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At Last It's Here!

THE Packard Maintenance Agreement has passed beyond it's trial stage. No longer is it an untried theory, but is a proved fact. Thanks to a number of distributers and dealers who were willing to pioneer the way, we now present to you a new method of selling maintenance; one, which, from the standpoint of both owner and service station, is highly desirable.

To Packard-Washington must go the credit for this idea of merchandising maintenance. There, in April, 1923, it was first instituted and continued since with gratifying success.

After watching the plan in operation at Washington, it was decided to test it in other places, so in the year 1925 the factory brought it to the attention of the field for the first time. Frankly, it was received with a great deal of skepticism and the amount of pioneers who would give it a trial were few, with the result that the plan was temporarily abandoned. Again, in July, 1927 it was called to the attention of the field, in General Letter 757, and although the matter was not pressed, this time the idea seemed to catch, and enough points took hold to insure a good trial being given it. The data received from the points, where it has been in use long enough, shows that the plan IS A SUCCESSFUL WAY TO MERCHANDISE MAINTENANCE, with many advantages.

What *Is* The Plan?

A SERVICE, that predetermines the owner's maintenance costs.

A service, that insures regular attention being given to the car on lubrication, adjustments and repairs.

A service, that, through the preventive feature, keeps the car in the best of mechanical condition at all times.

A service, that prevents possible disputes over repair bills.

A service, that insures a more regular flow of work into the shop.

A service, that is paid for in advance.

A service, that keeps the Packard owners coming to you, thus, maintaining that contact which is so valuable from a sales standpoint.

A service, that will be reflected in increased sales of new cars, due to the efforts of owners who are kept enthusiastic by well maintained cars.

A service, that should reduce depreciation costs, as a used Packard, which has been serviced under the Packard Maintenance Agreement, should be a far more desirable purchase than one serviced under the ordinary "wait 'till it happens" plan.

To clear up any doubts that may be in your mind, we believe this can best be accomplished by means of a few questions and answers.

Isn't the price of $110.00 excessive for the first 10,000 miles?

It is true, that if you examine your records you will find, it does not cost the average owner that sum to operate his car for the first 10,000 miles. *On the other hand, it is also true that the average owner does not spend money for service, until something goes wrong.* In spite of all the educational work done along preventive lines, the "stitch in time" idea has not taken hold the way it should. If the owner would bring his car to you in accordance with the attached schedule, covering preventive service, and have ordinary work done to it, it would cost him more than $110.00. It has been definitely proved that the railroad plan of servicing locomotives at regular intervals is every bit as beneficial when applied to automobiles. A car regularly inspected and adjusted just cannot help giving greater satisfaction than one which does not receive this preventive attention.

Isn't this plan in reality a form of insurance?

Yes, it is, and the owner should be given that idea. With the exception of gasoline, tires, paint, and accident work, he is to all intents insured against maintenance costs, provided he brings the car in at the stipulated periods.

Supposing an owner becomes dissatisfied with the plan after buying it, or suppose an owner wilfully abuses his car, what can be done?

"Better Service Means More Car Sales"

There is a clause to cover such emergencies which allows either owner or dealer to cancel the Agreement at any time, in which case the dealer agrees to rebate to the owner for the unexpired service. It is interesting to note, in this connection, that of the various places having the plan in effect, none have reported the necessity of this clause being enforced by either owner or dealer.

Doesn't this plan cause owners to be running to the service station every time a little thing goes wrong?

On the contrary, experience shows that the owner does not do this, as he is content to wait until the car goes in for its regular inspection. Owners should be encouraged however, to bring the car in whenever anything occurs that may be of a serious nature.

Has this plan been the means of selling any cars?

Absolutely. In Boston a large drug firm bought three for their salesmen, on the strength of the guaranteed costs of maintenance. There have been numerous other cases where owners were under the false impression that the maintenance costs, on Packard cars (especially the Eight), were unduly high. The Agreement soon sold them that the opposite was true.

When should the Packard Maintenance Agreement be sold?

Preferably, after the signing of the order for the new car. If not sold at this time, then it should be sold by the service salesman.

Should a car serviced under this plan command a higher resale value than one serviced in the ordinary way?

It should, because any used car buyer would certainly be willing to pay a slightly higher price for a car, that had received the regular and systematic attention, which this plan compels.

Should policy expense be charged against the Maintenance account?

No. All work that comes under the heading of policy or warranty should be separated, and charged to the policy or warranty account, as formerly handled. If this separation is not made, a true picture of either policy expense or the maintenance account, will not be obtained.

Paragraph number 6 of the Maintenance Agreement reads as follows, "If by reason of absence from this city it is impossible to have the scheduled work done, the insurance feature (No. 4) may still be retained provided the buyer has the scheduled work performed by any authorized Packard representative. Such work, however, will not be paid for by the seller." Isn't this clause apt to be objected to by the buyers?

