Do not tamper with the tank unless absolutely necessary.

Its simplicity and durability make it unlikely that owners will ever have to make internal repairs. Before attempting to repair tank be sure that the trouble is not due to some other cause.

Should engine refuse to start, find out first if gasoline is being supplied to carburetor. If so, the trouble is not due to the vacuum system.

If carburetor is dry, disconnect the tubing at bottom of vacuum tank. If gasoline flows from the vacuum tank, it is evident that the line between the tank and the carburetor is obstructed, or that there is dirt in the carburetor itself. Remove strainer in carburetor and examine for dirt.

If the vacuum tank is dry, see if you have gasoline in the supply tank. If your supply tank is not dry, remove strainer at gasoline inlet "A" of the vacuum tank, and look for dirt. Then blow back through the supply line to clear it of dirt and water.

Examine all connections for leaks. There may be a crack in the gasoline or vacuum line causing an air leak which would render the system inoperative until the cracked line could be replaced.

Remove the plug at "D" and pour a half pint of gasoline into the tank. It may be possible that a small particle of dirt is lodged under the flapper valve.

The float is made of sheet copper, nickel plated to withstand corrosion. If it should develop a leak and fill with gasoline, it will not rise and shut off the vacuum as the gasoline is drawn into the upper chamber, and the vacuum tank will flood over.

It is not necessary to remove the entire vacuum tank to repair the float. In removing the top of the vacuum tank, run the blade of a knife under the gasket so it will not be damaged. Punch a small pin hole in the float and empty it of gasoline. Solder the leak first, then the pin hole. Test in a pan of hot water for leaks. If no bubbles are seen the float is air tight.

If you are without soldering facilities you can get to the nearest service station by filling the outer shell with gasoline.

Carburetor trouble cannot possibly be attributed to the vacuum system.

If the engine speeds up when the tank is drawing gasoline from the main supply, the carburetor mixture is too rich or a loose connection is allowing air to be drawn into the manifold. There should be no change in the engine speed when the tank is operating.

If the carburetor backfires, carburetor adjustment, ignition, or valve trouble is at fault.

If the gasoline in the vacuum tank is exhausted, the engine will stop. As long as the engine continues to run, you may be sure the trouble is not due to the vacuum system.

To fill the tank, should it become entirely empty, turn over the engine with the throttle closed. In a few seconds gasoline should flow to the carburetor.

If the tank has been allowed to stand empty for a considerable time, it is advisable to remove the plug at "D" and pour about a half pint of gasoline into the vacuum tank. This will remove any dirt on the flapper valve.

Drain some gasoline from tank frequently to clear away any sediment which collects in bottom.

CARBURETOR

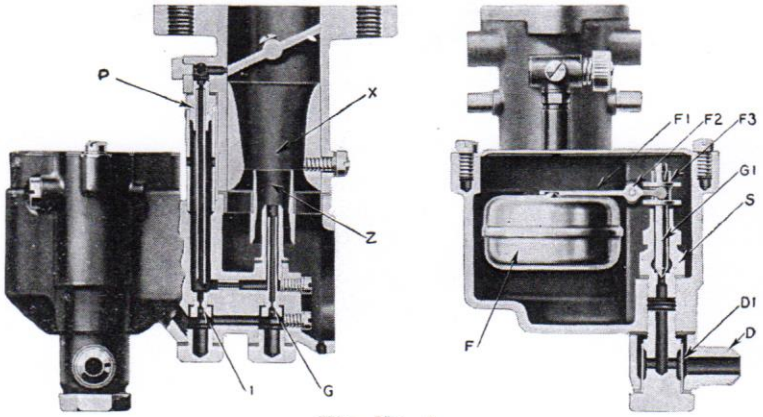


Fig. No. 1

The 4-44 Carburetor is particularly well adapted to this type of engine, and provides the proper mixture of gasoline and air under all driving conditions.

It is built around the Baverey Compound nozzle principle, and is composed of three separate parts—the bowl which contains the float mechanism and a system of fuel nozzles and air passages; the barrel which contains the two venturi and the throttle butterfly; and an air intake containing a strangiing device and temperature regulator.

Fuel enters the carburetor through the union body (D) and is filtered by the screen (D 1). It enters the fuel chamber through the needle valve seat (S) and raises the float (F) which causes the needle valve (G 1) to stop the flow of fuel at a pre-determined level.

The float acting through the float arm (F 1) and axle (F 2) and the needle valve collar (F 3) opens and closes the needle valve (G 1), admitting fuel as needed.

