

PACKARD

Service Counselor

PARTS * ACCESSORIES * PRODUCT * PROFITS

INSTITUTIONAL



PROMOTIONAL

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LET'S KEEP LEARNING FROM THE OTHER FELLOW

A recent national survey made by the Hearst newspapers shows three services that customers want when they stop at a gas station. Surprisingly enough less than half of the gas stations are supplying these services.

The figures on the left show the per cent of customers wanting the services listed and the figures on the right the per cent of stations giving the service.

- 1. 86% Clean W. shields 42%
- 2. 81% Check Eng. Oil 30%
- 3. 77% Check Radiator 31%

The interesting thing is not the opportunities the gas stations are losing to please customers, but since customers want these service attentions when they buy gas and oil, they must also want and expect them from the Car Dealer's service station.

Why not make sure these services are a part of every selling contact in every Packard Service Station? We will be pleasing customers and at the same time adding Service volume and profit.

These three services should be a part of every job. The customer wants them and they are not "free services"; they are three ideal selling opportunities.

With Service No. 1 you automatically inspect the condition of windshield wiper, arms and blades. With No. 2 the customer is asking you if he needs oil, and when the level of the radiator is checked with No. 3, you just have to look at the hose, fan belt and spark plugs.

SPRING MAILING PIECES EARLY THIS YEAR

Spring Service Mailing Pieces will be ready early this year. Samples and details will be mailed early in February, allowing plenty of time for mailing to customers.

Car owners need and expect to receive your recommendations regarding the servicing of their cars for Spring. It's

- Battery Cables
- Blue Coral
- Body Polish
- Brake Fluid
- Brake Lining
- Brushes-Gen.-Starter
- Bulbs & Fuses
- Chrome Cleaner

important to keep your shop full and to get the Spring conditioning started early in the season.

Some extra effort may be required this year and seasonal mailing pieces help not only to develop business but, by staggered mailing, to spread

- Condensers
- Cooling System Cleaner
- Cooling System Cleaner
- Distributor Points
- Fan Belts
- Gasket Sets
- Ignition Wiring
- Hose Clamps

out the work so the shop can handle it.

Dealers should check their inventories on items required for Spring conditioning. If this is done now, and orders placed, you have a better chance of having stock on hand when you need it. Be sure you have the items listed below:

- Mufflers
- Radiator Hose
- Rust Preventive
- Shock Asb. Fluid
- Spark Plugs
- Tail Pipes
- Wiper Blades

"Quiz Test"

For Answers, See Back Page.



- When installing a new replacement engine in the 1941 Clipper (1951) chassis, it is necessary to:
 - use a new intake and exhaust manifold.
 - use the old cylinder head.
 - use a special oil pan.
 - use the special steering column gear shift lever support assembly.
- To aid in the removal of the wheel support upper bushing bolt of the Packard Safe-T-Flex Non-Clipper front suspension:
 - a heavy duty "C" clamp and adapter may be used.
 - the upper end of the wheel support must be heated.
 - the lower support arm must be disconnected.
 - the front shock absorbers should be removed.
- On a 20th series Packard car equipped with Electromatic Clutch, if the car lurches in second speed above 22 m.p.h. each time the accelerator is released and depressed again, the cause is probably:
 - gap too great at engine speed screw.
 - front end clutch valve body plug out of adjustment.
 - second speed solenoid valve not operating properly.
 - faulty or burned governor "AD" contacts.
 - burned out fuse in the Electromatic circuit.
- When cleaning the open type ball or roller bearings, it should be remembered that:
 - they should be washed in clean kerosene or gasoline.
 - the bearing should not be allowed to spin when blowing it dry with compressed air.
 - they should not be immersed in a cleaning solvent.
 - they should be installed dry and not lubricated.
 - the bearing be allowed to spin when blowing it dry with compressed air.
- The steering gear worm bearing adjustment, on the 21st series cars, is accomplished by:
 - removing the lock nut and turning the cross shaft adjusting screw.
 - adding gaskets under the cross shaft cover.
 - tightening the pitman arm nut.
 - removing or adding shims under the worm bearing cover plate.

