

MASTER TECHNICIANS
SERVICE CONFERENCE

REFERENCE BOOK
'72-4

DISC BRAKE SERVICE ROUNDUP

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CHRYSLER
MOTORS CORPORATION

Front Cover

Introduction Page & Table of Contents

Page 1 - Introduction Including General Precautions

Page 2 - Fixed-Caliper Brake Servicing Highlights

Page 3 - Fixed-Caliper Brake Servicing Continued

Page 4 - Part Three Of The Fixed-Caliper Brake Servicing

Page 5 - Colt & Cricket Repair Tips

Page 6 - Floating-Caliper Brake Servicing Hints

Page 7 - Floating-Caliper Repair Continued

Page 8 - Part Three Of The Floating-Caliper Brake Repair Tips

Page 9 - Floating-Calipers

Page 10 - Floating-Caliper Brakes Odds And Ends & Disc Brake Hydraulic System Control Valves

Page 11 - Disc Brake Hydraulic System Continued

Page 12 - Disc Brake Hydraulic Control Unit Continued

Page 13 - Pictures Of All The Various Hydraulic Control Units

Back Cover



INTRODUCTION

Since their general introduction a few years ago, disc brakes are now used on more and more Chrysler Corporation passenger cars and light-duty trucks either as standard or optional equipment. Two basic disc brakes are currently used, one a four-piston, fixed-caliper type for small-size cars; the other a single-piston, floating-caliper type for all of our other cars and light trucks.

Experience shows that disc brakes are dependable, durable, and practically trouble-free under all normal operating conditions. Relining is a simple job which takes about the same amount of time as the comparable operation on drum brakes. However, disc and drum brake servicing procedures differ, so the technician must familiarize himself with an additional set of do's and don'ts that are peculiar to disc brakes.

Under the heading of servicing advantages, new disc brake linings do not require any grinding as drum brakes do because the mating disc and lining surfaces are both flat. Also, because the lining clearance is directly self-adjusting, there is no need for any initial shoe adjustment.

General Precautions

- Because the caliper must be dismantled before the disc can be removed, the wheel, tire, and disc cannot be removed as an assembly.
- Be careful when removing or installing front wheels on a fixed-caliper brake installation to pre-

vent damage to a caliper bleed screw or to a hydraulic transfer tube.

- Correct front wheel bearing setting is very important to proper disc brake operation. Loose wheel bearing adjustment allows disc wobble which can produce excessive running clearance between the linings and the disc. Under these conditions, the brake pedal must travel farther than normal to apply the brakes.
- Piston dust boots must be intact and correctly installed to protect the pistons and bores against dirt, grit, and corrosive road splash. As with drum brakes, evidence of hydraulic fluid leakage around piston areas calls for inspection, repair, or parts replacement as necessary.
- When raising a vehicle on a hoist, position it on the lift so the disc brake splash shields are clear when the wheels are turned full left or right. A bent shield can scrape against the disc.
- Remember that the master cylinders used on disc brake vehicles do not have a residual pressure valve in the front brake (rearward) section. A valve here would hold low residual pressure in the system which would prevent proper brake shoe retraction and cause a light brake drag.
- Because the self-adjusting action can allow more than normal pedal travel after relining or other brake servicing, make sure that the brake pedal is firm before you move the car. Anything can happen if the pedal goes to the floor on the first push.



FIXED-CALIPER BRAKE SERVICING HIGHLIGHTS

The fixed-caliper-type disc brake currently used on Valiant, Dart, Cricket, and Colt models has four

pistons in each caliper assembly. The Valiant and Dart share the same size caliper, while the two sub-



compacts have smaller calipers which differ slightly in design details.

As the name suggests, the caliper housing of this brake is mounted in a fixed position on the steering knuckle and spindle assembly. Other than the disc, the only moving parts are the pistons and brake shoes.

EQUAL FORCE AT FOUR POINTS

When the pedal is pressed, equal hydraulic pressure is applied to all four pistons in each caliper, and since they are equal in size, the pistons press the shoes against the disc with equal force.

DUST BOOT SEALS OUT CONTAMINANTS

For protection, an expandable dust boot on each piston seals out road dirt and splash when the piston is extended or retracted. The boot covers the highly finished, chrome-plated sealing surfaces of the piston, but if it is punctured, torn, or improperly installed, contaminants can get through and piston scoring or corrosion usually results. The piston surface then roughens and causes seal leakage. Corrosion can make piston movement sluggish or may even cause the pistons to stick tightly in their bores.

PISTONS MUST MOVE FREELY

Jammed or sticking caliper pistons can be the basic cause of other braking problems. A hard pedal and reduced front brake efficiency can result from sticking pistons. Of course, the linings will wear out prematurely if pistons and shoes do not retract properly when the pedal is released.

STUCK PISTONS DO NO WORK

When a piston is stuck tight in its bore, it cannot

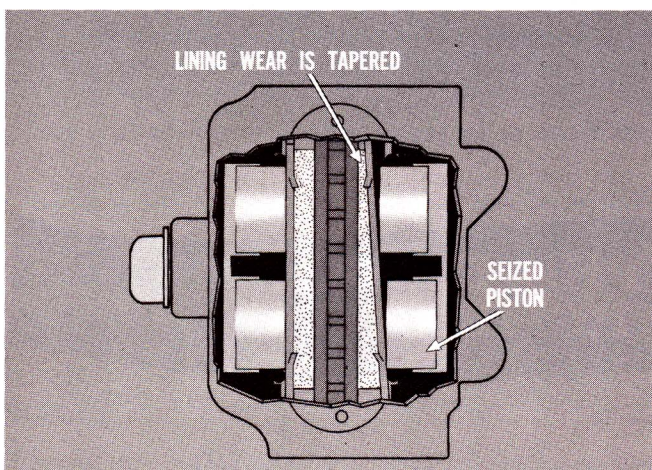


Fig. 1—Stuck piston causes uneven wear

apply any braking pressure on the shoe. As a result, when one brake caliper has stuck pistons, you will get brake pull toward the opposite side which is working properly. If only one piston in a caliper sticks, braking will be reduced, but usually there is little or no brake pull to either side.

LINING WEAR IS A CLUE

If both pistons stick or jam on one side of the caliper, the efficiency of that brake is greatly reduced. When only one piston sticks, lining wear is uneven and tapered, with the thick end over the seized piston.

CHECK PISTON MOVEMENT

Before you remove a caliper for any reason, check the pistons for free movement. Bridge the open end of each piston with a piece of metal so you can apply even force and then squeeze the piston back into its bore with plier pressure.

MAKE ROOM FOR NEW LININGS

When installing new shoes after checking piston movement, you can make the job easier by pushing all the pistons back into their bores to provide clearance for the new, thicker linings. Here you bridge both pistons on one side of the caliper at the same time so you can force them into their bores evenly. Remember that moving the pistons into their bores raises the fluid level in the master cylinder reservoir. Check the level first, and if full, remove enough fluid to prevent an overflow when the pistons are pushed in.



Fig. 2—Moving pistons back raises level

INSPECT FOR CORROSION

Any caliper piston that requires excessive movement pressure or feels rough when forced inward must be inspected for corrosion. For a good look,



you'll have to remove the caliper from the car so you can pull the pistons out of their bores.