IDLING DEVICE: When the butterfly throttle valve is nearly closed and the motor is turned over, there is a very strong suction at the edge of the butterfly, where the idling hole is located. Under this condition little or no gasoline is supplied by the man jet G or the cap jet above it. Gasoline from the bowl flows through the compensating jet into the idling well and is lifted by the motor suction through the idling jet (P)), which has a calibrated opening at its upper end. Air is measured through the

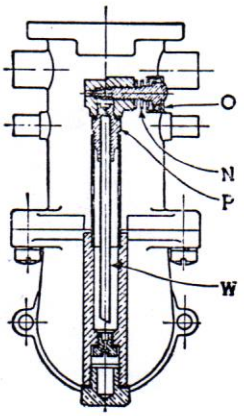


Fig. No. 2

idling needle valve seat in accordance with the adjustment of the needle valve (O), figure 2. The mixture of gas and air passes through the idling hole and on into the engine cylinders.

To set the idle, get the engine thoroughly warmed up and then regulate the engine idling speed by turning the throttle lever stop screw in its lock nut until the throttle butterfly is opened enough for the speed desired. At the same time manipulate the idle adjusting screw O (figure 2) to get the right mixture. Turning in the adjustment screw cuts off the air supply and makes the mixture richer, while backing out the adjusting screw admits more air and makes the mixture leaner.

When a satisfactory idle has been obtained lock the throttle lever stop screw in place with the lock nut which is attached to throttle lever.

For normal idling speed, the needle valve should be backed out from closed position to from 3/4 to 1-1/2 turns.

AIR CONNECTION: The air intake is provided with an air strangler valve which is operated by the driver through the choke rod. When closed tight this valve serves as a strangler for starting, and when only partially closed it enriches the mixture for warming up. Particular care should be taken to insure the strangler butterfly opening fully, and closing tight, when actuated by the control rod.

CARE OF THE CARBURETOR: Keeping the Carburetor free from dirt and water is the only care necessary. The important parts to be cleaned are the filter screen, the main jet, and the compensating jet.

To clean the filter screen, take off the filter plug at the bottom of the bowl with a wrench, remove the union body, and pull out the filter screen. Clean the screen with gasoline or compressed air, and be sure that it has no holes when replaced.

The main jet and the cap jet can be unscrewed when the lower plug and the compensating jet plug on the side have been removed. If you wish to clean the idling jet, remove the screws which hold the bowl to the barrel ,and then unscrew the jet. Use compressed air or gasoline to clean the jets. **Never use a wire.**

The carburetor can be taken completely apart and put together again without danger of disturbing the adjustment. Simply be careful that all gaskets are in place and the screws and jets drawn up snugly.

GENERAL INSTRUCTIONS COVERING POSSIBLE TROUBLES

LEAKY CARBURETOR: Usually caused by dirt under the needle valve, or by loose connections, plugs or screws. Check first for loose connections and for faulty threads and gaskets in connections and screws.

If trouble is due to dirt under needle valve it can usually be removed by alternately raising and lowering the needle valve from and to its seat, at the same time giving it a twisting motion with the fingers. If the dirt is loose or only slghtly embedded this will wash it away. In aggravated cases, hold the needle valve firmly on the seat with the fingers and, with a light tool, gently tap the top of the valve.

The bearing points of the needle valve and of the needle valve seat are highly polished at the factory. Therefore, do not try to regrind the seat as results would not be satisfactory.

If necessary to fit a new needle valve, or needle valve seat, replace both of them with new parts. Never replace one and leave the other in the carburetor. **When any parts of the needle valve or float mechanism are replaced use a level test gauge to adjust the fuel level.**

If the float is leaky and contains gasoline the additional weight will cause a high level and flooding condition.

If the needle valve counterweights are worn badly the float can raise too high and will result in flooding. Turn them over, or replace with new weights.

If, after stopping the engine, a little gasoline leaks from the carburetor, it is no cause for alarm. This is only the fuel drawn up into the carburetor barrel and manifold, which, due to insufficient suction, does not get to the cylinders. When the engine is stopped, releasing the suction, this fuel drops and is drained off through small hole in bottom of carburetor provided for that purpose.

This is more noticeable in cold weather than in hot weather. It can be minimized by closing the throttle before shutting off the engine.

HARD STARTING: See if you have fuel in the carburetor. Remove dust cap and press down on needle valve. If the valve cannot be depressed by the finger, there is fuel in the carburetor.

Have throttle lever only slightly open so as to get full effect of the suction on the idling jet and well. See if strangler valve closes completely. Be certain starter is turning engine over with sufficient speed to lift fuel to the cylinders, (at least 100 r. p. m.). Check for dirt or water in carburetor and particularly in idling jet.

In cold weather it sometimes happens that water accumulates in the carburetor or fuel line and freezes, thus shutting off the flow of gasoline.

Do not flood the engine with gasoline. If you do, release the strangler, open the throttle half way and turn the engine over. This will dilute the mixture in the cylinders to a point where it will ignite.

POOR GASOLINE ECONOMY:

Check carburetor adjustment.