This stipulation was inserted to protect the dealer selling the Agreement, as it was felt that there would be considerable objection to paying bills incurred elsewhere by the owner. This clause is optional with the seller and can be waived at his discretion, as it has been by a few distributers now using the Agreement.

Can this agreement be sold to an owner who has already driven his car for a few thousand miles?

Certainly. Assume, for example, that an owner has driven 4000 miles and then decides he would like to have this guaranteed protection. It would be in order for the dealer to inspect the car and make any charges to bring it up to standard condition, and then sell the agreement on a pro-rata basis, which in the case of 4000 miles would be 4 x $11.00 or $44.00 which deducted from $110.00 would be $66.00, the charge for the remainder of the 6000 miles.

PACKARD MAINTENANCE AGREEMENT

.....192.....

1. The buyer agrees to pay for the maintenance on his Packard car as follows:

For the first 10,000 miles on Packard Six.....$110.00, payable $27.50 each 2500 miles, in advance
For the second 10,000 miles on Packard Six.....$160.00, payable $40.00 each 2500 miles, in advance
For the third 10,000 miles on Packard Six.....$210.00, payable $52.50 each 2500 miles, in advance
For the first 10,000 miles on Packard Eight....$160.00, payable $40.00 eech 2500 miles, in advance
For the second 10,000 miles on Packard Eight....$210.00, payable $52.50 each 2500 miles, in advance
For the third 10,000 miles on Packard Eight....$260.00, payable $65.00 each 2500 miles, in advance

2. The buyer agrees to bring his car to the seller's service station at the regular periods stipulated in the attached schedule or within 200 miles of the stipulated mileage periods and leave the car for service attention.

3. The seller agrees to perform all the work called for on the attached schedule (except any item that shall be obviously unnecessary) if and when the car is presented for the purpose at the periods stipulated.

4. The seller agrees in addition that if the buyer brings his car in regularly as in No. 2 above he will insure the buyer against service expense by performing any and all necessary work, supplying all parts, material and labor necessary to keep the car in operating condition (tires and paint excepted), all without extra charge to the buyer, except that caused by accident or failure to observe the precautions in No. 7 below. This insurance feature expires at the end of eighteen months for the first 10,000 miles, at the end of two and one-half years total for the second 10,000 miles, and at the end of three and one-half years total for the third 10,000 miles.

5. The buyer is privileged to bring his car to the service station at any time for miscellaneous adjustments when needed, and all necessary work will be performed without extra charge so long as the conditions above have been complied with.

6. If by reason of absence from this city it is impossible to have the scheduled work done, the insurance feature (No. 4) may still be retained provided the buyer has the scheduled work performed by any authorized Packard representative. Such work, however, will not be paid for by the seller.

7. The buyer agrees to operate his car in a reasonable manner at all times and specifically: (a) to see that the motor oil level is maintained at the proper level by adding good quality oil if needed whenever the gasoline tank is filled; (b) to operate the chassis lubricator daily when the car is in use or every 100 miles; (c) to keep the carburetor choke lever pushed all the way in except when starting; (d) not to "ride" the clutch pedal; (e) not to exceed 35 miles per hour for the first 1,000 miles of use and to see that one quart of oil is added to each ten gallons of gasoline during this period; (f) not to drive recklessly or at high speed over rough roads; (g) to have all damage as a result of accident promptly and adequately repaired; (h) to notify seller promptly should the speedometer fail to register; (i) to keep the radiator filled with an anti-freeze solution during cold weather; buyer to pay for this solution.

8. If within the second or third period of 10,000 miles the buyer desires to install a reground cylinder, pistons and pins, the buyer agrees to pay the seller fifty dollars ($50.00) in addition to the rate given above.

9. This agreement is cancellable by either party at any time, in which case the seller agrees to rebate the buyer for unexpired service pro rata.

10. This agreement applies to Packard (Six) (Eight) Motor No....., Serial No.....
and is for the (first) (second) (third) period of 10,000 miles, for which $.....has been paid to the seller.

Signed: (Seller)

.....Buyer.

By.....

Address..... General Manager.

