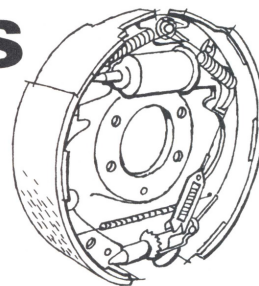


**MASTER
TECHNICIANS
SERVICE
CONFERENCE
REFERENCE
BOOK**

69-7

**DRUM BRAKE
SERVICE
HIGHLIGHTS**



**PLYMOUTH
DODGE
CHRYSLER
IMPERIAL
DODGE TRUCK**





GIVE THE BRAKES A BREAK . . .

Generally speaking, routine brake servicing is a relatively simple job. As you know, replacing worn lining, installing new hydraulic parts, or refinishing drums are everyday operations which will take care of most brake problems. But, if these simple jobs are not done properly . . . if parts are merely exchanged in a careless manner, without attention to recommended precautions, it's just like asking for trouble. Seemingly unimportant things, such as keeping the linings clean, and handling drums carefully, can easily make the difference between a good job and a comeback.

Regardless of whether you're working on a new car or one which has had plenty of use, successful brake servicing boils down to doing a *complete* job as described in your Service Manuals and Bulletins. If you stop to analyze the servicing hints covered in this Reference Book, you'll soon realize that they are simply ways of correcting conditions which are not up to specification standards.

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BRAKE CHATTER

Controlled application of friction is the basic process used in braking. Explained in simple terms, brake shoes are forced out against drum surfaces with a force proportional to foot effort on the brake pedal. This action produces the friction needed to slow or stop the wheels.

OPERATION SHOULD BE QUIET

When brakes operate in a normal manner, we get smooth, quiet braking regardless of car speed or how much force is applied to the brake pedal. However, under certain conditions, brake application produces a vibration called brake chatter.

CHATTER CAN BE IRRITATING

In most cases, chatter is a vibration in the brakes which travels to other parts of the car where it can be felt and sometimes heard. It is not a dangerous condition, but the vibration and noise can be irritating. And, to make troubleshooting interesting, chatter vibration can occur at either high or low speeds.

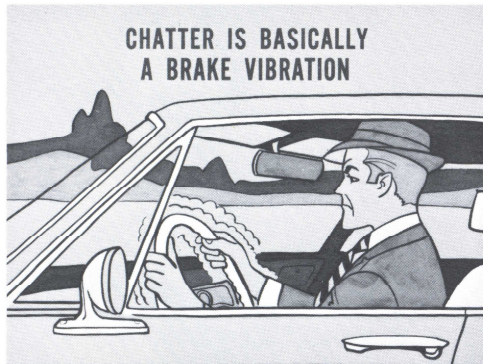


Fig. 1—Chatter can be felt and heard

IRREGULARITIES CAUSE CHATTER

Chatter is usually caused by surface irregularities, especially in front brake drums. Similar vibration in the rear brakes is largely absorbed by the suspension, so it seldom causes a disturbance. A drum surface may be wavy, oval, out of round, or spotted by overheating. We'll cover these conditions as we go along.

OTHER PARTS ALSO VIBRATE

In addition to brake drum conditions, high-speed chatter can also be caused, or made worse by a loose or bent wheel, poor wheel balance or bearing adjustment, soft tires or irregular tire treads, looseness, misalignment or improper adjustment of the steering and suspension systems.

HIGH-SPEED CHATTER CAN BE CAUSED OR MADE WORSE BY:

- LOOSE OR BENT WHEEL
- POOR WHEEL BALANCE OR BEARING ADJUSTMENT
- SOFT TIRES OR IRREGULAR TREAD WEAR
- STEERING OR SUSPENSION LOOSENESS OR IMPROPER ADJUSTMENT

Fig. 2—Other parts can also act up

ROAD-TEST DIAGNOSIS

In general, the best way to begin looking for the cause of brake chatter is with a road test. Ask the owner to ride along and point out the disturbing condition so you'll know what the actual problem is. The test will help you decide to concentrate on the brakes, or to look elsewhere for the cause of the chatter.

CHECK UNDERNEATH FIRST

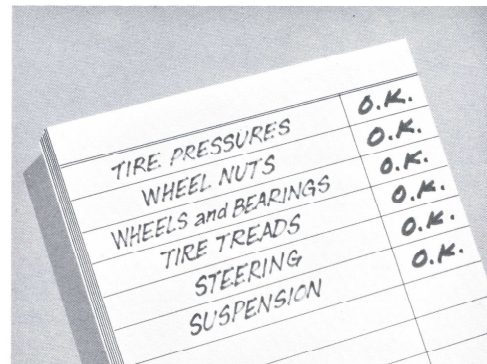


Fig. 3—Check other parts before road-testing

Before you take a car out for a test ride, give it a quick inspection to check the condition of other car parts which could cause or contribute to chatter. Make sure that tire pressures are correct, and front wheel nuts are properly torqued. Also raise the front end of the car so you can check for bent wheels, loose bearings or irregular tire treads. At the same time, check steering and suspension parts for looseness or obvious damage.

TAKE THE HIGH ROAD

To test for high-speed chatter, speed up the car above 60 m.p.h. on a smooth stretch of pavement. Then apply light to moderate brake pedal as you would when slowing down for traffic or when entering a speed zone.

