

The Tillotson Mfg. Co.

Toledo, Ohio

SERVICE BULLETIN

No. 1203

Every Carburetor shipped from the Tillotson factory is 100% inspected and given a gasoline test of several hours duration. The passing of this test insures that the carburetor functions perfectly without leaking at the time of shipment.

Regardless of rugged construction and our diligent efforts, service irregularities may occur which although beyond the control of the manufacturers, cause inconvenience and misunderstanding.

The object of this bulletin is to reflect useful information compiled from our service records. We have chosen in this instance the subject of—

CARBURETOR LEAKING TROUBLE

Regardless of whatever else may occur to the usually faithful automobile, a gasoline leak, when discovered, will always excite some uncomplimentary expression concerning the carburetor. It is quite a natural thing for the otherwise unperturbed motorist to desire burning his fuel without needless waste. There are, however, several conditions which contribute to the development of leaks, the most common of which we will here call to your notice.

Our service stations are very well informed on leaks and their causes but a brief review of the subject may serve as a helpful medium to everyone concerned.

DIRT AND ITS INFLUENCE ON CARBURETOR LEAKING

No single factor is more responsible for leaking trouble than dirt in the fuel system. A very careful check over a period of one year shows us that practically all carburetors returned to us for leaking correction is caused from dirt and its abrasive action at the inlet needle and seat.

Gritty substances such as particles of rust, sand, and scale will carry through the fuel lines into the inlet mechanism where it gathers at the screen. Substances of a size sufficiently small to pass the strainer will often times impinge under the needle. If so, the needle will remain open so that when the engine is stopped, gasoline will overflow the nozzle and often the float bowl itself. Such a leak is not uncommon and will cease immediately upon the washing through of the impinged particle.

Injury may result to the needle or seat from this very cause and a permanent abrasion will of course cause a slow leak.

It may occur to you that the manufacturer should use a finer screen to insure stoppage of all foreign substances. If we were to use a screening finer in mesh than 75 strands to the inch—and this specification is only about half the size necessary to retard the really fine particles—the inlet connection would need to be of a size so large as to be out of all reasonable proportions. Care must be used not to stop water for in so doing, fuel would be retarded, if not completely closed off, and in the colder seasons of the year continuous freezing and breakage result.

Any approach to gasoline filtration must be accomplished by a unit entirely separate from the carburetor.

In the process of bleaching gasoline, it is a common practice to use flour of sulphur and sulphuric acid; the acid being the bleaching agent and the flour of sulphur the neutralizing medium. Much depends upon the thoroughness of the washing process as to how clean and free from acid content the fuel may finally become.

When high acidity is encountered, metallic corrosion occurs at the seat and this condition results in many leaks.

THE NEEDLE AND SEAT

The only method of controlling fuel level, an all important factor in carburetor design, is the use of a valve or needle and a seat with which the needle forms contact.

It is, of course, needless to emphasize the importance of holding all needles to an absolute perfection in conical roundness. No process as yet devised entirely compensates for the variations in the best available materials. A powerful microscope seems to indicate that a needle which varies as much as .0001 (one ten-thousand) of an inch from perfect will cause a slow leak. Inspection is therefore of no practical value. Every carburetor must be given an actual gasoline test.

It is our practice to install from two to three hundred carburetor units on pressure lines and observe fuel levels over a period of from three to twenty-four hours. These units which develop leaks are removed from the line and the inlet mechanism examined for irregularities.

