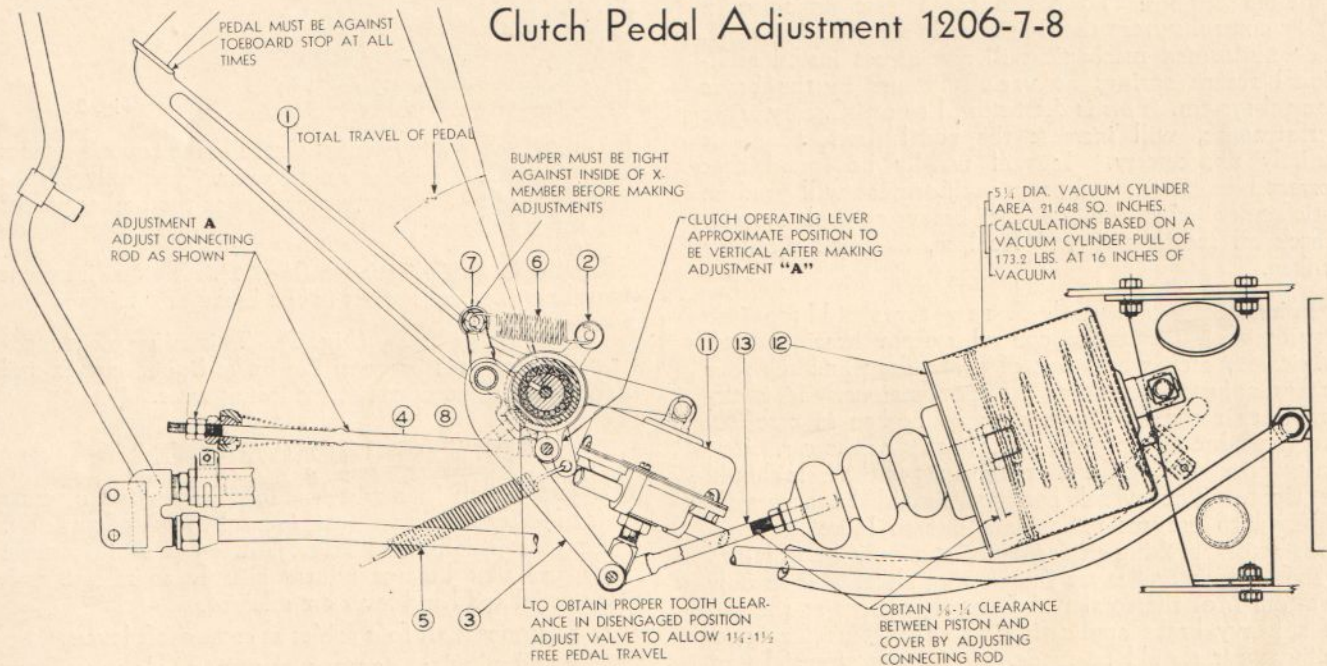




VOL. 8 No. 23

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Clutch Pedal Adjustment 1206-7-8



To obtain free play in pedal proceed as follows: With pedal (1) against toeboard stop, disconnect connecting rod (13) from valve (11) and lever (3). Adjust valve adjusting yoke end and connect lever (3) to obtain sufficient clearance for stud (8). Pedal (1) must have $1\frac{1}{4}$ – $1\frac{1}{2}$ " free play. Connect connecting rod (13). Readjust if necessary to give $\frac{1}{8}$ – $\frac{1}{4}$ " clearance between stop and piston.

The clutch operating lever (2) lower arm approximate position should be vertical. To obtain lever position, adjust rod (4) and throwout lever as shown with clutch fingers and bearing in contact.

The purpose of operating lever (2) is to allow clutch wear without making continuous adjustment. Clutch lever (2) must be free to move on shaft after all adjustments are made.

Retracting spring (6) and bumper (7) are designed to maintain proper relation between clutch and clutch shifting lever mechanism.

All vacuum pipes and hose connections must be tight and free from leaks to maintain proper functioning of vacuum cylinder, vacuum valve and smooth motor idling.

Reserve tank allows clutch booster operation without motor running for a limited number of disengagements.

Gasoline Tank Caps

There has been some criticism of the leakage of the gasoline tank caps on the 12th Series cars.

