

## Shock Absorbers

WE ARE listing all Lovejoy shock absorbers which have been used on Packard cars with their identification marks. Also compression and rebound valves, standard and special. All valves carried in Service Stores are of the latest design, double area type.

### INSTALLATION OF NEW SHOCK ABSORBERS:

When installing a set of shock absorbers be sure that all the air is expelled from the working chamber before attaching to the chassis. This can be accomplished by clamping the assembly in a vise and working the lever back and forth several times to the extreme end of its stroke. When all the air is expelled into the top of the unit where it belongs, there will be no perceptible free play in the movement of the arm at the approximate center of travel.

It is not necessary to remove the filler plug or vent the shock absorber in any way when working the air into the upper chamber; however, it is advisable to fill the shocks with oil during the operation.

### FILLING SHOCK ABSORBERS ON THE CAR:

The Engineering Department suggests that to fill shock absorbers it is not necessary to remove from the chassis as we have found that a very efficient job can be performed in about half the time required to remove shocks, refill and reinstall. To perform this operation, first remove the connecting link at the lever end. Next, remove filler plug and fill with Packard shock absorber oil using a small snouted oil can which will allow the air to escape alongside of the snout on the can. Work the lever back and forth to the extreme end of its travel each way while filling. Use only Packard shock absorber oil for satisfactory results.

### Valves and Metering Identification

#### SHOCK ABSORBER ASSEMBLIES—STANDARD

Pc. No.	Model	Mark
185011	Shock absorber front left . . . 826-833-840-845 . . . . .	None
185012	Shock absorber front right . . . 826-833-840-845 . . . . .	None
184324	Shock absorber rear right . . . 826-833-840-845 . . . . .	None
184323	Shock absorber rear left . . . 826-833-840-845 . . . . .	None

Pc. No.	Model	Mark
197080	Shock absorber front right . . . 900 . . . . .	15
197081	Shock absorber front left . . . 900 . . . . .	14
197082	Shock absorber rear right . . . 900 . . . . .	16
197083	Shock absorber rear left . . . 900 . . . . .	17
191256	Shock absorber front right . . . 901-902-903-904-905-906 . . . . .	04
191257	Shock absorber front left . . . 901-902-903-904-905-906 . . . . .	05
191258	Shock absorber rear right . . . 901-902 . . . . .	06
191259	Shock absorber rear left . . . 901-902 . . . . .	07
194237	Shock absorber rear right . . . 903-904-905-906 . . . . .	00
194238	Shock absorber rear left . . . 903-904-905-906 . . . . .	01
210030	Shock absorber front left . . . 1001-2-1100-1-2 . . . . .	40
210031	Shock absorber front right . . . 1001-1002-1100-1101-1102 . . . . .	39
210027	Shock absorber rear left . . . 1001-1002-1100-1101-1102 . . . . .	41
210028	Shock absorber rear right . . . 1001-1002-1100-1101-1102 . . . . .	42
209584	Shock absorber front right . . . 1003-1004-1005-1006-1107-1108 . . . . .	40
209585	Shock absorber front left . . . 1003-1004-1005-1006-1107-1108 . . . . .	39
210045	Shock absorber rear right . . . 1003-1004-1005-1006-1107-1108 . . . . .	64
210046	Shock absorber rear left . . . 1003-1004-1005-1006-1107-1108 . . . . .	65

#### SHOCK ABSORBER ASSEMBLIES—SPECIAL CUSTOM REAR

(Designed to be used when two spare wheels are carried up forward)

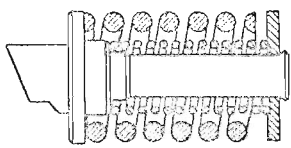
Pc. No.	Model	Mark
213816	Shock absorber rear left . . . 1001-1002-1100-1101-1102 . . . . .	95
213817	Shock absorber rear right . . . 1001-1002-1100-1101-1102 . . . . .	94
213818	Shock absorber rear left . . . 1003-1004-1005-1006-1103-1104-1105-1107-1108 . . . . .	89
213919	Shock absorber rear right . . . 1003-4-5-6, 1103-4-5-1107-8 . . . . .	88

The special rear shock absorbers differ from standard in that the metering orifice is drilled, No. 72 (.025) for 213818-213819, 213816-213817, instead of No. 64 (.036) for 210045-210046 No. 62 (.038) for 210027-210028

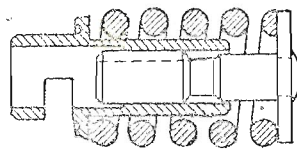
The identification mark is stamped on the outer end of the metering valve stem.