PACKARD MAINTENANCE AGREEMENT

SCHEDULE

	MECHANICAL ATTENTION	FIRST 10,000 MILES — PACKARD SIX PACKARD EIGHT											SECOND AND THIRD 10,000 MILES — PACKARD SIX PACKARD EIGHT											LUBRICATION, ETC.
	Miles	600	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000 21,000	12,000 22,000	13,000 23,000	14,000 24,000	15,000 25,000	16,000 26,000	17,000 27,000	18,000 28,000	19,000 29,000	20,000 30,000		
1	General Inspection and Test	1A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	A	Crank Case Oil—Fill to Level
2	Miscel. Adjust. for quietness	2	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	2B	B	Crank Case Oil—Flush and Refill
3	Wheel Alignment—Tram.	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	3C	C	Chassis Lubricator—Operate and Check
4	Tires—Inspection and Adjust Pressure	4	4	4	4	4	4D	4	4	4	4	4D	4	4	4	4	4D	4	4	4	4	4D	D	Chassis Lubricator—Refill
5	Lighting System—Inspect	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	5E	E	Miscel. Oil—Door Hinges, Latches Spark Levers, Horn, Brake Ratchet, etc.
6	Carbon—Clean if necessary				6					6				6					6					
7	Valves—Grind and Scrape Carbon	F	F	F	F	F	7F	F	F	F	F	7F	F	F	F	F	7F	F	F	F	F	7F	F	Battery—Hydrom. Test and add water
8	Valve Tappets—Adjust	G	8G	G	G	G	8G	G	G	G	G	8G	G	G	G	G	8G	G	G	G	G	8G	G	Water—Fill Rad. Check Alcohol
9	Spark Plugs—Clean and Adjust	H	H	9H	H	H	9H	H	9H	H	H	9H	H	9H	H	H	9H	H	9H	H	H	9H	H	Distributor—Oil Head, Cam and Rotor
10	Ignition Points—Clean and Adjust	I	10I	I	I	I	10I	I	I	I	I	10I	I	I	I	I	10I	I	I	I	I	10I	I	Generator and Starter—Oil
11	Carburetor—Clean and Adjust	J	11	J			11J		J			11J		J			11J		J			11J	J	Alemite—water pump, Brake Block Steering Pins and Brake Pedal
12	Motor Chain—Adjust		12				12					12					12					12		
13	Fan Belt—Adjust		13				13K					13					13K					13	K	Transmission—Fill to Level
14	Water Pump—Tighten Gland		14				14					14L					14					14L	L	Transmission—Flush and Refill
15	Vacuum Tank—Clean Screen		15				15M					15					15M					15	M	Differential—Fill to Level
16	Horn—Clean and Adjust		16				16					16N					16					16N	N	Differential—Flush and Refill
17	Brakes—Adjust hand and foot		17	O		O	17	O		O		17O		O		O	17	O		O		17O	O	Universal Joints—Repack
18	Clutch—Adjust		18				18P					18P					18P					18P	P	Steering Gear—Refill
19	Springs—Tighten Clips and Bolts		19				19Q					19Q					19Q					19Q	Q	Speedometer Shaft—Oil
20	Steering—Adjust Column and Con.		20				20R					20R					20R					20R	R	Gasoline Gauge Shaft—Oil
21	Body Bolts—Tighten		21				21					21					21					21		
22	Generator—Clean Arm. and Adjust						22					22					22					22		
23	Starter Motor—Clean Arm. and Adjust						23					23					23					23		
24	Motor to Frame Bolts—Tighten						24					24					24					24		
25	Doors—Adjust Latches, Hinges						25					25					25					25		
	Time required for car to be left at service station.	2 hrs	1 day	2 hrs	5 hrs	2 hrs	1½da.	2 hrs	2 hrs	5 hrs	2 hrs	1½da.	2 hrs	5 hrs	2 hrs	2 hrs	1½da.	2 hrs	5 hrs	2 hrs	2 hrs	1½da.		

NOTE—In addition to above schedule, buyer agrees to bring his car to our service station, every 500 miles during the cold weather season, for Crankcase Oil Change.

What Others *Say* About It

HERE are a few excerpts from letters we have received concerning the Packard Maintenance Agreement.

Grand Rapids, Mich. "One of our owners told us the other day that she was very much satisfied with this way of servicing a Packard car and would not buy another car unless she could buy the Maintenance Agreement for it."

"The fact that we have enough confidence in our cars to sign up an agreement for servicing them at a certain given price is the most effective argument to satisfy the prospect who thinks the maintenance charges might be exhorbitant."

—A. L. Donaldson, *President.*

Detroit, Mich. "Originally I was not in favor of a maintenance agreement and I believe I thought of as many objections as anyone else, but I have now changed my views altogether and wish all of our cars were operated on this basis. I do not believe the owners run in for every little squeak they hear, as is often the case of those who are operating without this agreement. Not only that but instead of all trying to come in at the same time, on Monday or Tuesday mornings, they are now governed by speedometer mileage. This, to my mind, on our service floor is a big advantage, and it will tend to equalize the load more satisfactorily."

—H. P. Hardesty, *General Service Manager.*

Birmingham, Ala. "We can attribute the closing of two deals directly to the Maintenance Agreement, and it has had great bearing on several other sales.

"In our opinion, this is the most satisfactory way of selling service. We are on a cash basis in our shop and this avoids all difficulty resulting from chauffeurs never having money to pay the charges when they come for their cars. We also believe that any car can be serviced more cheaply where it is brought in for inspection at definite periods. We also believe that the lower maintenance cost available to the owner, through this agreement, will be reflected in sales of new cars at a later date."