DON'T DISTORT THE TUBE

Before you separate the caliper housing sections, disconnect the transfer tube so it won't be bent or distorted. The tube is specially shaped and routed over a ledge on the caliper end to keep it away from the rim of the disc, but if bent outward, it might scrape on the inside of the wheel.

SOFT JAWS ARE A MUST

When working on a caliper in a vise, be sure to use soft jaw facings so you won't damage caliper mounting or mating surfaces. In all cases, do not grip the housing in a way that can distort the bores or jam the pistons.



Fig. 3—Piston cocking can cause damage

USE SPECIAL PULLING TOOL

With the caliper housing sections separated, peel off the dust boots and remove the pistons with the C-3999 Special Tool. Do not try to remove pistons by prying because they may cock and cause serious damage to the pistons and bores.

REMOVE SEALS WITH CARE

Use a pointed wood or plastic stick to remove piston seals from the caliper grooves. Screwdrivers or similar tools with sharp edges can scratch the bore surfaces and may burr the seal groove edges, either of which can result in leaks. Discard used seals and dust boots whenever pistons are removed.

REPLACE OR RECONDITION PARTS

Pistons which are scored or pitted, or those with the chrome plating worn through must be replaced. Lightly scratched or rusted bores can be cleaned up



Fig. 4—Protect bores and grooves

with crocus cloth. Those with deep scratches or scoring can usually be restored to acceptable condition by honing. Seal groove edges must be in good condition to properly retain a seal ring and to keep it in tight contact with the piston.

OIL RUINS RUBBER PARTS

Of course, you've got to wash the parts after honing, but do not under any circumstances, use kerosene or any other oil-based solvents because they will ruin seals and other rubber parts in the brake hydraulic system. Flush or scrub the parts thoroughly with clean brake fluid or alcohol to make sure that there is no oil, grease, or grit in the passages or seal grooves. Ordinary rubbing alcohol is inexpensive and does a good cleaning job.

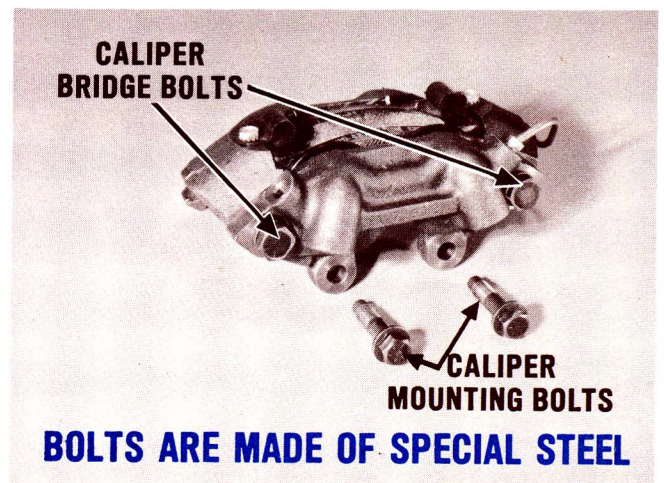


Fig. 5—Re-use original bolts

BOLTS ARE MADE OF SPECIAL STEEL

The caliper bridge bolts and mounting bolts are made of special tensile strength steel to withstand

maximum braking stresses. For this reason, it is important to re-use the same special bolts when assembling and installing the caliper. Be sure to torque these bolts properly so they will not stretch or loosen.

CLIP POSITION IS IMPORTANT

If a new brake hose is installed, the hose retaining clip must be installed properly on the hose mounting bracket or it may catch and pull loose. Just make sure that the open end of the installed clip faces away from the caliper.

DISC MUST RUN TRUE

Don't overlook the importance of checking the brake disc for runout and thickness variation before you reinstall a caliper, or when there is a complaint about excessive pedal travel or brake operating roughness.

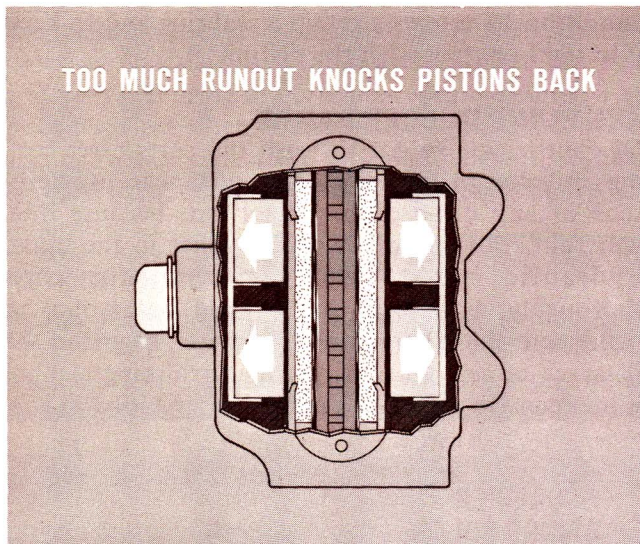


Fig. 6—Runout widens lining clearance

LINING CLEARANCE AFFECTS PEDAL TRAVEL

Too much disc runout knocks the pistons back into their bores and this increases the running clearance of the linings. This unwanted clearance must be taken up before the linings contact the disc to produce braking, so the pedal has to travel farther than normal.

THICKNESS VARIATION CAUSES PULSATION

Brake roughness or pedal pulsation is the usual result of excessive variation in disc thickness. In this case, the pistons move in and out as they follow disc thickness variations and this causes pedal pulsation and braking vibration.

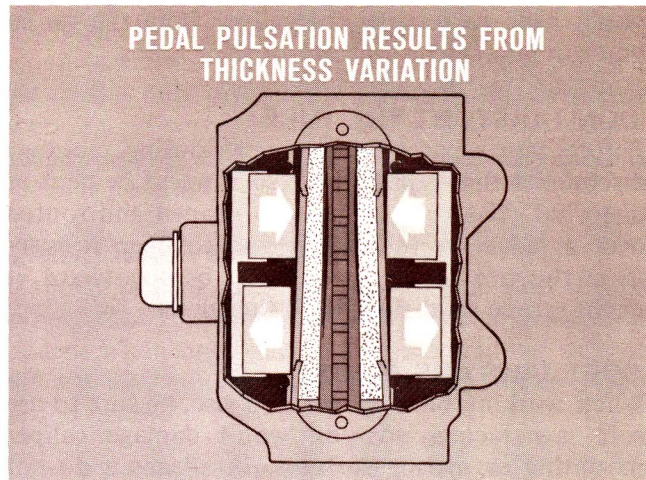


Fig. 7—Pistons move in and out

BEARING ADJUSTMENT IS IMPORTANT

Don't forget that accurate disc runout checking and good brake operation are both affected by wheel bearing adjustment. If the disc wobbles because of loose bearings, the effect can be the same as with excessive runout or thickness variation.