CHATTER ON HIGH

If vibration begins as the pedal is first applied but is reduced or disappears below 40 m.p.h., the cause is probably a drum surface which is wavy, oval, or out of round. High-speed chatter may not come in at all on heavy brake applications, or after the drums are warmed up by the initial application. In some cars, you may hear a rumbling sound along with the vibration, especially with heavier pedal applications.

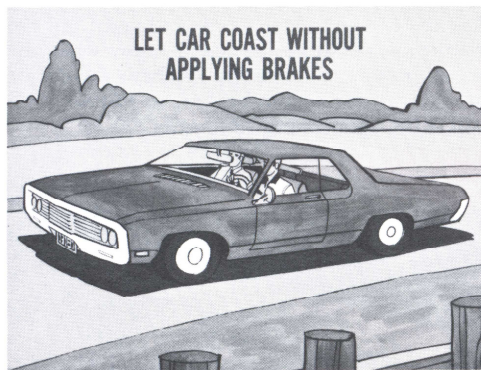


Fig. 4—Listen for car or pavement noise

STAY OFF THE BRAKES

After you check the *brakes*, bring the car back up to the original test speed on the same test stretch and let it coast down through the critical range *without* applying the brakes. Any vibration under these conditions comes from other parts of the car, or from the pavement.

IF IT CONTINUES . . .

Chatter which comes in at any speed from high, to as low as 20 miles an hour is usually caused by heat-spotted drum surfaces. Other causes can be badly worn brake lining, or new lining with improper heel and toe clearance.

CHATTER CAUSED BY DRUMS

The drum irregularity which causes chatter can be a slight waviness in the friction surface of the brake drum. This is usually a new-drum condition and is *not* the same as out-of-round or oval drum distortion.

DRUMS CAN CHANGE

Even though new drums are precisely machined, the friction surface can change slightly as the drums break in, especially if the brakes get heavy use during this period. The high and low contour of the surface waviness causes uneven friction when the lining is forced against the drum. The uneven friction results in the vibration we call chatter.

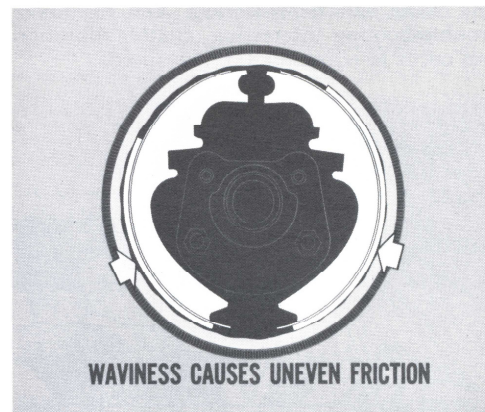


Fig. 5—Uneven friction sets up chatter

DON'T WARP 'EM

Overtight or unevenly tightened wheel nuts can distort a drum and cause irregularities. This means that you'll have to be careful when using impact tools or long-handled wheel wrenches. In some cases, you can cure, or reduce brake chatter by retorquing the wheel nuts properly. However, if a drum has been permanently distorted, retorquing the wheel usually has little or no effect.



Fig. 6—Don't tighten nuts too much

FOLLOW THE PATTERN

The best precaution against tightening distortion is to tighten the wheel nuts evenly and in the proper star-pattern sequence with a torque wrench. Tighten the nuts initially to half the final torque or about 30 foot-pounds. Then in the same star-pattern sequence, tighten the nuts to 60 foot-pounds.

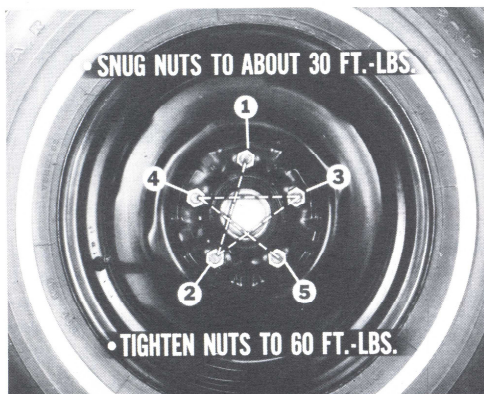


Fig. 7—Tighten wheel nuts in sequence

THE SURFACE MUST BE EVEN

When checking for causes of drum distortion, make sure there are no thick paint accumulations or other high spots on the wheel mounting bolt area which contacts the drum. The wheel mounting surface must be even or the drum may become distorted when the wheel nuts are tightened.

OVAL DRUMS CHATTER

Out-of-round or oval drums can also cause uneven friction which results in brake chatter. Along with the chatter, an oval drum can cause another condition called pedal pulsation which is most noticeable on light pedal applications.

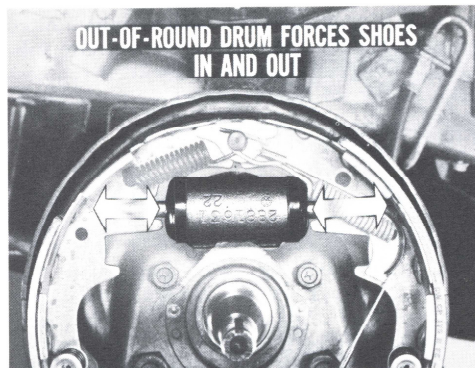


Fig. 8—Piston movement causes pulsation

SHOES PUMP THE PEDAL

The out-of-round drum forces the brake shoes in and out as it revolves. This brake shoe "pumping" action causes hydraulic pressure pulsations which can be felt at the brake pedal.

