

GROUP 5
SERVICE BRAKES

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DATA AND SPECIFICATIONS

ALL MODELS

Type	Hydraulic Total Contact Internal Expanding
Drum Diameter (Front—Rear)	
SC-1, Newport	(122" Wheelbase) 11"
SC-2, C-300H	(122" Wheelbase) 12"
SC-1, Town and Country	(122" Wheelbase) 12"
SC-3, New Yorker (incl. Town & Country)	(126" Wheelbase) 12"
SY-1, Imperial	(129" Wheelbase) 12"

DATA AND SPECIFICATIONS—CONT'D.

Lining Type.....	Molded Asbestos
Attached to Shoes by.....	Cyclebond
Width—All Models.....	Front 2½" Rear 2½"
Thickness.....	.170"
Brake Shoe Return Spring Tension—	
Pounds—Front.....	45 to 55
Pounds—Rear.....	45 to 55
Per Cent of Braking Torque—Rear Wheels.....	40
Diameter of Wheel Cylinder Bore.....	1⅛"
Diameter of Master Cylinder Bore.....	1⅛"
Piston Cylinder Clearance (All Bores).....	.003" to .0065"
Brake Pedal Free Play (Power Brakes).....	⅛" to ⅜"

TIGHTENING REFERENCE

	Foot-Pounds	Inch-Pounds
Rear Wheel Brake Support to Axle Housing.....	35	
Front Wheel Brake Mounting Bolt.....	55	
Wheel Cylinder Mounting Bolt.....		200
Master Cylinder Cover Bolt.....		50
Pedal Bracket Nut.....	20	
Pedal Shaft Nut.....	20	
Transmission Shaft Flange Bolt Nut.....		95
⅝".....		
⅜".....	35	
⅞".....	50	

GROUP 5

SERVICE BRAKES

The service brakes used on the 1962 Chrysler and Imperial Models are known as the three-platform type Total Contact Brakes (Figs. 1 and 2).

The brake assemblies (Figs. 3 and 4) are comprised of dust shields, brake shoes, return springs and wheel cylinders.