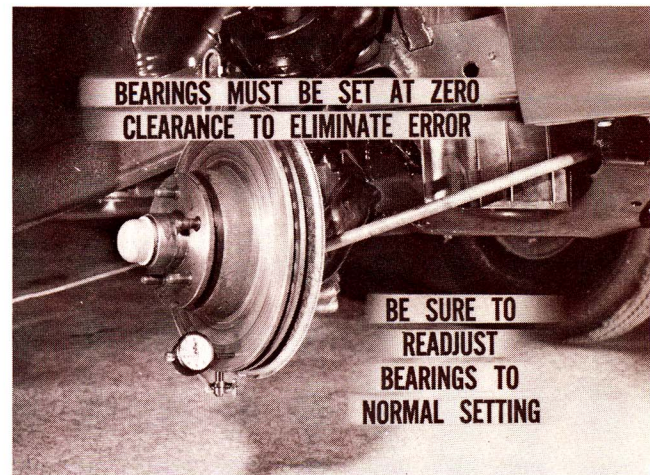


Fig. 8—Adjust bearings correctly

USE ZERO CLEARANCE FOR CHECKING

A fixed-caliper disc should be replaced if its runout exceeds specified limits. These limits are quite narrow, so the wheel bearings must be set at zero clearance to eliminate indicator error. If the disc checks out okay, be sure to readjust the bearings to the normal setting.

Cricket-Colt Fixed-Caliper Service Hints

On some Crickets, you may find the front brake lining worn out prematurely as a result of brake



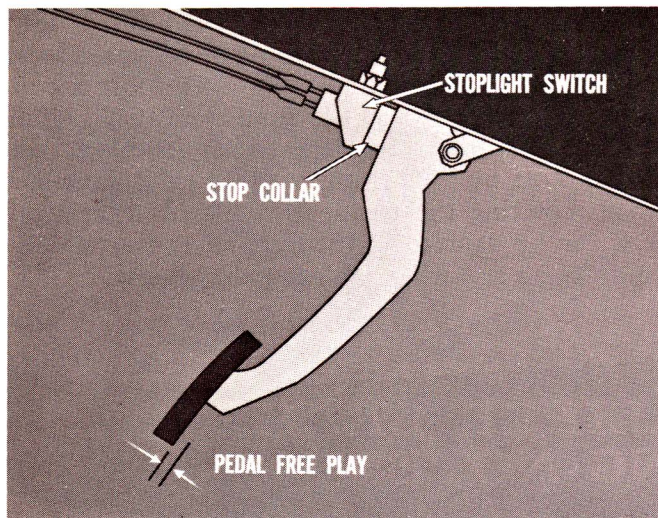


Fig. 9—Collar compression loads pedal

drag. When you find this condition, be sure to check the brake pedal for the specified free play. If the pedal stop collar on the stoplight switch must be compressed to make the lights shut off, it can remove all the free play and may even produce light pedal pressure. The best remedy for this condition is to remove and discard the stop collar so you can get the correct pedal clearance.

VALVE MUST OPEN

In addition to eliminating the possibility of unwanted pedal pressure, pedal free play is also needed to make sure that the compensating valve in the master cylinder can open properly when the pedal is released. The valve must open to relieve system pressure and permit full brake shoe retraction. If a small amount of pressure is trapped in the system, the brakes can drag.

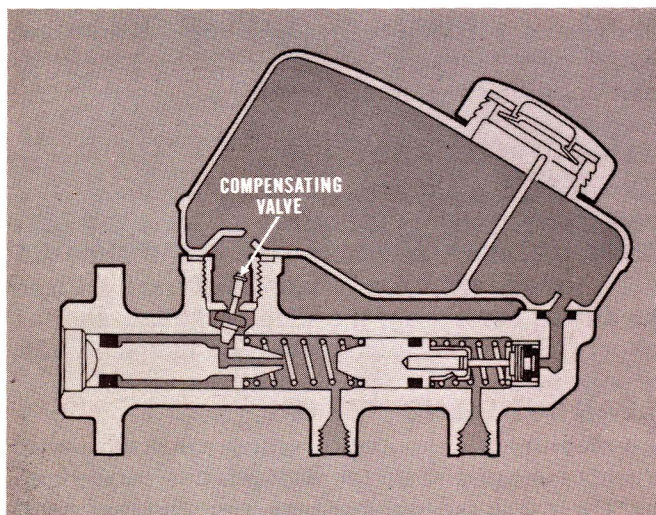


Fig. 10—Valve relieves system pressure

SWITCH MUST BE RESET

The Cricket brake warning light switch does not reset automatically and the signal will remain lighted until the switch piston is moved back to neutral position by hydraulic pressure. Once the reason for the pressure drop in either system is corrected, bleeding the other system allows the higher pressure to reset the piston and shut the light off.

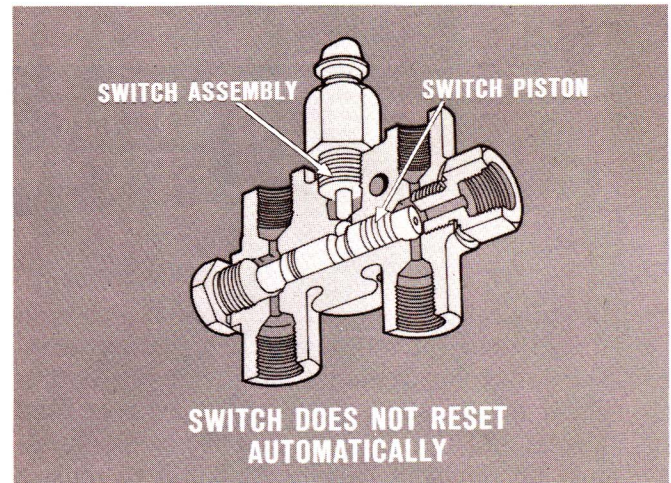


Fig. 11—Bleed brakes to recenter piston

PISTON CAN MOVE PAST CENTER

When Cricket brakes are bled for any reason, the job must be done carefully, following the procedure given in the Service Manual. If too much pressure is applied, the switch piston may be forced out of, or past, neutral position and the warning light will light and stay on.

TURN 'EM UPSIDE DOWN

On some Colts, you may get a wire brush squeal, which is heard when starting to move the car or

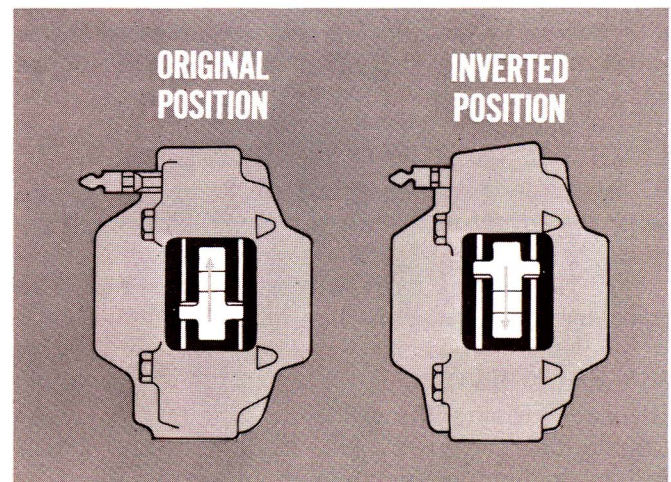


Fig. 12—Invert caliper cross springs

while driving at slow speeds. This is a high-frequency vibration sound which can usually be corrected by inverting the brake shoe cross springs to put the long ends down instead of up.