SPOT FRICTION IS DIFFERENT

Chatter which is caused by overheated areas or hard spots on the drum surface also results from uneven friction. Like the variation caused by drum irregularities, braking friction is different at hard spots, so you get chatter when the brakes are applied.

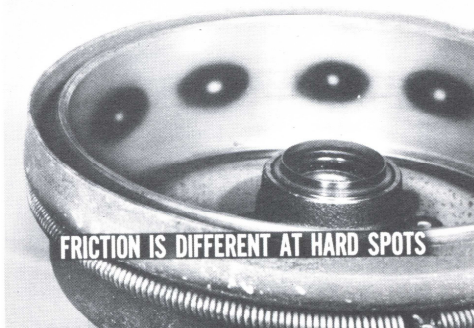


Fig. 9—Hard spots also cause chatter

HIGH PRESSURE CAUSES SPOTS

Hard spots are areas on the cast-iron drum surface which have been converted to hard steel by drum overheating. Spotty overheating is caused by excessively high lining contact pressure along the centerline or stiffest part of the shoe. This high contact pressure can result from improperly ground linings which make limited contact with the drum, linings which are substantially harder than recommended replacements, or from abuse through "burning-in" new linings.

FIRST THEY'RE BLUE

Brake drum hard spots begin as blue areas which have different friction characteristics than unaffected areas. The blue areas do not affect the drum itself, so if detected at this stage, they can be cleaned up with sandpaper or emery cloth to restore a uniform friction surface around the entire drum.

SPOTS CHANGE TO STEEL

When drum overheating continues to the stage where the unwanted "heat treatment" changes the cast iron to steel, the converted areas show up as silvery spots in the centers of the blue areas. Since these severe hard spots are more wear-resistant than surrounding areas, they affect the wear pattern as well as the braking friction characteristics.

MAKE 'EM ROUND

Irregular, oval, or heat-spotted front brake drums can usually be machined to restore the friction surface to specification standards. For the first two conditions, we remove just enough material to eliminate the waviness and to make sure the drum surface is truly round.

NEW DRUMS MAY BE BETTER

Severe hard spots can be smoothed off with a grinder, but it may be better to install a new drum to correct this condition. Grinding can smooth the surface, but the friction variation can return after the drum is put back in service. Hard spots usually affect the lining, so with a new drum, we also reline both brakes and sand the opposite drum surface so braking action will be even.

WHEEL AND DRUM TOGETHER

You can minimize distortion when machining a drum if its wheel is attached and properly

torqued when you do the job. Follow the same tightening sequence used when the assembly is on the car. Leave the wheel nuts undisturbed after machining, and when you install the wheel and drum on the car. When you machine a drum with the wheel attached, it's a good idea to mark the wheel and a mounting stud. That way, you can replace the wheel in the original position later on if it is removed.

MAKE THE SURFACE SMOOTH

If you use a drum lathe to refinish drum friction surfaces, make sure the cutting tool is sharp and set to cut smooth. We want a uniform surface with a dull finish, so don't forget to break up any machining pattern with sandpaper or emery cloth.

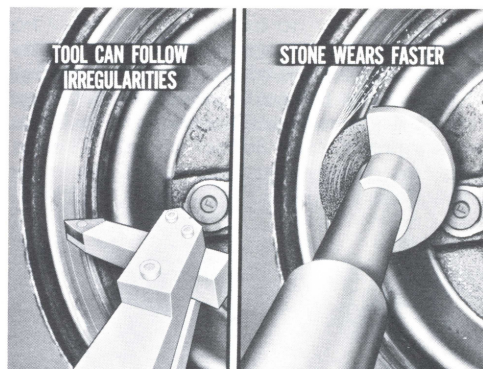


Fig. 10—Use moderate feed when machining drums

DON'T OVERDO IT

Regardless of whether you use a cutting tool or a grinding wheel, be sure you do not overfeed. In a heavy cut, the tool can follow the original surface irregularities and you'll reproduce essentially the same condition you were trying to correct. With too much grinding feed, the stone only wears faster, and you can distort the drum by overheating.

STAY WITHIN LIMITS

Never enlarge the total brake drum diameter more than .060" over the standard measurement, or you'll need a new drum. This means that the tool or grinder must not be fed in more than .030" to clean up the surface. Most chatter conditions only require light machining anyway, so just remove enough metal to get rid of

the drum surface irregularities, or any oval, out-of-round condition.

DRUMS MUST BE CLEAN

After machining, be sure to remove all cuttings or abrasive material from the drum. Remember that it is very important to keep the drum, especially its friction surface, absolutely clean. Only a small amount of oil, or grease from hands, wiping cloths, or even compressed air can get on the lining and cause brake problems **RIGHT NOW**. Brake fluid on linings can also cause trouble.

