VOL. 5, No. 22 NOV. 15, 1931

DEAR MR. OWNER:

WE received quite a few requests for model letters or for suggestions to assist you in preparing service letters. We have never been much in favor of the idea of issuing letters from the factory for this purpose as we feel there are too many individual problems and conditions of which only the local service manager can be fully aware.

We believe we can be of more assistance in making a few suggestions or in pointing out certain features of this type of letter which should receive your attention.

After first considering your customers' needs at a certain time during the year, you will decide upon what phase of your service you will attempt to sell him. Your letter then will be an effort to make him feel that he needs that particular service. Connect his need with your ability to fill it. This can be done by telling him of the training and preparation you have made to fill that need. You must also convince him of the particular understanding you have of his need and of the features of your service that distinguish it from the service of others.

Make it possible for him to judge the advantage he will gain by accepting your plan. Get right into the subject. Cut the introduction short and say what you have to say.

Some letters simply list a lot of facts, but they sell nothing. Get one or two ideas into your letter without trying to cover too much ground. Long sales letters are seldom read.

Be sure that your statements are accurate. You are after his confidence; therefore be frank.

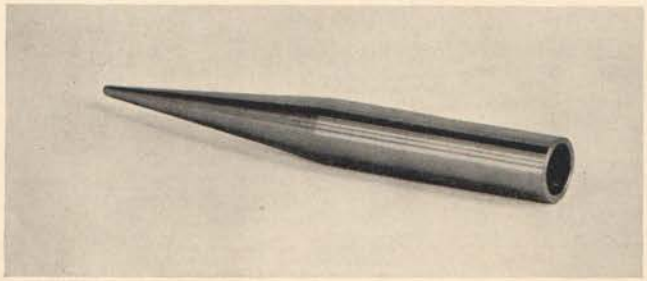
Put a smile in your letter by making it courteous. Polite letters are always read. Remember, too, that most letters are read rapidly. Your letter must, therefore, be clear. Short paragraphs are clearer and easier to read. Likewise, short sentences tell your story quickly.

Old style phrases should be cut out. Talk to your customer in your letter. Leave out the "I's" and the "we's." Use "you" instead. "You" is the man you are trying to interest and to convince. Therefore, talk "you." Make your letter logical in its order. Tell your story straight through. Don't make him jump around.

Lastly, send your letter out as you would a man to call upon your customer. The man wouldn't go without a shave, or in shabby clothes. Your letter should not go out looking mussy and careless. Its dress of stationery must not be cheap looking.

Spring Bolt Replacing Drift

It is difficult to line up the spring bolt when replacing front or rear springs. This drift is tapered and machined to fit the spring bolt thereby making the installation easy by inserting the spring bolt into drift. Then drive the bolt into place.



ST825—Net $ .75

Caution Cards

Cards such as shown, to be attached to the choke, will prevent many come-back jobs where new pistons are installed, or where reground blocks are used. The prices imprinted are as follows:

200	$4.95
500	7.50
1000	11.75

CAUTION

New Pistons, Pins and Rings have been installed in this motor.

Naturally the new parts are closely fitted, therefore they require careful breaking-in.

The satisfaction you will get from this job depends largely on how you drive the car during the breaking-in period.

For the First 500 Miles the car may be driven about 40 M.P.H. Too slow a speed is not desirable and occasional higher speeds of short duration are helpful.

Be sure crankcase oil is up to level at all times.

The light oil now in the crankcase should be changed after the first 500 miles.

Your Firm Name Here

Street No. City, State

Suggestions

Your ideas are as valuable as mine, or anyone else's. Your cooperation in service means much to all of us. We want any suggestions you may be kind enough to make about service. Don't hesitate to send in anything you think will be helpful in improving upon Packard service. Have you a shop short cut; a service sales idea on telephone selling? A new form that saves time? A new accessory display? A letter or mailing piece that obtained results? Let's exchange ideas and help each other. Send in your ideas and suggestions addressed to the Editor.

