Stewart

Vacuum Gasoline System

Instruction Book

and

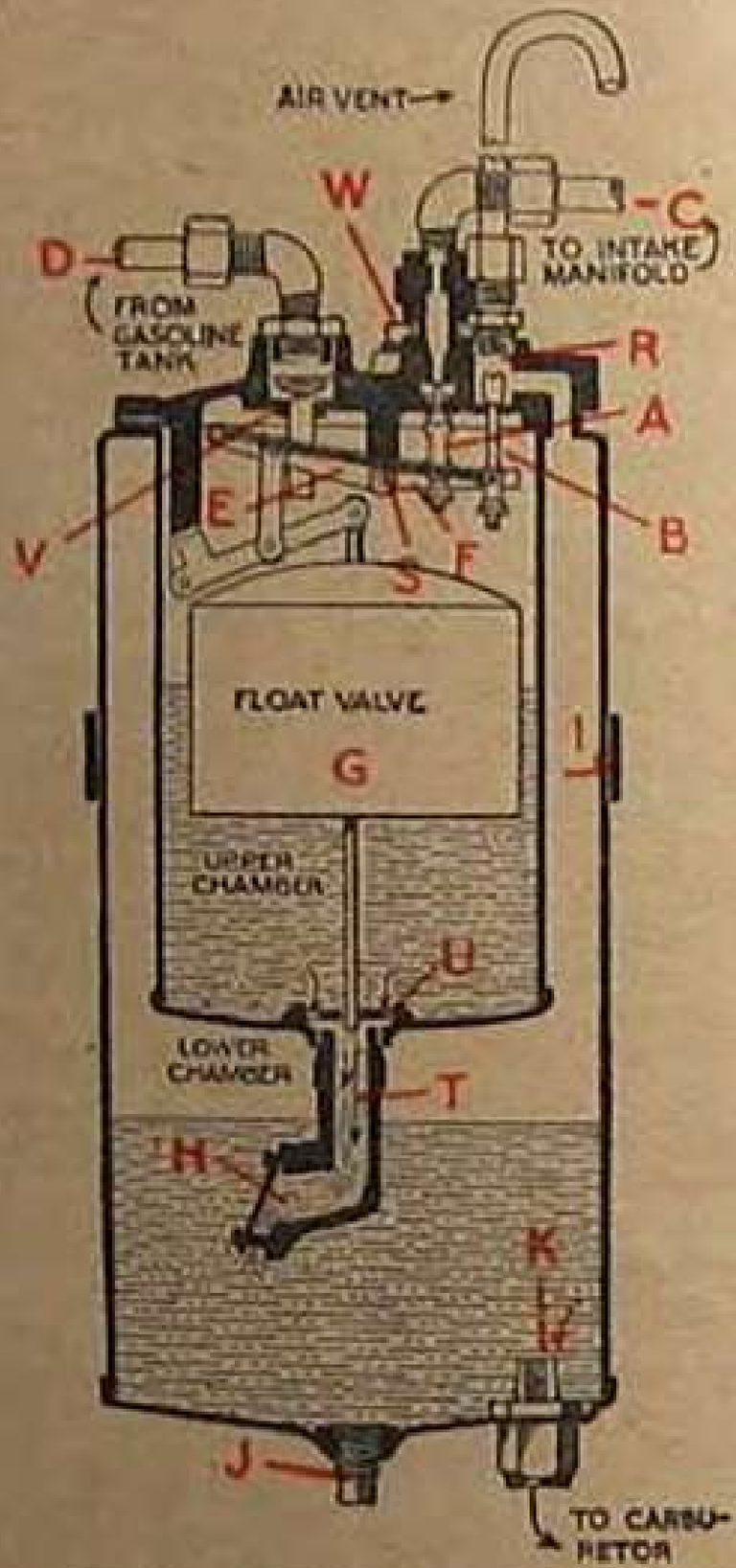
Price List of Parts

Keep this book in the tool box of your car

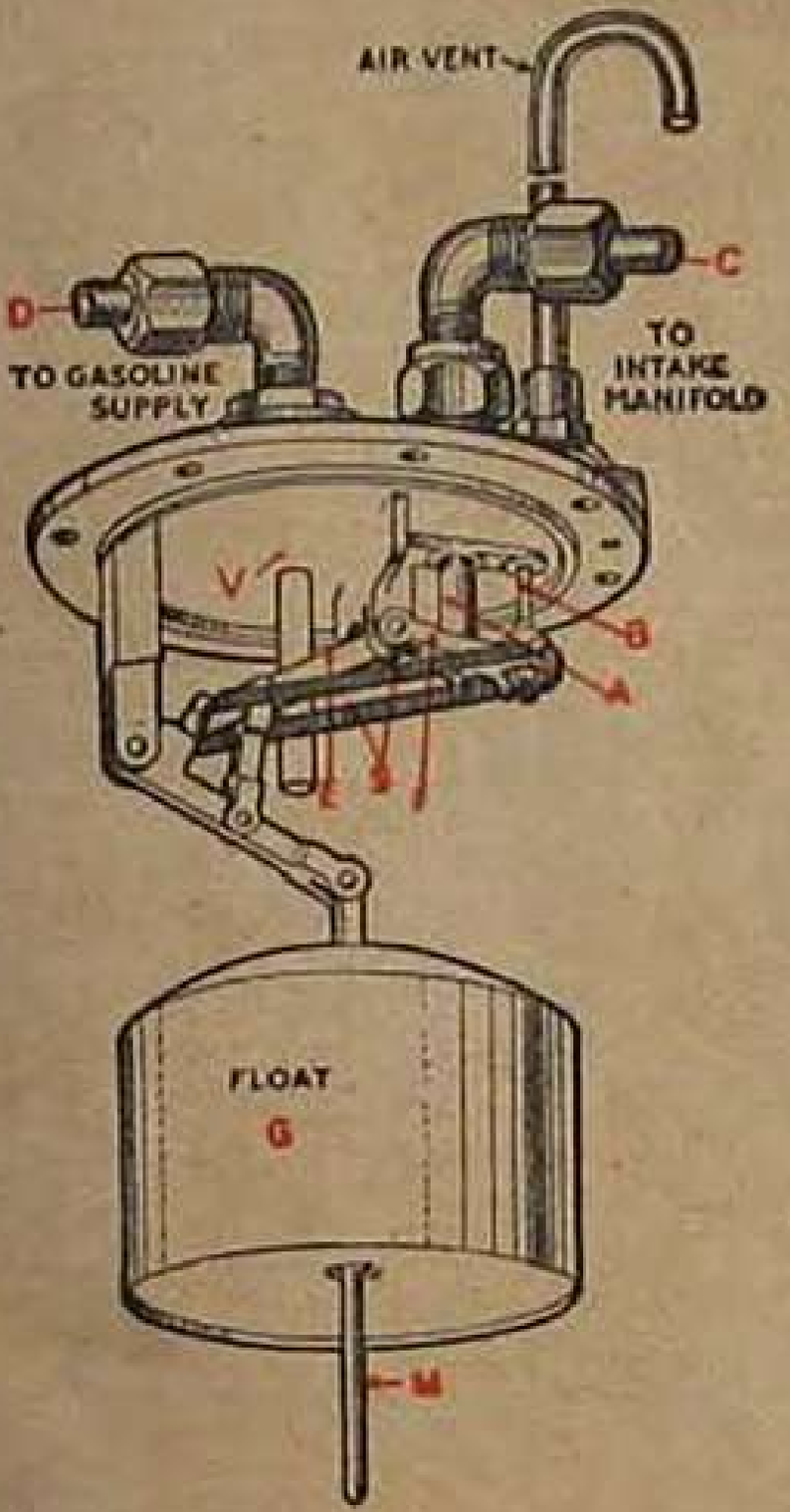
What the Stewart Vacuum Gasoline System is

THE Stewart Vacuum Gasoline System employs a small tank, installed under the hood. This tank is connected by brass tubing to the intake manifold, also to gasoline supply tank, and to carburetor. Every motor draws its supply of gasoline through the carburetor by reason of the pumping action of the pistons. It is this same pumping action which draws gasoline from the main supply tank into the Stewart tank, through the connection of the manifold and the Stewart tank, and also the connection of the Stewart tank with the gasoline supply tank.

