

VOL. 10 No. 18

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## THE WHY AND HOW OF 10 mm. SPARK PLUGS

A number of requests concerning the reason for the use of 10 mm. plugs have come in. The answer is given along with some service precautions.

The 10 mm. spark plug had its inception with the trend toward higher engine speeds and compression. Yet Y-4 10 mm. plug has a better temperature stabilization ability than the 14 mm. or larger types. It reaches its normal operating temperature more quickly, so that carbon accumulated during the cold-starting period, or during long periods of idling, is more quickly burned away.

The beneficial effect of the greater rate of temperature increase of the 10 mm. over the 14 mm. type is further brought out during a series of cycles of engine acceleration, constant speed and deceleration, such as the engine passes through during traffic operation. Under this type of operation the 10 mm. plug is capable of keeping its insulator clean while the larger types of plugs would accumulate carbon or even foul.

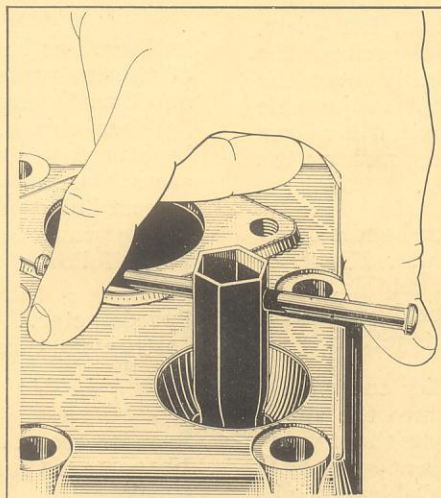
Likewise, the maximum temperature reached by the 10 mm. plug is lower than that of the larger plugs, with the result that electrode wear and lead-bromide incrustations formed over the insulator by combus-

tion are reduced in the 10 mm. plug. These facts are borne out by extensive tests on experimental cars in traffic and at the Proving Ground tracks. Tests run in the mountains near Pittsburgh during hot weather with high engine temperatures indicated a marked superiority of the 10 mm. plug as regards pre-ignition.

The "Spark over" distance of the 10 mm. plug is equal to the 14 mm. type. By this is meant the outside distance the spark must jump from the center wire to reach the outer shell, causing a short circuit.

The 10 mm. plug has much smaller physical dimensions than any plugs previously used by Packard. Because of its size it naturally will not resist the rough handling accorded spark plugs in the average service station in the past.

Most mechanics feel that a spark plug must be tightened with the same effort used to pull down the cylinder head nuts. This is not the case in the 10 mm. plug, the thread of which has sufficient lead to prevent loosening when tightened in an ordinary manner with the wrench provided in the tool kit. When tightening a plug keep the wrench in a vertical position to avoid striking the plug insulator with the inside surface of the socket.



Thumb and finger leverage is sufficient.



## "MIKE MECHANICS" WIN 5 "BUCKS"

An award was made to Earl Schaffland, Service Manager of the South Bay Motors, Redondo Beach, California, for a hollow mill cutter, which fits over the cylinder head studs, and cleans off the corrosion and rust. This is particularly useful on aluminum head jobs.

An award has been made to Mr. William J. Cordle of Zell Motor Car Company, Baltimore, Maryland, for a hook-up which helps the mechanics while working on cars using a remote control starter. This is how it works: Get a sensitive push button switch, two wires any desired length, preferably six feet long, and two bull dog clips. Connect a clip to each wire and both wires to the push button switch. When you need to use this hook-up, simply hook one clip on the primary connection of the switch, on the starter and one on the battery side of the switch and run the wires to any part of the car you may be working on. For example: When adjusting valves, occasionally the motor will stall, and it is necessary for the mechanic to get out from under the fender, open the door of the car and press the starter button, to start the motor. With this simple hook-up, the mechanic need not get out from under the car, but just press the button.

An award was also given to Mr. Charlie Hass, of the Packard Motor Car Company of New York, for designing a puller for pulling the pinion outside bearing from a 120 differential unit, without removing the pinion shaft from the case. This is rather expensive to manufacture and a drawing will be sent to you on request.

We also received the following suggestions which will be very helpful to the field:

From Mr. U. J. Sollenberger of the L. E. Dresback, Inc., San Diego, California, for a spring shackle jack, to be placed between the eye of the rear spring and a rivet directly above on the spring hanger. It is adjustable to compensate for any variation in load in the car or slight wear in the bolts or bushings. The use of this jack eliminates the necessity of raising the weight of the car off the spring and makes possible the installation of shackles, corks, spring bolts, or even bushings without the use of any other jack.