Keep Smiling

O. Henry, the author wrote, "Life is made up of smiles, sobs and sniffles, mostly sniffles."

After the big "Bust" most of us joined the sobbers. Some of us had good reasons, but most of us just figured that it was what the big boys were doing and we ought to follow suit in order to be in style. If we sobbed loud enough, people would think we must have had something to lose, so we sobbed. We soon found that sobbing affected our appetite, so we went to sniffling because it was easier. We seemed to have lots of company as a sniffler so lots of us have stayed in that class.

We can develop lots of sympathy for the sobbers, but this sniffler fellow sure gets on your nerves. We will always have a few of them with us; they are the fellows who could never quite put it over anyway and they can whimper ninety-nine reasons into your ear as to why they failed.

Let's check up on ourselves and get into the "smiler" crowd; let's smile and *keep smiling.*

Riding Comfort

The ride control of the ninth series cars provides a selective range of riding qualities which are apparently quite satisfactory for all normal driving conditions and any alteration of the riding result on these cars will seldom be required.

There are certain instances however, particularly on past models, when it is necessary to alter the riding qualities of the car to take care of some unusual driving conditions or to suit the whim of some particular owner and it is the purpose of this article to set forth such information as will enable our service organization to approach complaints of this kind on an intelligent basis.

No attempt should be made to correct any kind of a riding complaint until a clear understanding has been obtained of just what the complaint consists of and what is wanted in the way of a riding result. There is only one sure way to obtain this information and that is to ride in the car and have the objectionable feature pointed out or demonstrated. A verbal description of the complaint is apt to be misleading, because of the terms that are used or the inability to describe the objection properly.

It is also well to remember that there is a wide variation of opinion as to just what constitutes a good riding result and regardless of what our own ideas in the matter may be, the customer is the one who must be satisfied.

RIDING COMPLAINTS:

The average riding complaint will ordinarily fall under one of the following classifications:

1. Pavement ride at slow speed not smooth, being stiff enough to cause a constant jiggle of the passengers.
2. Too much activity of front end, making car difficult to handle.
3. Ride out of balance, which results in pitching of rear seat passengers over rough spots at any speed.
4. Hard or stiff ride at any speed.
5. Slow body swing in which the body is constantly travelling through the full amplitude of the spring movement without actually striking through.
6. Springs strike through.

There will, of course, be some variation from the above complaints, which will not be covered in the suggested corrections and which will require some study and experimental work to arrive at a satisfactory solution of the trouble.

The two principal factors governing riding qualities are naturally the springs and shock absorbers and, in order to make our discussion of corrective measures perfectly clear, we will first cover these two items in detail and list the material that is available to alter the riding result.

SPRINGS:

The ability of a spring to provide a satisfactory riding result is determined by its rate of action. Packard cars are shipped from the factory equipped with springs which have a rate of action and a capacity that offers the best compromise for general driving and road conditions, but, in order to provide a means of changing the spring action when the necessity arises, springs having a lower and a higher rate of action than the standard spring are carried in service stores. These springs are also made in three different capacities for the front and five different capacities for the rear.

Rate of Action:

The term, rate of action, as applied to a car spring, means the number of pounds required to deflect the spring one inch. Thus, when we say the rate of action is 145, it signifies that for every 145 pounds of load applied to the spring it will deflect one inch. It is therefore obvious that the stiffness of a spring is increased as the rate of action is increased and a spring with a 165 rate would be stiffer than one with a 145 rate.

Spring Capacity:

The term, load or capacity, as applied to a car spring means the number of pounds the spring will carry at a given height. It is therefore necessary to vary the capacity of a spring according to the weight of the body and its passenger accommodation, so that all cars will have a uniform riding height, regardless of the body type.

The following charts show the springs that are available for the eighth and ninth series and the springs that are available for cars prior to the eighth series.

All of the springs listed in both charts are equipped with metal spring covers, although springs are also available for the older models without covers, as listed in the parts book.