The Stewart Vacuum Gasoline Tank consists of two chambers. The upper one is the filling chamber, and the lower one is the emptying chamber. Between these two chambers is a partition in which is placed a valve. The suction of the pistons on the intake stroke creates a vacuum in the upper chamber, and this vacuum closes the valve between the two chambers, and also sucks or pumps up the gasoline from the main supply tank into this upper chamber. As the gasoline flows into this upper chamber it raises a float valve. When this float valve has risen to a certain point, it operates a valve which shuts off the suction and at the same time opens an air valve. This admission of outside air releases the vacuum suction, thus causing the valve leading into the lower chamber to open, and through which the gasoline immediately commences to flow into the lower or emptying chamber. This lower chamber is always open to the outside air, so that nothing can ever pre-



Sectional view of Stewart Vacuum Tank, Model 113-A



Top of Stewart Vacuum Gasoline Tank removed, showing valve mechanism.

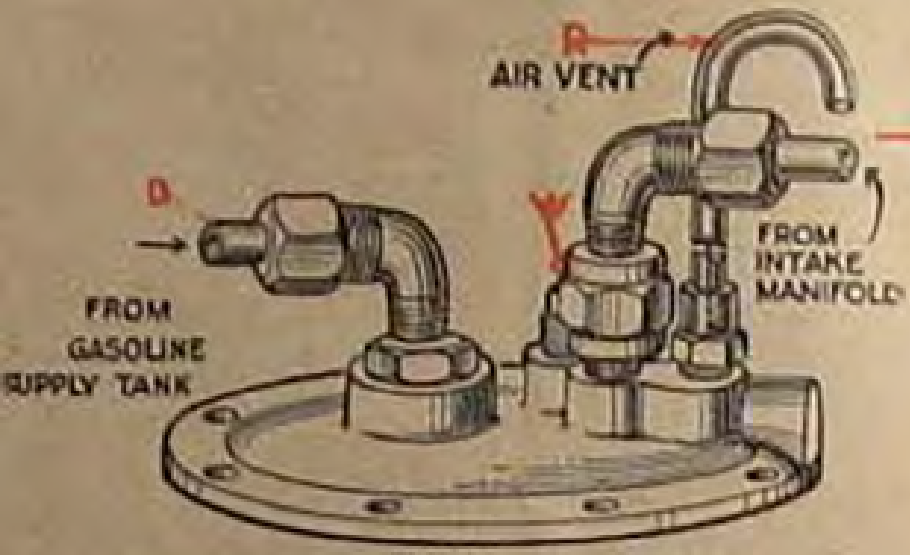


Figure 4
Showing the arrangement of connections on the top of the tank.

ment, and which should be removed—NOTE "Clean Tank Every Three Months," on page 13.

L is channel space between inner and outer shells, and connects with air vent R, thus admitting an atmospheric condition in lower chamber at all times, and thereby permitting an even uninterrupted flow of gasoline to carburetor.

M is the guide for float (see page 3).

R is an air vent over the atmospheric valve. The effect of this is the same as if the whole tank was elevated and is for the purpose of preventing an overflow of gasoline should the position of the car ever be such as would raise the gasoline supply tank higher than the vacuum tank. Through this tube also the lower, or reservoir chamber is continually open to atmospheric pressure, so that the flow of gasoline from this lower chamber to the carburetor is always an even, uninterrupted flow.

T is the outlet located at the bottom of the float reservoir, in which is the flapper valve H.