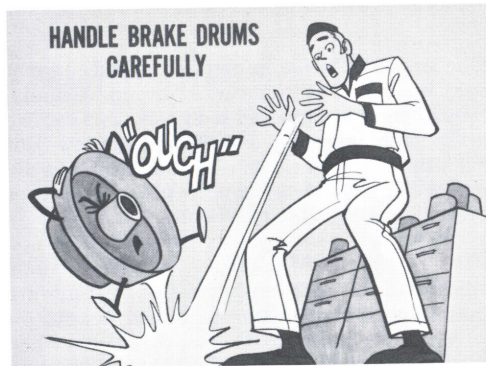


Fig. 11—Don't bang drums around

HANDLE WITH CARE

In any service operation involving brake drums, on or off the car, be sure to handle the drums carefully. They are built to take full braking loads, but you can cause distortion if you bang them around, especially if you drop one on a hard surface.

CHATTER CAUSED BY LINING

As mentioned earlier, brake chatter can also result from badly worn linings. Here, the first step is obvious, new or relined shoes must be installed. But, don't take a chance on causing uneven braking by relining only one brake. Reline them in pairs—both fronts or both rears.

CLEARANCE OR CHATTER?

Before installing the brake shoes, make sure that the radius of the new lining is not too large for the drum. If there's not enough clearance at the ends of the linings, you may be building in chatter instead of correcting it.

HEEL AND TOE CLEARANCE

To check lining radius, hold the shoes in the drums with the lining against the drum surface. You should have at least .004" clearance at both ends of the lining so it will contact the drum in the middle area first to assure full lining contact when the brakes are applied.



Fig. 12—Lining radius must be correct

USE TWO BLADES

Insert and hold a .004" feeler blade between the drum and lining at one end while you check the opposite end so the shoe will not rock during the clearance check.

TRY GROOVED LININGS

When you reline to correct chatter in our 11" front brakes with non-ribbed drums, you can get better results with the new, grooved-type primary linings. You *can* use plain-surface pri-



Fig. 13—Less chatter with grooved lining

mary linings, but do not risk uneven braking by using grooved lining in one brake and plain lining in the other. Use the same type of lining for both primaries to play it safe.

GROOVED LINING A MUST

You can use grooved or plain primary lining with non-ribbed front drums, but only grooved-type primary lining should be used for replacement on our 11" brakes with ribbed drums. If you install plain-surface lining on these brakes, it will change the brake characteristics and may cause chatter.

CHATTER FROM OTHER PARTS

As mentioned earlier, vibration which can cause chatter or make it worse may result from below-standard conditions in other parts of the car. Wheels must run true and be properly aligned. Correct wheel balance and bearing adjustment are also important. And don't forget that improperly inflated tires or those with irregular tread wear can also cause vibration. All steering system parts must be in good condition and properly adjusted. Make sure the suspension bushings and ball joints are okay and that the strut bushing nuts on both sides are properly torqued.

ELIMINATE OTHER POSSIBILITIES

Once again, the reason for checking wheels, tires, steering and suspension is to eliminate them as possible causes of chatter. In any event, do not attempt to cure chatter by tampering with suspension design because un-

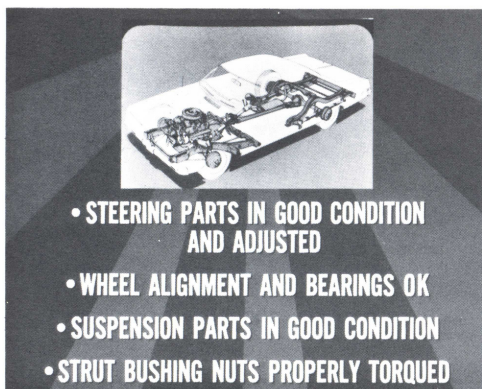


Fig. 14—Check other car parts

authorized alterations can affect the steering and change ride characteristics. You can be sure that if a suspension design change could stop chatter, it would be made at the factory.

PREMATURE LINING WEAR

The length of brake lining life depends a great deal on the way the car is driven. Usually, linings last for more miles on cars used mostly on the open highway where stops are few. But even here, lining life can be cut drastically by driver abuse, such as unnecessary panic stops or pedal riding.

DRAG CAUSES WEAR

Other causes of premature lining wear are mainly mechanical, non-standard conditions which cause linings to drag on the drums when the brakes are released. Since brake lining drag may be continuous as well as intermittent, brake overheating can also get into the act, so you may find evidence of both conditions. Most causes of lining drag are the same in front and rear brakes, with the exception of conditions which affect the operation of the parking brake system.

MECHANICAL CAUSES VARY

Premature lining wear can be caused by over-adjustment, improper adjustment, incomplete shoe return, lining contamination, faulty wheel cylinder operation, incorrect lining, or improper brake shoe installation. And, as mentioned earlier, brake lining life can be shortened by unnecessary heavy usage or pedal riding.

BRAKE OVER-ADJUSTMENT

A brake can over- or under-adjust if the automatic adjuster cable is bent, or not installed properly. Misalignment shortens the cable and this causes the improper adjustment. Just make sure that no cable ends are kinked when they're hooked up.

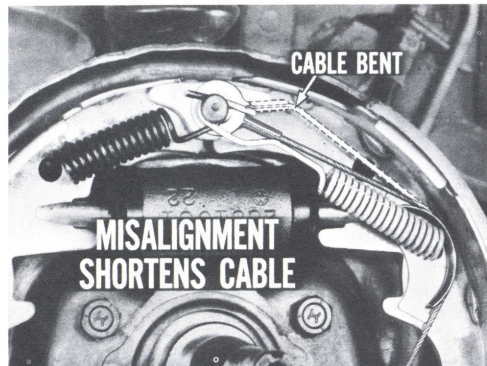


Fig. 15—Cable ends must be straight

USE THE RIGHT HOOKUP

If you install a new brake adjuster overload spring, make sure that the spring hooks face outward. Replace broken springs with the new type which is painted green or blue for identification. You can use the new springs on early type adjusters with spring holes or on the slotted type, but be careful that you don't bend the hooks out of shape when you install a spring on the early type adjuster.