SHORT CIRCUIT MAKES LIGHT GLOW

Don't jump to conclusions when you find a Colt with a brake warning light which shows a dull glow. On these cars, the switch piston resets auto-

matically and the light should go out completely when no pedal pressure is applied. In most cases, the dull glow is caused by an internal short circuit which can be corrected by installing a new switch terminal. Because the switch piston center section is sealed off by "O" rings, no bleeding is necessary when replacing the terminal. The switch terminal seals can be damaged if the terminal is overtightened, so be careful when replacing these parts.



FLOATING-CALIPER BRAKE SERVICING NOTES

The floating-caliper-type disc brake is available on light-duty trucks and all passenger cars except compact and sub-compact models. Servicing procedures are similar to those for the fixed-caliper type used on Valiants and Darts except that the caliper housing must be removed from the adapter to replace the brake shoes.

BRAKE SQUEAL AT LOW SPEEDS

As with other brakes, some floating caliper brakes produce noise under certain conditions. Typically, this is a high-pitched squeal that sounds off on light brake applications at speeds generally below forty miles an hour.

SHOE VIBRATION CAUSES NOISE

The usual cause of the squealing noise is a vibrating, metal-to-metal contact between the back plate of the outboard shoe and the caliper fingers. Of course, such things as badly worn linings, scored discs, worn guide pins or pin bushings and corroded pistons can also cause noise and should be corrected first.

STABILIZE SHOE TO QUIET NOISE

If inspection shows the brake to be in good condition, the vibration sound can be quieted by stabilizing the outboard brake shoe with contact cement. The caliper must, of course, be removed so the cement can be properly applied.

PRY BACK PISTON

Before removing the guide pins to dismount the caliper, pry the piston into its bore so the caliper will be easier to reinstall. Simply insert a bar into one of the cooling pockets in the disc rim and pry

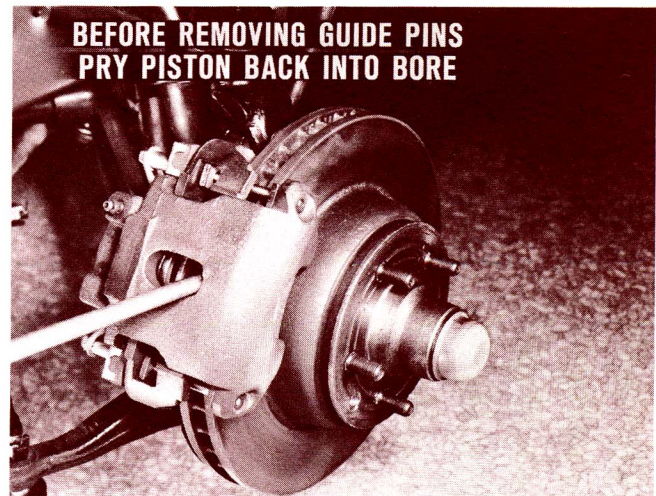


Fig. 13—Guard against boot damage

against the outer side of the caliper hole, being careful not to disturb the dust boot. Remember that it only takes a small nip or cut to let dirt or road splash through the protective boot.

REMOVE OUTBOARD SHOE

Take out the guide pins and slide the caliper off of the adapter. Support the caliper to keep its weight off of the brake hose and remove the outboard shoe so the cement can be applied correctly. Clean the dirt and rust from the shoe back plate and the caliper finger surfaces which bear on the plate.

CLEAN BUT DO NOT POLISH

Use medium-grit sandpaper, emery cloth or a wire brush to clean the metal surfaces but leave them slightly rough so the cement can make a good bond. Be careful to keep grease and oil away from





Fig. 14—Coat shoe and caliper surfaces

the lining surfaces or the job may bounce back with a hard pedal or brake pull, even though the noise is gone.

LAY IT ON

When all the parts are cleaned, apply a thick coating of Cycleweld cement (Part No. 3683897) in a band across the back of the outboard shoe and on the shoe contacting surfaces of the caliper fingers. Allow the cement to air-dry for at least fifteen minutes or until the surface of the coating dulls.

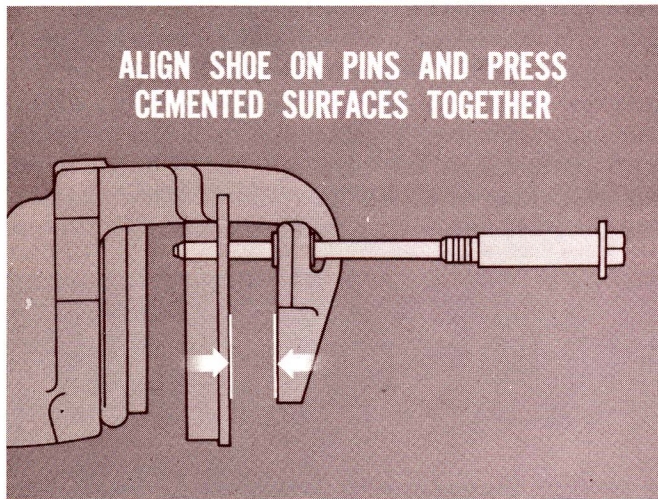


Fig. 15—Shoe alignment must be correct

ALIGN SHOE ON GUIDE PINS

To properly position the coated outboard shoe, insert the caliper guide pins backward through the small outboard bushings so they extend in toward the piston about one inch. Then, align the shoe on the pins, press the cemented surfaces together and pull out the guide pins.

LEAVE SPRING OFF

Position the caliper on the adapter and install the guide pins in the correct manner. The cement attachment eliminates the need for the anti-rattle spring, so it can be left off. This is the reason why you'll find new, current model car and light-duty truck disc brakes without anti-rattle springs.

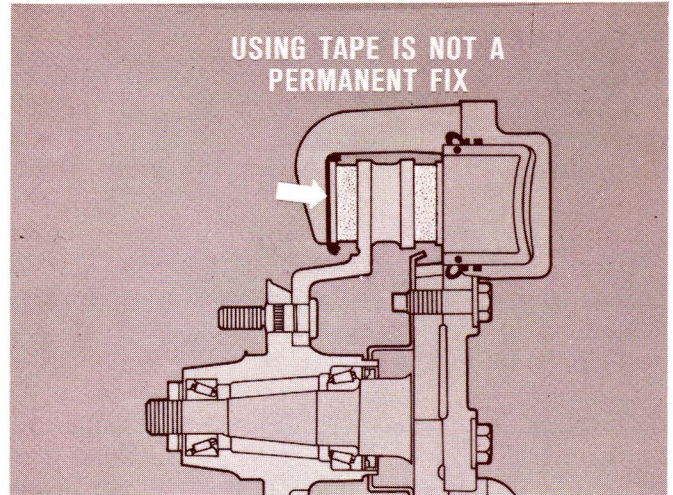


Fig. 16—Noise will return

WARNING: Do not use masking tape or other temporary substitutes in place of contact cement to stabilize outboard shoes because the fix is not permanent and the noise will return.