FRONT SPRINGS EIGHTH AND NINTH SERIES

Models 826-833-901-902

	Capacity	*Rate*	*Part No.*	*Rate*	*Part No.*	*Rate*	*Part No.*
Left	850	325	180366	375	186031	275	0180360
Right	950	325	180368	375	186032	275	0180362

Models 840-845-903-904

Left	950	325	180368	375	186032	275	0180362
Right	1050	325	180370	375	186033	275	0180364

Front springs having a 325 rate of action are standard equipment.

REAR SPRINGS EIGHTH AND NINTH SERIES

Capacity	*Rate*	*Part No.*	*Rate*	*Part No.*	*Rate*	*Part No.*
1000	145	180382	165	180392	120	0180372
1100	145	180384	165	None	120	0180374
1200	145	180386	165	180394	120	0180376
1300	145	180388	165	180396	120	0180378
1400	145	180390	165	180398	120	0180380

Rear springs having a 145 rate of action are standard equipment.

FRONT SPRINGS SEVENTH SERIES AND PRIOR MODELS

Models 726-733 and Prior Models

	Capacity	*Rate*	*Part No.*	*Rate*	*Part No.*	*Rate*	*Part No.*
Left	850	325	179136	375	None	275	None
Right	950	325	179138	375	181764	275	176722

Models 740-745 and Prior Models

Left	950	325	179138	375	181764	275	176722
Right	1050	325	179140	375	181763	275	176724

REAR SPRINGS SEVENTH SERIES AND PRIOR MODELS

(Except 745)

Capacity	*Rate*	*Part No.*	*Rate*	*Part No.*	*Rate*	*Part No.*
1000	145	175056	165	175064	120	176726
1100	145	175058	165	None	120	176728
1200	145	175060	165	175066	120	176730
1300	145	175062	165	175068	120	176732
1400	145	175948	165	175070	120	176734

Rear Springs—745 model only

1100	145	175074	165	None	120	176736
1200	145	175072	165	175080	120	176738
1300	145	175952	165	None	120	176740
1400	145	175950	165	175078	120	176742

The following list shows capacity of rear springs that are used as standard equipment with different body types on the ninth series. These capacities will also apply to similar body types on prior models.

Chassis	*Body Type*	*Spring Capacity*
901	5-Pass. Sedan	1200
902	2-4-Pass. Coupe	1100
902	2-4-Pass. Coupe Roadster	1100
902	7-Pass. Touring	1000
902	7-Pass. Sedan	1300
902	7-Pass. Limousine	1300
902	5-Pass. Club Sedan	1200
902	5-Pass. Coupe	1100
902	4-Pass. Phaeton	1000
902	5-Pass. Victoria	1100
902	4-Pass. Sport Phaeton	1000
902	5-Pass. Convertible Sedan	1100
902	5-Pass. Sedan	1200
903	7-Pass. Touring	1200
903	4-Pass. Phaeton	1100
903	5-Pass. Victoria	1200
903	5-Pass. Club Sedan	1300
903	5-Pass. Coupe	1200
903	2-4-Pass. Coupe	1200
903	2-4-Pass. Coupe Roadster	1200
903	4-Pass. Sport Phaeton	1100
903	5-Pass. Sedan	1300
903	5-Pass. Convertible Sedan	1200
904	7-Pass. Sedan	1400
904	7-Pass. Limousine	1400

SHOCK ABSORBERS:

The function of the shock absorbers is to control the movements of the springs within certain limits and adjustments are provided by which the shock absorber action can be altered to obtain any desired spring control.

After considerable experimental work, we have concluded that the adjustment of our present ninth series shock absorbers represents the best compromise that can be obtained for all normal driving conditions and this is further evidenced by the very few riding complaints that have been received on these cars.

The only means of altering the action of shock absorbers not equipped with the ride control is, of course, by changing either the rebound or compression valves, or both, as the case may require, and the following chart lists the valves that are available for any of the Delco shock absorbers.

The part numbers given are United Motors Service numbers as we carry only the valves used as standard equipment and a limited number of others in our service stores.

