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Suggestions for Fall Preparation

FILLING THE RADIATOR

Caution all car owners against overfilling of the radiator, especially by service station attendants. Instruct them to always warm up the engine before looking at the solution level. No water or anti-freeze should be added as long as the solution level can be seen in the radiator. When using permanent or non-evaporating anti-freeze, not over a few pints of water are generally needed during the winter if the cooling system is in proper condition. When adding water always leave enough air space in the radiator for expansion, etc., to avoid loss of solution through the overflow pipe.

CLEANING THE COOLING SYSTEM

Inspect every radiator before installing anti-freeze, to see if the cooling system is in need of cleaning. Warn your customers that a dirty system will eventually cause overheating and loss of anti-freeze. Point out the expense of cleaning a clogged radiator. Build up your income from service by making a regular business of cooling system cleaning. Sell only recommended anti-freezes that contain rust and corrosion preventives.

INSPECTING THE RADIATOR FOR LEAKAGE

Look the radiator over carefully, both front and back, for leakage. Point out to the customer that a radiator can leak slightly without leaving any sign of dampness or dripping, due to evaporation of the leakage, as with water and alcohol solutions. Call the car owner's attention to the tell-tale leakage stains of light brown or greyish white color that appear on leaking radiators.

SERVICING THE WATER PUMP

Always look the water pump over and test it with the engine running, for shaft and bearing wear. Explain to the customer that a pump which leaks water will draw air into the cooling system, and that air in the system will cause overheating and solution loss. Water pump packing and other pump repairs can be made a profitable service item.

INSTALLING ANTI-FREEZE

Be sure the cooling system is completely drained before

putting in anti-freeze. Always run the engine after filling, to remove any air that may be trapped in the engine by the closed thermostats, and then add additional water if needed. Follow the anti-freeze manufacturer's specification chart for the correct amount of anti-freeze to use for the protection desired.

INSPECTING AND SERVICING WATER HOSE

Go over and tighten all hose connections, and if the car has been driven any considerable mileage, inspect the hose on the inside. Explain to the car owner that old hose left in service beyond its useful life may restrict circulation and shed its rotted lining, causing radiator clogging. Compare the low cost of new hose with the possible trouble that the old ones can cause.

SERVICING THE THERMOSTATS

Check the operation of thermostats, especially if there is any tendency to overheat. If there is any question about a thermostat operating properly it should be removed, cleaned and tested in hot water to see that it is opening and closing at the proper temperatures.

INSPECTING THE ENGINE SIDE PLATE

Rust stains around the plate may be taken as evidence of leakage. The plate should be examined for leakage with the engine running at a good speed, and before the thermostat opens. With the thermostat closed the pump pressure in the water jacket usually shows up any leakage of the side plate joint.

CHECKING THE CYLINDER HEAD FOR LEAKAGE

Give the cylinder head joint special attention, whether the car is new or old. Where there is evidence of head leakage, call the customer's attention to the trouble that can result from cooling liquid leaking into the cylinders or exhaust gas blowing into the cooling system. As a matter of precaution always check the cylinder head studs to see that they are all tight, before installing anti-freeze.



Save Your Customer Trouble

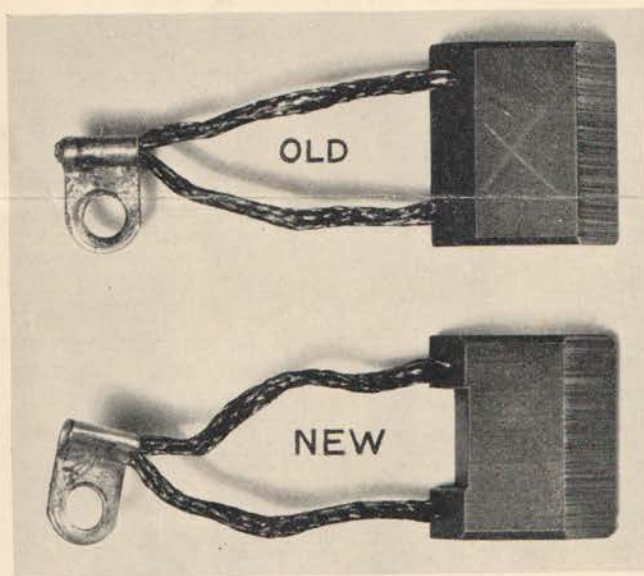
Generator Charging Rate

In checking the generator output of recent cars, it may occasionally be found that the output has risen far beyond the proper point.

This is, of course, a dangerous condition, because it may result in the burning out of the armature or the cut-out relay on top of the generator.