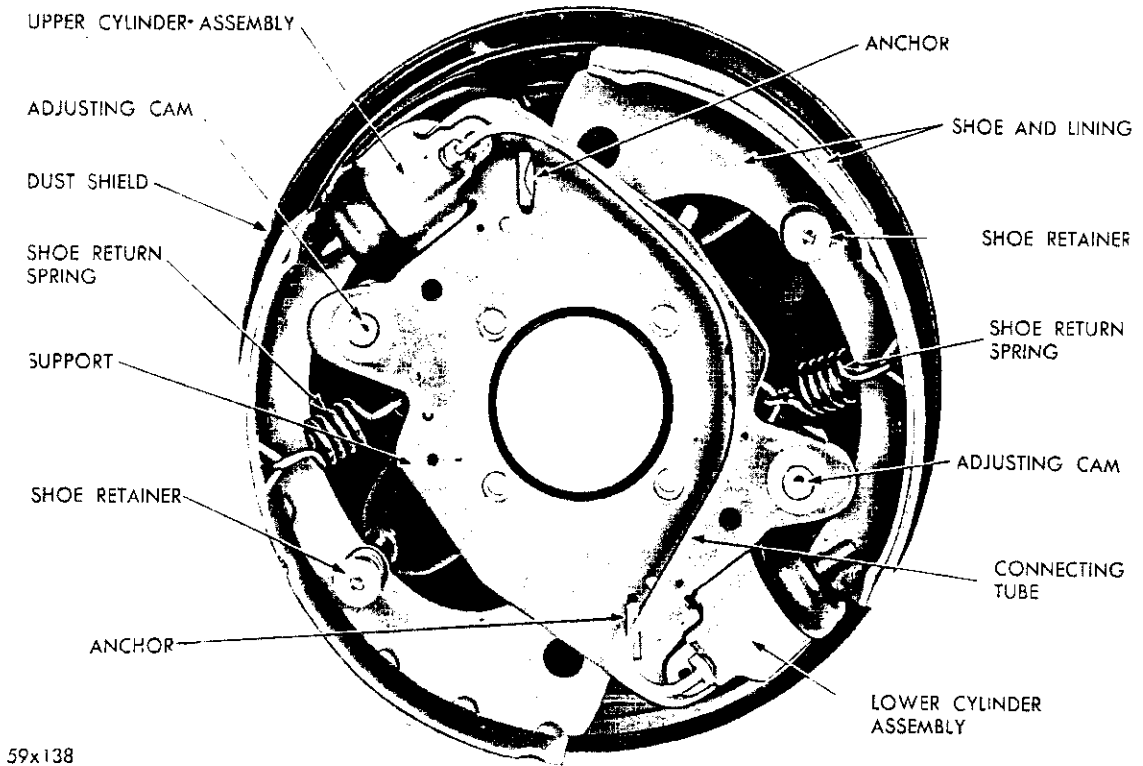


Fig. 1—Total Contact Brakes (Front) (Assembled View)

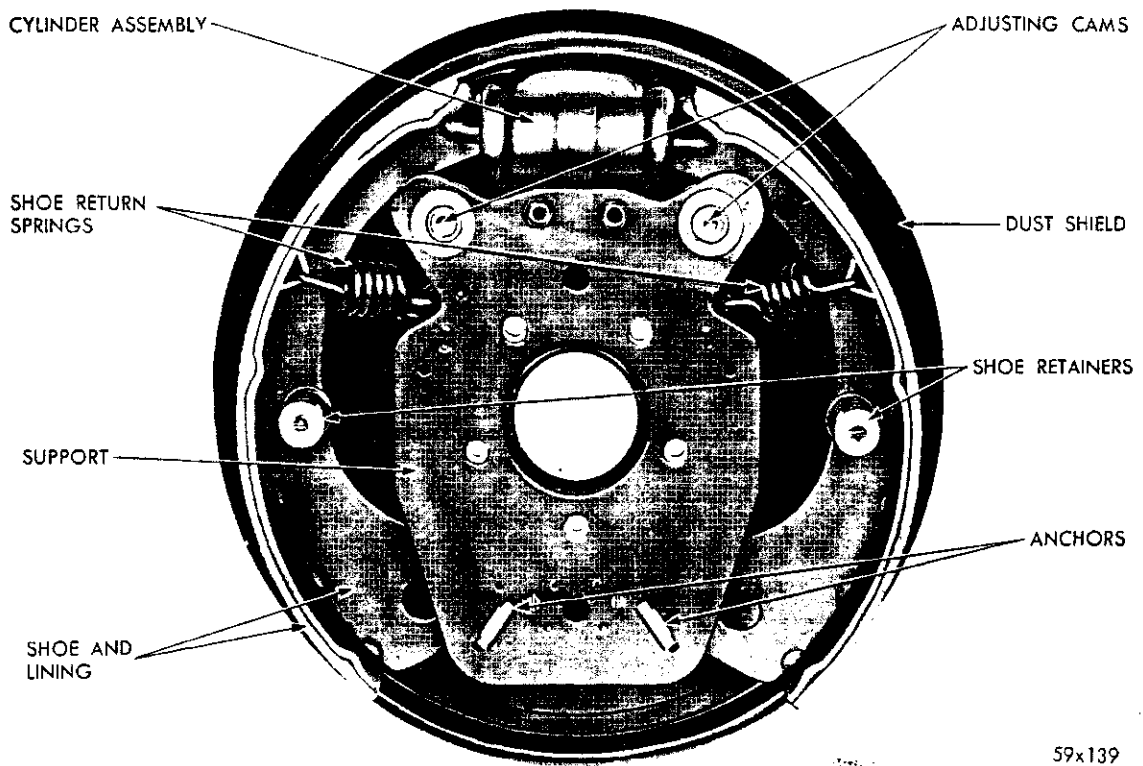


Fig. 2—Total Contact Brakes (Rear) (Assembled View)