RELIEF VALVE CODE

Rebound Relief Valve				Compression Relief Valve			
Code	Valve Assem.	Area of Metering Slot	Spring Strength	Code	Valve Assem.	Pilot Diam.	Large Spring Strength
OG	43407	Plain	40 lbs.	A0	42282	.271	10 lbs.
OH	43420	Plain	45 lbs.	A3	43427	.252	10 lbs.
OJ	43421	Plain	50 lbs.	A5	44333	.227	10 lbs.
OL	43422	Plain	60 lbs.	B3+	41700	.252	15 lbs.
1C	46308	.00096	20 lbs.	C0	42283	.271	20 lbs.
1D	43414	.00096	25 lbs.	C1	43318	.264	20 lbs.
1E	44329	.00096	30 lbs.	C2	43425	.259	20 lbs.
1F	43415	.00096	35 lbs.	C3	42917	.252	20 lbs.
1G	41615	.00096	40 lbs.	C4	44444	.242	20 lbs.
1J	43409	.00096	50 lbs.	C5	43336	.227	20 lbs.
1L	43410	.00096	60 lbs.	C6	44641	.218	20 lbs.
1N	43412	.00096	70 lbs.	G0	43811	.271	40 lbs.
2C	42916	.00130	20 lbs.	G1	43423	.264	40 lbs.
2D	43418	.00130	25 lbs.	G2	42605	.259	40 lbs.
2E	43335	.00130	30 lbs.	G3	42614	.252	40 lbs.
2F	42281	.00130	35 lbs.	G4	43424	.242	40 lbs.
2G	42613	.00130	40 lbs.	G5	44640	.227	40 lbs.
2J	42608	.00130	50 lbs.	G6	44109	.218	40 lbs.
2L	43411	.00130	60 lbs.	L1	42620	.264	60 lbs.
2N	43413	.00130	70 lbs.	L2	42622	.259	60 lbs.

3D	44178	.00174	25 lbs.	L3	43426	.252	60 lbs.
3E	43419	.00174	30 lbs.	L4	41620	.242	60 lbs.
3F	42624	.00174	35 lbs.	L6	43645	.218	60 lbs.
3G	43408	.00174	40 lbs.	OB+	44334	.271	15 lbs.
3J	43990	.00174	50 lbs.	OE+	44330	.271	30 lbs.
3L	43415	.00174	60 lbs.				
3N	42617	.00174	70 lbs.				
4E	43893	.00233	30 lbs.				
4F	43417	.00233	35 lbs.				
4J	44639	.00233	50 lbs.				
5G	46309	.00050	40 lbs.				
5J	43470	.00050	50 lbs.				

Valves Used for Standard Setting

9th Sr.		*8th Sr.*
G4	Front Compression	G4
1G	Front Rebound	3G
G2	Rear Compression	G2
5G	Rear Rebound	3J

REBOUND RELIEF VALVES:

In rebound relief valves the area of the metering slot determines the resistance to a rebound movement and the resistance decreases as the area of the metering slot increases, thus a rebound valve shown in the chart that would provide the greatest resistance to a rebound movement would be one designated as "Plain", which means no metering and with the greatest spring strength, whereas a valve with the least resistance would be one with the largest metering slot area and the least spring strength.

COMPRESSION RELIEF VALVES:

In the compression relief valves the pilot diameter determines the resistance to a compression movement and the resistance increases as the pilot diameter increases, thus a compression valve that would provide the greatest resistance to a compression movement would be one with the largest pilot diameter and the greatest spring strength, and a valve with the least resistance would be one with the smallest pilot diameter and the least spring strength.

VALVE SPRING STRENGTH:

The rapidity with which oil can be forced through a certain size orifice depends upon its viscosity and the pressure exerted and, inasmuch as both of these factors vary considerably in the hydraulic shock absorber, it is necessary to provide some means of compensating for this variation in order to obtain a uniform action.

This is accomplished by the coil spring used on both the rebound and compression valves, which permits the valve to be blown off its seat when pressures in excess of what the orifice capacity can handle are built up within the shock absorber.

Therefore, the spring strength should only be heavy enough to keep the valve on its seat and provide sufficient control over bad bumps. The slow movements should be entirely controlled by orifice size, but the small fast movements, such as are caused by a washboard road and the violent movement caused by bad bumps should be controlled by spring strength.