DUST BOOT MUST BE INTACT

As with fixed-caliper-type brakes, you'll find that a punctured, torn, or improperly installed dust boot can result in piston corrosion or scoring in a floating-caliper brake.

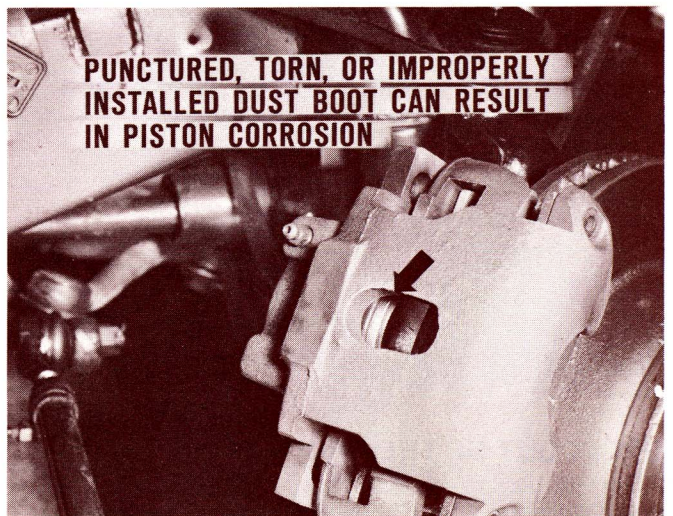


Fig. 17—Inspect boot carefully

OPEN FOR INSPECTION

When you suspect a stuck or slow-moving piston, inspection is the answer. Here again you can make the job easier if you pry the piston back into its bore before removing the caliper. In fact, when relining, you can check for free piston movement and force the piston back to accept the new, thicker linings in one step.

PRESS THE PEDAL SLOWLY

To remove a stuck floating-caliper piston you can use brake system hydraulic pressure. Support the caliper assembly on the upper control arm using shop towels or a pan to catch the brake fluid. Slowly press down the brake pedal to push the piston out of its bore. You'll feel a drop in pedal pressure when the piston is out. The pedal should be propped up after the piston is out to prevent additional loss of brake fluid. Be sure that you don't get fluid on the linings.

CAUTION: Do not under any circumstances try to remove a caliper piston with air pressure. The stuck piston can break loose suddenly and cause serious damage or personal injury.



CLEARANCE MUST NOT EXCEED .006"

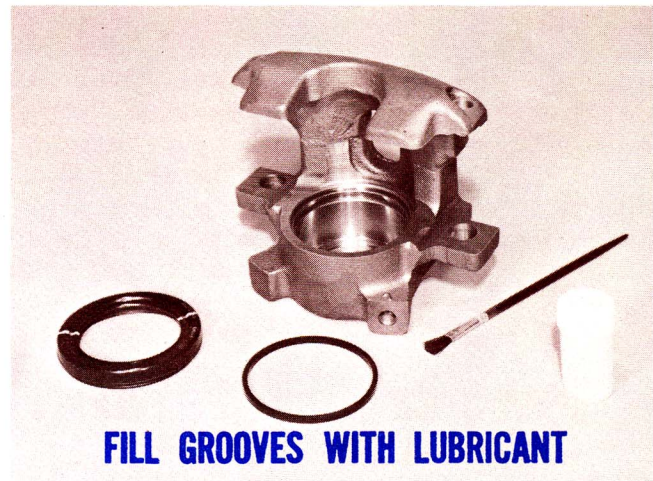
Fig. 18—Measure with seal out

DON'T EXCEED LIMITS

If the bore is honed to clean up pits or deep scratches, piston clearance must not be greater than .006 of an inch. To check clearance, leave the seal out and measure the space between the piston and the bore wall with a feeler blade.

GET IT OUT OF THE GROOVES

After honing a caliper bore, be sure to clean the seal and dust boot grooves carefully with a stiff bristle brush. Flush out all grit from the grooves



FILL GROOVES WITH LUBRICANT

Fig. 19—Lube serves as rust preventive

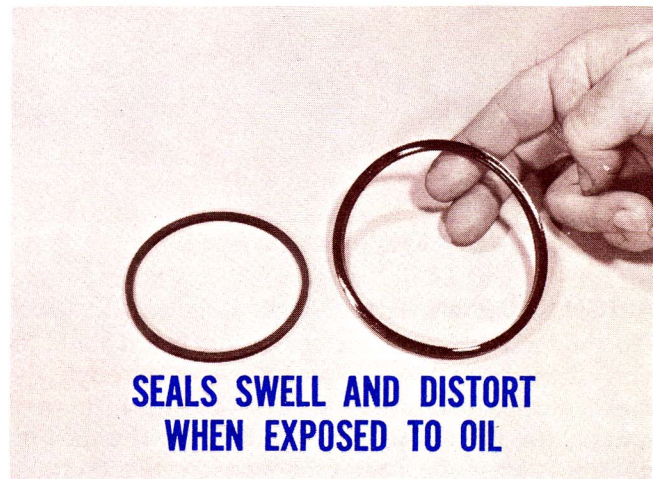
and passages with clean brake fluid or alcohol and wipe the grooves dry with lint-free cloth.

APPLY LUBRICANT FIRST

Before you install a new piston seal and dust boot, fill the grooves with the Ucon lubricant (Part No. 3579255) packed in the seal kit. This special lube is compatible with brake fluid, and can be used without fear of contamination. It serves as a rust preventive to protect the bore and makes the piston and dust boot easier to install.

THE WORD IS CLEAN

The importance of keeping brake hydraulic parts clean cannot be over-emphasized for two major reasons. First, any foreign particles in the system can cause scoring of parts and may also interfere with correct control valve operation. Second, the slightest trace of oil in the system or from careless handling will cause seals to fail prematurely.



**SEALS SWELL AND DISTORT
WHEN EXPOSED TO OIL**

Fig. 20—Use clean brake fluid or alcohol



OIL SWELLS SEALS

Brake hydraulic system seals and other rubber parts work well with brake fluid but will swell and distort when exposed to oil or petroleum-based cleaning solvents. To observe the effects of oil on these parts, try leaving a piston seal in a pan of oil for a day or two.

CLEAN HANDS FOR CLEAN PARTS

Before assembling any hydraulic parts, the careful technician will clean his hands to get rid of dirt, oil, or grease which can cause contamination. Generally speaking, all seals, pistons and other similar parts should be thoroughly lubricated with clean brake fluid before assembly.