In any such cases the main brushes should be examined. It will probably be found that the pressure of the brush spring assembly has cocked the brush in the holder so that the heavy contact of the brush against the commutator will be at the extreme leading edge. In some cases a succession of contacts will be found with the last one at the extreme edge. This, of course, is responsible for the increase in generator output.

In all recent generators the outer face of the brush, which contacts with the spring, forms an angle of 30° with the side of the brush holder, and the pressure of the spring assembly against the inclined face is responsible for forcing the brush out of position. In the illustration are shown the brush as it has been used, and a recent change by which the angle of the outer face of the brush has been reduced from 30° to approximately 15°. Any brushes of the older type can be brought up to date by filing the brush to reduce the angle as shown.



This change should be made in any case where the generator output shows an inclination to increase. Failure to do so may result in damaging the generator, the cut-out assembly or both.

This applies only to the main brushes of the so-called "red label" generator. In the previous generators the main brushes were much thinner, and were not affected in the manner described.

Noisy Chains

A high pitched, humming noise may be heard in the motor at medium engine speed. This indicates a tight chain and will work out in a short time. The noise may be slightly annoying to some people, but it gives the owner a longer lived chain. Without the adjustment being made he gets the advantage of the full range of chain adjustment; whereas, if the chain is installed loose enough not to hum, some of the adjustment will naturally be used up before the car is put into actual service.

Aluminum Cylinder Head Cautions

With the use of the aluminum cylinder head on 12th Series cars, more caution should be taken in the shop in removing and installing than has been the case with the iron head.

In removing spark plugs from the aluminum head be careful not to tear the threads in the head. If a spark plug starts out tight, let the motor cool thoroughly before attempting to unscrew the tight fitting plug.

Care must be taken in handling after the head is removed. Do not drop it on top of tools lying on the bench, and be careful while cleaning carbon not to drop wrenches or other items onto the head. Stiff steel wire brushes should not be used in brushing out the carbon because they will scratch the inside of the combustion chamber.

After the carbon has been cleaned, run your finger around the outside edge of the combustion chamber to see that there are no burrs or particularly sharp edges as these will become red hot and cause pre-ignition. If sharp edges or burrs are noticeable, rub them down with a piece of fine emery cloth.

Be sure that only the 12th Series gasket is used with aluminum heads.

The aluminum head must be tightened down with more caution than was necessary with the iron head. Tighten the center nut first, then work both directions of the center line to each end; then the two center outside nuts, working both directions from the center on the outside rows to each end. Always re-tighten the head after the motor is cool because the nuts may seem tight with the motor hot and be loose with it cool. The best rule is to tighten the head three times in order to make sure.

Rear Tire Compartment Leaks

If an excessive amount of dirt or water seems to be getting into the tire compartment on the 12th Series car, check for openings at the extreme rear outside corners, at the rear of the rear wheel housing. Openings at this point will naturally cause the rear tires to throw in a lot of dirt and water.

The proper procedure to check for leaks at this point is to put the car on the wash rack, open the tire compartment door, and turn the hose inside in the extreme outer rear corners. Caulk up the holes with a material that will not fall out. Plugging openings at this point will stop more dirt and water from entering the tire compartment than any work that can possibly be done in sealing the door.

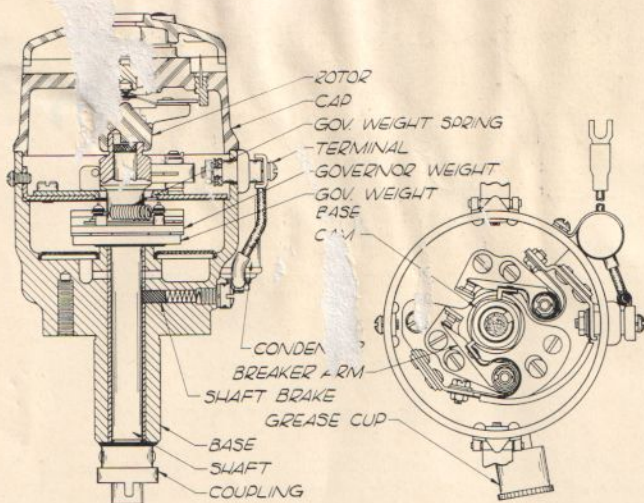
This condition has been taken care of in production and will only appear on the very early shipments.

Ignition Distributor and Coil

on 12th Series

Packard Eight and Super-Eight Cars

IGNITION DISTRIBUTOR. Model 662-W Delco-Remy ignition distributor is used on the Eight and Super-Eight. The unit is full automatic type having centrifugal automatic advance which starts at 1.5° (engine) 600 R.P.M. (engine) and reaches maximum of 19.5° (engine) at 2400 R.P.M. (engine). This is the high limit of the centrifugal spark advance curve. The low limit will be 3° less than corresponding values given.