Time and Trouble Saving Tips for Mechanics

from the Technical Service Section

THE NEW SUPER EIGHT OIL PUMP

18th Through 21st Series

A new Super Eight engine oil pump, with increased flow and pressure, is now being used in production and is being shipped for service for all Super

Eights back to the 18th Series. This new pump, part number 387862, supersedes the previous pump, part number 341-650, and all orders for either number will be filled with the new pump.

The new pumps are identified by the number 387756 cast into the pump body on the side which is toward the top of the

engine when the pump is installed. The old pumps are identified by the body number 341522.

These new pumps provide a much higher idling pressure and will supply sufficient oil to the hydraulic tappets in many cases where the old pump is inadequate due to the opening up of bearing clearances.

HYDRAULIC TAPPETS

Super Eights

The hydraulic tappet was developed to provide a silent method of valve operation. When adjustable type tappets are used, clearance must be maintained between the valve stem and the tappet screw. If not, there is danger of the valves being held open due to expansion of the valve stem and tappet. This clearance is often the cause of an objectionable click occurring every time a valve is opened.

The hydraulic tappet is designed to operate with no clearance between the lifter and the valve stem. This "zero clearance" entirely eliminates the possibility of noise due to the "take-up" of clearance.

When the construction and operation of the hydraulic valve tappet is thoroughly understood, the diagnosis of trouble and its correction are greatly simplified.

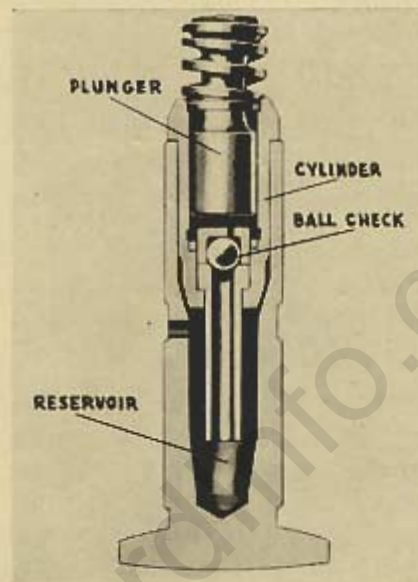
As shown in the illustration, the hydraulic unit is set into a hollow mushroom type tappet which contacts the camshaft. The unit itself consists of the cylinder, incorporating an inlet tube and a ball check valve, and the plunger and spring assembly. The plunger and cylinder are highly machined and are fitted to very close limits.

In operation, oil from the tappet oil gallery in the cylinder block enters the reservoir in the hollow tappet through a drilled hole in an annular groove around the tappet. The oil then travels up the inlet tube, past the ball check and into the cylinder under the plunger.

As the engine valve is lifted,

seat by hydraulic pressure preventing the oil from being forced out of the unit. Since oil cannot be compressed the unit functions as a solid tappet.

As there is no seal around the plunger, other than that made possible by the close fit in the cylinder, a small amount of oil will be forced out of the unit each time the valve is lifted.



The oil lost in this manner is replenished each time the valve closes, by action of the plunger being raised by the spring. This movement of the plunger sucks oil into the unit from the reservoir in the hollow tappet. By means of this spring the plunger is always in contact with the valve stem and the unit is always full of oil.

When hydraulic tappets become noisy, there are two possible causes:

(1) When one or more tappets are noisy, the usual cause is dirt between the plunger and the cylinder or under the check valve ball.

(2) When all lifters are noisy, the usual cause is an insufficient supply of oil reaching the tappets.

To determine the cause of noisy tappets, the first step is to get an accurate check of the oil pressure in the tappet oil system and the main engine oil system. For this check a testing rig may be made up using a 30 pound direct reading oil pressure gauge, two pieces of oil resistant hose, and the fittings necessary for attachment to the oil passage connection and the sending unit tee.