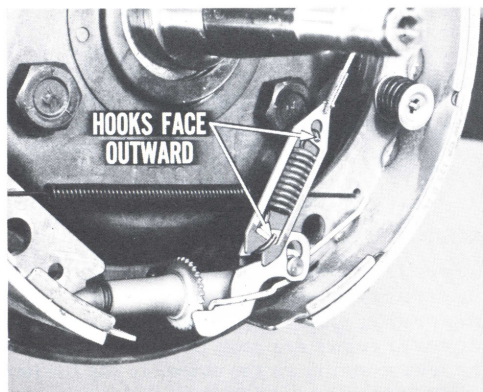


Fig. 16—Improved spring is green or blue

SHOES FOLLOW DRUM CONTOUR

A brake can also over-adjust if the drum is badly out of round, or off-center. Here, when the brakes are applied, the shoes move back and forth as they follow the drum contour. This movement can cause the automatic adjuster to expand and over-adjust when it's not needed.

For proper adjuster operation, the total out-of-round indication of any drum should not be more than .006" of an inch.

CHECK JAMMED DRUMS

You may find a rear drum which is slightly distorted and jammed on the mounting studs. This condition should alert you to look for an axle shaft bolt circle and drum pilot, or mating drum holes which are not concentric. In either case, a new drum will be needed because the jammed-on drum is either distorted or improperly machined. First try a new drum, but if you find interference at one point on the flange shaft, even after trying different stud holes, the axle shaft may be the cause. A non-concentric drum will cause pilot interference in all stud positions.

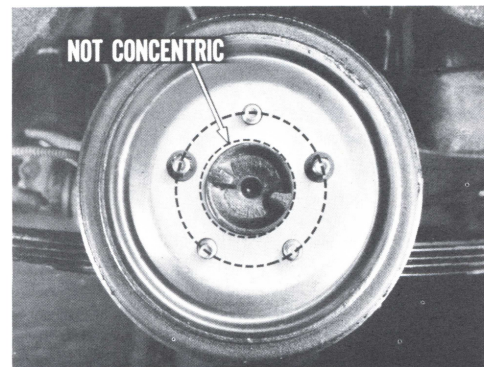


Fig. 17—Axle flange and drum must be concentric

WOBBLY DRUMS CAUSE WEAR

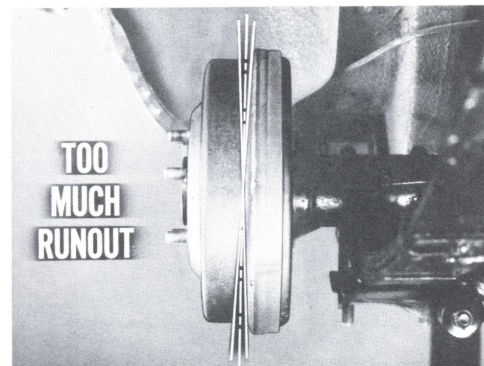


Fig. 18—Drum wobble can cause brake drag

If a rear brake drum or axle flange has too much runout, the linings can also wear out in a hurry. Over-adjustment is no problem with this condition, but a wobbly drum can cause lining drag and unnecessary wear, even when the shoes are fully retracted.

IMPROPER BRAKE ADJUSTMENT

The improper brake adjustment we are concerned with here is basically a parking brake condition. The main point to keep in mind is that linings can drag and wear rapidly if the parking brake adjustment is either too tight or too loose. When you relined brakes, always remember that the parking brakes must be adjusted after the service brakes. If you reverse this sequence, the parking brake adjustment will probably be too tight.

RELEASE THE LEVER

To check the parking brake adjustment for being too tight, first make sure that the brake operating lever is fully released. Any sticking or binding in the lever mechanism or its cable must be corrected before you check or adjust the parking brakes.

CHECK FOR END-PLAY

On both brakes, seat the shoes against the anchors if necessary. With the shoes seated, there should be a slight amount of end-play at the strut in either or both brakes. If neither strut shows end-play when you try to move it with your fingers, the parking brake adjustment is too tight.



Fig. 19—Try to move strut with fingers

SPRINGS CAUSE DRAG

At the other extreme, if the parking brake adjustment is too loose, the adjuster cable return spring can extend far enough to move the strut operating lever and the secondary shoe rearward in either or both rear brakes. The spring force causes the lining to drag and wear rapidly. While you have the drums off, it's a good idea to check the parking brake struts, levers and cables in both brakes to make sure there's no sticking or binding which could interfere with full release of the brake shoes.

HEAT WEAKENS SPRINGS

Be sure to check both parking brake cable return springs for signs of heat damage. A spring that has been overheated may not release the cable and the shoes properly. If there's any doubt about the condition of the release spring or cable, install a new cable assembly.