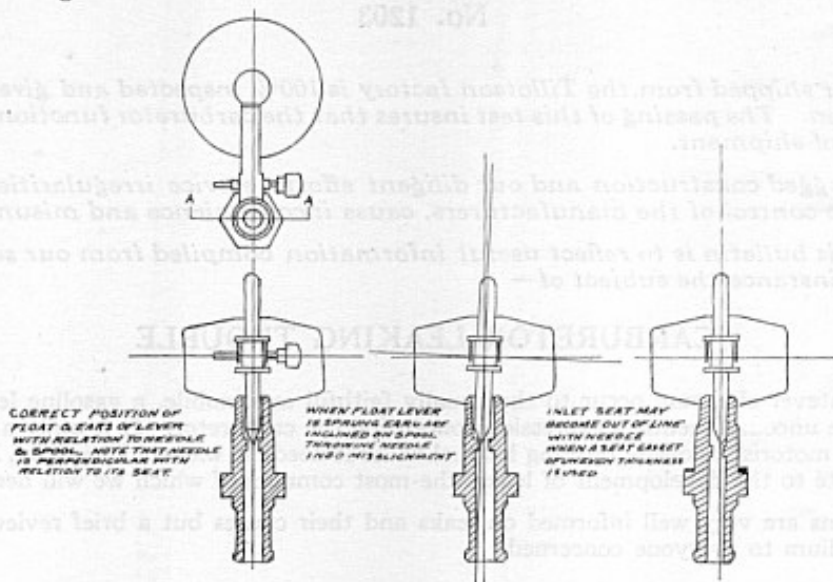
ELIMINATING A LEAK

First, a close inspection is given the operation of the float.

Does the float touch the inside of the bowl, thus holding the needle from seating?

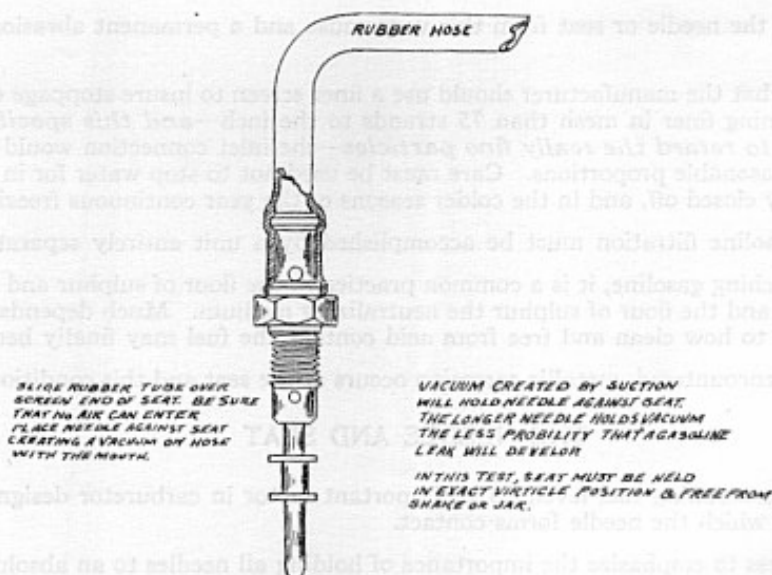
Are the ears of the float lever square or are they sprung so as to raise the needle from only one side of the spool, thus cocking the needle in the guide.

Has the carburetor been dropped, bending the float lever bearing screw? If so, this condition will cause a binding of the pin in its bearing.



TO PROPERLY TEST

To properly test—test it in the following manner. Procure a small, *very flexible rubber hose*. Insert the bottom end of the inlet seat in one end of the hose sufficiently far as to cover the gasoline inlet holes. Now insert a needle, tapping it gently against the seat and place the other end of the hose in the mouth. Exhaust the air from the hose. The needle will remain held tightly in place by the vacuum created. Should the needle leak gradually, the vacuum will decrease and the needle will fall out. This is a very severe test and any needle which will hold vacuum for a reasonable length of time (10 to 15 seconds) should function very satisfactorily as an inlet needle and seat. Always use a needle and seat complete in pairs. Never test any needle except the one to be used with the seat with which it is tested.



TO PROPERLY INSTALL

One other cause for leaking which occasionally comes under observation is a misaligned seat. The threads in the body casting into which the inlet seat is screwed are made purposely slightly oversize. Whenever an inlet seat gasket is used that is slightly thicker on one side than the other, it is only natural that the seat will be thrown out of perpendicular alignment. The corrective measure is, of course, to install a gasket of uniform thickness. Keep the gaskets absolutely dry.