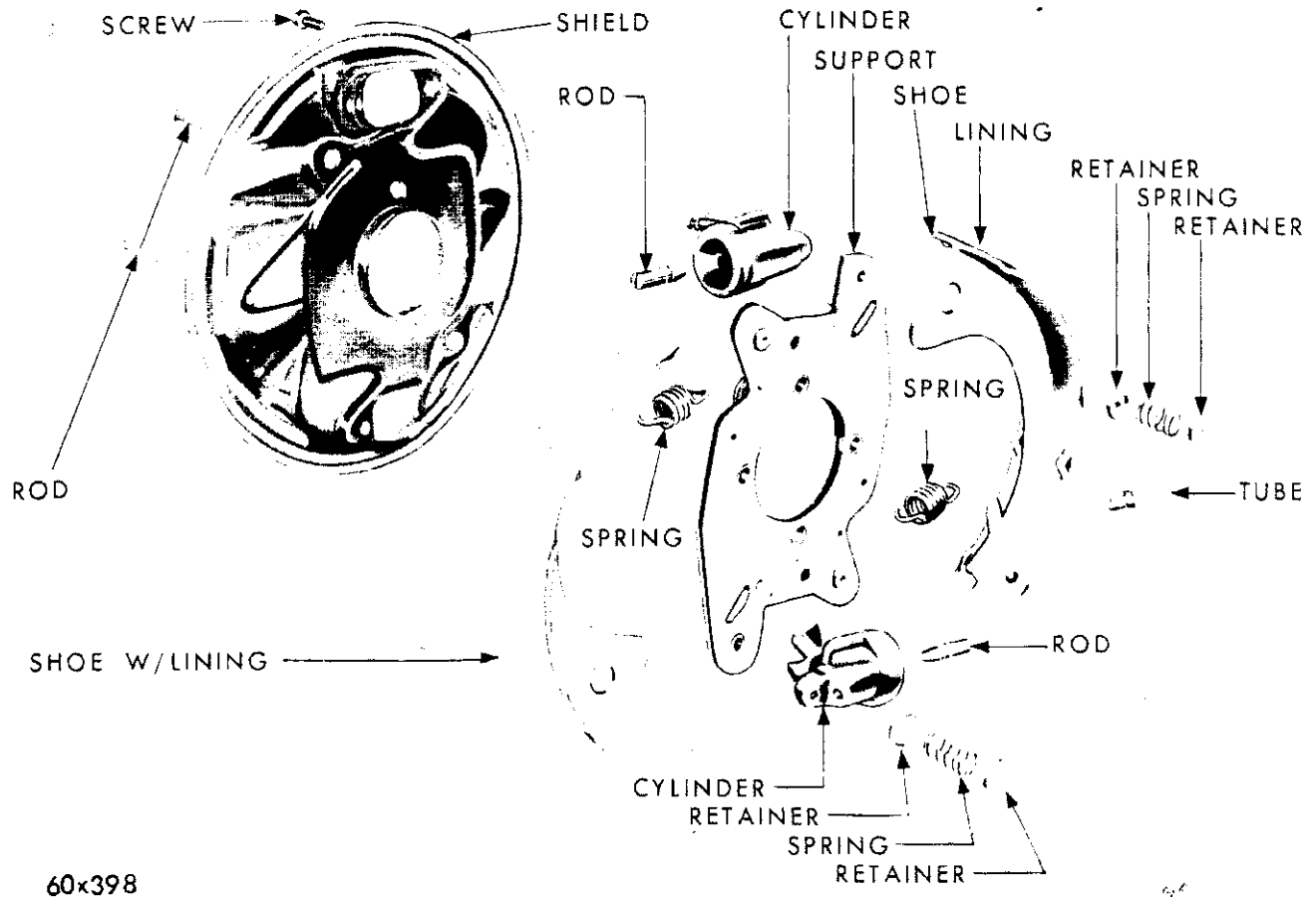


Fig. 3—Total Contact Brakes (Front) (Disassembled View)

Brake shoe support is obtained by locating the brake shoes on three raised platforms pressed into the dust shield. Each brake shoe is located on three platforms of the dust shield and guided by the three companion contact loops on the brake shoe (Fig. 5).

The four shoes in the front wheel brakes and the two forward shoes in the rear wheel brakes are self-energized when the car is moving forward. These shoes are adjusted in the same direction while the remaining rear shoes in the rear wheels are ad-

justed in the opposite direction, as shown in Figure 6.