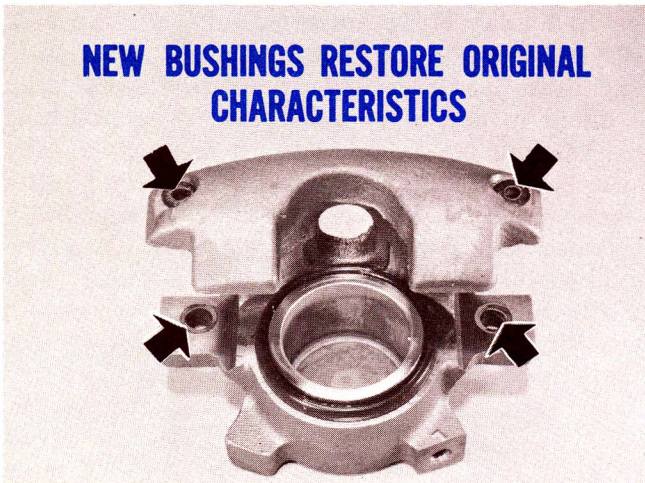


Fig. 21—Replace bushings on reline

USE NEW BUSHINGS

Be sure to install new guide pin bushings when you reline the brakes. New bushings restore the original braking and self-adjusting characteristics which are

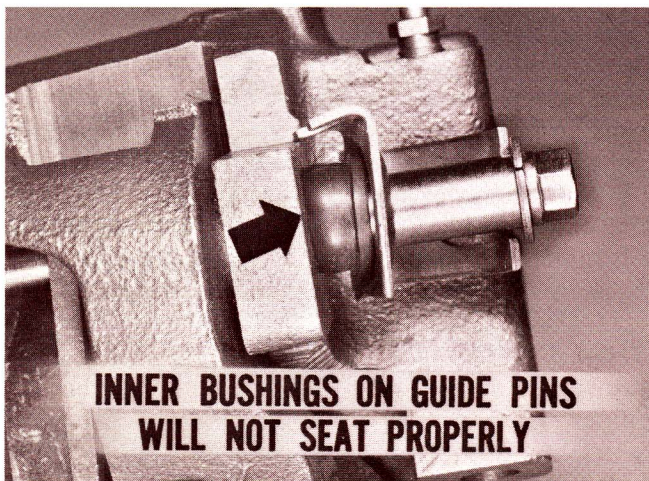


Fig. 22—Guide pins expand bushings

affected by the friction of the bushings moving on the guide pins.

BUSHINGS EXPAND ON PINS

Before you install the relined caliper, be sure to seat the new guide pin bushings in the caliper holes. If you slip the inner bushings on the guide pins first, they expand larger than the caliper holes and will not seat properly.

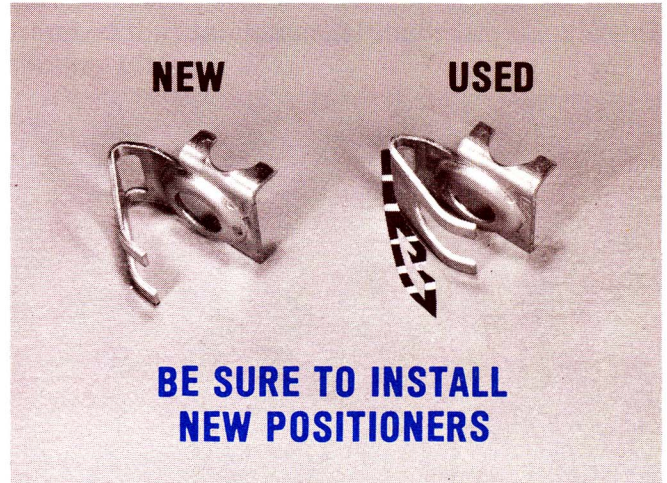


Fig. 23—Used positioners close up

DISCARD USED POSITIONERS

Always install new caliper positioners on reline jobs because the used ones remain closed up as a result of compensating for lining wear. In this closed condition they cannot retain the inner bushings properly when the new linings are installed.

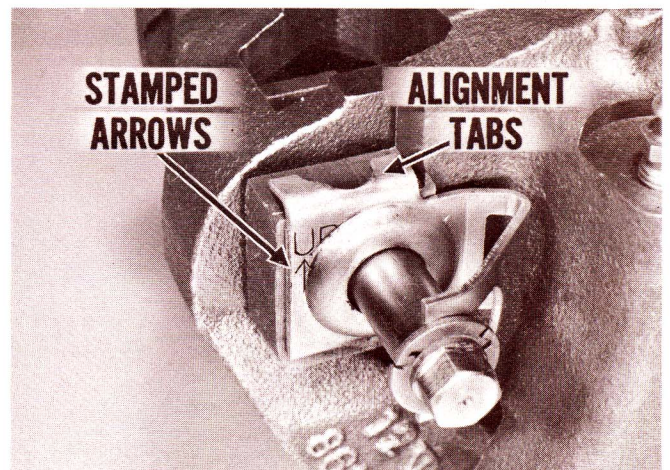


Fig. 24—Install positioners correctly

INSTALL POSITIONERS PROPERLY

The upper and lower positioners are different and must be installed with the stamped arrows pointing



upward and the alignment tabs seated on the machined caliper surfaces. If not installed properly, the positioners will collapse when the guide pins are installed.

Floating-Caliper Odds and Ends

You may have noticed that disc brake outboard linings usually show less wear than the inboards. This is a normal condition and should not be inter-

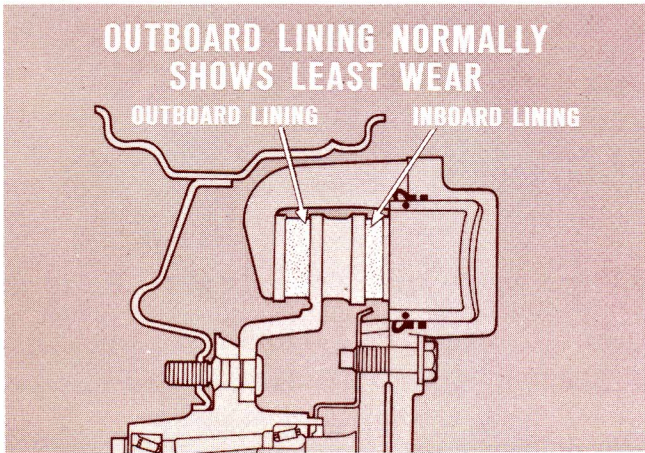


Fig. 25—Wheel protects lining

preted as a brake defect. The wheel practically encloses the outboard side of the caliper so it is not exposed to as much gritty dirt and road splash as the inboard side. It's as simple as that!

REMOVE CALIPER ONLY

As mentioned elsewhere, the floating caliper must be removed to reline the brake. However, some brake men, for various reasons, do the job the hard way by removing both the caliper and the adapter as an assembly. This, of course, is unnecessary and extra work because, as everyone should know, you simply remove the caliper guide pins and slide the caliper off to remove the shoes.

CHECK THE HOSES

All hydraulic brake hoses should be inspected every six months or 6,000 miles on vehicles in general use, and every three months or 4,000 miles on those in police or taxi service. A twisted hose that takes a set or rubs against some other part must be replaced. A hose with a cracked outer cover should be replaced because it will admit moisture which will cause further hose deterioration. A split or cracked hose cover can also result in ballooning or hose rupture, either of which will cause brake failure. Fluid seepage around the hose end fittings also calls for hose replacement.