Check fuel connections and carburetor for leaks.

Check hot air tubing connections.

Check strangler adjustment.

Many other things besides carburetor influence the quantity of gasoline used. Poor engine compression, faulty spark plug or ignition adjustment, dirty plugs or breaker points, dragging brakes, poor or insufficient lubricating oil in various motor or chassis parts, all materially increase fuel consumption.

Electrical Equipment for Auburn 4-44 Models

The Generator, Starting Motor, Ignition Distributor, Ignition Coil, and Starting Switch are supplied by the Remy Electric Company, Anderson, Indiana, and we recommend that you go to their nearest authorized Service Station for needed service on the electrical system. A directory of these stations can be obtained by writing the United Motors Service, Inc., Detroit, Michigan, the official Remy field service organization.

This equipment is guaranteed by the manufacturers, and all claims for warranty should be made to the nearest United Motors Service authorized representative.

INSPECTION: The electrical equipment should be inspected regularly by a competent automotive electrician. This inspection may locate trouble just starting, which, if allowed to continue, might prove costly as well as inconvenient.

CAR WIRING: All connections must be kept clean and tight. This is especially true with the circuit from the generator to the battery and from battery to ground, because any dirty connections will reduce the geneator charge into the battery and will cause the generator voltage to rise above normal and burn out light bulbs.

GENERATOR: The generator produces electrical current which charges the battery and when the car is running supplies current to the lights, ignition, and other electrical equipment. The ammeter on the dash shows the amount the generator is charging into the battery, and if it shows discharge, means that the current is being drawn from the battery. In setting the output of the generator, it is best to use a separate and high grade ammeter for the one on the car may not register exactly correct, as these instruments, even though built ruggedly, are subjected to all the road shocks which sometimes make them slightly inaccurate.

The generator output is adjusted by loosening the small round head screw on the outside of the rear or commutator end bracket and moving the third brush, which is on a separate plate, to the left, (which is in the direction the armature rotates) to increase the output, and in the opposite direction to decrease it. The maximum output when the generator is cold and the reading taken at the generator terminals should not exceed 17 amperes, and when hot, 14 amperes.

Add a few drops of a good grade engine oil in the hinge cap oiler in the rear or commutator end bearing every 1000 miles. This is the only place that requires attention as the front bearing is lubricated from the timing gear case.

If the generator does not show charge, connect a wire between the two relay terminals, and if it charges the trouble is in the relay; either dirty points, out of adjustment, or open windings. If not, sand the commutator with a No. 00 grade sandpaper, and clean the brushes by drawing a strip of sandpaper between them and the commutator with rough side towards brush. If the generator still does not charge, take it to an authorized Remy Service Station.

RELAY: The Relay, which is sometimes called Cut-out, automatically connects and disconnects the generator with the battery. When in proper adjustment it should cut out at 3 amperes discharge, and cut in at 2 amperes charge. This adjustment is made by turning back or forth the curved brass plate which the spring that is riveted to the contact arm bears against.

STARTING MOTOR: The purpose of the Starting Motor is to crank the engine. It draws a large amount of current from the battery and especially in cold weather one should exercise extra care to make the engine fire at once to prevent discharging the battery. The current to the starting motor does not go through the ammeter as it is many times greater than the range of this instrument.

The only attention the starting motor requires is a few drops of a good grade of engine oil in the oiler on the rear or commutator end bearing every 1000 miles. The front bearing is inaccessible and for that reason an oilless bushing impregnated with graphite is used.

The starting motor connects with the engine flywheel through a Bendix drive. This drive consists of a screw shaft on which is a gear with a counterweight that threads forward when the shaft rotates, thus engaging with the flywheel teeth. The drive is completed to the motor through a heavy coil spring which absorbs the sudden torque when the Bendix gear meshes with the flywheel and starts to turn the engine. When the flywheel moves faster than the starting motor, the Bendix gear will thread back out of mesh with the flywheel.

The operation of this type drive is automatic. Should the starting motor spin and not engage with the flywheel, the screw shaft may be gummy and should be removed and cleaned with gasoline or some other suitable cleaner. Never put oil on the screw shaft.

If the starting motor should turn over slowly or not at all, look for low battery, corroded battery terminals, poor battery ground connections, and burned contacts in the starting switch. To prove the latter, connect a heavy wire, about the size of the starting motor cable, between the starting switch terminals. If none of these correct the trouble, take the starting motor to an Authorized Remy Service Station.

IGNITION DISTRIBUTOR: The Ignition Distributor makes and breaks the current, which action is necessary for the coil to produce the high voltage charge, and also it distributes this charge to the different spark plugs at the proper time. The contact point opening should be .025″.

The grease cup should be given two complete turns every 1000 miles,

and should be refilled when necessary with a good grade of medium cup grease.