Note—The metering valve is the valve operated by the "Ride Control Handle", see illustration.

"EVERY OWNER A SALESMAN"



COMPRESSION



REBOUND

SHOCK ABSORBER VALVES—STANDARD EQUIPMENT

Model	REBOUND		COMPRESSION	
	Front	Rear	Front	Rear
	Code No.	Code No.	Code No.	Code No.
826-33	3G	185166	3J	185165
840-45			G4	203814
900	OCH	205646	OFN	205647
901-2-3-4			GI	203812
905-905			GO	207479
1001-2-3-4	1100-1-2-3-4-5-7-8			
1005-6	ICH	213164	5GR	213179
1100-1-2-3-4-5-7-8			G4	203814
1001-2-3-4-5-6		209655	Static Valve	2-7+

SHOCK ABSORBER VALVES—SPECIAL  
(Carried in Packard Service Stores) All Models

Pc. No.			Pc. No.		
185167	2E	Rebound—stiff	185171	G6	Comp.—soft
185168	2G	Rebound—stiff	185172	G3	Comp.—soft
185439	4J	Rebound—soft	185440	G5	Comp.—soft
			185441	C6	Comp.—soft



Windshield Weather Strips

A change has been made in the windshield weather strip which is used in the Convertible and the Coupe bodies of current model cars.

If you have any difficulty with leakage around the windshield frame, we suggest that you order a new cowl to windshield weather strip—piece No. 214741.

The new weather strip is used in the following types:

- 718-58-38 Two-four passenger coupe
- 719-59-39 Two-four passenger coupe-roadster
- 723-63-43 Five passenger convertible sedan
- 727-67-47 Five passenger victoria

Bonnet Rattle

We have had some reports of bad bonnet rattles on Eleventh Series cars. This rattle seems to be very difficult to locate, and much time can be spent without obtaining the proper result.

The majority of these rattles are caused by end play in the bonnet center hinge. By unfastening both sides of the bonnet and raising one side about half way, you can take hold of the front edge of the bonnet and move it

back and forth to determine the amount of end play. This, of course, can be taken up by adjusting the two radiator tie bars until all the end play in the bonnet hinge is eliminated.

After all end play has been taken out of center hinge, you may still have somewhat of a tiny rattle in the bonnet side panels. This is generally caused by end float in the side hinges, which can be eliminated by driving the hinge rod out about 6" and inserting a spring washer, Piece No. 194732, about three sections from each end of the side hinge, then driving the rod back into place through the washer. This will hold a spring tension on the bonnet side hinges and does an excellent job of making them much more solid. In some cases it may be necessary to put in two washers to thoroughly take up the play.

Ignition Coils

EIGHT - 219291  
TWELVE - 216927



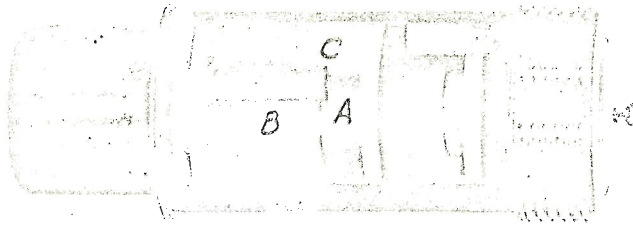
Many coils have been returned for credit with the returned goods card showing that the coil itself had failed.

In many of the coils returned, the coil itself is perfectly okay, but the wire from the inside of the coil, threaded through the stud either at the bottom of the coil or the top, may be loose in the stud. This condition may be determined by removing the coils and examining the solder job where the wire comes up through the center of the hollow stud. If this is found to be loose, a hot soldering iron will correct the condition immediately. Please check this before condemning the coil itself.