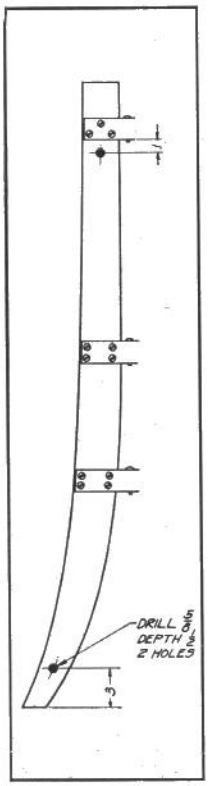
—H. J. McCormack, *Vice-President.*

In conclusion let us repeat that we believe this plan to be an ideal way of selling maintenance. To be a success it must be accepted freely and given a fair trial by the distributer or dealer. We are not trying to compel anyone to use it, but we do request that, in order to satisfy yourself that you try out a number of these agreements. We believe the idea will spread, and will be adopted by other automobile companies. We have already received numerous requests from other companies for information regarding the plan.

Any further information requested will be given cheerfully. Packard Maintenance Agreement blanks are ready at the factory; the cost is $2.00 per hundred. Send your orders in care, Editor Packard Service Letter.

Technical Information

To Packard Distributers and Dealers:



DOOR HINGE PILLAR BUMPERS

We have had a number of requests for a rubber bumper to assist in the elimination of door rattles, particularly in the case of cars which have been in service for some time.

The accompanying illustration shows the installation of a small bumper which may be applied to the hinge pillar of the door itself, two of these bumpers being used for each door.

The bumper may be applied to any closed car door by drilling in the hinge pillar a $\frac{5}{8}$" hole $\frac{1}{2}$" deep. This may best be done by first locating the hole with a $\frac{3}{16}$" drill to a depth of $\frac{3}{4}$" and then counterboring to a depth of $\frac{1}{2}$" with a $\frac{3}{16}$" by $\frac{5}{8}$" straight shank counterbore. This method is suggested because the metal is apt to be torn if an attempt is made to use a regulation twist drill for so large a hole. The bumper may next be glued in place and held by means of a nail with a small head which should be sunk below the surface of the rubber.

These bumpers may be ordered in any desired quantity as follows: 163293—door hinge pillar bumper.

DOOR STOP STRAP RATTLES

Rattles in the door strap are usually caused by play between the pivot end of the strap and the hinge pin mounted in the roof rail upon which the strap rotates.

A spring washer is now mounted on the hinge pin between the upper side of the strap and the boss of the pin . If door check rattles are encountered in the earlier cars they can usually be corrected by the installation of one of these washers, piece #157663.

WINDOW GLASS RATTLES

The felt runways which guide the window glasses are now retained in metal channels, and if the glass is loose in the runway the rattle may be corrected by pinching the sides of the metal channel together until the felt bears lightly but positively against the glass.

In the earlier bodies the felt was not enclosed in this metal retainer, and the simplest method of correcting a rattle is by the use of a thin shim between the runway and the garnish molding.

We carry in service stock a window anti-rattler strip covered by piece #148804. It consists of a thin velvet covered cardboard strip which should be ordered according to the number of feet desired.

In making the installation it will be found best to use a short strip not more than 1" to 2" long, because such a strip will take up the clearance at the loose point and will not cause the glass to bind as might be the case if the strip ran the full length of the runway.

NEW TYPE GENERATOR

The generator now used in the current model Six and Eight motors contains a fuse to protect the armature in case of a failure of the external circuit.

The new generators may be identified by the symbol CD preceding the serial number. They went into effect on the Six at about motor #142,000 and on the Eight at approximately #227400. The fuse is incorporated in the casting at the rear end of the generator mounting, and the new type may be further identified by the fact that the third brush is adjusted by a rack and pinion mechanism.

If any of these generators show a zero reading on the ammeter with the motor running, the first step should be to check the condition of the fuse, but if it is found to have been burnt, the entire external circuit should be inspected and tightened before the fuse is replaced, because the failure of the fuse indicates an abnormal condition, and the failure is likely to occur again unless the condition is corrected.

MOTOR GENERATOR SHAFT PLUNGER SPRING

When the front end chain of the current model Six is allowed to run loose it is apt to be unusually noisy with the motor running idle.

This is due to the fact that in the present model the water pump and fan are no longer driven from the generator shaft, and the chain runs without load until the motor is speeded up to the point where the generator cuts in. The load of the generator is sufficient to steady the front end drive and eliminate the noise.

The condition may easily be corrected by tightening the chain, but in order to reduce the number of adjustments required a heavier spring is now used back of the plunger at the forward end of the generator shaft, so that the plunger itself will put a slight load on the chain below the point where the generator cuts in.

The new spring is covered by piece #162073, replacing the previous spring piece #115291. The stiffer spring should be used if for any reason the front end of the motor is disassembled. The change went into effect at about motor #157040. The new spring is also used in the Eight, although the chain condition does not develop in this model.

OIL PUMP AND DISTRIBUTOR DRIVING SHAFT

The vertical shaft driving the oil pump and the distributor is now assembled in two sections, the ends coming together inside the sleeve driven by the gear on the camshaft.