There is another similar one from J. A. Kastel, Service Manager, of Horne Motors, Inc., Longview, Texas, for a tool for installing corks in the rear of the rear spring shackle. The tool is inserted between the spring eye and rivet of the spring hanger, it is adjustable and by turning up nut on the pipe nipple will relieve the load off the spring shackle, thereby making the operation of renewing corks very simple.

Here is a suggestion for a rubber door handle cover worked out by Walter Lewis and Walter Keast, of Packard Motor Car Company of Philadelphia. This cover protects the car next to it from being damaged, valuable when the cars are stored close together.

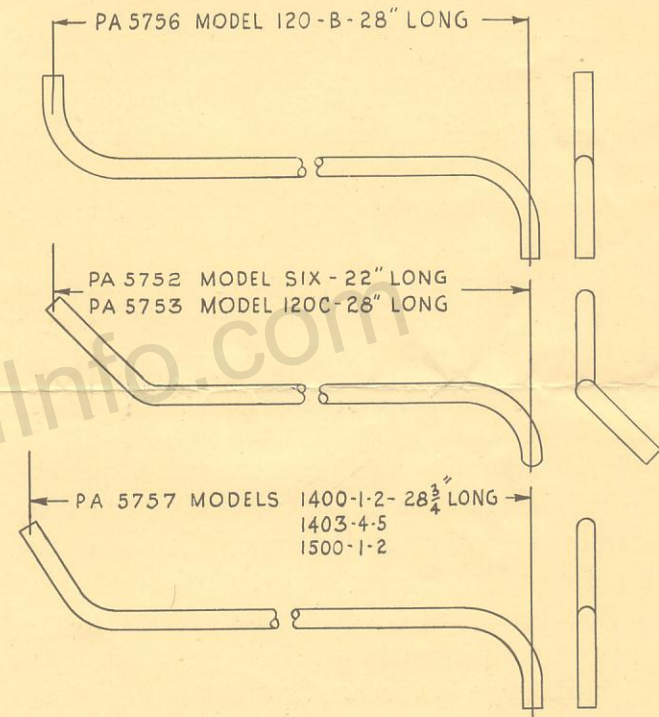
Here is one for a shock absorber filler cup with a shut off on it which can be screwed into the shock absorber, this will operate satisfactorily without wasting the shock absorber fluid. This was sent in by Pete F. Laird of Earle C. Anthony, Inc., Oakland, Cal.

From Bevi Kerr of Zimmer Motors Sales, Wichita Falls, Texas, a clutch lever release and holding tool to be used in removing and replacing the clutch plate.

Thanks a lot for these ideas boys—keep it up, it helps the other fellow and we can dig up some more checks good for five "bucks" and handy for any "Mike Mechanic."

## HOT WATER HEATER CONNECTION SIX—120-C

The water outlet flange castings on approximately 1750 of the first Packard Sixes and One Twenty-C's were not provided with a boss and tap hole to accommodate the hot water heater water outlet connection. On these cars the One Twenty-B metal water tube and nipple will have to be used, and the water outlet connection made in the radiator to cylinder hose the same as on the One Twenty-B.



## INSTRUMENT PANEL BULBS

There has been some criticism of the illumination of the instrument cluster on the early Packard Six and One Twenty-C.

When this complaint develops, please check the bulb used to illuminate the center cluster. In some cases Mazda No. 51 bulbs were used instead of the correct bulb which is Mazda No. 55.

The proper bulbs for the complete instrument board are as follows:

### 120-C

Speedometer.....	1 Mazda No. 55 Bulb
Instrument Cluster.....	1 Mazda No. 55 Bulb
Clock.....	1 Mazda No. 55 Bulb

### SIX

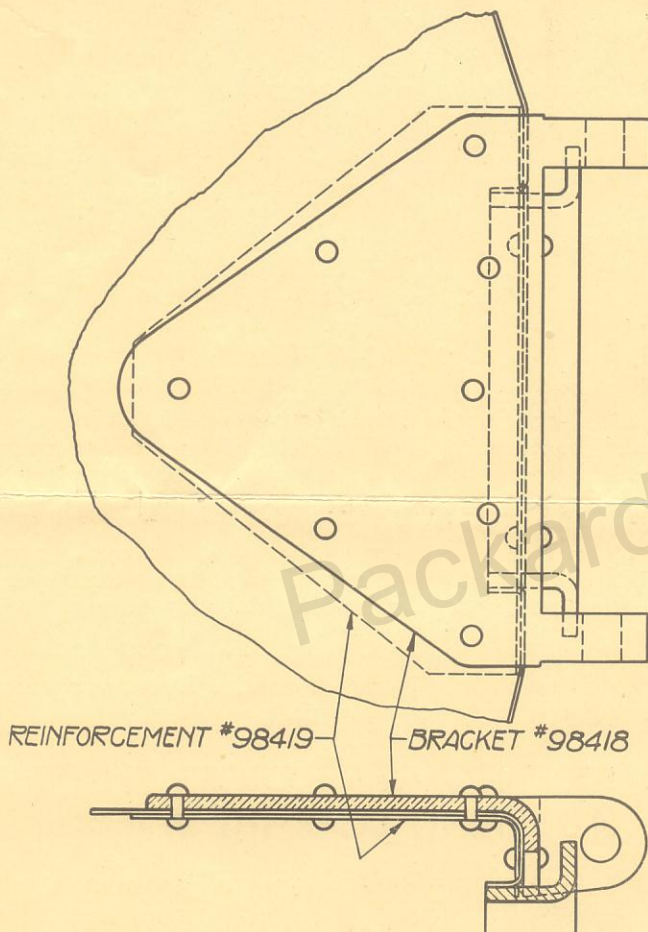
Speedometer.....	2 Mazda No. 51 Bulbs
Instrument Cluster.....	1 Mazda No. 55 Bulb
Clock.....	2 Mazda No. 51 Bulbs