DISC BRAKE HYDRAULIC SYSTEM CONTROL VALVES

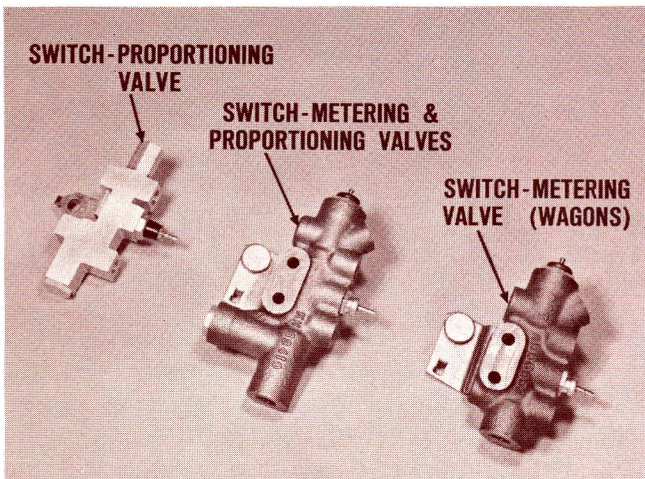


Fig. 26—Typical system control units

Since disc brakes operate at higher pressures than drum brakes, some form of control valve is used on these systems to regulate brake operating pressures, front and rear. A new, one-piece control valve unit for 1972 models replaces the separate proportioning and metering valves used on some 1971 cars. The complete disc brake hydraulic system control valve lineup for our 1972 model cars and light-duty trucks is covered in the following paragraphs.

THREE UNITS FOR CARS

Starting with cars, the Valiant and Dart fixed-caliper system uses a combined brake warning switch and proportioning valve unit. In comparison, the floating-caliper system control unit combines a brake warning switch with metering and



proportioning valves, except on Station Wagons, where the unit is a combined warning switch and metering valve.

CONTROL UNIT IS A CARRYOVER PART

The switch and proportioning valve unit is the same one-piece, brass-bodied assembly used on the 1971 Valiant and Dart models. The spring-loaded switch piston resets automatically and turns the light out. Except for the switch terminal, which can be replaced separately, this control unit is serviced only as a complete assembly.

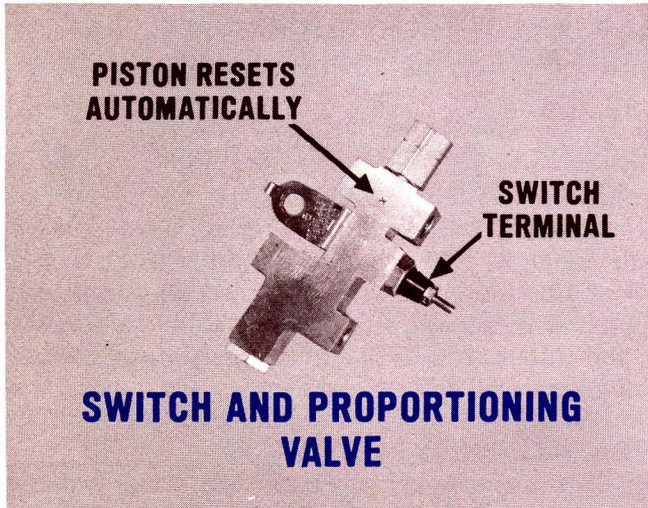


Fig. 27—Used on compact-size models

THREE-IN-ONE UNIT

The new combined warning switch, metering valve, and proportioning valve unit for the floating caliper system has a cast-iron body which resembles

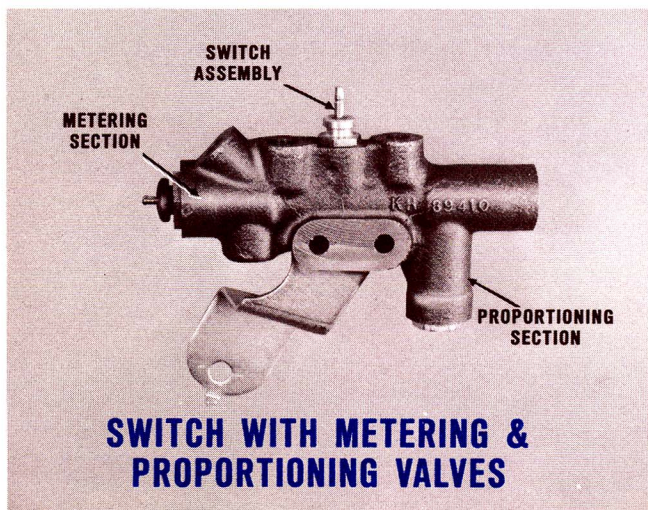


Fig. 28—Used in medium- and full-size Sedans and Hardtops

the switch and metering valve unit used on all full-size 1971 models and all 1972 Station Wagons. Here again, except for the warning switch assembly the valve is serviced by complete replacement.

VALVE BLOCKS OFF FRONT BRAKES

The metering valve section of the new control unit blocks off the front brakes when system pressure is between 3 and 135 pounds. This allows pressure to build up at the rear brakes before the front brakes to provide good directional and braking control on slippery surfaces.

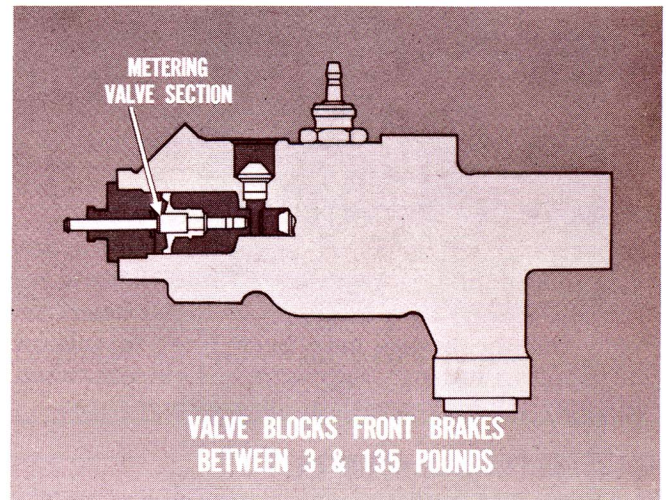


Fig. 29—Valve acts as a shut-off

VALVE REGULATES PRESSURE

The proportioning valve section in the unit operates as the name suggests. It regulates front brake pressure and rear brake pressure in proportion to prevent premature rear brake locking on hard brake applications.

EQUAL PRESSURE FOR EASY STOPS

On light brake applications, the proportioning valve allows equal pressure front and rear, because this pressure is usually not high enough to lock the rear brakes. However, in a hard pedal application, front brake pressure may reach 800 pounds, so the valve reduces rear brake pressure in proportion.

SWITCH OPENS VALVE BYPASS

In the warning switch section of the new unit, a pressure drop on either side allows the higher opposing pressure to move the piston off-center and this pushes the switch plunger upward. When the piston moves into the front brake section of the unit, it also opens a proportioning valve bypass to allow full system pressure at the rear brakes.