This construction eliminates the difficulty which was sometimes experienced in obtaining the proper alignment of the distributor, the driving gear and the oil pump. When this alignment was not secured a noisy distributor or a noisy oil pump was a probable result.

If for any reason the oil pump and distributor drive is disassembled the shaft may be cut in two and the two ends making contact suitably rounded off. Care should be taken to make the joint in the center of the driving sleeve, and this may be done without difficulty owing to the fact that the ends of the sleeve will be marked on the surface of the shaft.

CAUTION, When Grinding Cylinders!

R. M. WILLIAMS—*Service Engineer*

THE advent of the cylinder hone supplied a much needed addition to service station equipment, but unless precautions are taken to protect the inside of the motor properly from the emery-charged kerosene when it is used, a lot of potential trouble will be stored up in every job that is honed.

Grinding a cylinder without removing the cylinder block from the motor is a dangerous proposition at best, and therefore we recommend that where more than one bore is to be ground, *the block be removed to do this work.*

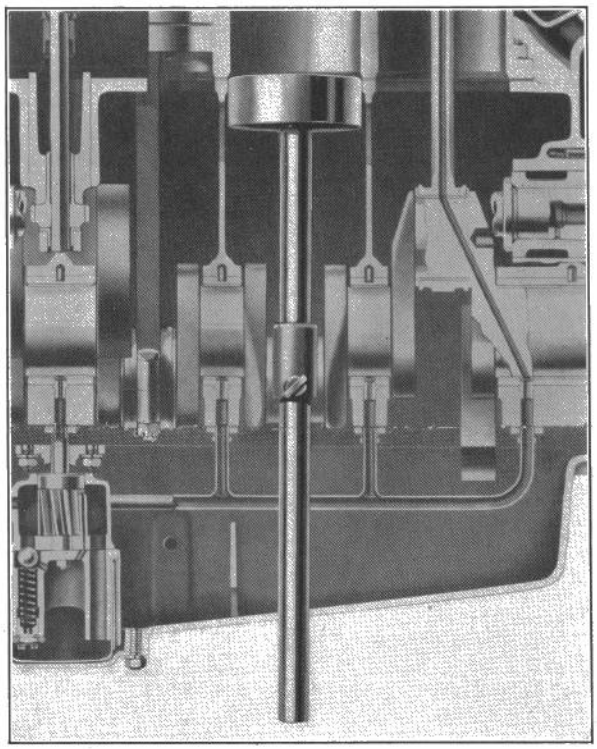
Grinding even a single bore without using the drain cup ST-651 at the bottom of the bore is absolutely the most dangerous thing that could be done to a motor for the reason that as the bottom of the grinder protrudes through the lower end of the cylinder the centrifugal force of the grinder throws the kerosene which is saturated with small particles of emery and cast iron all over the inside of the crankcase, on the crankshaft, camshaft, rocker levers and tappets. These particles of abrasive material become embedded in the oily coating of the crankcase, also in corners and crevices where it is impossible to remove them thoroughly by any cleaning process available.

This condition would mean disaster to the reconditioned motor, regardless of the good job done on the cylinders, for rapid wear of the main and rod bearings, the camshaft and tappets, will take place which, undoubtedly explains why a honed job sometimes comes back on account of noisy operation or high oil consumption within a short period. This, also, applies to the method of dry grinding which creates practically the same condition, for dry grinding sends a cloud of emery dust throughout the crankcase which adheres to the oily crankcase walls.

There are practically no service stations equipped with a force feed system for washing with kerosene where the entire inside of the crankcase can be sprayed with sufficient force to remove these particles.

Even when the drain cup is used at the bottom of the bore that is being ground, *it is very important that no kerosene which has been used once on the grinder is allowed to run down the inside of the adjacent bores,* for this drops onto the crankshaft and runs down the inside walls of the crankcase. Probably the safest way to grind a bore without removing the block is to install the drain cup, *see that adjacent bores are protected* and then use a mixture of half cylinder oil and kerosene and lubricate the stones by means of a brush soaked in this mixture. The stones will absorb sufficient oil to prevent what is known as dry grinding, which is the worst condition under which a grinder could be used. The result is that the cutting and abrasive material will pile upon the stones in the form of a paste that can be washed off when the grinder is removed.

In conclusion, we strongly urge that the entire service organization be impressed with the importance of preventing any kerosene used on the grinder from coming in contact with the inside of the crankcase or any working parts, *and the surest and safest way is to spend the extra time required to remove the block.*



Tool No. S. T. 651

Kerosene Drain Cup and Tube

A drain that will catch and carry away all of the kerosene fed to the cylinder grinder when grinding a cylinder bore without removing the cylinder block. It eliminates all danger of kerosene and grinder dust getting in the crankcase. Is quickly and easily put on and saves time besides assuring a satisfactory job. Price $3.00.

Watch For These Cars

IF found please wire the respective point listed below for instructions.

