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"Brother, Can You Spare a Dime?"

THE actual figures seem to indicate that Mr. John Public himself feels that he can spare several of them for the things he wants.

There seems to be a few less dimes coming our way, and they may or may not be worth as much as they once were, yet we do spare them when the thing we want is properly presented.

For instance, this stone broke public of ours, only last fall got together in three groups totaling 250,000 and dug-up dimes to the tune of \$1,500,000 just to take their lady friend to a football game. This figure does not include the incidentals such as transportation, refreshments, meals or rental charge on the fur coat.

We hope some one will figure out how many millions played golf last summer and what was spent for green fees—brassies—niblicks and locker room cooling facilities—this figure would exceed that spent for tickets for three football games.

Some of the boys still enjoy a cigar now and then, and you still see quite a few cigarettes in use. In fact, \$66,000,000 is spent each month on the necessity called cigarettes.

You hear lots about diet and reducing from the ladies, but a few of them don't seem to require these improvements, since in each month last year \$17,000,000 was spent for candy.

Then because there were still some dimes to spare

75,000,000 people each week last year went to the movies.

Last year was very slow for us automobile companies on account of nobody having any money but somehow somebody bought 1,400,000 new and used cars to the rather cheerful tune of \$850,000,000.

Now, let's get into our own backyard! As of January 1, 1933, we had in the Packard family, 231,982 registered Packards in the U. S. A. From this family, reputed to be dead broke, you gratefully received for service (labor, parts and accessories), the miserable sum of \$10,715,000. That is equal to \$46.15 per car registered—not bad at all, providing you got your share. We don't say this figure is what you should receive from each customer, it should be a great deal more—For parts and labor alone the figure is \$35.41—An average for 1930, 1931 and 1932 shows that parts and labor per car have amounted to \$40.00. As an average, are you receiving \$40.00 from each car registered in your territory?

These facts point to one encouraging thing, and that is that there exists greater chances to materially increase our service volume now under present conditions than in almost any other line of business. There are more Packards registered in 1933 than in 1929, more of these cars need service than ever before. This increase in volume will be profitable. We believe that conservative but steady advertising followed up by personal contacts will do the job—we have the plans, will you use them and follow them up?

SEE GL-549 FOR DETAILS ON THE VACATION MAILING PIECE. It is based upon the idea that there will be an unusual amount of travel by automobile this summer. It ties in with the Worlds Fair and the Packard exhibit. This exhibit like many others, will be of great interest to Packard owners. It depicts Packard's Third-of-a-Century of Progress in design and construction. There will be a portion of the Precision Exhibit and a movie showing an interesting Packard story. Cars will be on display and there will be a courtesy desk with a service man in attendance at all times. Your owners going to Chicago should be made to feel that this is their headquarters—you should capitalize on these facts. **GET YOUR ORDER IN EARLY!**

"EVERY OWNER A PACKARD SALESMAN"

The Story Behind the Packard Car Radios—By a Radio Expert

C. H. VINCENT, Chief Inspector and Manager Packard Proving Grounds

In ten years of experimentation with radio transmitters and receivers, I believe the most difficult problem coming to my attention has been the development of a practical automobile receiver. An ideal unit for this work should fulfill the following requirements:

1. The sensitivity must be much greater than necessary in the average home receiver (with the car antennas available today).
2. The fidelity must be of a very high order if music is to sound well in the confined interior of an automobile body, especially when the loud speaker is placed on the dash behind an instrument board.
3. At least two and one-half and preferably five watts of undistorted output must be available if speech and music are to be audible in the rear seat of the car driven at speeds above 40 m.p.h.
4. Battery consumption should be moderate.
5. The entire outfit must be constructed to stand continuous shaking without producing objectionable noises or depreciating rapidly.
6. It should be capable of operating for long periods of time without excessive attention.
7. Installation should be as simple as possible and all units reasonably get-at-able for service.
8. Maintenance cost ought to be low.

