VOL. 1. NO. 11 SEPTEMBER 1, 1927

Brake Adjustment

BRAKES on the Bendix Brake equipped cars squeak because one or more parts of the mechanism are loose, so that they vibrate with the drum, causing the squeal that is so objectionable.

The squeak can be effectively stopped by a systematic checking over and tightening up of all the operating parts. The brake lining, however, must be perfectly dry. The presence of oil, graphite or other supposed anti-squeak compounds on the lining make efficient adjustment impossible. The foreign substance must be removed or the shoes relined before any adjustment is attempted.

If the linings are dry, give the drums sufficient time to cool and proceed as here outlined.

1. Remove both rear wheels and drums. Removing the wheels from the drums will make the adjustments much easier to reach.

2. Clean inner face of the brake drums with coarse emory cloth.

3. Brush the linings thoroughly with a stiff wire brush, particularly the primary and secondary shoes. Scuff these up thoroughly.

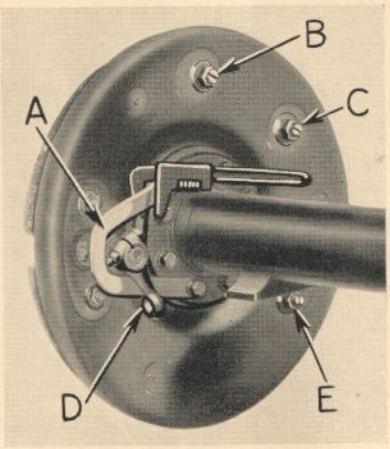

Figure One

Rear brake support plate showing anchor bolts B and C and brake adj. cam E.

Bend brake operating cam support strap A to take up play and steady the cam.

4. With a 12-inch monkey wrench bend the support straps both top and bottom as shown in Figure 1, tightening the straps so as to put a tension on the brake cam. Test by tapping lightly with a hammer on the strap at A. When the strap is tight it will produce a good solid sound.

5. Strike the brake shoe guide straps sharply with the edge of a hammer at points A and B, Figure 2, in order to spring the strap in and thus eliminate any end play at the toes of the brake shoes.

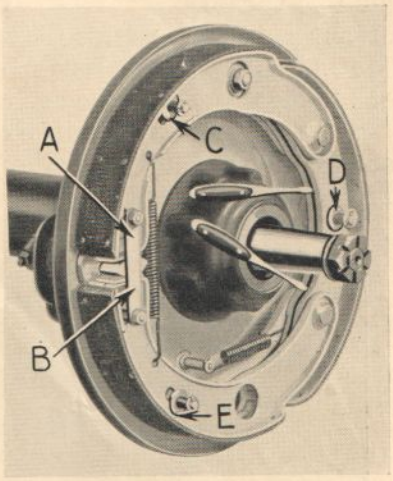

Figure Two

Brake Shoe Assembly. Wedge out the flanges of the secondary shoe to take up side play on hinge pins.

Tighten tension spring washers C, D, E. Bend strap at A, B to reduce side play of shoe.

6. Examine steady springs C, D, and E. If the washers are loose or show bright spots caused by their turning against the cotter pin, they should be tightened. To do so remove the washer, lay it over the hole in the wheel nut and cup it slightly by striking with a ball-pein hammer. Replace with the cupped edge against the brake shoe and test to see that the washer fits snugly against the shoe. In the case of aluminum shoes, adjust the steady screws so that they will bear

lightly against the backing plate and take up all side movement of the shoe. Do not make the adjustment too tight or it will cause the shoe to bind and not release freely.

7. Remove side play in secondary shoe by wedging a screw driver between the brake shoe flanges as shown in Figure 2.

8. Lubricate with a drop of oil all friction points including tension spring washers, anchor pins, operating cam and strap. *Be very careful not to get any oil on the lining.*

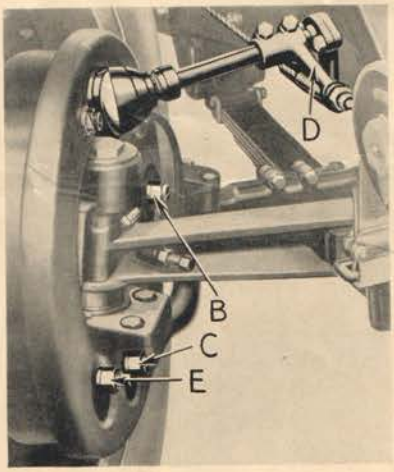

Figure Three
Front brake support plate showing anchor bolts B, C and brake adjusting cam E.

9. Operate the brake pedal a few times and examine the brake shoes to make sure they are not sticking at any point but release fully and freely.

10. Check axle shafts for end float.

11. Replace the brake drums only.

12. Loosen anchor nuts B and C, Figures 1 and 3, and pull up on brake operating lever D, Figures 1 and 3, with a 12-inch monkey wrench.

Figure Four
The brake pedal depressed. Pedal depressor S. T. 190 holding the pedal against Pedal Depression gauge S. T. 659.