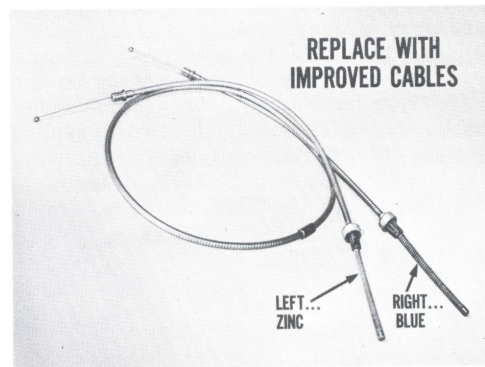


Fig. 20—Improved cables have stronger springs

INSTALL THEM IN PAIRS

On our 11" brakes, it's best to replace with the improved-type brake cables because they have improved lubrication and stiffer springs. The improved cables are easy to identify because the release spring on the assembly for the left side is zinc-colored, while the one for the right side is blue. Always install them in pairs. If you use an improved-type cable along with an original cable, with a black-colored spring, you can cause an unbalanced condition which can result in brake drag.

REPLACE WEAK RETURN SPRINGS

Weak or damaged shoe return springs in any brake can also result in brake drag and rapid

lining wear. Any time you find return springs which are discolored by heat, or with stretched or distorted end coils, be sure to replace them with new ones.

HOLD-DOWNS ARE ALSO AFFECTED

If brake shoe return springs are heat-weakened, you'll probably find that the shoe hold-down springs are also affected, and should be replaced. Regardless of whether they are new or used, do not stretch hold-down springs in an attempt to increase their tension. Stretching can produce added spring load which will make the shoes hang up on the support plate and cause brake drag.

ELIMINATE IRREGULARITIES

When you reline, or if you suspect that brake shoes do not return properly, be sure to check the contact areas on the brake support plate. Also check contact tabs or loops on the shoes. These areas must be free of burrs or grooves which could cause the shoes to hang up. If necessary, you can use a fine-cut file to clean up any contact area irregularities.

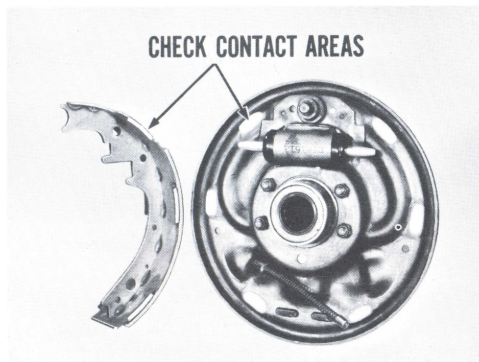


Fig. 21—Contact areas must be smooth

LUBE THE CONTACT AREAS

When you install new or relined shoes, always put a thin coat of approved lubricant on the brake support plate platforms. But don't get the lube on the linings or the job will bounce back into the shop.

KEEP THE BIRDIES QUIET

In connection with support plate platform lubrication in rear brakes, you'll probably find

the shoe contact areas dry if there's a repeated "chirp" noise when you apply light force on the brake pedal. The chirp results from slight back and forth movement of the shoes and can usually be corrected by lubing the support plate contact areas.

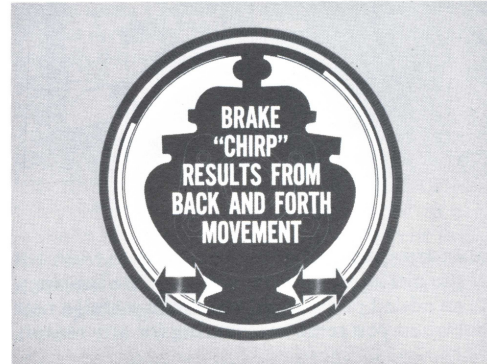


Fig. 22—Lube platforms to cure "chirp"

BRAKE LINING CONTAMINATION

Anything that changes brake lining friction characteristics can change braking action in general, and may also cause the braking to be uneven. You are familiar with the fact that water can literally "wash-out" braking action until the linings are dried out. On a more permanent basis, oil, grease or brake fluid on the lining can make a shoe grab or slip each time the brakes are applied. Grabbing also causes brake pull toward the side with the contaminated lining. If a shoe slips, the brake on the opposite side works harder, causes pulling toward that side and wears out sooner.

CONTAMINATION RUINS LINING

In addition to careless handling, lining contamination can also result from leakage at axle shaft seals, front wheel bearing seals, or leaky wheel cylinders. Contaminated lining must be replaced when the other repairs are made. Any attempt to re-use such lining will result in continued grabbing or slipping.

USE ONE AT A TIME

If you mix different types of front wheel bearing lubricant, the mixture can become runny and thin enough to leak past the seals onto the lining. This condition can occur even when both



Fig. 23—Don't mix wheel bearing lube

lubers are approved types, so be sure to wash out all the old lube before you repack the bearings. As an added precaution, be sure to install a new seal when you remove a bearing for any reason.

FAULTY WHEEL CYLINDER OPERATION

The wheel cylinder pistons must be free to move in and out so the apply pressure on both shoes will be equal. This freedom of movement also permits both shoes to retract completely after each brake application.

THE POINT OF NO RELEASE

A sticky or jammed piston can hold a brake shoe out in the applied position even after the apply pressure is released. Normally, the return springs retract the shoes, but when a sticky piston prevents shoe return, the lining will drag and wear rapidly.