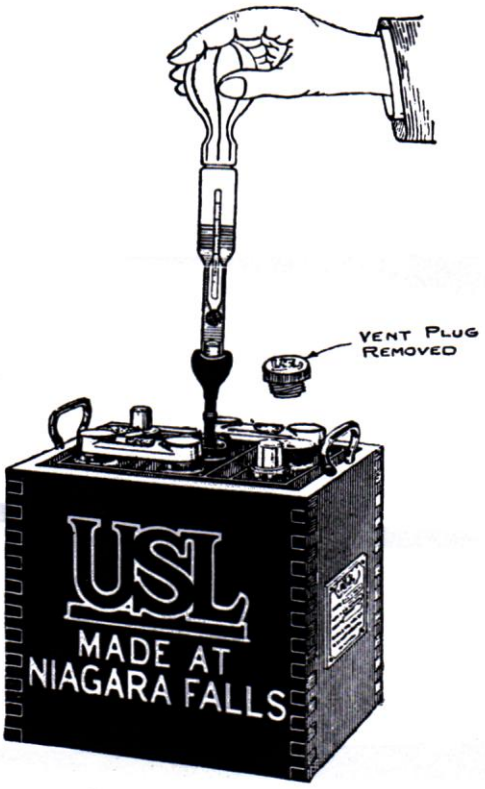
IGNITION COIL: The function of the Ignition Coil is to step up the voltage to jump the gap in the spark plug when under compression.

To test a coil on the car, pull out the high tension lead from the distributor cap that leads to the coil and hold it about 1/8″ from a clean place on the engine, then quickly open the contact points in the distributor with the thumb and if the coil is all right the spark will easily jump to the engine.

THE STORAGE BATTERY

We use the "USL" storage battery which is manufactured by the U. S. Light and Heat Corporation, Niagara Falls, New York.

Besides starting the car it supplies the electricity for ignition and lighting. It is one of the essential parts of your car and must not be neglected. Most battery and ignition trouble is caused by negligence and lack of care.



Add distilled or clear rain water to the cells often enough to keep the level one-half inch above top of plates. This should be done at least every two weeks in summer and every month in the winter and this level should be inspected every week in summer and every two weeks in winter. When adding water in winter it should be done before driving, so the water may be thoroughly mixed with the acid and thus prevent freezing.

Should the car be laid up for any length of time the battery should be taken out and stored in a warm dry place. It should be recharged by a regular "USL" Service Station before again going into use.

It should be inspected at intervals by an "USL" Service Station for height of electrolyte, specific gravity. voltage, charging rate, corroded terminals, loose hold-downs, loose ground connections, etc.

Keep filling plugs and electrical connections tight, and the battery clean.

Should you experience lack of current for lights or horn or failure of starting motor, tighten the battery connections before looking elsewhere for the trouble.

See that ammeter always shows **charge** when running above ten miles per hour with lights out.

Have battery recharged whenever inspection shows it to be necessary.

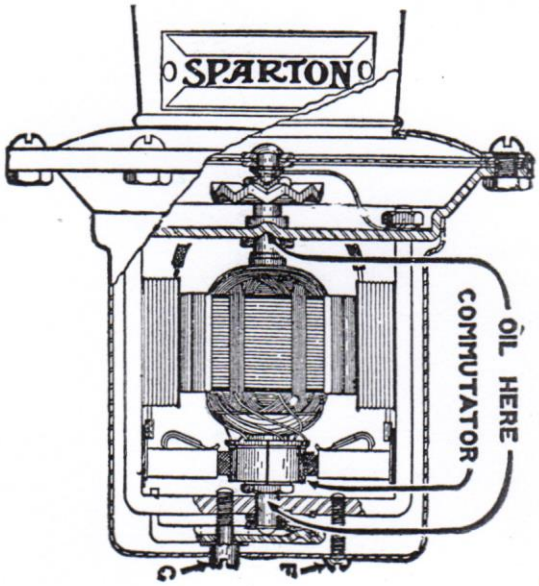
Determine condition of battery at frequent intervals by testing specific gravity of the solution in each cell. The illustration shows how to use a hydrometer in testing the specific gravity of the acid. A hydrometer can be purchased at any accessory store for approximately $1.00.

If the specific gravity is found to be as low as 1.225, the battery should be charged immediately until the gravity of each cell is up to normal.

The gravity at full charge is between 1.285 and 1.300.

HORN

The quality of tone and length of service of the horn depends entirely on the care of it. To produce the best warning signal the armature must revolve at a high rate of speed. This speed is impossible unless the bearings are oiled and the commutator and brushes are clean.



The armature and field coils may burn out due to lack of oil, and if proper contact with the commutator is prevented by dirt or corrosion in the brushes, the tone will be diminished on account of the reduction of speed of the armature, or the motor may fail to operate entirely.