring in position over oil seal retaining washer.

Place the diaphragm assembly over the spring, with the pull rod downwards and with the locating tab on the diaphragm at the twelve o'clock position.

Press down on the diaphragm at the same time turning the assembly to the left in such a manner that the slot on the pull rod will engage the fork in the link, ultimately turning the assembly a complete quarter of a turn to the left, which will place the pull rod in its correct working position in the link.

This will also permit the matching up of the holes in the diaphragm with those on the pump body flange and the tab will now be at the nine o'clock position.

Place the new valve gasket in the upper body around the valve ports.

Place valve assembly in inlet port with spring facing outwards. Fit other valve in the outlet port position with spring inside the port.

When refitting re-stake valve in four positions by using a suitable punch.

Refit filter gauze in top of upper body, also glass domed cover with new cover gasket. Fit central clamping screw.

The upper and lower bodies can now be fitted together as follows:

Push the rocker arm towards the pump body until the diaphragm is level with the body flange.

Place the upper half of the pump body into its correct position by aligning the scribed lines made on the two flanges prior to dismantling.

Replace the securing screws and spring washers and tighten only until the heads of the screws engage the washers.

Push the rocker arm away from the pump so as to hold the diaphragm at the top of the stroke and while so held, tighten the body screws diagonally and securely.

IMPORTANT: After assembling in the manner described above, the edges of the diaphragm should be flush with its two clamping flanges.

Any appreciable protrusion of the diaphragm indicates incorrect fitting in which case, special care should be taken in maintaining downward pressure on the rocker arm while the diaphragm screws are finally tightened.

To Replace

1. 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.
2. Insert the rocker arm through the hole in the cylinder block so that the arm lies on the camshaft eccentric.
3. Secure the fuel pump to the cylinder block with two spring washers and bolts, tightening the bolts evenly to the torque loading given in 'Technical Data'.
4. Ensure that the pipe joints are clean and refit the fuel pipes.
5. Run the engine and check for leaks at the joints.

L.7. - WEBER CARBURETTERSGeneral Description

These carburetters are of the dual barrel side-draught type, each consisting of two single barrel carburetters with two venturis in each barrel. A small auxiliary venturi is located in each barrel and they discharge fuel, except under certain conditions, into the narrowest portions of the large venturis. By using two venturis in each barrel a greater depression is created than when a single venturi is employed. Also, the velocity of an airstream is higher at the centre, and the velocity of this central core is used by the auxiliary venturis, which discharge into the centre of the main venturis at the narrowest section.

The throttle plates in each carburetter are on a common spindle and the synchronising linkage between the carburetters ensures that the throttle plates in each carburetter open an identical amount. It should be remembered that one barrel supplies one cylinder only, since the inlet tracts are not interconnected. Apart from the throttle linkage, the carburetters are identical and each carburetter is, in effect, two carburetters with duplicated main jets, idling jets, etc.

However, whilst each barrel has an accelerator pump jet, there is only one piston type accelerator pump per carburetter and this feeds both jets. To facilitate cold starting a progressive starting device is fitted, discharging the mixture into both barrels on the engine side of the throttle plates. The idling jets, main and air correction jets, together with their emulsion tubes, are accessible after removing the small circular cover retained by a wing nut on top of the carburetter cover.

A common float chamber is incorporated in each carburetter with twin floats, to