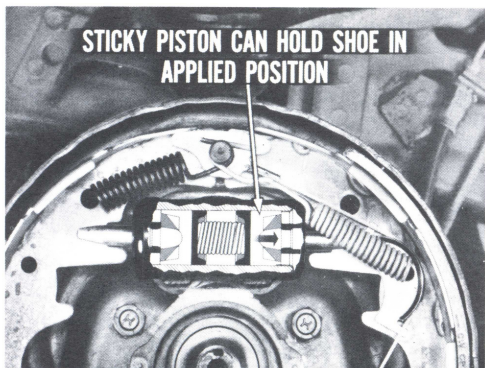


Fig. 24—Non-retracting shoe causes brake drag

THE SHOE STAYS PUT

A piston which is stuck in the return position, does not move its shoe outward and you lose quite a bit of the braking force at that wheel. This loss makes the *other* brakes work harder, so *their* lining wears faster than normal. The good brakes can also cause a pull to one side, especially when the front brakes are involved.

IT'S STUCK BY CORROSION

Usually, you'll find that corrosion is the cause of sticky or jammed wheel cylinder pistons. This corrosion can be the result of water or splash which gets past damaged or deteriorated wheel cylinder boots. When you look for causes of uneven or excessive brake lining wear, be sure to inspect the boots for damage, and wherever possible, look for water or evidence of corrosion under the boots.

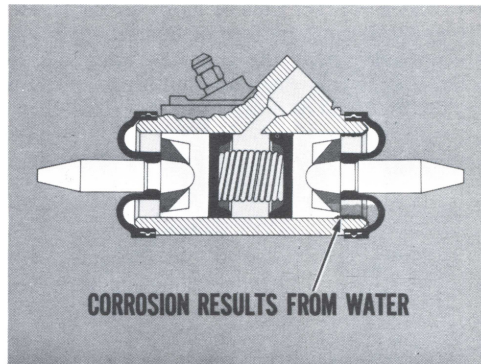


Fig. 25—Water in fluid corrodes surfaces

MOVE 'EM BACK AND FORTH

You can check for sticky or jammed wheel cylinder pistons by moving the push rods after the shoes are removed. Protect your fingers with gloves or a shop towel, and move the push rods back and forth to the limits of the boots. If you feel any roughness or resistance to movement, you'd better remove the boots and inspect the pistons.

BRAKE FLUID LIKES WATER

Hydraulic system parts can also corrode from the inside as a result of water in the brake fluid itself. In or out of the system, brake fluid must be kept free of water and absolutely clean, or brake problems will develop. Strange as it

may seem, brake fluid soaks up moisture like a blotter. In fact, fluid which is exposed to moist air only a short time, will boil and form vapor pockets in the brake system at relatively low operating temperatures. Because this vapor is compressible, it will cause loss of system operating pressure.

KEEP CONTAINERS CLOSED

It's a good shop practice to keep all brake fluid containers closed airtight when they're not in use on a job. Also wipe the dispensing spout and top of the container clean before you pour out fluid so you won't pick up dirt in the fluid. Be sure that your brake bleeder tank is the type which isolates the air from the fluid. After all, a compressed air hose can pump in plenty of water even if it has a filter.



Fig. 26—Keep fluid container closed

CHECK PART NUMBERS

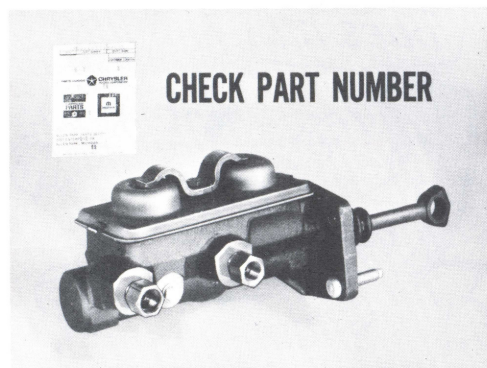


Fig. 27—Use correct master cylinder

Before we leave the hydraulic system here's a pointer on master cylinders. When you replace a master cylinder, always check the part number to make sure you're installing the correct assembly. Some master cylinders look alike on the outside, but have different front and rear displacements, so it's possible to install the wrong unit. The handy chart in the back gives the correct part numbers of master cylinders used on current models.

INCORRECT BRAKE LINING

The main fact to remember, if other types of lining are considered for installation, is that the lining on our original equipment and Chrysler replacement shoes is tailored to each model's braking requirements. Different lining can change the car's original braking characteristics, may wear faster, and if too hard can cause heat spotting on the drums.

LOOK-ALIKES ARE CONFUSING

Another reason for using approved shoes is possible interference in the fit of shoes obtained from an outside source due to minor dimensional differences. There's enough similarity in the appearance of our shoes and those used on competitive make cars that there could be a possible mixup.

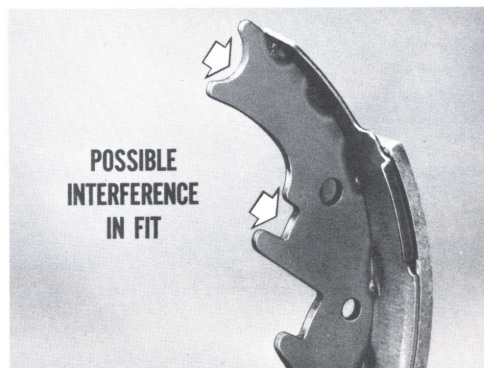


Fig. 28—Shoes from other sources may bind

IMPROPER BRAKE SHOE INSTALLATION

Generally speaking, improper brake shoe installation simply means that someone is not following the procedure described in the Service Manuals and Bulletins. Here, we are concerned with such things as installing shoes

without checking the lining radius and hooking up the adjuster cables incorrectly.