The illustration shows the original cap and the new design which has recently been adopted. The new design includes a check valve which permits the cap to act as an air vent but prevents the loss of gasoline during the time when the level in the tank is high.

The original caps may be replaced in any cases where

they are unsatisfactory. Credit will be allowed on the old units. The new caps may be ordered as follows:
228814—Gasoline tank inlet cover assembly.



Adjustment of Twelfth Series Brakes

GENERAL ADJUSTMENT INSTRUCTIONS

The Brake Control System: The proper functioning of the brake control system is of vital importance. A freely operating brake control system permits its return to the stop provided on cross shaft. With the brake control system returning to the maximum released position, a longer period of operation can be expected before readjustment is necessary. No backlash should be present at the brake pedal or at the operating lever of each brake. When shortening linkage to remove backlash do not expand shoes away from anchor pins. The cam should just come into contact with the ends of the brake shoes.

Return Springs: To hasten the release action of a brake control system that has been in service some time, the uninformed mechanic will sometimes install additional return springs at various points in the brake control system. This is detrimental to satisfactory brake performance, will increase the pedal pressure and is entirely unnecessary. It will usually be found that correct lubrication, and proper adjustment will produce satisfactory operation of the brake control system. Check all return springs. Replace, if found weak or broken.

Points to Be Inspected: A new car should go into service with the brake control system bearings well lubricated, each wheel free of brake drag and the four brakes adjusted according to specifications. It is desirable that the braking system be broken in carefully just the same as the other mechanisms of the car. The spring clips holding the chassis springs to the axle should be tight. The wheel bearings should be accurately adjusted to prevent brake drag due to loose bearings. Satisfactory braking performance can only be obtained when all four brakes are functioning alike. When only one-fourth of the total pedal travel remains at the end of a heavy brake application an adjustment for brake lining wear should be made. It is very essential that the parking brake system be effective at all times.

Oily or Greasy Brake Lining: Much braking trouble will be avoided if the lubrication of the rear axle and front wheel bearings is held to the correct amount and not over-done. Where it is found that the brake lining has become excessively saturated with oil or grease, heavy pedal pressure or possibly sensitive brake action will result and the only cure is replacing the brake lining. If molded lining becomes not overly saturated with the lubricant, it may be possible to remove the lubricant from the lining with the use of high test gasoline.

Lining Renewal: Do not attempt to reline Bendix brake shoes. When lining renewal is required install genuine Bendix replacement shoes fitted with factory specification linings. These replacement brake shoes have been fitted with the correct linings ground to the proper radius. A special filler compound is used between brake lining and brake shoe and forms a solid foundation for the lining, lengthening the interval between adjustments in service and helping eliminate brake squeal.

Bendix replacement shoes cost no more than ordinary relining and may be obtained from Packard service or authorized Bendix Service Stations.

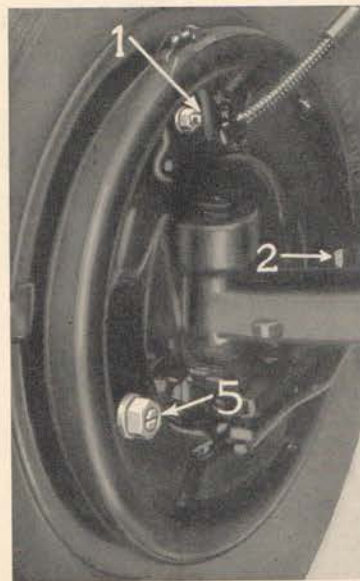


Fig. 1, FRONT BRAKE

1. Eccentric Adjustment
2. Adjusting Screw
5. Anchor Pin Nut

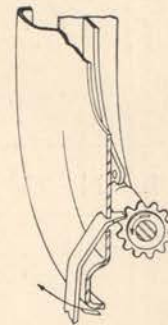


Fig. 2

Do not make any changes in the brake control system to compensate for brake lining wear. The only adjustments provided for this purpose are at the brakes proper and are as follows:

The Eccentric Adjustment (Fig. 1). This adjustment centralizes the brake shoes in the brake drum.

The Adjusting Screw (Fig. 2). This adjustment regulates the clearance between the brake lining surface and brake drum to compensate for lining wear.

ADJUSTMENT FOR WEAR ONLY

1. Jack up all four wheels. Inspect position of cross shaft to be certain that same is in a fully released position. See that pedal, hand lever, and cross shaft operate freely and that linkage returns sharply to release stop when pedal and hand lever are released.