My interest in radio as a hobby caused me to experiment with receivers in automobiles long before such installations were seriously considered from a commercial standpoint but it was only in the Fall of 1929 that I began a serious study of the problems for the Packard Motor Car Company. Between September first, 1929 and April first 1930, five special receivers, power supplies, etc. were constructed to our specifications by two of the largest radio manufacturers in the country. None of these came up to our exacting requirements but a great deal of data was collected. During that period and at intervals since, we have given special attention to the question of installation with particular reference to ignition disturbance suppression.

About April first, 1932, we found that several receivers approaching our specifications were available and after a long period of testing picked out one model which (with certain alterations) proved to be head and shoulders above any other studied or tested. This receiver, is now built for us by one of the leading manufacturers and (when properly installed and operated) gives remarkably consistent and satisfactory results over long periods of time. As an example, one unit (taken from stock) was recently driven fifty thousand miles on a Proving Grounds endurance test car, operating six hours daily with failure of only one minor part, the design of which has since been changed. During this test, no service of any kind was required despite the fact that controls were manipulated by ten different drivers and the roads were mostly mud, slop and bumps.

Perhaps the most common error of the layman is the assumption or statement that a certain receiver is unsatisfactory because of noise. Aside from actual defects in tubes or power supply, the amount of noise reaching the ear of a listener is approximately proportional to the sensitivity and fidelity of the unit. In other words, the receiver with great sensitivity will seem much more noisy than one less sensitive and the receiver with a high

order of fidelity, will seem more noisy than one in which reproduction is less natural. It should be perfectly obvious that the more sensitive receiver will produce more noise for the simple reason that great sensitivity means high voltage amplification and high amplification naturally increases the volume of any electrical disturbance reaching the antenna. The volume of noise reaching the ear is also affected by the fidelity of the audio channel because the wider the channel the more frequencies it will pass and the larger the range of noises that will be amplified.

Audio frequencies are quite generally classified as those which lie between twenty and fifteen thousand cycles per second, but few people can hear frequencies above nine thousand cycles unless they are very loud. In many receivers (both home and auto), an audio frequency filter is so placed that it cuts off all frequencies (or sound) above thirty-five hundred cycles and in some cases, this cut-off may be as low as twenty-eight hundred. The sharper the cut-off the more "mellow" the tone and the higher the cut-off the more "brilliant" the speech and music. From a noise suppression standpoint, it is desirable to have a low cut-off but if this point is set too low, a real musician will notice the absence of the frequencies that provide the "brilliance" and will have just cause to criticize. Many people however, prefer what is commonly called a "mellow" tone where the highest frequencies are completely missing and the intermediate frequencies considerably attenuated.

The Packard Deluxe Receiver has been designed to have great sensitivity for use in thinly populated localities far from broadcast stations but a handy switch is provided to reduce this sensitivity and thus obtain quieter average reception in thickly populated districts where electrical disturbances are most common.

In designing the new Packard Radio, the audio cut-off point was placed very high thus making it possible (under favorable conditions) to secure reproduction almost equal to the actual broadcast from the best transmitters. This wide audio channel, of course, brings in a maximum of noise but a variable cut-off or by-pass (so called Tone Control) was placed on the loud speaker, thus permitting the operator to adjust not only for individual preferences, but to obtain the best compromise between greatest fidelity and minimum noise.

The design of an automobile receiver calls for the maximum results from a minimum amount of apparatus confined within the smallest practical space. In an effort to reduce size and cost to the lowest possible point, many manufacturers of cheaper receivers have standardized power supply units which have neither the capacity nor the reliability to meet our exacting specifications. These plate supply units (so-called Battery Eliminators) are most commonly of the vibrator type which depend upon contact points similar to those used in spark coils, but the Packard Deluxe Receiver (with five watts output) uses the much more costly, reliable and efficient dynamotor, originally developed for aircraft radio receivers and transmitters where cost was a minor consideration. These dynamotors are similar to the large generators used by power companies for direct current lighting. When properly designed and built they have excellent regulation and higher efficiency than cheaper devices, and are much more reliable.

Has Packard-LaSalle Sales Training Course Helped Me As a Salesman of Service?

"Since I have been studying the Packard sales and service course prepared by your school, I can see a large improvement and I am very fortunate in having the chance to take the LaSalle course.