Do this sharply four or five times and then, holding the lever on tight with the wrench, tap lightly all around the drum with a hammer. This moves the shoes out against the drum and insures an even contact all around. Without releasing the lever, tighten the anchor nuts again.

13. Loosen the brake adjusting cam lock nut E, Figures 1 and 3, and jam up tight on the adjustment and tap lightly around the drum with a hammer as before. Release the adjustment until the wheel just turns free and tighten the lock nut.

14. Reset the shoes as described in 12 and 13 on all four wheels. Only on rare occasions is it necessary to remove the front wheels. In case they squeak however the same should be done to them as on the rear.

15. Depress brake pedal to within 3½ inches of the toe board using pedal depression gauge S. T. 190 and pedal depressor gauge S. T. 659, Figure 4.

16. Attach brake testing scale, S. T. 658 for 426, 433 and 343 cars; S. T. 673 for 526, 533 and 443 cars, Figure 5. Turn the wheel by pulling down on the handle. Adjust by taking up or

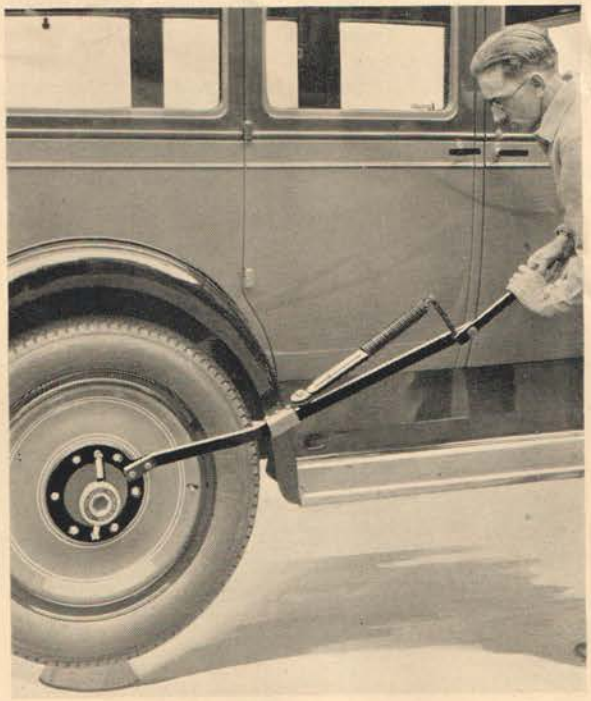

Figure Five
Brake testing scale S. T. 658 (S. T. 673 for 5th Series) attached to the wheel. Scale should read 90 lbs. front, 100 lbs. rear.

slacking off on the brake cables and rods until the scale registers just 90 pounds for both front and 120 pounds for both rear brakes. The wheel should always be turned in the forward direction and the scale operates best when the arm is at an angle of about 30 degrees with the floor.

There are a number of settings that can be made which will give a satisfactory result. After you have had a little experience with the brake testing scale the adjustment can be varied to suit the individual case. In general the things to remember are:

1. The farther from the toe board the pedal is when the reading is taken, the more brake you will have and the more chance to drag. The more the pedal is depressed the softer the brake and the greater the chance of going through.

2. The heavier the pull on the front, the more severe the brakes will seem. The front should *never* be made stronger than the rear. A great number of drivers who like a soft brake will prefer to have most of the brake on the rear. Eighty, ninety and one hundred pounds are good settings for the front but they should never be set over one hundred.

3. The rear brakes should do the greater part of the braking, and should never pull less than 100. One hundred, one hundred ten and one hundred twenty pounds are good settings.

In general, then, adjust the distribution of braking effort on the shoes by varying the pull shown on the brake testing scale. Adjust the amount of brake by the length of pedal depression. More depression for less brake. Less depression for more brake.

All brake adjustments must be made when cold. If the car has been driven, be sure and let the drums and linings cool thoroughly before attempting to adjust them.

Again let us caution you. The linings must be dry, they must be cold and the braking effort as shown by the scale must be equal on each side. The success of the operation depends on tightening every point which is liable to produce a squeak. Unless every point is checked and treated as outlined the result cannot be guaranteed. Neither can you expect to get results with linings which have been treated with so called anti-squeak compounds. Such linings should be renewed before any adjustment is attempted.

Why? What? How?

"Curiosity killed a cat".

Applesauce.

Curiosity aided by its three children, Why, What and How, discovered a new world. Columbus with a *desire to know*, that bothered him worse than a case of hives, couldn't rest until he proved to his own satisfaction that the earth was not flat; and that ships did not slip over the edge if they sailed too far from the home port.

James Watt, observing the jumping lid of his mother's teakettle asked himself "why". He found out and then pondered on the problem of "how" this new source of power could be used, and "what" instrument was necessary to make use of it. It's a far cry from his first crude steam engine to the giant engines of today, but, nevertheless, the curiosity of James Watt is responsible for them all. Incidentally, Watt was not the first man who observed the antics of a fluttering teakettle lid, BUT he had a mind that asked—Why—What—How.