2. Disconnect all four cables at cross shaft levers.

3. At all wheels: Remove inspection hole cover from brake drum. Loosen eccentric lock nut on eccentric adjustment and insert .010" feeler gauge between the lining of top shoe and brake drum. Turn the eccentric adjustment in the direction of forward wheel revolution until .010" feeler is just snug at anchor and adjusting ends of top shoe. Tighten eccentric lock nut, making certain eccentric does not move.

The clearance at both ends of top shoe should not vary more than .003 of an inch. Should the variation be greater than .003 of an inch it will be necessary to relocate anchor pin as outlined in operations 4 and 5 of complete brake adjustment. **DO NOT READJUST THE ANCHOR PIN, HOWEVER, UNLESS THIS INSPECTION SHOWS IT NECESSARY.**

4. At all wheels: Expand the brake shoes by turning notched adjusting screw toward rim of backing plate, using adjusting tool or screw driver (inserted through backing plate), moving outer end of tool toward center of wheel. (Fig. 2). Continue until the shoes are expanded against brake drum so drum can just be turned by hand.

5. Pull cables tightly toward cross shaft levers to remove all cable slack and lost motion at cam levers. Adjust clevises so that pins will barely enter clevises and cross shaft levers easily (all four cables). Lock clevis jam nuts and insert clevis pin cotters.

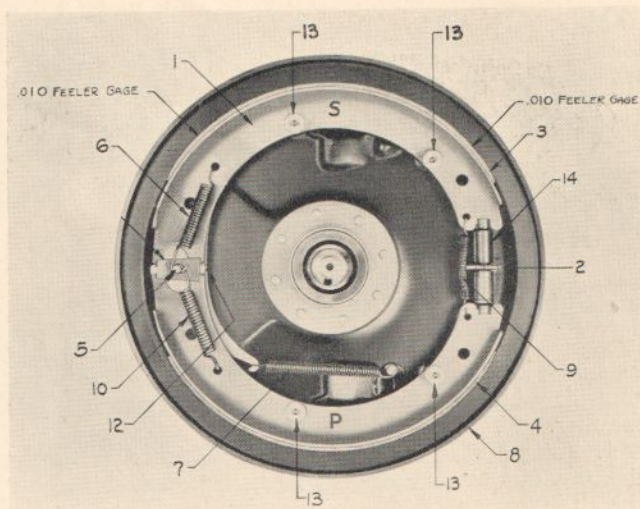


Fig. 4 LEFT BRAKE

- | | |
|-----------------------------|---------------------------------|
| 1. Secondary Brake Shoe. | 8. Backing Plate. |
| 2. Adjusting Screw. | 9. Adjusting Screw Spring. |
| 3. Secondary Brake Lining. | 10. Primary Shoe Return Spring. |
| 4. Primary Brake Lining. | 12. Operating Lever. |
| 5. Anchor Pin. | 13. Hold Down Spring. |
| 6. Secondary Return Spring. | 14. Adjusting Screw Pivot Nut. |
| 7. Cable Return Spring. | |

6. At all wheels release adjusting screw until brakes are just free of drag.

7. Depress the pedal with pedal jack until wheel with the least brake drag can just be turned over by hand. Then back off the adjusting screw on the tight brakes until the brake drag is alike at all four wheels. Figure 2 shows adjusting screw being tightened.

8. Remove pedal jack and check all wheels.

9. Replace drum inspection hole covers and adjusting screw hole covers.

10. Lower car and make final check.

ALWAYS LOOSEN ADJUSTING SCREW ON TIGHT BRAKES RATHER THAN TIGHTEN ADJUSTING SCREW ON LOOSE BRAKES. This is a safeguard against a car going into service with some one brake too tight.

COMPLETE BRAKE ADJUSTMENT

NOTE: This complete brake adjustment is to be followed in cases where an inspection as in paragraph 3 shows that shoe adjustment only will be inadequate or where new shoes have been installed.

1. When a complete brake adjustment is required it is recommended that all brake drums be removed and brakes cleaned and inspected as to lining condition. After cleaning with a stiff brush and air hose, Bendix Lubriplate grease should be lightly applied to cable ramp, shoe support ledges on backing plate, eccentric, shoe ends and all moving parts at frictional contact points.