"I feel like I am getting some place when I have some one that really knows how to pass judgment on my work. Considering, my papers returned from LaSalle, my grades have certainly helped me in beating my mental hazard. My approach to strangers has always been awkward, for the fear of not doing exactly the right thing. The LaSalle course has been so thoroughly exact that, I feel confident in learning it and applying it in the right manner.

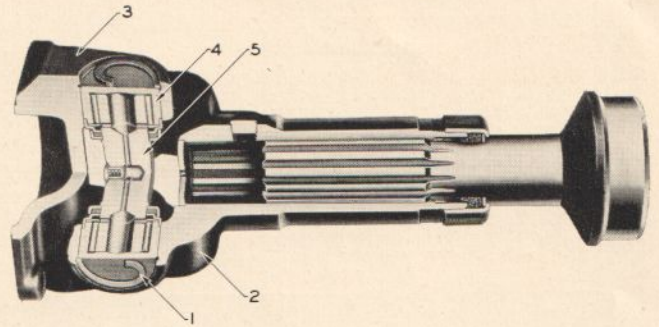
"It has helped me sell service and just last week it helped put over a used Packard, not so much but it helped some. One of our Packard owners was considering a small new car for his son. One of our salesmen showed him a used Packard roadster we had on the lot. Well, they liked the car fairly well, but said they would never buy a used car. At the time I was doing a repair job on their present car. While I was working, the owner was in the shop watching me, so I decided in a round-about-way to find out how the used car deal was coming along. I asked him how the roadster pleased his son. He said, "Well, as far as he (*his son*) is concerned, he is sold on the roadster, but my wife wants to buy a small new car." I said, "Well, now, who are you buying the car for," and he said his son, so I played a while on his affection for his son and then on the pride of Packard ownership to the extent of his son's prestige in college and he liked the idea very much so he talked to his wife, and then they asked me the condition of the car and then I told them how easily a Packard was to put in perfect condition, in other words, acme of engineering. They went to the front and signed the order for the salesman. Now, indirectly I feel partly responsible for that sale, however, no credit was given me and, of course, I did not expect it. But I felt I was giving the company a little help. The car was sold—a clean cash sale and rid of another used car.

"More power to LaSalle."

Yours very truly,

Service Manager

New Universal Joint



The Spicer Needle Bearing Universal Joints are so designed that correct assembly is a very simple matter. No hand fitting or special tools are required.

The Trunnions and Needle Bearing Assemblies are the only parts subject to wear, and when it becomes necessary to replace these for any reason, the work can be done without removing the Propeller Shaft from the vehicle.

The Needle Bearings are locked in position by Lock Rings (1) fitted in a groove in the Yoke, as shown in Figs. 2 and 3. These Lock Rings need merely be squeezed together with a pair of pliers, for removal. This allows the Needle Bearing Assembly (4) to be removed from the Yokes (2 and 3) by first tapping on the exposed face of one of the Needle Bearing Cages until the opposite Needle Bearing Assembly comes out. Then tap the exposed end of the Journal (5) until the opposite Bearing is free.

The Journal is now free for removal, and by sliding same to one side of the Yoke, the end of the Trunnion Bearing will now be free to tip and clear the lug on the Yoke, and can be completely removed from the assembly.

Re-assembling merely reverses the above process.

DO NOT USE GREASE in Needle Bearing Joints as this lubricant is liable to clog the oil passages. Use an oil having the consistency of 160 S. A. E.

A threaded hole is provided for a high pressure lubrication fitting in the Trunnion Cross or Journal, through which the oil leads to all four Oil Reservoirs, (as shown in the cross-sectional view) and then through a small hole on one side of each Reservoir, direct to the Needle Bearing.

A relief valve is assembled to the central chamber, which prevents damage to the oil seals when extremely high pressure is used in forcing in the lubricant, this valve also serving as an indicator to show when the Joint is completely filled.

The Needle Bearings are well protected against oil leakage and the ingress of foreign matter by the liberal oil packings or gaskets provided.

A threaded hole is also provided by means of which the Slip Spline Shaft is lubricated each time the rest of the Chassis is lubricated. The same lubricant (160 S. A. E.) should be used at both this point and in the Needle Bearing Assembly.