CAUTION

To prevent brake drum distortion, great care should be taken when changing wheels so that the wheel is properly seated and wheel stud nuts are correctly torqued. When tightening the stud nuts, alternately tighten the nuts to $\frac{1}{2}$ (30 ft. lbs.) of the specified torque. Then tighten to the final torque of 60 foot pounds.

SERVICE PROCEDURES

When servicing the hydraulic brake system, there are three important rules to remember:

(1) Vital parts of the system must be kept CLEAN, free from dirt, grease and oil.

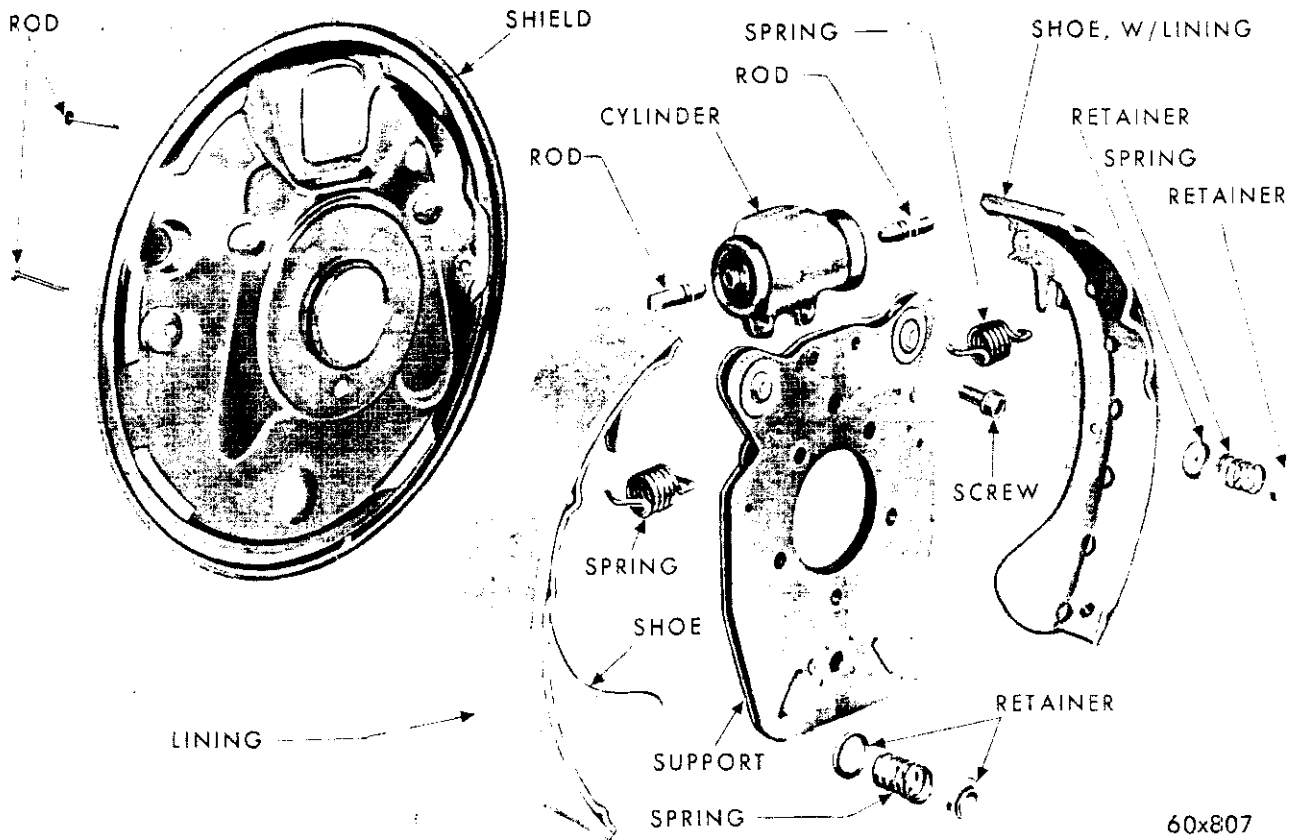


Fig. 4—Total Contact Brakes (Rear) (Disassembled View)

(2) The system must be free from entrapped air and all connections must be tight upon completion of any service job.