After drums and shoes have been removed and re-installed as recommended continue as follows:

2. Disconnect all four cables at their respective cross shaft levers by removing clevis pins from clevises.

3. Inspect the position of the pedal shaft and cross shaft to see that these parts of the control system are returning freely to a fully released position.

The position of the brake pedal with respect to the toeboard should be checked to make sure it is clear of the toeboard, but not to exceed one-half inch. All four cables must be disconnected and the cross shaft against the stop when this check is made. Any adjustment that is required to put the pedal in the proper position is

accomplished by the clevis screwed into the lower side of the brake booster valve.

4. Remove adjusting hole covers (2) (Fig. 1) and inspection hole covers on the brake drums. Loosen eccentric lock nut on the eccentric adjustment and insert .010 inch feeler gauge between the lining and the brake drum at the top shoe. Turn the eccentric in the direction the wheel revolves when the car is moving forward until the feeler is snug at anchor and adjusting ends at top shoe.

5. Loosen the anchor pin nut and rotate the anchor pin in the same direction wheel revolves when the car is going forward and adjust the eccentric to give the specified clearance of .010 of an inch at the adjusting screw end and at the anchor pin end of the top shoe lining.

6. **TIGHTEN THE ANCHOR PIN NUT AS TIGHT AS POSSIBLE WITH 16" WRENCH.**

7. Do this on all four brakes.

The outer end of the anchor pin is shown with an indication that the higher side of the screw driver slot corresponds to the high side of the eccentric section of the pin. By turning the anchor pin in either direction the lining will be brought in contact with the brake drum. However, it is desirable that when making an anchor pin adjustment all four anchor pins be revolved in the same direction the wheel revolves when the car is going forward in obtaining the required shoe clearances.

8. Using adjusting tool expand brake shoes at the adjusting screw (Fig. 2) until each wheel can just be turned by hand.

9. (a) Lubricate cable clevis pins with graphite grease.

(b) Adjust clevis until pin can be easily entered through clevis and cross shaft lever holes, meanwhile pulling tightly by hand on the cable to remove all slack. (12) (Fig. 4).

(c) Install clevis pin and lock with cotter key.

(d) Tighten clevis lock nuts.

10. Follow operations 6, 7, 8, 9 and 10 under Adjustment for Wear Only.

GENERAL INFORMATION—EQUALIZING

Illustrated in (Fig. 4) is a wheel side view of a left front brake with drum removed. In performing the re-assembling of brake shoes (3) and (4) into their proper location on the backing plate (8) where two different types of brake lining are used in the same brake, it is necessary that the linings and their respective shoes be assembled in a definite location. The brake shoes shown in (Fig. 4) are marked by the letters "S" and "P" abbreviating the words secondary and primary. Irrespective of the position in which the brake assembly is mounted to the axle the primary brake shoe is always the one that comes in contact with the brake drum first during a forward braking application to transfer servo movement to the secondary shoe.

Indicated at (6) and (10) are the brake shoe to anchor pin return springs. The heavier spring should always be connected with the secondary shoe.

In re-assembling adjusting screw (2) it is necessary that the notch wheel be assembled to correspond to adjusting hole in backing plate.

To remove hold down springs (13) press the outer cupped washer in toward shoe and revolve 90 degrees.

It will be found that the brakes will equalize best with a slightly increased pull on the right front wheel.

In setting the brakes, on our factory equipment, the right front wheel is set for a pull of 675 to 650 lbs. with the other three wheels at 500.

The actual pull in pounds will vary with the equipment which is used, but this ratio will remain the same.

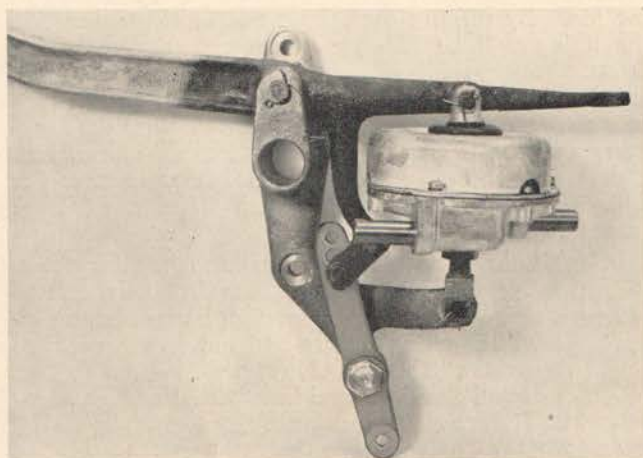
Brake Pedal Adjustment

An adjustment is provided on all 12th Series cars to regulate the pressure required to operate the foot brake.