326-5 Pass. Sedan; Vehicle 69118-9873; Motor 70435; Clutch and Transmission, 70034A; Steering, 235275A; Front Axle, 69976; Rear Axle, 52827L; Frame, 70272; Body, 264-8610. Jerome Parker-Harris Co., Memphis, Tennessee.

433-4 Pass. Coupe; Vehicle, 108909; Motor, 109506; Clutch and Transmission, 109089; Steering, 109881; Front Axle, 109455; Rear Axle, 116314; Frame 109522; Body, 123-287, Lackawanna Auto Co., Scranton, Pa.

533-5 Pass. Club Sedan; Vehicle 144916; Motor, U-144755B; Clutch and Transmission, 144762; Steering, 144996; Front Axle 144695; Rear Axle, 145254; Frame 144691; Body, 306-2258. Marten Hildebrand Motor Co., Okmulgee, Okla.

336-5 Pass. Phaeton; Vehicle, 220345; Motor, 220502; Clutch and Transmission, 220603; Steering, 220474; Front Axle, 220510; Rear Axle, 220676; Frame, 220509; Body, 291-48. Packard Motor Car Co., of New York, New York City.

The following car has been recovered so please change your records. 226 Touring. Vehicle, 41053; Motor, U43040A; Clutch and Transmission, 43140; Steering, 43137; Front Axle, 42932; Rear Axle, 43168; Frame, 42932; Body 220-6771.

Tighten Down Cylinder Heads Properly

IT has been reported from certain sections that the cylinder head gaskets blow out. This complaint is caused almost entirely by failure to tighten the cylinder head down properly.

When tightening the cylinder head nuts after the head has been removed, the center nut on the head should be tightened down first. Then work out in all directions from it. By following this order, the gasket is rolled out smooth. If the tightening is done from the edge, wrinkles may be formed in the center of the gasket which will allow it to blow out.

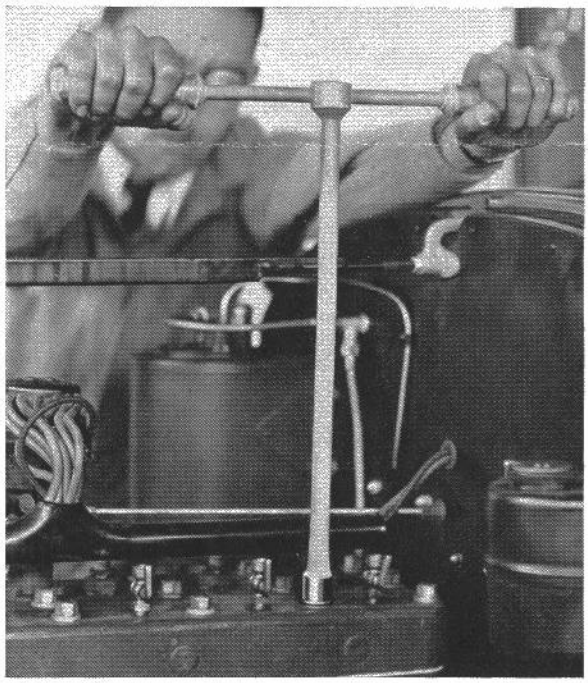
Cylinder Head Nuts must be pulled down tight no matter in what order they are tightened. To make it possible to tighten the head nuts securely without increasing the time required, the Special Tool Department has recently added two new cylinder head nut wrenches to its line of time and labor saving tools.

The Tee Handled Cylinder Head Nut Wrenches, ST-224 and ST-225, Figure 1, have 17 inch handles fitted with hand grips. The shank is long so that the handle clears the cowl making the rear nut just as easily tightened as the forward ones. The weight in the handles gives a flywheel effect so that once the nuts are broken loose, the wrench may be held by the shank and the nuts spun off in the same manner as with a speed wrench.

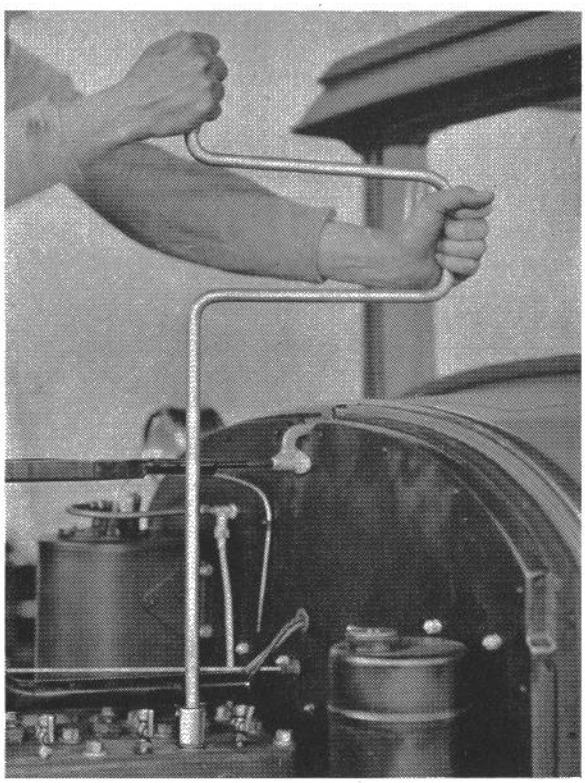
The Cylinder Head Nut Speed Wrenches, ST-226-227, Figure 2, are carried for those who prefer the brace type of wrench. The handles have a 10 inch throw and clear the cowl. This wrench has removable sockets so that the one hand can be made to fit both Six and Eight.

