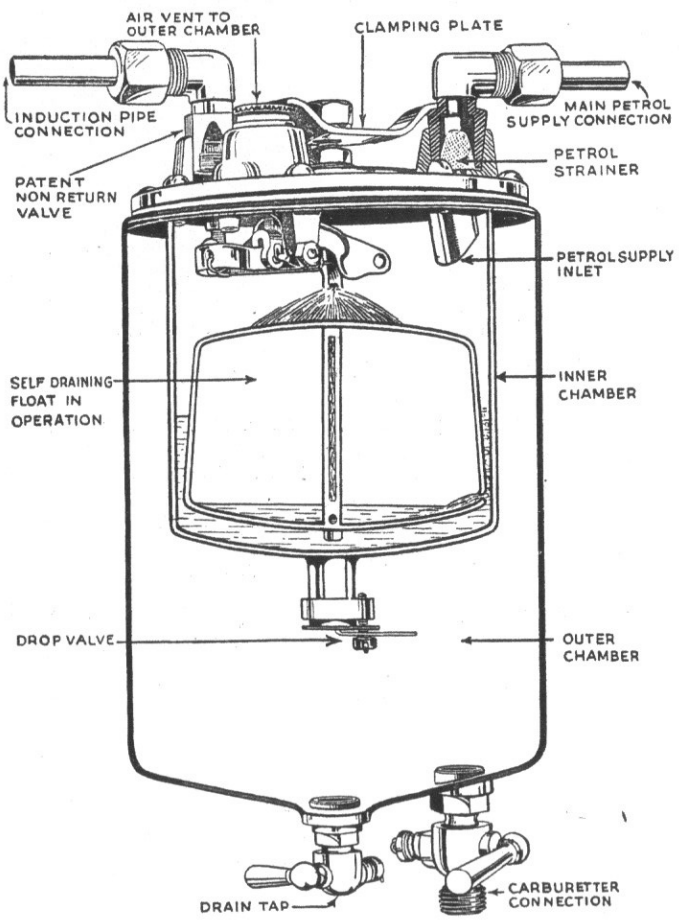


INTERNAL VIEW OF AUTOVAC.

THE PATENT

AUTOVAC

Vacuum Fuel Feed Apparatus

has for its object the elevation of fuel from a main tank placed below the level of the carburetter, thereby gaining the advantages of accessibility, increased fuel capacity, and correct weight distribution.

The system employs a small auxiliary tank usually mounted on the engine side of the dashboard, with its base above the carburetter float chamber. It is divided into two chambers—the inner or vacuum chamber being connected to the induction pipe and main petrol tank, and the lower or reserve chamber to the carburetter. Communication between the two is *via* the drop valve at the base of the inner chamber.

The engine suction creates a partial vacuum in the upper chamber, thus closing the drop valve and drawing up petrol from the main tank. As the fuel flows in, the float rises. When it reaches a certain height two valves are operated—one cuts off the suction, the other admits air; this admission of air destroys the vacuum, releases the drop valve, and allows the petrol to flow into the outer chamber. As the reserve chamber is always open to the atmosphere through the air vent, the fuel flows to the carburetter by gravity.

As the float falls with the outflow of fuel from the inner chamber, the valve mechanism is again actuated and the operation of taking in fuel is repeated.

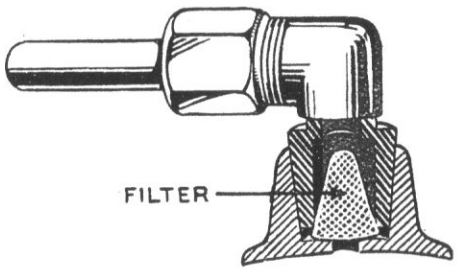
The Patent Self-Draining Float.

Among the many improvements embodied in the design of the Autovac Apparatus, this is probably the most important.

A hollow float stem is used, having a hole inside and one outside the body of the float. Any petrol entering the float is automatically evacuated through the stem during the suction period, and during the period of atmospheric pressure air flows in, thereby enabling the float to function as when air-tight.

HINTS ON THE CARE OF THE AUTOVAC.

Most of the fuel feed troubles that come under our notice are due to obstructions caused by foreign matter in the petrol; therefore we would stress the importance of regular attention to the following:—

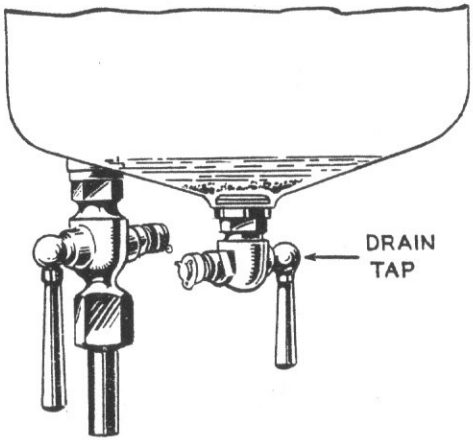


(1) Clean filter every month.