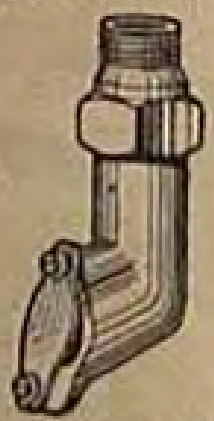
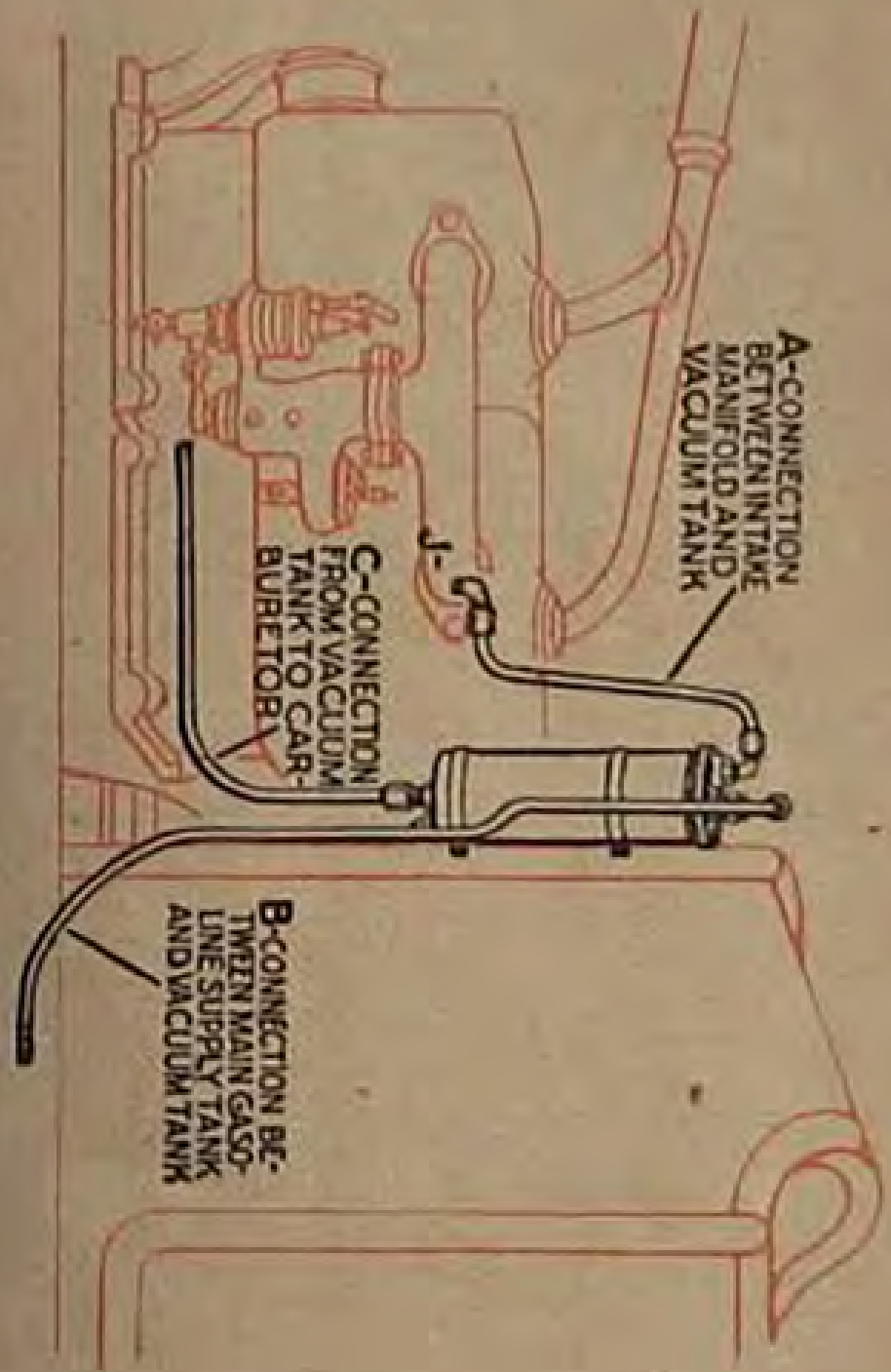


Figure 5
Gasoline outlet from upper to lower chamber in Stewart Vacuum Gasoline Tank.