Other so-called coil failures may be caused by water getting under the cap of coil where high tension lead enters; also, we have had cases of high tension wire breakage at this point.

We have in service stock a rubber grommet which fits around the high tension wire and is held down by the coil cap. These grommets are now installed in all production coils and we suggest that they be used in the double coil equipments in the field, ordering under the piece numbers shown in the illustration.

## Silencers—What and Why



The desire for silence in automobile operation has brought about many developments in the past few years. Not the least of these is represented by the "intake silencers." The device is simple and relatively inexpensive in construction and takes up but little more room than the average air cleaner.

The purpose of an intake silencer is to eliminate "power roar," which is that roaring noise which is heard when the throttle is opened wide.

The way this roaring noise comes about is somewhat as follows: With the intake valve open, air passes through the manifold. When the valve closes, the air keeps on surging back and forth due to its inertia. When it finds that it has no place to go, it backs up again. When this characteristic is repeated a number of times in one revolution (each intake valve opening and closing producing a wave of its own) and the engine is turning up pretty well, there will be a constant surging back and forth of the air in the manifold. When the throttle is wide open, there is nothing to stop these waves and they just keep right on traveling out of the air intake. The same characteristic is found in all engines, whether four, six or more cylinders. The number of waves per revolution increases with the number of cylinders, and if the number of revolutions per minute go up, the number of waves per minute go up, too. When these vibrations come fast enough so that they begin to occur at a frequency which is in the sound range, the result is a roaring noise. In simpler terms, the intake manifold then becomes, in fact, an organ pipe, with the sound coming out of the open end.

The "intake silencer" works on the idea that if you send waves into the manifold in the opposite direction to those coming out, they will balance each other and the result will be, if the silencer is placed at the intake, that no sound will get past it.

Now if you study an organ you will note that the pipes are all of different length. Each length has what is known as a definite "resonance." That is, if air waves are introduced therein, only those of a frequency which corresponds to the "natural" frequency of that particular pipe will be heard, the organ pipe having the faculty through its "resonance" to increase the size of these particular waves. In other words, you hear only one note out of that pipe, that note being composed of wave lengths which bear a definite relation to the length of the pipe.

Now, an intake manifold is, as far as this question of power roar is concerned, nothing more than an organ pipe. It has a definite size. It is only natural to find then that the length of the waves which are heard as "power-roar" bear a definite relationship to the length of the manifold.

Having determined what that wave length is, we can devise a pipe or, to make it more compact, a "bottle", which will respond to the same wave length. Now if we place the bottle in such a manner that the air waves in the manifold entering it are amplified to the correct size and are reflected out again into the manifold, reaching the manifold again at the same instant that a fresh wave is reaching the bottle, they will balance and neutralize each other.

That is what the silencer is, and the device is attached directly to the air intake of the carburetor.

In the illustration "A" is the air intake—a continuation of the manifold. Around this intake pipe, and open toward the carburetor (and, therefore, open to the manifold), is another pipe "B" representing the neck of the bottle mentioned above. This pipe opens up into a chamber "C", representing the main part of the "bottle." By shortening or lengthening the "neck" of this bottle and changing the size of the chamber, we can then "tune" this bottle to the characteristic note of the "power roar" in the manifold.

Any note, however, is composed of more than one wave length. There is the basic wave length, corresponding directly to the length of the pipe or the size of the bottle and then there are other wave lengths which are called "harmonics," because they are in "harmony" with the basic wave length. That is, they are either exactly twice as long or twice as short or some other multiple of the original wave. These harmonics, however, are not as pronounced in size as the fundamental. However, it is desirable to also take out the most important of these "harmonics."

In the silencer this harmonic is damped out by adding another "bottle" inside of the first one, shown as "B" and "C." In the case of this second bottle, the chamber of the first "C" acts as a continuation of the manifold. The waves travel into the first bottle and reach the neck of the second one, where they meet the reflected preceding wave coming out. This reflected wave keeps on traveling through the chamber "C" and the first "neck" "B," finally reaching the manifold, where it bucks the wave coming through the carburetor, the two balancing out. Here again, the second bottle is tuned to the wave it is intended to damp out by shortening or lengthening the neck and increasing or decreasing the size of the chamber "B" and "C."