(3) Use only factory recommended type high boiling point MoPar Super Brake Fluid.

BRAKE SHOES REMOVAL (Figs. 3 and 4)

A. Removing the Front Brake Shoes

(1) Block the brake pedal to prevent any downward movement of the pedal.

(2) Remove the front wheel and drum as an assembly, after backing off the adjusting cams.

(3) Use Tool C-3462 to remove the shoe return springs, as shown in Figure 7. The end of the tool should be inserted between the spring and the brake shoe web to remove the shoe return spring.

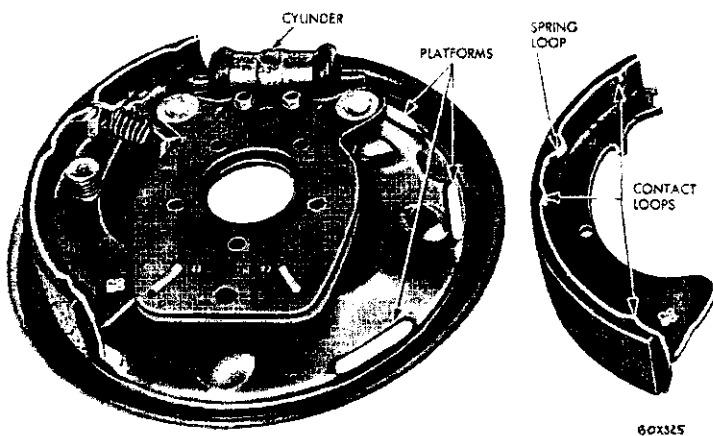


Fig. 5—Raised Platform and Shoe Contact Loops

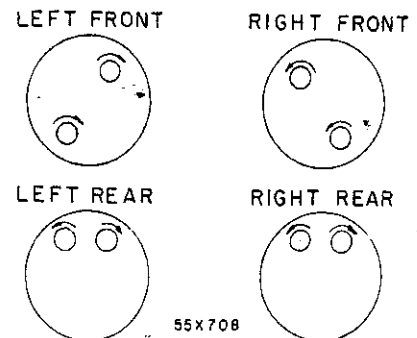


Fig. 6—Brake Adjusting Diagram

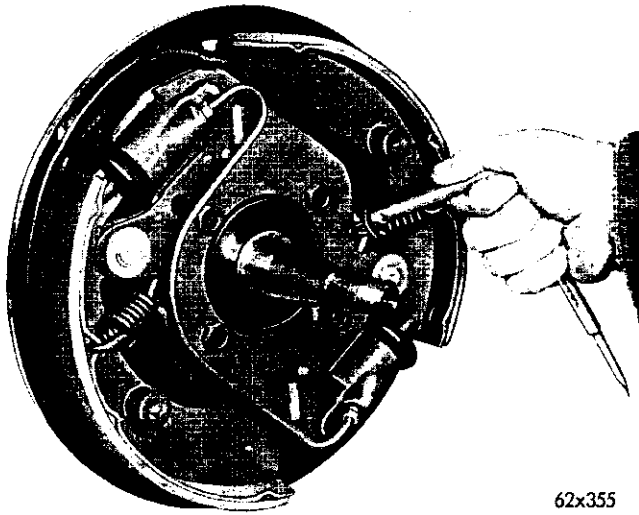


Fig. 7—Removing the Brake Shoe Return Spring

CAUTION

Do not use brake spring pliers or damage to the lining will result.

(4) Turn the brake shoe guide retainer $\frac{1}{4}$ turn, then the retainer guide spring and rod, as shown in Figure 8.

NOTE: The lip on the end of guide rod is used for positioning the guide rod into the slot of the spring retainer.

(5) Slide the shoes from between the support plates, as shown in Figure 9.