Care and Repair of the Stewart Vacuum Gasoline System

Leave tank alone. Don't tamper with it. It is not very likely that it will ever be necessary to open the tank, but if it is opened, then follow directions carefully.

The simple, durable construction used in the manufacture of the Stewart Vacuum Tank makes it unlikely that the car owner will ever need to make internal repairs. If the instructions for care are carried out, the Stewart Vacuum Gasoline System should continue indefinitely to operate perfectly. Before proceeding to repair Vacuum Tank, make absolutely sure that the trouble is not due to some other cause.

If your Vacuum System does not operate satisfactorily, the following suggestions will **enable you to make the necessary adjustment:**

VENT TUBE OVERFLOW. (See R, page 6.)

The air vent allows an atmospheric condition to be maintained in the lower chamber, and also serves to prevent an overflow of gasoline in descending steep grades. If once in a long while a small amount of gasoline escapes no harm will be done, and no adjustment is needed.

However, if the vent tube regularly overflows, one of the following conditions may be responsible:

a. Air hole in main gasoline tank filler cap may be too small or may be stopped up. If the hole is too small or if there is no hole at all, the system will not work. Enlarge hole to 1/8-inch diameter, or clean it out.

b. You can also remedy overflow by attaching length of tubing to vent connection and carrying it up to highest point under hood.

GASOLINE LEAKAGE.

If gasoline leaks from system, except from vent tube, it can only do so from one of the following causes:

a. A leak in outer wall of tank may exist. If so, soldering up the hole will eliminate trouble.

b. Carburetor connection in bottom of tank may be loose. If so, it should be screwed up tight.

c. There may be leak in tubing.

FAILURE TO FEED GASOLINE TO CARBURETOR.

Remember that this condition may be due to other causes than the vacuum system. Do not blame vacuum system until you are sure that the fault does not lie elsewhere. After flooding the carburetor, or "tickling the carburetor," as it is commonly called, if gasoline runs out of the carburetor float chamber, you may be sure that the vacuum feed is performing its work of feeding the gasoline to carburetor.

Another test is to take out the inner vacuum tank, leaving only the outer shell. If you fill this shell with gasoline and motor still refuses to run properly, then the fault clearly lies elsewhere and not with the vacuum system—because you must certainly get gasoline feed from this open, elevated tank of gasoline, unless there is stoppage in the connection line to carburetor.

TO REMOVE TOP.

In removing top of tank, after taking out screws, run the blade of a knife carefully around top, between cover and body of tank, so as to separate gasket without damaging it. Gasket is shellaced to make an air-tight joint.

IF FAULTY FEED IS TRACED TO VACUUM SYSTEM, ONE OF THE FOLLOWING CONDITIONS MAY BE THE CAUSE.

a. The float (see G, page 3), which should be air-tight, may have developed a leak; thus filling up float with gasoline and making it too heavy to rise sufficiently to close vacuum valve. This allows gasoline to be drawn into manifold, which in turn will choke down the motor.

Proper operation depends upon the float being air-tight.

TO REPAIR FLOAT.

Remove top of tank (to which float is attached) as above directed. Dip the float into a pan of HOT water, in order to find out definitely where the leak is. Bubbles will be seen at point where leak occurs. Mark this spot.

Next, punch two small holes, one in the top and the other in the bottom of the float, to permit discharge of the gasoline. Then solder up these holes and the leak. Test the float by dipping in HOT water. If no bubbles are seen, the float is air-tight.

In soldering float, be careful not to use more solder than required. Any unnecessary amount of solder will make the float too heavy.

In taking out float and repairing it, take care not to bend the float guide rod. If you do bend the rod, it will strike against guide and retard float, producing the same effect as a leaky float, and allowing gasoline to enter manifold. Also note whether surface of rod is perfectly smooth so that it cannot be retarded by guide.