Of course, the same thing could have been done by using two "pipes" tuned to the same notes as those of the manifold, but this would have meant increased size of the unit. In some cases the pipes would have to be two or three feet long, whereas it takes only a small "bottle" to get the same characteristic note.

## Annual Parts Inventory Closing

Will you please take special notice that the factory parts department will be closed for the taking of annual inventory and Thanksgiving Day holiday. This department will be closed on Wednesday, November 29, for inventory and Thursday, November 30, Thanksgiving Day. Absolutely no parts shipments will be made on these two days.

Distributors and dealers should anticipate their parts requirements so that this short period of closing, when no shipments will be made, will not interfere with parts service to Packard owners. Regular parts shipments will be resumed on Friday, December 1. Please make certain that your parts department is aware of this notice.

## 11th Series Instrument Board

The Eleventh Series instrument board and instruments can be added to the Tenth Series cars. The following part numbers and prices apply.

98212-ND—Inst. Board and Instruments Asb.		1001-2
98213-ND—Inst. Board and Instruments Asb.		1003-4
98214-ND—Inst. Board and Instruments Asb.		1005-6
	Without	With
	Clock	Clock
Zone 1.....	\$55.03	\$71.87
Zone 2.....	57.67	75.32
Zone 3.....	62.48	81.60

## Generator Lubrication

In some cases a drop in the generator output may be caused by the presence of oil on the commutator and brushes.

The oil which reaches the generator rear bearing is fed through a passage in the end plate, and this passage should contain a wick in order to control the delivery of oil to the bearing.

Some of the first 5" generators did not contain this wick, and if oil is found on the commutator an examination should be made. A short section of pipe cleaner can be used if the wick is missing.

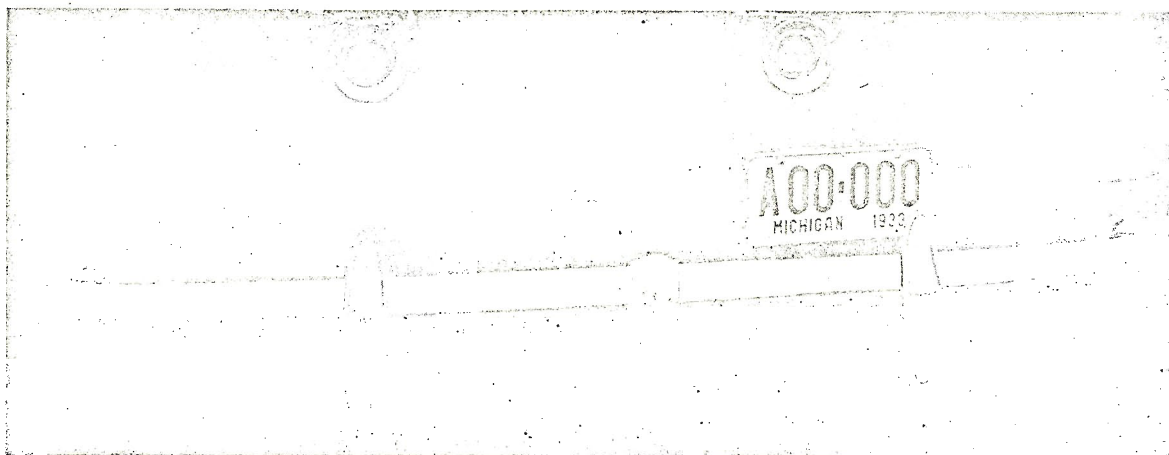
## Protection Items Easy to Sell—Try It!

### Gasoline Tank Locking Cap

Prevents the theft of gasoline and prevents putting of any foreign substance into the gas tank without the owner's knowledge.

### Vertical Bumper Guard for Front and Rear Bumpers

The additional five inches of vertical protection which is provided by this bumper guard will prevent interlocking and over-riding of bumpers. The elimination of this annoyance, so frequently occurring in close parking, will give added protection to the body, fenders, radiator and lamps. These guards are unique and streamlined in appearance and add beauty as well as strength to the bumper. The method of attachment is concealed from the face of the bumper and they can be quickly and permanently installed.



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