Both wrenches are of alloy steel specially designed to stand the heavy use for which they are intended. They may be purchased through the Parts Department on regular parts orders.

S. T. 224	Tee Handle Cylinder Head Nut Wrench (Eight)	$3.15
S. T. 225	Tee Handle Cylinder Head Nut Wrench (Six)	3.15
S. T. 226	Cylinder Head Nut Speed Wrench (Eight)	3.15
S. T. 227	Cylinder Head Nut Speed Wrench (Six)	3.15
S. T. 1251	Socket for S. T. 227	.50
S. T. 1252	Socket for S. T. 226	.50



Tee Handle Cylinder Head Nut Wrench
S. T. 224 Eight *S. T. 225 Six*



Cylinder Head Nut Speed Wrench
S. T. 226 Eight *S. T. 227 Six*

Service Doctor *of the* Great Southwest

MEET Mr. Vance Mortellra, mechanical supervisor of the southwestern territory. If you haven't met Vance you have at least heard of him, and if you have ever attended a service convention we know you know him. As a mechanic the boy knows his "stuff".

Vance was back at the factory recently and got us boys all straightened out again for another six months. Service conditions in the territory covered by him are, according to Vance, in perfect shape, and he modestly makes the statement that the southwestern service stations have, without a doubt, got it all over the rest of the country. Happily when he made this crack, Ed Gorlitz, Roy Eveland and Lee Stipe were out of the city so a riot was avoided.

What is the Other Fellow Doing?

A GOOD general keeps his eyes on, and learns all possible about, the enemy. So too, does the progressive business man keep informed, as much as possible, regarding the activities of his competitors.

In this day and age things move with great rapidity; new innovations are introduced and adopted almost over night; what was good practice yesterday is obsolete today.

It is so easy for us to become so involved, in our own little world of affairs, that we lose track of what is going on outside of it. Becoming self-satisfied we lose sight of the value of comparison. We forget the race is to the swift and in our state of blindness we are passed by many who have their eyes open.

How many of you fellows ever take the time to visit the other service departments in your town? We will venture to say very few. Probably you think that you haven't time. If that is your thought, then let us say that you haven't got time enough not to make these visits. The things that you may learn in one day's visiting might pay for the time taken a hundred times over.

Comparison when used intelligently is a wonderful thing. Observe closely the other fellows equipment, methods, in fact his place of business from stem to stern. Find out those places where he has it all over you, and then dig in and don't rest until you have those weak spots corrected.

It is not unethical to keep tab on your competitor, but it is a sure indication of fossilization when you, ostrich like, ignore what is going on around you.

We believe that every service manager should so arrange his affairs that he can spend one day each month visiting the other service stations in his city.

A Courtesy

PACKARD-BUFFALO, takes the time and trouble to notify the new owner, of the importance of his making a record of the key number. The following, which is a copy of Buffalo's letter is a very courteous way of performing this service.

Mr. W. Owner,
Buffalo, N. Y.
Dear Mr. Owner:

The number of the key for your Packard car is.....

On previous model Packard cars the key number was stamped on the lock, but upon recommendation of the insurance underwriters, we have discontinued this practice so as to eliminate the possibility of a thief securing a duplicate key.

Although we have a record of all cars delivered and the key number for each car so that duplicate keys may be obtained very readily by Packard Owners, there is a possibility of your losing the key while touring, in which event it would be convenient for you to have a record of your key number. Will you, therefore, please record this number on your license card or in some other convenient place to save any delay or annoyance while out of the city.

Yours very truly,

Packard-Buffalo Motor Company, Inc.
L. J. Pang—*Service Manager.*

Packard Airplane Motors

DURING the All American Aircraft show in Detroit it became known that airplane motors designed and built by the Packard Motor Car Company now are operating in practically daily service in almost every part of the world. They are in Japan, Russia, Germany, Switzerland, South America, Honolulu, Phillipine Islands, Panama Canal Zone, China, Cuba and in nearly every section of the United States.

Twenty-three Navy ships with Packard 800 horse power engines have just completed several months of torpedo practice at Gunatanamo Bay, Cuba. Each ship had to carry a crew of four, gasoline enough to give effective range and a 1700-pound torpedo. They flew a total of nearly 250,000 miles without incident.

Each American first class battleship has a Packard-motored plane as a part of its equipment and they are used on the great airplane carriers Saratoga and Lexington. The 35 Boeing pursuit ships with Packard 600 horse power engines now operating in the Navy are rated as the fastest fighting ships in regular service.