To overcome the condition of a leaky float temporarily until you can reach a garage, remove plug W at the top. In some cases the suction of the motor is sufficient to draw gasoline into tank even with this plug open, but not enough to continue to be drawn into manifold. If, however, you are not able to do this, close up plug W with engine running. This will fill tank. After running engine until tank is full remove plug W until gasoline gives out. Continue repeating same operations until a repair station or garage is reached, when the leaky float can be remedied.

b. The flapper valve may be out of commission.

A small particle of dirt getting under the flapper valve (see H, page 5) might prevent it from seating absolutely air-tight, and thereby render the tank inoperative.

In order to determine whether or not the flapper valve is out of commission, first plug up air vent; then detach tubing from bottom of tank to carbureter. Start motor and apply finger to this opening. If suction is felt continuously then it is evident that there is a leak in the connection between the tank and the main gasoline supply, or else the flapper valve is being held off its seat and is letting air into the tank, instead of drawing gasoline.

In many cases this troublesome condition of the flapper valve can be remedied by merely tapping the side of the tank, thus shaking loose the particle of dirt or lint which has clogged the valve. If this does not prove effective, remove tank cover, as described on previous page. Then lift out the inner tank. The flapper valve will be found screwed into the bottom of this inner tank.

c. Manifold connection (see C page 7) may be loose, allowing air to be drawn into manifold.

d. Tubing may have become stopped up.

e. Gasoline strainer (see V, page 2) is a screen located in the line from Gasoline Tank. This screen collects all foreign substances that might get in the rear tank and be carried through to the carburetor and clog it. If tank fails to work, it may be that this screen is clogged, preventing gasoline from getting into tank. Screen may be easily cleaned by unfastening connection at elbow. This cleaning should be done every three weeks. **If tank should ever fail to operate, examine strainer FIRST.**

INCREASED GASOLINE CONSUMPTION.

If it is apparent that there is an increase in gasoline consumption, perhaps the cause is:

a. Carburetor may need adjustment.

b. Vent tube may overflow frequently. (See "Vent Tube," page 8.)

c. There may be a leak in tank or tubing—note instructions under **"Vent Tube"** and **"Gasoline Leakage."**

d. If the motor speeds up when the vacuum tank is drawing gasoline from the main supply it shows that either your carburetor mixture is too rich, or your connections are so loose that it is drawing air into the manifold. There should be no perceptible change of engine speed when the tank is operating.

CARBURETOR TROUBLE.

a. Carburetor trouble cannot possibly be attributed to vacuum system. If gasoline is delivered to carburetor, vacuum feed has done its work.

b. If carburetor pops and spits, carburetor adjustment is needed.

c. If car slows down, or if you cannot get usual speed out of car while running with open throttle, although the car still continues to run, you may be sure the trouble is not due to vacuum

system. If all the gasoline in vacuum tank is exhausted the car will stop.

FILLING UP TANK IN STARTING.

To fill the tank, should it ever become entirely empty, with the engine throttle closed and the spark off, turn the engine over a few revolutions. This takes less than ten seconds, and will create sufficient vacuum in the tank to fill it. If the tank has been allowed to stand empty for a considerable time and it does not easily fill when the engine is turned over, this may be caused by dirt or sediment being under the flapper valve H. Or, perhaps, the valves are dry. Removing the plug W in the top and squirting a little gasoline into the tank will wash the dirt from this valve, and also wet the valves, and cause the tank to work immediately. This flapper valve sometimes gets a black carbon pitting on it, which may tend to hold it from being sucked tight on its seat. In this case the valve should be scraped with a knife.

CONNECTIONS AND TUBING.

Look over the connections to see that they are absolutely tight. Coupling and elbow connections should be always kept screwed down tight. Care should be taken that tubing contains no sharp flat bends that might retard gasoline flow.

Suction valve **A**, also atmospheric valve **B**, can be easily ground if it ever becomes necessary. However, the fact that these two valves are not required to seat against a pressure, but are drawn on to their seat, eliminates any possibility of their needing to be ground.

CLEAN TANK EVERY THREE MONTHS.