SPRINGS MUST BE OKAY

When installing new or relined brake shoes, be sure to replace heat-damaged or distorted springs with new ones. Always install the primary shoe return spring before the secondary to prevent spring anchor pin damage and possible brake clunk. If a spring anchor is bent or distorted by incorrect spring installation, it may break off later on. Since brake shoe hold-down springs are also affected by brake overheating, they should be replaced if necessary.

LOOSEN THE ADJUSTER

Before installing rear drums, always loosen the parking brake adjustment far enough to get plenty of end-play at one of the brake operating struts. This will prevent interference and possible brake drag when the rear service brakes are adjusted. After adjusting the service and parking brakes it's good practice to test-drive the car.

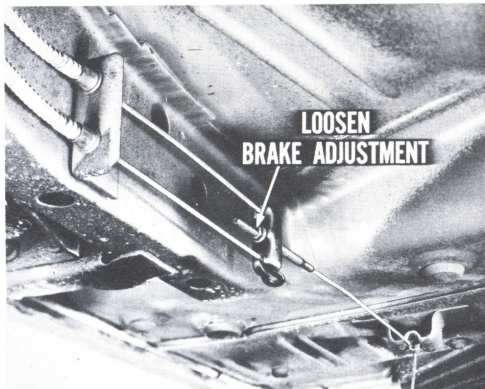


Fig. 29—Adjust parking brakes last

OLD-WIVES' TALES

You can forget anything you have heard about the need for "burning-in" new linings. This old practice only causes trouble and can ruin both linings and drums. To protect new linings from abuse, the owner should be cautioned against unnecessary, heavy brake usage immediately after a reline. A moderate-usage break-in of about 100 miles will pay off in longer lining life and lower maintenance costs.

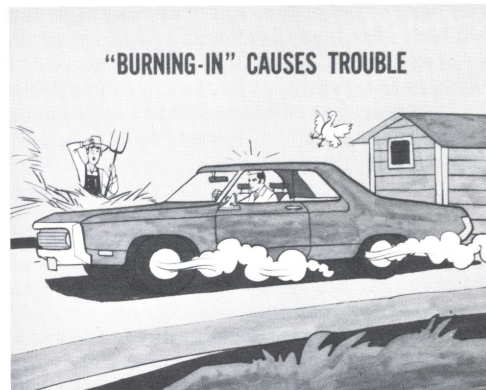


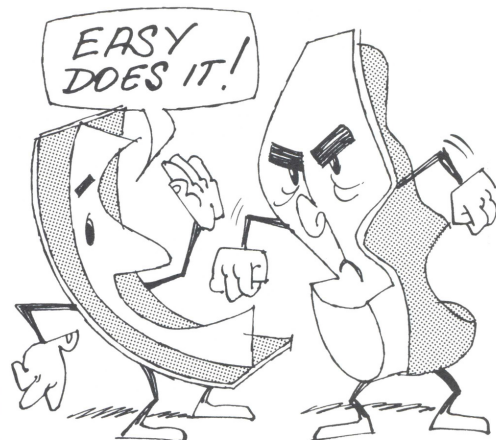
Fig. 30—Protect new linings from abuse

DRIVER ABUSE

We now come to the final cause of premature brake lining wear—driver abuse. This can range from habitual pedal riding to driving practices which require frequent panic stops. Boiled down to simple terms, driver abuse can be any continued driving procedure which causes the brakes to drag or overheat.

TELL 'EM WHY

Here, instead of tools, you'll need the power of persuasion to correct the condition. Usually, a little appeal to a customer's pocketbook sense will either bring about a change in driving habits or acceptance of the consequences.



**1969 MODEL
REPLACEMENT MASTER CYLINDER IDENTIFICATION CHART**

BRAKE TYPE	REPLACEMENT CYLINDER PACKAGE PART NO.	IDENTIFYING FEATURES			
		COVER RETAINER	BORE END STAMP	WHITE PAINT MARKING	LINE CONNECTIONS
9" & 11" DRUM— MANUAL & POWER	2808599	BOLT	—	—	OUTBOARD
10" DRUM—MANUAL & POWER ALL EXCEPT SUBURBANS WITH POWER	2808577	BOLT	—	ON LINE PORTS	OUTBOARD
10" DRUM— POWER SUBURBANS ONLY	2944269	BAIL	D	—	INBOARD
KELSEY-HAYES DISC	2808600	BAIL	A	OVER A	OUTBOARD
BENDIX DISC— (NOT WITH 426-V8)	2883058	BAIL	B	—	INBOARD
BENDIX DISC— (WITH 426-V8)	2944376	BAIL	B	—	OUTBOARD
FLOATING CALIPER DISC	2883089	BAIL	—	—	OUTBOARD
BUDD DISC	2881870	BAIL	C	—	OUTBOARD

NOTE: Above list does not cover Police or Taxi vehicles, cars with the Trailer Towing Package or other optional equipment. Check your Parts Catalog listings.

Master
Technician



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