To check the oil pressures, start the engine and allow it to warm up. Stop the engine when the temperature reaches 180°F. To offset any possible error in the electric gauge on the instrument panel, a direct reading gauge should be installed in place of the sending unit.

If two gauges are not available, remove the gauge from the testing rig and install in place of the oil gauge sending unit. Start the engine and with the idling speed set at 10 mph, check the idling pressure to see if it is normal.

If the gauge from the testing rig is used, stop the engine, remove the gauge from the tee, reinstall the sending unit, and attach the pressure gauge to the testing rig.

To test the hydraulic tappet system pressure, remove the cylinder oil passage connecting tube ("pigtail") and attach one of the hose connections of the testing rig to the sending unit tee. To prevent forcing air into the tappet oil system, turn the engine with the starter until oil flows from the other hose. Then connect this hose to the oil passage connection on the side of the cylinder block.

With the engine running at an idling speed of 10 mph, check the pressure shown on

the test gauge. This reading must not be less than 5 pounds.

If the main oil system shows normal pressure and the test gauge shows less than 5 lb per sq. in., the restriction in the tee connection may be partially blocked. If not, one of the tappet oil regulating valves at either end of the tappet oil gallery is probably at fault.

If both the main oil system and the tappet oil system show less than normal pressure the fault lies in the main oil supply system. This may be due to the normal "opening up" of bearing clearances due to wear or a worn oil pump.

In this case the new, high-volume pump, part number 387862, should be installed and the pressures rechecked.

If both the main oil system and the tappet oil system show correct pressures and some of the tappets are noisy, the trouble lies in the tappet assemblies. Dirt between the

plunger and cylinder or under the ball check will either prevent the tappet from filling with oil or will permit the oil to be forced out when the valve is lifted.

A tappet whose plunger sticks may be freed up by raising the valve spring and prying the plunger up with a screw driver. The screw driver should be carefully inserted between the coils of the spring. Once freed, hold the base of the tappet and rotate the plunger to work out the dirt or foreign substance that caused the sticking. Always rotate the plunger clockwise, which is the direction in which the spring is wound. This is not a sure-fire method but it is worth trying.

When the plunger of a noisy tappet is not stuck but may be pushed down by hand, the check ball in the cylinder is not seating properly. This condition makes it necessary to remove the cylinder head and remove the faulty unit.

Plungers and cylinders are very carefully matched and must not be interchanged. When cleaning these units, disassemble one at a time, clean, and reassemble before starting on another. In this way you may be sure that they have not become mixed.

Remove the plunger from the unit and thoroughly wash and dry both parts. In most cases the particle of dirt that causes failure of a unit is so small that it cannot be readily seen with the naked eye but will be removed by washing in clean kerosene. Reassemble the unit by inserting the plunger into the cylinder. The ball check should be air tight causing the plunger to "bounce" when it is suddenly pushed into its cylinder. If the plunger "bounces" indicating that the ball is seating, turn the unit upside down and push the plunger in while twisting in the direction in which the spring is wound. A snap will be noted when the spring drops into its seat.

QUIZ QUESTION ANSWERS

1. ANSWER: (d). It is necessary to use the special steering column gear shift lever support assembly, part number 387670. This part is necessary to bring the idler lever shaft into the correct position in relation with the steering column gear shift levers. See Service Counselor June 1946.

2. ANSWER: (a). To aid in the removal of this bolt a heavy duty C-clamp and adapter have been used by some of our Service Departments. See Service Counselor June 1946—October 1946.

3. ANSWER: (c), (d), and (e). The condition described is most likely caused by the second speed solenoid valve not operating properly. This may be a result of faulty or burned governor "AD" contacts, a burned out fuse in the Electromatic circuit, loose or bad electrical connections (or in the case of a 19th series car, a faulty second speed switch). See Serviceman's Training Booklet "Electromatic Clutch" October 1946.

4. ANSWER: (a) and (b). See Service Counselor August 1946.

5. ANSWER: (d). See Service Counselor July 1946.