B. Removing the Rear Brake Shoes

(1) With the brake pedal blocked to prevent any

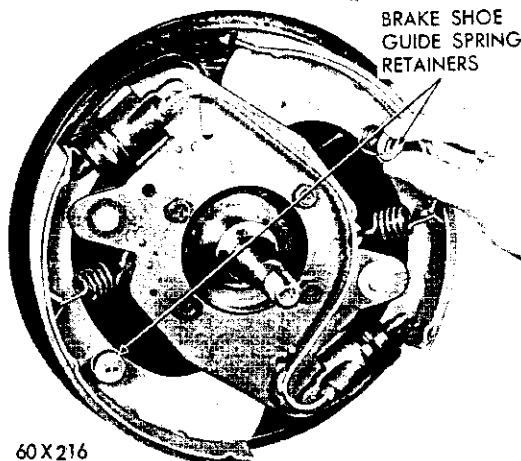


Fig. 8—Removing the Brake Shoe Guide Spring, Rod and Retainer

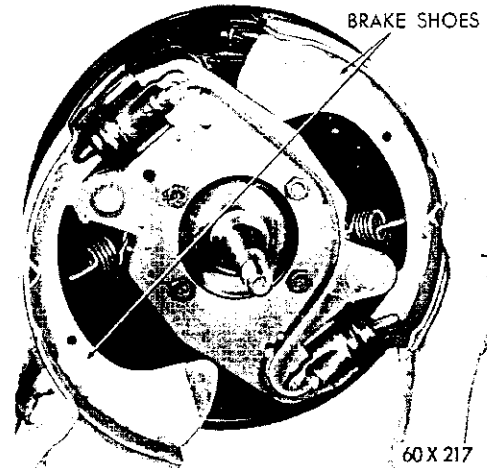


Fig. 9—Removing the Front Brake Shoe

downward movement back off the adjusting cams. The shoes and support plates may become bent if the cams are not backed off.

(2) Remove the rear wheel. Use puller, Tool C-845, to remove the rear wheel drum.

CAUTION

Do not use a "knock off" type wheel puller.

(3) Use Tool C-3462 to remove the shoe return springs, as shown in Figure 7. The end of the tool should be inserted between the spring and the web of the brake shoe to remove the shoe return spring.

CAUTION

Do not use brake spring pliers, or damage to the lining will result.

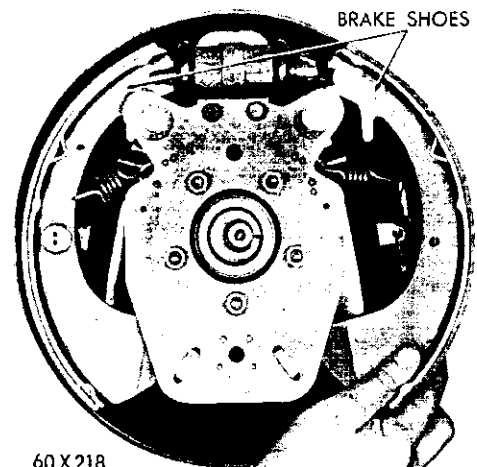


Fig. 10—Removing the Rear Brake Shoe

(4) Turn the brake shoe guide retainer $\frac{1}{4}$ turn, then remove the retainer and guide rod (refer to Fig. 8).

NOTE: The lip on the end of guide rod is used for positioning the guide rod into the slot of the spring retainer.

(5) Slide the shoes from between the support plates (Fig. 10).

INSPECTING THE BRAKE SHOES

Wipe or dry brush clean the metal portions of the brake shoes. Examine the lining contact pattern to determine if the shoes are true, and shoe tables square with the web. The lining should show contact across the entire width, extending from heel to toe. Shoes showing contact on only one side should be examined and the cause determined. Shoes should be checked for squareness. If the web is bent, discard the shoe. Shoes having sufficient lining but lack of contact at toe and heel, should be inspected for proper grind. The shoe should be inspected for lining overhang, burrs at the anchor and loops. Inspect the raised platforms on the brake shield for height and flatness. Nicks and burrs should be removed.

CYCLEBOND BRAKE LINING

Pre-cemented MoPar cyclebond brake lining can be successfully bonded to either new or used shoes, providing certain proven steps are followed. See instructions and model applications contained in the MoPar replacement packages.