CHANGING VALVES:

The rebound valve is always located nearest the shock absorber connecting link and the compression valve farthest away. All valves are retained by a slotted plug and it is important that only one aluminum gasket be used under the flange of this plug.

The old gasket should be replaced when not in good condition and the plug pulled up very tight to prevent leakage.

FILLING SHOCK ABSORBERS:

The shock absorbers should always be filled after making a valve change and no attempt should be made to correct a riding complaint without first making sure that they are full of the specified oil.

The car should be bounced with the ride control in the firm position, after which the oil filler plug should be removed and the shocks filled until the oil flows out freely.

CORRECTING A RIDING COMPLAINT:

We wish to reiterate what has already been said with regard to the importance of obtaining a clear understanding of just what the riding complaint consists of before attempting a correction, otherwise time and money are apt to be wasted and the owner made still more dissatisfied.

We will now discuss the riding complaints that have been listed and the most logical approach to each of these problems:

1. Pavement ride at low speed not smooth, being stiff enough to cause a constant jiggle of the passengers.

   This complaint is usually confined to the rear seat and the first thing to do is to make sure the spring action is not hampered by tight spring shackles. Tire pressures should also be checked, as over-inflation should be avoided in a case of this kind.

   The next move would be to decrease the resistance of the rebound valves by selecting one with a larger orifice, although it must be kept in mind that as the orifice in the rebound valve is increased the control at high speed and over rough roads is also decreased.

   A satisfactory result can often be obtained by changing only the front or the rear rebound valves, as rear seat jiggle can be caused by over-control of either front or rear.

   If a satisfactory compromise cannot be effected by a change of shock absorber valves, it will then be necessary to install car springs having the same capacity, but with a lower rate of action. It would do no good to install springs with less capacity and the same rate of action as a softer ride cannot be obtained without reducing the rate of action.

2. Too much activity of front end, making car difficult to handle.

   This trouble is usually experienced on wavy or rough roads at the higher speeds and is due to unbalanced shock absorber control so the first thing to do is to make sure all the shock absorbers are full of oil.

   The orifice of the front rebound valves should then be reduced, care being exercised that the front end movement is not restricted to a point that will make the rear seat ride objectionable.

   A slight reduction in the orifice size and an increase in spring strength of the rebound valve will usually be sufficient in a case of this kind.

3. Ride out of balance, which results in pitching of rear seat passengers over rough spots at any speed.

   Again, the first thing to do is to make sure all the shock absorbers are full of oil. This trouble is often the result of too much front end control and the first move would be an increase in the orifice size of the front rebound valves in order to balance the control between front and rear.

   After this has been done, and if the result is not entirely satisfactory, the orifice size of the rear rebound valves should be reduced or the spring strength increased.

4. Hard or stiff ride at any speed.

   Relaxing the control of the rebound valves by increasing the orifice size or reducing the spring strength would be the first move to make in this case and if a satisfactory result cannot be obtained by this method it will then be necessary to install springs having a lower rate of action.

5. Slow body swing in which the body is constantly travelling through the full amplitude of the spring movement without actually striking through.

   First, make sure the shock absorbers are full of oil. The orifice size of the rear rebound valve should first be reduced and if this is not effective the spring strength should be increased.

6. Spring strike through.

   This complaint usually applies to the rear springs and here again the shock absorbers should be checked to make sure they are full of oil. There are certain times under which an occasional strike through of the rear springs should be expected, depending on the passenger load and the road conditions as the best riding result cannot be obtained from springs that never strike through.

   The first move in correcting this complaint is to install compression valves with a larger pilot diameter which if not effective should be followed by installing rear car springs of greater capacity, but with the same rate of action which will usually take care of the trouble without affecting the riding result.

   In unusually severe cases it may be necessary to increase the rate of action of the springs, although this is usually only required where maximum loads are carried and the road conditions poor.

R. M. WILLIAMS, *Service Engineer.*

We Welcome Suggestions and Inquiries from Packard Service Men. Address All Communications Care Editor, Packard Service Letter.

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