(To clean tank: Don't take tank off of car; you may not be able to put it back in exactly same position.)

Unless gasoline is filtered through a screen or chamois when filling the main gasoline tank, from

which the vacuum tank draws its supply, some dirt or sediment will accumulate in main tank. Part of this dirt or sediment may be drawn into the vacuum tank. This dirt should be removed from the vacuum tank at least once every three months. To clean the tank, remove the top of the tank and take out the inner shell or vacuum chamber (be careful to observe instructions "To Remove Top," on page 10). This will give access to the lower chamber from which the dirt and sediment should be removed.

If you find it necessary to send the tank to us, then ship the COMPLETE TANK to our nearest Branch or Service Station.

Shipping Instructions

Be sure to pay transportation charges in accordance with terms of the guarantee (see guarantee inside front cover), as we carry no accounts with car owners and, therefore, will be obliged, when returning part to you, to make the shipment C. O. D. for the amount of the express charges if they have not been prepaid. This entails extra expense upon you, which can be avoided by making the shipment prepaid. Shipments by parcel post are at the owners' risk.

All important cities have service stations where repairs and adjustments can be handled with the same promptness and effeiency as at our factory or branches, and on the same guarantee basis. It will save you time and transportation charges to send or take your parts to the nearest service station. See list on inside back cover.

Stewart Vacuum Tanks or parts are sometimes offered to our branches or stations by the express companies without any marks on the box, showing name of shipper or even point shipped from. As they are unable to determine the name of the consignor, our branch or station is obliged to refuse the shipment if charges are not prepaid.

The shipment is, therefore, delayed in the hands of the express company. This can be avoided by marking very plainly on the box your name and address.

The branch or service station would also appreciate a few lines from you, advising that the part is being returned, mentioning the express that you are returning it by, and telling just what you find wrong.

What Our Guarantee Means

(See guarantee, inside front cover)

Repairs are made free of charge at our factory, branches or service stations, for one year from date of sale, providing such repairs are necessary because of defective material, or workmanship. Repairs made necessary by misuse or damage through accident will bear nominal charges.

It is sometimes difficult to decide if there actually has been misuse, and in the event that an improper charge has apparently been made, by one of our branches or service stations, we shall be glad to have you explain the circumstance direct to us, with the assurance that your letter will have proper consideration, and that we will rebate any such charge that is found not justifiable.

Do not address letters referring to charges that you believe unjust to the branch office or service station that handled the transaction. Do not address your car agent or jobber or manufacturer. If you do, investigation and adjustment will only be delayed, whereas if you will in such instances write us at the factory direct, we will immediately give your letter careful attention and will promptly rebate any charges that prove unwarranted.

Repairs and adjustments are generally made by our service stations and branches the day they are received. If you do not receive prompt, efficient service at our branches or stations, kindly advise us.