It will be noted that the No. 51 bulbs are used only in the clock and the speedometer of the Packard Six. The lighting of these instruments has been in all cases satisfactory, and the No. 55 bulbs should not be used in the Packard Six clock. The increased heat is apt to affect the operation of the instrument.

## RADIATOR TIE ROD BRACKET 905-6 1005-6 1107-8

We are now using an improved design of radiator tie rod bracket in repairing the 905-6, 1005-6, and 1107-8 radiator cores. The new bracket is heavier and so designed as to better resist the twisting strains set up by the radiator tie rods.



Install as shown in illustration with the reinforcing plate on the inside of the tank. Order piece No. 98418 radiator tie rod bracket and piece No. 98419 radiator tie rod bracket reinforcement.

## 1937 OWNER'S INFORMATION BOOKS

A very complete form of information book will very shortly be available for the 1937 Series cars. A sufficient quantity will be mailed to take care of the cars already driven away or shipped. Books should be available for each of the four lines of cars about September 21.

## GAS GAUGE READING ON 1937 MODELS

On some of the early production cars there was a possibility, during the painting operation of the gasoline tanks, for paint or enamel to get on the terminal of the gasoline gauge tank unit.

This paint acts as an insulator and in some instances may cause incorrect gas gauge reading and this will be evidenced by "high reading" of the gauge and in extreme cases the gauge may show "full" when the tank is actually empty.

To remedy this condition it will be necessary to drop the rear tank, remove the wire terminal from the gas gauge tank unit and then with a cloth saturated with paint remover or thinner, thoroughly clean the terminal on the tank unit.

It is NOT necessary to replace either the gasoline gauge tank unit or the dash unit.

## TRANSMISSION—INTERCHANGEABLE Packard Six and all 120's

In order that we may simplify our service stock and cut down the number of different transmission assemblies the dealer and distributor must carry, we have removed the rear bearing housing cover, the speedometer gear, speedometer pinion and bearing, the universal joint flange and the transmission cover assembly from the complete transmission.

By stocking piece number 317503, current service transmission assembly, you are prepared to service any of the above model cars.

For Model:

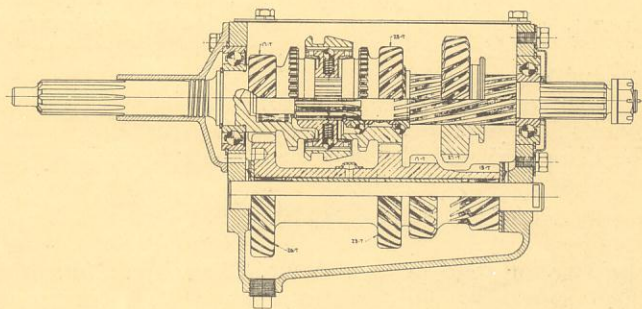
Packard Six—120-C—120-CA use piece 317503 only.

120—120-B—120-A—120-BA use piece 317503 with—

1—piece 315777—throwout bearing

1—piece 315879—throwout bearing sleeve

1—piece 315804—throwout lever



**PLEASE NOTE:** The stamping which covers the rear main shaft bearing should be removed and the rear bearing housing cover, speedometer gear, speedometer pinion and bearing, U. J. flange and transmission cover assembly should be taken off the old transmission and assembled on this new unit.