Used Car Bodies For Sale

826 Sedan Body, "Condition Good."

740 Roadster Body "Condition Good."

Conlon & O'Leary, Mt. Morris, N. Y.

900 Sedan Scheme X. — 740 Club Sedan, Scheme A.

Sharp Motor Co., Canton, Ohio

Touring Necessities

Recently we have revised the equipment included in our Handy Kit of approved accessories. It now consists of: Lamp Bulb Kit with extra set of bulbs—Body Polish—Fabric Cleaner—Tar Remover—Chrome Cleaner—Polishing Cloth.

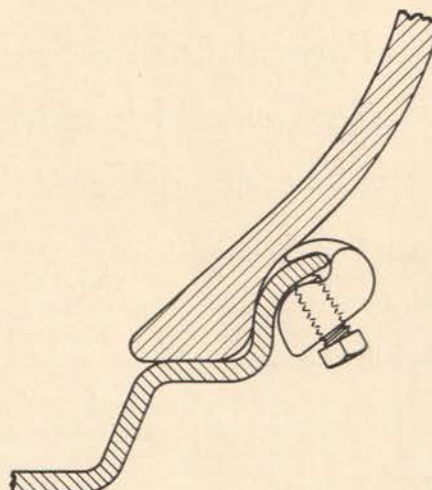
The touring season will soon be with us and, every tourist will appreciate one of these kits. Display these in a prominent spot in your Service Department and then ASK 'EM TO BUY!



Lubrication Drip Plugs

MODELS	Pc. No.	SYMBOL	FLOW PER MIN.
236-243	135945	UOB-1-	.12 CC
336-343	135946	LOB-1-	.12 CC
326-333	132466	SOB-2-	.26 CC
426-433	132469	TOB-2-	.26 CC
	135947	SOB-4-	.69 CC
	132487	SOB-5-	1.00 CC
	135948	TOB-6-	1.5 CC
526-533-443	146265	DB No. 1	.15 CC
626-633-640	146266	DB No. 2	.3 CC
645-726-733	148819	DB No. 3	.6 CC
740-734-745	146267	DB No. 4	.9 CC
	146268	DB No. 5	1.2 CC
826-833-840	194001	DC No. 00	.04 CC
845-900-901	182448	DC No. 0	.05 CC
902-903-904	182449	DC No. 1	.15 CC
905-906-1001	182450	DC No. 2	.3 CC
1002-1003-1004	182451	DC No. 3	.6 CC
1005-1006			

Wheel Balance



An out of balance condition in the front wheels and tires will cause a steering disturbance at high speeds. At slow speeds the condition would not be noticed, but when the car reaches the neighborhood of 60 M. P. H. the front wheel "tramp" may result.

In order to prevent this condition the wheels and brake drums are carefully balanced and the tires are also held within close limits. If you will examine one of the tires on a new car you will note either a round or a square red dot on the side wall near the rim.

Tires with the square red dots are those which most nearly approach a perfect balance, and these are used on the front wheels. The matter of balance in the rear tires is not as important, and those units having the round dots, indicating a slightly greater out of balance condition, are entirely satisfactory.

Wheel tramp is seldom objectionable in new cars, but may be found when the tires are badly worn, when they have been repaired, or when the original factory equipment has been replaced by other tires which are not as closely controlled.

The illustration shows a wheel balancing weight which may be attached to the rim in order to offset any out of balance which may develop, owing to the change in the tire equipment. Two of these weights are used on each rim.

Since the condition is found on cars having considerable mileage, it is usually possible to balance the wheels without removing them from the spindles, owing to the fact that the brakes will be free and the grease seals on the spindles will be loose enough to prevent any undue drag on the hub.

To balance a wheel first deflate the tire and then place two of the balancers on the inner edge of the rim at a point directly opposite the heavy point. Next adjust the balancers, moving one to the right and one to the left until a perfect balance is attained. Then tighten set screws and inflate tires to the proper pressure.

The material will be carried in our service stock as follows:

- 2138212—Wheel Balancing Weight—two required per wheel (Packard 12')
- 213820 —Wheel Balancing Weight—two required per wheel (all other models)

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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