You will note from the illustration that the vertical arm of the brake pedal is connected to the lever which it operates by an adjustable link which may be connected to any one of three holes in the lever.

All cars are shipped from the Factory with the link in the position shown. When the brake lining is new and comparatively soft, very little pedal pressure is necessary, and the initial setting is the one which develops the least amount of pressure.

As the brake linings become smooth, the pedal pressure will increase and if a "soft" pedal is desired the result may be accomplished by the adjustment shown. It will probably be sufficient to change the link so that it engages with the center hole, although the upper hole may be used if an extremely "soft" pedal is desired.



Differential Pinion Shaft Oil Seal

During the lubrication and inspection of the 12th Series cars we suggest that you check the differential for possible leakage around the driving pinion shaft.

We have found some cases in which leakage has developed because the oil seal has become loose in the cover. We have found that leakage is more apt to develop between the oil seal and the cover than between the seal and the shaft.

If you discover any cases of this kind, we suggest that you replace both the seal and the cover instead of attempting to fit a new seal into the old cover. We are prepared to furnish the two parts as an assembly.

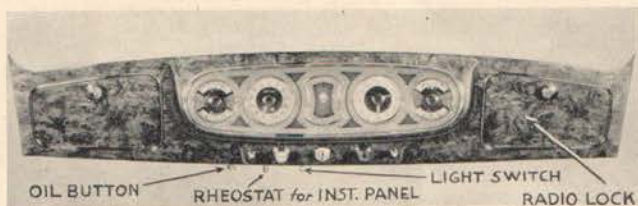
For the 12th Series Packard Eight you will require:

1-228969 Pinion Bearing Oil Seal and Cover Assembly.

For the Super Eight and Twelve you should order:

1-228970 Pinion Bearing Oil Seal and Cover Assembly.

In making the replacement, the pinion shaft and bearing assembly should be removed. When the new oil seal and cover are installed, the cover should be filled with a lubricant such as Packard shock absorber oil in order to protect the bearing until it is reached by the oil from the differential. Heavy motor oil is satisfactory if Packard shock absorber oil is not available.



Tell 12th Series Owners

In the delivery of the 12th Series car to the customer it is more necessary than ever that it be intelligently made. There are several items in connection with the controls with which the new owner will be entirely unfamiliar.

1. Point out to him the rheostat which controls the lighting of the instrument board, and show him how the illumination of the instruments is affected by the rheostat setting.

2. Operate the windshield wiper and illustrate the manner in which the speed of the wiper is controlled by turning the button.

3. If the car is equipped with a radio, show him the switch inside the right glove compartment. Point out how the radio can be locked in the "off" position by means of this switch.

We mention the three items listed above because we have received letters from 12th Series customers who complain of the operation of the instruments simply because these items have not been pointed out to them.

Filling Gasoline Tank in Club Sedans

It has been reported that in filling the gasoline tank in the Club Sedans there is a tendency for the gasoline to back up in the pipe with the result that the pipe becomes choked and filling must proceed more slowly.

We have found that this has been due to the fact that the gasoline passing down the pipe comes in contact with the bottom of the air vent tube and the upward movement of air through this tube has carried gasoline back to the top of the pipe.

The condition can be corrected by flaring the bottom of the air vent tube to a $\frac{3}{4}$ " diameter, thus keeping the gasoline away from the point where the air enters.

This is now being done in production and the change can easily be made in service if it is so desired.

Battery Life

The life expectancy of the battery can be compared to that of tires—they both wear out with age and service. Tires are changed when they become a hazard to safe driving. Car owners do not try to get the very last mile from tires, they change them before the maximum mileage is reached. Likewise, sell your customer a new battery before complete failure occurs. Twenty four months or 24,000 miles is a good period to change batteries or at least get your owners thinking about a new one. Remember, your customer does not carry a spare battery for replacement.

JORGENSEN—CHICAGO

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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