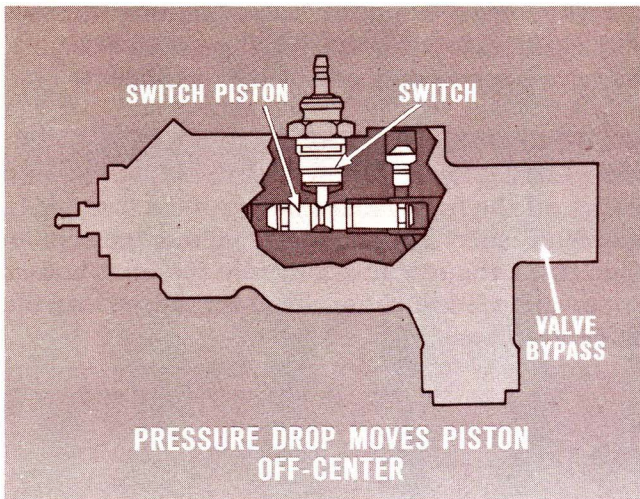


Fig. 30—Piston operates switch plunger

PRESSURE RESETS SWITCH PISTON

The warning switch piston in the new unit is not spring-loaded and is reset by hydraulic pressure. After the cause of the brake problem has been corrected and the brakes have been bled, the piston will recenter and put the warning light out when you apply the brakes with moderate force.

HOLD METERING STEM OUT

Brake bleeding with the new system control unit is essentially the same as with the earlier two-piece installation. For pressure bleeding, the metering valve stem must be held out with a holding tool to override the valve's shutoff action. Other brake bleeding procedures are covered in detail in the Service Manual.

VERTICAL VALVE TRAPS AIR

On Barracuda, Challenger, and intermediate-size models, the brake system control valve is mounted vertically. Air can be trapped in the rear section of these valve units unless special bleeding procedure is used.

TURN THE LIGHT ON

To properly bleed the brakes where a vertical-mount control valve unit is used, you turn the ignition switch on and make sure that the parking brake is off. Then crack either front caliper bleed screw and press the pedal to move the switch piston and turn the warning light on. Next, you bleed the rear brakes, then the front brakes, and finish by resetting the switch piston with moderate pedal application force.

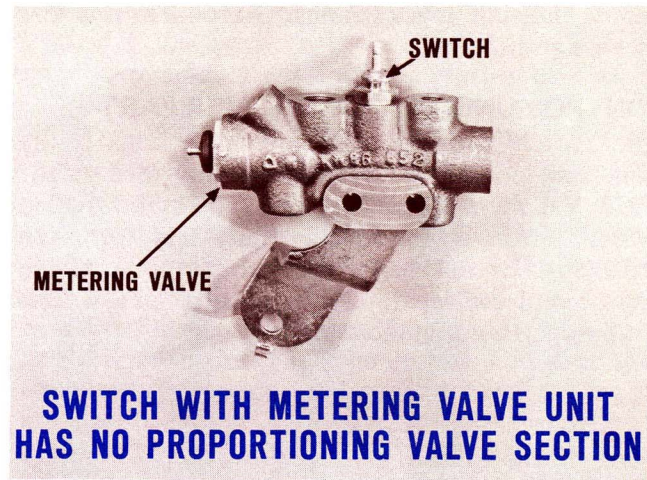


Fig. 31—Used on Station Wagons

SIMILAR BUT DIFFERENT

The warning switch with metering valve control unit used on 1972 model Station Wagons works essentially the same as the three-section unit except that it has no proportioning valve section. As in the three-section valve, only the warning switch can be replaced as a separate part.

SEPARATE UNITS FOR TRUCKS

On light-duty trucks, two basic disc brake systems are used. The B100 and B200 Compact Wagons and Vans have a proportioning valve and a separate brake warning switch. The B300 Compact Wagon and D100 through D300 Pickups have a brake warning switch only. The warning switches reset automatically and servicing is on the same unit-replacement basis as passenger cars.

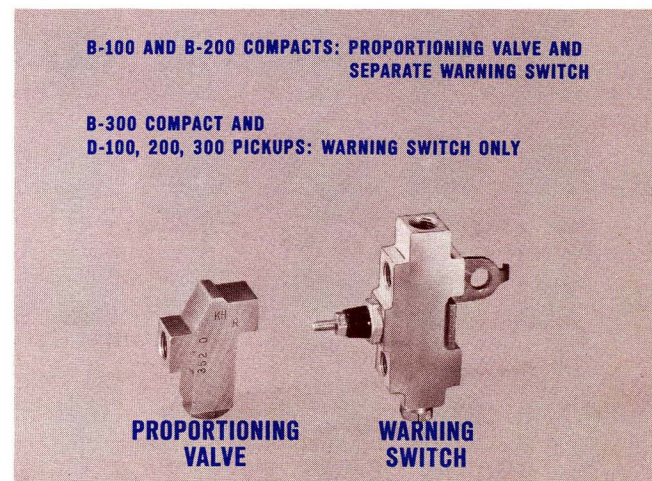
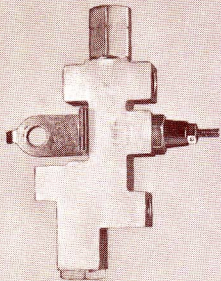


Fig. 32—Used on light-duty Trucks

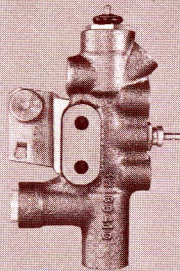
1972 DISC BRAKE HYDRAULIC SYSTEM CONTROL UNITS

**WARNING SWITCH-PROPORTIONING
VALVE UNIT**



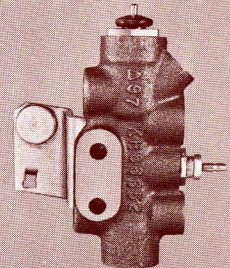
VALIANT & DART

**SWITCH-METERING & PROPORTIONING
VALVE UNIT—VERTICAL MOUNT**



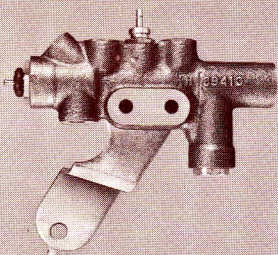
SATELLITE & CORONET—(EXCEPT
STATION WAGONS)
BARRACUDA & CHALLENGER

**SWITCH-METERING VALVE UNIT
—VERTICAL MOUNT**



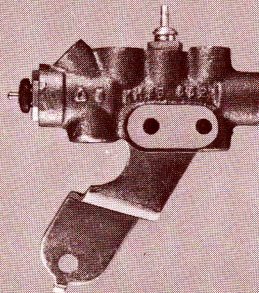
SATELLITE & CORONET
STATION WAGONS

**SWITCH-METERING & PROPORTIONING
VALVE UNIT—HORIZONTAL MOUNT**



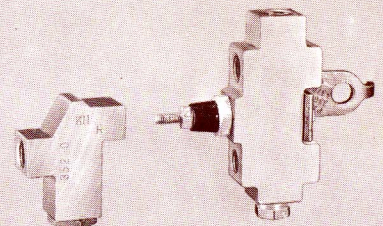
FURY, POLARA, MONACO, ROYAL,
NEWPORT, NEW YORKER, IMPERIAL
—EXCEPT STATION WAGONS

**SWITCH-METERING VALVE UNIT
—HORIZONTAL MOUNT**



FURY, POLARA, MONACO,
TOWN & COUNTRY WAGONS

**WARNING SWITCH-
PROPORTIONING VALVE**



VALVE

SWITCH

B100-200 COMPACT WAGONS, & VANS
—VALVE & SWITCH
B300 COMPACTS & D100-200-300
PICKUPS—SWITCH ONLY



**Master
Technician**