The centrifugal automatic mechanism consists of the governor weights and springs, located in the distributor cup beneath the circuit breaker plate. As the speed of the engine increases, the governor weights move in an outward direction transferring this movement to the breaker cam which advances the cam in the direction of distributor shaft rotation. The governor weight movement is controlled by a calibrated weight spring. The amount of automatic advance obtained depends upon the speed of the engine. The number of degrees advance for a given engine speed depends upon the calibration of the governor weight springs. The weight springs are properly calibrated at the factory and will not deviate from the correct spark advance curve unless the springs have become distorted due to improper assembly of the distributor at the time of service or repair. This spark advance curve is fitted to the engine to give maximum economy for full load, wide open throttle.

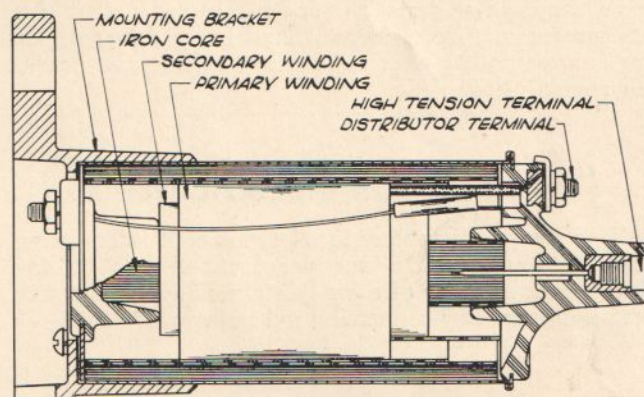
Two breaker arms and a four lobe cam are used to fire the eight cylinders. This combination is designed to give accurate high speed performance. The contact point opening should be .018-.022 inches. The spring tension on the contact arms, measured at the contact points, should be 19-23 ounces. A cartridge type condenser is connected electrically across the contact points, and is mounted outside the distributor cap.

The distributor cap and rotor are of the jump spark type. The cap has side outlets for the high tension ignition wires. The cap and rotor are made from a special high grade moulding material. It is more plastic than other materials commonly used, therefore, does not have a tendency to crack due to shrinking or high temperatures. This material has a high dielectric strength, therefore, greatly resists electrical leakage and withstand high voltage. The breakdown voltage being very high permits longer life when only subjected to normal operating voltages. Its leakage or conductivity does not increase greatly at high temperatures. If moisture collects on the surface of the cap and forms a path for the spark the surface will not be charred or carbonized, therefore, no damage results. A permanent path does not remain after cap surface is again free from moisture.

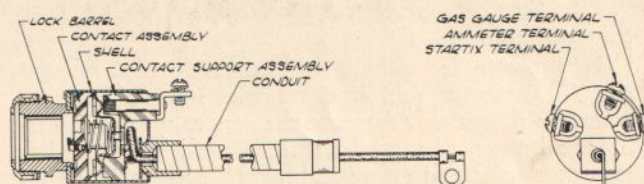
The distributor shaft rotates in an "Oilite" bearing. This bearing is lubricated by means of a grease cup and should be filled with medium cup grease and turned down one turn every 500 miles. At the same time a small amount of cup grease should be applied to the rubbing faces of the cam. The plunger not only assists in the lubri-

cation of the shaft but also prevents any side motion. This group of parts work quietly and harmoniously even after much service has been received from the distributor.

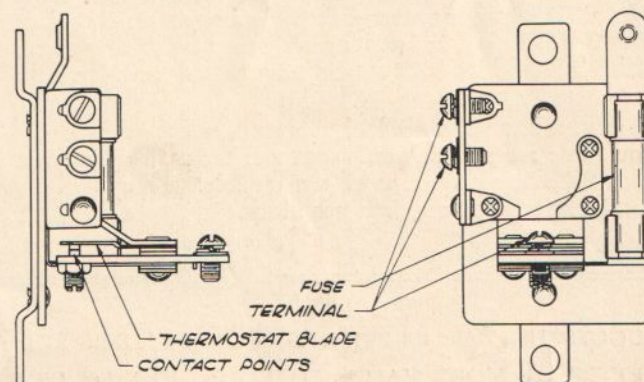
IGNITION COIL. No. 539-K ignition coil should not require any servicing other than keeping the connections tight. One end of the coil supports the high and low tension terminals that are connected to the ignition distributor. The other end of the coil supports the low tension terminal which is connected to the battery through the ignition switch.