To gain access to this filter disconnect pipe at elbow marked PETROL, slack off clamp nut and remove elbow; the filter cone lies underneath. Replace filter as shown in sketch.

(2) Drain off sediment trap every week.

The concave base of the outer chamber acts as a trap for fine sediment and water, the carburetter supply being taken off at a slightly higher level. Drain off until the petrol runs clear.



(3) Keep all joints air-tight.

Inspect the pipe connections occasionally, and tighten where necessary. If the top cover has been removed for any reason, make certain that all the top screws are tight and the top washers intact. Leaks at these points will impair the efficiency of the apparatus.

DON'T Forget to inspect filter and drain sediment trap.

DON'T Try to adjust the air valve which is disclosed after removing the air vent cone. This valve is soldered in position after being set, and requires no attention.

DON'T Allow anyone to solder up the holes in the float stem.

DON'T Exert too much pressure on the clamp.

DON'T Use broken top cover gaskets or washers made of any material other than that used by us.

DON'T Plug holes in air vent cone.

DON'T Change the elbows about. The one with the valve fitted is the suction elbow.

DON'T Use perished rubber tubing for the windscreen cleaner, especially if the connection is taken from the Autovac.

DON'T Plug the air vent in the main petrol tank. This hole is usually drilled in the filler cap, and sometimes becomes clogged with cleaning paste, etc.

Above all, DON'T forget to write to us if you are in any difficulty with your Autovac; we are always at your service.

FITTING INSTRUCTIONS.

To Mount Autovac.

Position. The best position for the Autovac is on the Engine side of the dashboard; if this is not convenient it can be fitted on the driver's side, or on suitable brackets fixed to the induction pipe or cylinder block.

In relation to carburetter. The petrol flows under atmospheric pressure from the outer chamber to the carburetter; therefore the bottom of the Autovac must be above the float chamber.

In relation to main petrol tank. The top of the Autovac must always be above the level of fuel in the main tank, even when the car is descending hills; if it were lower, petrol would leak through the air vent.

Connection to Main Tank.

Air vent. A $\frac{1}{8}$″ diameter hole must be drilled in the main tank filler cap, or other convenient place, to allow free access of air.

Pipe to Autovac. Disconnect existing petrol pipe at carburetter and connect to elbow marked PETROL.

If the pipe is too large use a reduction coupling and short length of 5/16″ pipe, or sweat the latter into the bore of the larger diameter.

It is immaterial whether the outlet from the main tank is at the top or bottom, but it should be borne in mind that if at the bottom sediment is liable to enter and choke the pipe.

Connection to Induction.

Size of hole. Drill and tap a $\frac{1}{8}$″ gas hole as nearly opposite to one of the cylinders as possible, and screw in the union provided.

Pipe to Autovac. Connect induction union to elbow marked SUCTION.

Connection to Carburetter.

Pipe to Autovac.

Connect tap at base to carburetter.

To Start Engine.

Close throttle and turn engine with starter or handle to draw first charge of petrol into Autovac; wait a few seconds to allow fuel to flow to carburetter, then start engine and run for a few minutes to fill Autovac.

SPECIAL NOTES.

When Autovac replaces pressure feed.

The entire pressure system of pumps, gauges, etc., can be left on the car, *but the pressure pipe to the main petrol tank must be detached from the pump.*

Water jackets.

Never tap through a water jacket when making the suction connection.

Some engines have only a section of the induction pipe jacketed; others have internal induction systems, such as the Fiat. In such cases apply for additional fitting sheet, naming make, year, and horse-power of car.

Bending pipe.

Take care that the pipe does not collapse at the bend and so reduce the diameter.

Solderless couplings.

Wedge rings are provided for all unions except the carburetter tap.

To apply: slip pipe through nut and wedge ring, draw ring down until pipe projects about ¼" through ring; insert pipe in elbow, and tighten nut.

The nut compresses the ring on to the pipe, and makes a perfectly liquid and airtight joint.

To move top connections.

Release clamp nut, and elbows can then be swivelled in any direction.

Airtight joints.

A leak on suction or petrol line will reduce the efficiency of the Autovac.

Take care that there are no split pipes or loose joints.