Price List of Parts

In ordering, be sure to specify part number in order to avoid error

624	Outside Shell Assembly (see cut of Part No. 1138)—127-A-B	1.50
1138	Outside Shell Assembly—127-D	1.50
1244	Outside Shell Assembly (see cut of Part No. 2994)—127-D-E	1.50
1464	Float Lever All Models	.20
1465	Float Lever Pin " " doz.	.04
1473	Spring Lever " "	.25
1474	Valve Stem Lever " "	.25
1475	Lever Connecting Link " "	.10
1476	Connecting Link Pin " " doz.	.04
1478	Vacuum Valve Stem " "	.15
1480	Pipe Plug " "	.05
1481	Atmospheric Stem " "	.15
1483	Valve Stem Sleeve " "	.08
1484	Valve Stem Nut " "	.04
1485	Valve Tension Spring " "	.20
1487	Valve Stem Lever Pin " " doz.	.04
2290	Standard Tube Connection—122-B	.25
2389	¼-inch Split Lock Washer—All Models, except 122-A doz.	.05
2445	¼-20 Hexagon Jamb Nut (see cut of Part No. 2807)—115-A-B-C-D-E-F-H; 123-D-E doz.	.15
2482	Outside Shell Assembly (same as shown in cut of No. 1138, but with one outlet in bottom of tank)—127-B	1.50
2762	Vacuum Check Valve—113-A-B-F-G-K-P; 115-A-B-F-H; 122-D-E; 127-A-B	.35
2763	Reservoir Outlet Bushing (see cut of Part No. 2764)—127-D	.30
2764	Reservoir Outlet Bushing—113-A-B-F-G-H-J-K-L-P-R-S; 122-A-B-D-E; 127-A-B	.30
2807	Bracket Screw Nuts—113-A-B-C-F-G-J-K-L-P-R-S; 127-A-B-C-D doz.	.10
2808	Vacuum Valve Nipple—122-A; 127-C	.25
2815	Lavigne Solderless Coupling—113-A-F-H-K; 115-A; 127-A	.25
2818	Lavigne Solderless Coupling Elbow—113-A-F-H-K; 115-A; 127-A	.25
2817	8 Feet ⅜ Brass Tubing—113-A-F-H-K; 115-A; 127-A; p.ft.	.10
2929	Straps for Tubing—113-A-F-H-K; 115-A; 127-A each of 4	.10
2984	Outside Shell Assembly—122-A-B	1.50
3399	Vacuum Valve Nipple (see cut of Part No. 6336)—113-J; 115-E	.25
3410	Outside Shell Assembly (see cut of Part No. 4071)—113-G-K	1.50
3416	Float Assembly—All Models	1.50
3477	Gasoline Strainer Assembly (see cut of Part No. 3654)—All Models, except 113-C and 122-A-B	.25
3483	Outside Shell Assembly (see cut of Part No. 4073)—113-C	1.50
3548	Lavigne Elbow Coupling—113-F	.25
3674	Gasoline Strainer Assembly—113-C	.25
3685	Top Cover Assembly—122-A-B	2.00
3686	Top Cover Assembly (see cut of Part No. 3685)—All Models, except 122	2.00
3694	Drain Pet Cock—113-C-F-G-H-J-K; 127-C-D; 113-S	.10
3779	Band Bracket—113-A-B-C-F-G-J-K-L-S	.25
3830	Cover Gasket—All Models	.10
3913	Flapper Valve Assembly—All Models	1.00
3975	Gasoline Strainer Assembly—122-A-B	.60
3981	Gasoline Connection Nipple—127-C	.60
4471	Band Bracket—115-A-B-C-D-E-F-H; 123-D-E	.25
4473	Bracket Clamp Screws—115-A-B-D-E-F-H; 123-D-E	.05
4975	Outside Shell Assembly—113-A-B-F-H-J-L-P-R	1.50
6185	Outside Shell Assembly—115-A-B-C-D-E-F-H; 123-D-E	1.50
6336	Vacuum Valve Nipple—113-H	.25
6383	Vent Tube Extension—113-A-B-C-G-H-J-K-L-P-R-S; 115-A-B-E-H; 123-D-E	.05
6384	Vent Tube Extension Connection—113-A-B-C-G-H-J-K-L-P-R-S; 115-A-B-E-H; 123-A-B; 127-A-B; 123-D-E	.25

6835	¼-inch Lavigne Solderless Coupling (see cut of Part No. 2813)—115-C	.25
7090	Cover Screws—All Models doz.	.10
7093	Fill Head Bracket Screws—113-A-B-C-F-G-J-K-P-R-S; 127-A-B-C-D	.05
7308	Vacuum Valve Nipple (see cut of Part No. 4073)—113-C	.25
7319	Fibre Float Stem Guide—All Models	.05
7392	Vacuum Elbow Connection—113-L	.20
7622	Band Bracket (see cut of Part No. 3779)—127-A-B-C-D	.25
7670	Band Bracket (see cut of Part No. 3779)—113-F	.25
7685	Inner Shell Assembly—All Models	1.00
7741	Vent Tube Extension—127-A-B-C	.25
7799	Band Bracket—(see cut of Part No. 3779) Model 113-R	.25

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