IGNITION SWITCH. Models 430-L and 430-M ignition switches are mounted to the instrument panel. The primary wire leading from the switch to the coil is encased in a heavy armored cable.



THERMOSTAT RELAY AND FUSE BLOCK. Model 1050-W unit contains a thermostatic relay which is operated by an over-load, or short-circuit. This unit is used in the lighting circuit to protect the car wiring in case short-circuits occur. The thermostatic relay is calibrated to operate on 38 amperes discharge at a temperature of 70° Fahrenheit. Lights will not be completely extinguished whenever an abnormal condition arises in the wiring. A fuse is also used as a matter of protection in some of the light circuits of lesser importance.



Windshield Cleaners

If 12th Series windshield cleaners seem to be somewhat sluggish, check for tightness of the rubber bushing where the shaft comes through the windshield frame. The rubber bushing may cause a slight drag which will tend to slow down the cleaner.

Do not lubricate this point or it will make the condition worse.

There is a speed adjustment on the 12th Series windshield cleaners. By turning the operating button to the left you will speed up the windshield cleaner—turning it to the right will slow it down. In some cases this adjustment may be set wrong, and if the driver of the car is not familiar with it he may condemn the cleaner for running slow.

"Break-In" Oil Not to be Used

This paragraph appears in all 12th Series information books—"Caution—Do not use break-in oils of any description, as many of these lubricants have a corrosive action on the alloy connecting rod bearings."

Air Cleaners

It is a known fact that a great percentage of cylinder wear is caused by road dirt. Therefore the care given to the cleaning and oiling of the air cleaner is most important for long motor life. It must be done under all road conditions at the specified time, which is every 2,000 miles. When cars are operated over dusty roads it must be done more often.

Wash the dirt from the air cleaner in a bucket of gasoline. Allow to dry and lubricate with *new SAE 50 oil*. Be sure to thoroughly saturate the copper wool with the oil. If a lighter oil is used a lot of it will be drawn into the motor in the first few miles of operation, therefore it will not be efficient in taking the dirt out of the air as it passes through the cleaner.

Oil Filter Support Studs

Since equipping all factory reground cylinders with the improved 12th Series water jacket plate, we have received reports of some difficulty in attaching the oil filter brackets due to the support stud being too short to clear the new plate.

To remedy this condition we substituted piece No. 98331 motor water jacket plate screw in the place of No. 147295 which was formerly used for this function. All reground blocks now being assembled have the new stud.

If you have any difficulty with the cylinder blocks you have recently secured from the factory, order piece No. 98331 to take care of the trouble. Four of these special screws are required per block.

Standard Sizes and Adjustments Correction

Will you please correct your copy of Standard Sizes and Adjustments of 12th Series cars as follows:

The oil capacity in the crankcase on 12th Series Super Eights is shown as 9½ qts. and should be 10 qts.

The oil level measuring stick in the inside of the crankcase has been corrected to agree.

Service Letter Reference Book of Mechanical Information

We have supplied each distributor and dealer with one copy of the Service Letter Reference Book with a set of index tabs. This book contains only items of mechanical nature and which have previously been printed in SERVICE LETTERS. You will find it much easier to locate a desired item since the index tabs divide the information into major groups.

Additional copies of this book can be obtained from the Service Literature Department if you will order the book by name. The extra copies of the books will be supplied complete with index tabs and with a SERVICE LETTER flexible binder at \$.85 each.

Removing Batteries

The new location of the battery in the 12th Series cars necessitates the removal of the rear compartment floor boards. It is a very simple matter to remove the rear floor boards and take the battery out from the top. (You will find that this applies to all body types except the Coupes and Roadsters.) The opening in the floor board is only for the purpose of filling and checking the battery.

Removing Spare Tire (De Luxe Equipment)

Removing the spare tire from de luxe equipped cars is accomplished by first removing the hub cap plate. The spacer, by which the wheel is attached to the support arm, is disconnected with the wheel. The two cap screws which hold the spacer to the arm are removed by using the special wrench provided for this purpose.

After taking the wheel and tire out of the fender well, the spacer is removed from the wheel and is attached to the wheel which is to be placed on the carrier. A dowel will assist in locating the holes for replacing the cap screws.

Used Bodies

Please notify the Editor of the SERVICE LETTER of any 9th, 10th or 11th Series Used Bodies you wish to sell. Give type, color, condition and price.

SUGGESTIONS OR QUESTIONS FROM READERS ARE ALWAYS WELCOME. HOW CAN WE MAKE THE SERVICE LETTER OF MORE VALUE TO YOU? ADDRESS LETTERS—NORM. LULL—EDITOR PACKARD SERVICE LETTER.

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