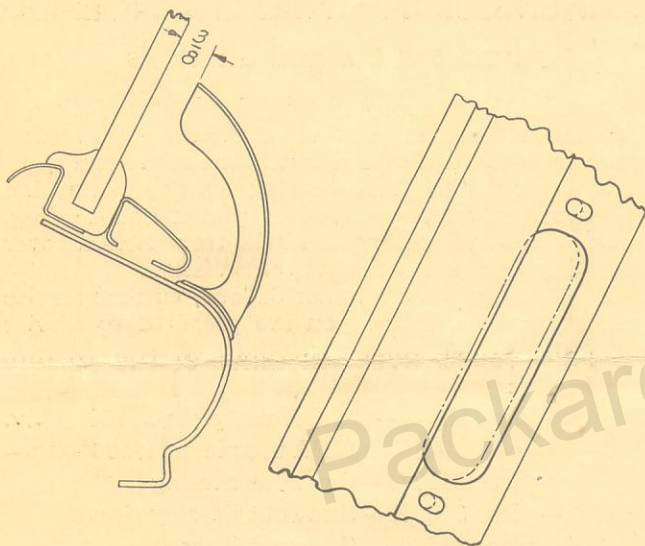
The stamping which is marked—*For shipping purposes*—should be assembled on the defective transmission to be shipped back to the factory.



## WATER TEMPERATURE GAUGE— CAUTION WHEN REMOVING

Before attempting to remove the water temperature gauge from the instrument panel on current series cars, it is essential that you first remove the battery lead to the ammeter, because in removing the temperature gauge it will usually touch both the ammeter and the case. If the battery lead to the ammeter is not disconnected a direct shortage is caused between the ammeter and the case through the metal face of the temperature gauge. With a short circuit the metal face of the temperature gauge may heat up enough to damage the dials and both instruments will be damaged beyond further use. It is, therefore, of the utmost importance to disconnect the battery lead to the ammeter before attempting to remove the water temperature gauge.

## DEFROSTER LOCATION



On the first run of the Packard Six and OneTwenty-C the holes and slot on top of the instrument board frame, which take the defroster deflector, are located too far forward and will not allow the deflector to be assembled properly.

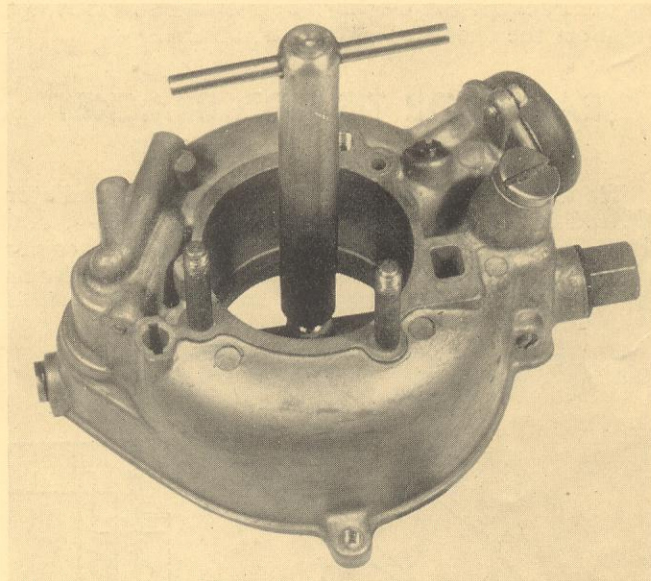
The front top of the deflector must be  $\frac{3}{8}$ " from the windshield and therefore the small screw holes must be elongated and the long slot filed out as shown.

## ANNOUNCING



Salt Lake City announces the appointment of C. J. Tingey as Service Manager. Mr. Tingey adds some twenty years of service experience to the Salt Lake City staff, having come up through the ranks to the position of shop superintendent with the Earle C. Anthony organization. He was also connected with the Philadelphia organization for 18 years.

## CARBURETOR MAIN DISCHARGE NOZZLE WRENCH



Tool No. ST-5085—Price \$1.20

### Model—Packard Six

Carburetor discharge nozzles are easily removed with special nozzle wrench. It is possible, when using dirty gasoline, for small particles of dirt, etc., to enter and become wedged in the various metering jets, which restricts the flow of gasoline and results in a lean mixture.

The remedy is to remove the jets with a small screw driver, and nozzle with special wrench and clean them with air to remove substance that may have lodged in the carburetor.

Dealers will win their customers by being equipped to do the job quickly and efficiently. Every mechanic needs one for "tune up work."

## STEERING GEAR CROSS SHAFT ADJUSTING LOCKNUT WRENCH



Tool No. ST-977—Price \$2.30

### Models—1500-1506-1507-1508

This operation is rather difficult unless this special wrench is used to loosen cross shaft adjusting nut before adjusting the steering cross shaft for play. A thin wrench is necessary to make this adjustment.

The quality of work, and time saved will prove a good investment.

SUGGESTIONS OR QUESTIONS ARE ALWAYS WELCOME. ADDRESS—N. A. LULL—EDITOR PACKARD SERVICE LETTER.