Two of the Packard 800 horse power engines have been installed in the Dornier Super wal plane in Germany, the largest seaplane in the world. This great ship carries 60 passengers. It may be among the several European airplanes to attempt the crossing of the Atlantic during the coming summer.

The Packard company recently completed the designing and building of the most powerful airplane motor in the world, the Packard X engine which produces 1250 horse power. A supercharger has added nearly 300 horse power to the output of this engine, giving it nearly 1550 horse power without any material increase in weight.

⌂ ⌂ ⌂ ⌂

Our idea of supreme bravery is being a Cop on the Chicago Police Force, or a mechanic who smokes cigarettes while tracing a gasoline leak. Either one may become a harpist extraordinary, on short notice.

Do you want to achieve greatness? Then figure out a way to keep service stations as busy on other days as they are on Monday. That ought to be easy, so go ahead and become great.

Would you stand in the center of a bull infested, three-acre lot, clad in red under-wear? Fresh grease on upholstery has about the same effect on owners that the brilliant B. V. D's would have on the bulls. In either case somebody gets gored.

When we are discourteous to owners we show less sense than a dog. A dog never forgets who feeds him.

Ask Me Another

1. *Why does a larger percentage of burned out generators occur in the early summer than any other time?*

   Many cars have the generator charging rate increased for cold weather, and unless the rate is reduced in the spring the battery is apt to overcharge. This in turn may injure the generator.

2. *What is the most frequent mistake in brake adjustment?*

   Failure to make the proper adjustment of the eccentric. This is responsible for a large percentage of squeaking brakes.

3. *Why does the clutch have a tendency to spin as the weather becomes warmer?*

   Because the oil in the transmission becomes thinner. It may be necessary to drain the transmission and substitute a summer oil if the winter lubricant is too thin.

4. *What is responsible for the static electricity that is sometimes noticeable in certain cars in touching the door handles?*

   It is caused by the tires. Usually it will wear out, but sometimes it may be necessary to change the tires.

5. *What is the usual cause of backlash in the driving line of the 426 model?*

   It is usually caused by play between the clutch hub and the splines of the clutch shaft.

6. *Why is it less frequently encountered in the later cars of this model?*

   The oil from the clutch shifter bearing lubricates the splines in those cases where the bearing is lubricated by the chassis oiling system. See Technical Letter #1836.

7. *What is the cause of a harsh grind in the Eight transmission which occurs on accelleration at about 42 miles an hour?*

   It is caused by incorrect adjustment of the vibration damper. Usually it will be found that the facings are sticky and the tension too high.

8. *Why is the fit of the connecting rod bearings particularly important in correcting over-oiling in cars driven at high speeds?*

   The oil throw off from the rods increases with the motor speed, owing to the centrifugal effect of the crankshaft.

The First Winner

Special Service Tool Department
Packard Motor Car Co.
Detroit, Michigan.

Dear Sir:

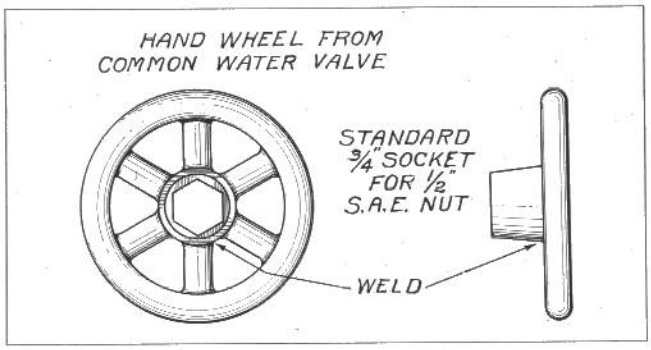
Below is a sketch of a handy tool for removing the valve cover plate on the new type cars.

To make the wrench, weld a standard 5/8 removeable socket to the center of the handle of an ordinary water valve.

I have one in my tool kit and find that it is very handy. Grip the handle firmly, place on cap screw, one twist to break the screw loose, then spin it out. It is especially handy for the screw behind the carburetor.

Yours truly,

Joel C. Wise, *Mechanic*
Packard—Washington



Do you know of a time-saving method of doing some part of a Packard Standard Repair Operation. Have you made a labor saving tool?

Each idea that is worth adopting will be published in the Packard Service Letter, giving due credit to the originator and we will also present him with one S. T. 612 Mechanics Tool Kit.

Improved Type Valve Springs

WE are indebted to Paul K. Wastrom, Service Manager of Packard-Springfield, Mass., for the following information regarding the selling of improved type valve springs.

"It may interest you to know that we have sold approximately 2200 improved type valve springs in the past few months."

"We thoroughly believe in the spring and we have yet to fail in selling a set in conjunction with a carbon and valve job after explaining the merits of same to the customer."

"It is not only good business but it makes a decided improvement in the running of the car. We even go so far as to sell them on a trial basis."

"We are very proud of this record and hope other points are concentrating on this item for it is surely worth while."

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