John Wanamaker,a master of merchandising, wondered "how" he could become a great merchant. He put himself in the customer's place and found out "why" retail methods, prevailing at that time, must be changed. He, the father of the "one-price" principle of doing business, killed forever the ancient business motto "Let the buyer beware." His mind made up as to "what" must be done —he did it. Through his habit of asking questions, he discovered the secret of successful merchandising and through his ability to put into effect that which he discovered, he became the world's greatest retailer.

Children, as we all know, are terribly persistent with their endless questioning—they are everlastingly busy with the whys, whats and hows.

Except in a very few grown-ups this excellent habit dies almost completely. We accept things as being true, making little attempt to find out whether they are or not. Teakettle covers have no interest for us—we "know" the earth is round, but most of us would have a devil of a time proving it without running to our books.

Become a child again. Cultivate the habit of being inquisitive. No matter what your occupation, whenever you do a piece of work, think—why you are doing it—how could it be done better—what will the results of the work be.

"Why, what and how" will do wonderful things for you if you will only let them. This famous trio will transplant you from the barren land of "guess" to the prosperous kingdom of "know".

"Curiosity killed a cat". Maybe it did, but if so, it was probably the curiosity of some scientist such as Pasteur that caused the death. Pasteur, incidently, through his experiments and inquisitiveness, discovered that by innoculating people with a serum, they became immune from hydrophobia. Hundreds of thousands of human lives saved at the expense of a few animals—the cat should feel honored.

Everything that we enjoy today, created by man, is a direct result of—Why?—What?—How?

You can use them in your work very profitably.

IMPORTANT

EVERY NEW CAR, THAT IS SHIPPED FROM THE FACTORY, BEARS A YELLOW INSTRUCTION TAG WHICH IS FASTENED TO THE REAR VISION MIRROR BRACKET. UNDER NO CONSIDERATION SHOULD A CAR BE DELIVERED, TO A NEW OWNER, WITHOUT THIS TAG BEING IN ITS PROPER PLACE. TAGS REMOVED FROM CARS, PLACED ON SHOWROOM FLOOR, SHOULD BE REPLACED BEFORE DELIVERY IS MADE.

Ask Me Another

1. Why does the oil pump sometimes make an unusual noise when the motor is started or when the oil level in the crankcase is low?

2. How can leakage in the oil control valve connected with the choke be checked?

3. How may oil leakage from the rear main bearing be identified?

4. Will a motor start more readily in cold weather if Ethyl gasoline is used?

5. What harm will be caused by end float in the rear axle shaft?

6. How may this end float be corrected?

7. Why is a piston slap more noticeable after the motor has been idled for several minutes?

8. Why is it unnecessary to change the crankcase oil as frequently in summer as in winter?

Note—Save these questions. Answers, only, will appear in the next PACKARD SERVICE LETTER.

Answers to Questions Contained in Service Letter No. 10

1. A poor connection between the generator and the battery is apt to result in a burnt out generator if the car is being driven hard in warm weather. In comparatively slow winter driving it is apt to cause failure of the lamp bulbs or excessive depreciation of the circuit breaker points.

2. The drop in voltage between the generator and the battery should not exceed three-tenths of a volt. First ground a voltmeter from the generator terminal and record the voltage. Next ground it from the insulated battery terminal and note whether the difference is greater than the above amount. If it is, go over the connections.

3. Steering tramp is caused by an unbalanced condition in the wheels or tires, and the unbalanced forces increase as the speed increases. This condition is always aggravated by low tire pressures.

4. A thin lubricant in the steering gear will result in a rattle in warm weather, or if the steering is set up closely to try to avoid the rattle it will become sticky.

5. Cylinder head gaskets are most likely to fail in the narrow section between the cylinder bores. Care should be taken in removing the gasket not to buckle it so as to break the asbestos, because this will always result in failure. A suspected gasket should be replaced. In remounting the cylinder head the center row of nuts should be started first in order to give the maximum protection to the narrow strip between the bores.

6. The use of Alemite connectors on the universal joints should be discouraged, because if the lubricant is forced in under pressure the cork gaskets which seal the joint are very apt to be destroyed. Moreover connectors which are left on the joint will cause an out-of-balance condition in the drive shaft.

7. The spark plug gap should not exceed .025. A wider gap will give trouble on hard pulls or at high speeds, and if a car is being operated under these conditions, the spark gap should be as narrow as it can be made without affecting the idling qualities of the motor.

8. Excessive use of the chassis lubricator will cause over-lubrication of the springs, so that the springs will be likely to strike thru in hard driving. A year ago excessive use of the lubricator might have caused a collection of oil on the front brake shoes, and oil on these shoes will set up a bad chatter. This condition has been prevented on the later cars by an oil relief in each of the steering cross tube ball joints. (See Technical Letter No. 1840).

PRINTED IN U. S. A.