GRINDING RECOMMENDATIONS

A. Brake Shoe Lining

New lining if not pre-ground should be inspected and ground .010 to .024 inch under the drum diameter on a machine having a cylindrical grinding wheel.

B. Drum Refacing

Measure the drum runout with an accurate gauge. Drum runout should not exceed .004 inch out of round. If the drum runout is in excess of .004 inch, the drum should be refaced. Remove only as much material as is necessary to clean up the drum.

NOTE: Do not remove more than .030 inch of metal during the refacing operation.

If the drum has hard spots, it must be ground or replaced.

Knowing the drum diameter, the proper measurement is then placed on the grinder, and the lining ground to the required clearance of .010 to .024 inch, under drum diameter.

The grinding of brake linings need only be done if the cyclebond process is done in the dealership or the drum is refaced.

INSTALLING THE BRAKE SHOES

CAUTION

Whenever the brake shoes are removed from the dust shield on a noise complaint, the brake shield platforms should be measured for flatness and height. Measure platform height, as shown in Figures 11 and 12 with Tool MT-19-J or Tool DD-1168 with the shoes in place and a feeler gauge. The platforms should be in the same plane within .010 inch.

A. Installing the Front Brake Shoes

Before installing the front brake shoes, apply a light coat of stick lubriplate on the raised platforms of the dust shield and on the shoe at the anchor reaction area end at the cam finger.

(1) Slide the brake shoes into position between the support plates. Be sure the ends of the cylinder push rods engage the toe end of the shoes properly.

(2) Insert brake shoe return springs in the link of the support plate.

(3) Use tool C-3462, as shown in Figure 13, to attach the return springs to the loop of the brake shoe table.

NOTE: Be sure that the end of the spring is hooked into the loop of the shoes properly to prevent the coil of the spring contacting the shoe.

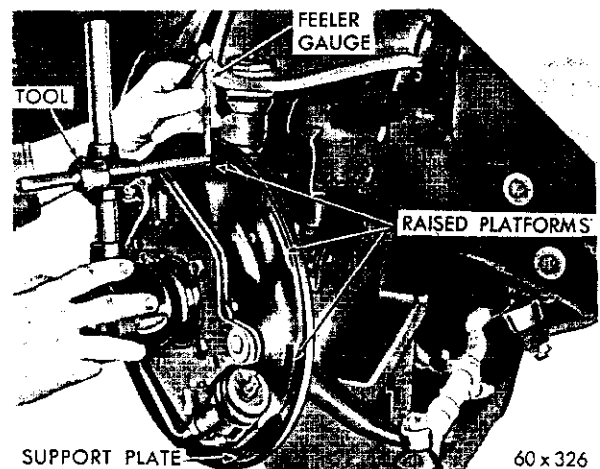


Fig. 11—Measuring the Platform Height (Tool MT-19-J)

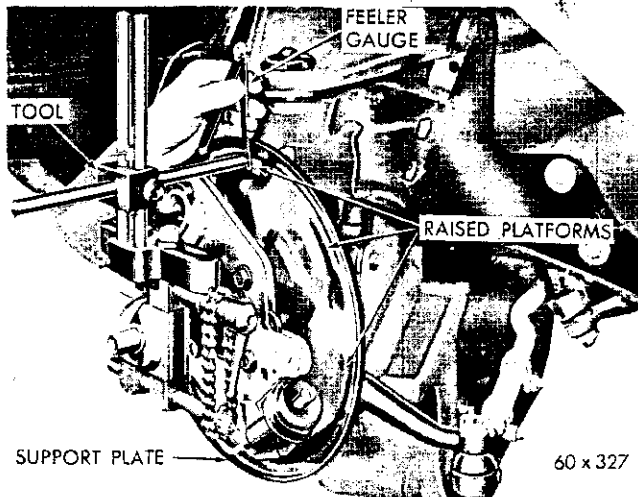


Fig. 12—Measuring the Platform Height (Tool DD-1168)

(4) Check the tension of the brake shoe return springs. The spring tension can be checked by hooking a scale at the toe of the shoe and pulling in the direction of piston movement. The scale should read 45 to 55 foot-pounds at the instant the toe of the brake shoe moves. A dial indicator may be used to indicate the shoe movement.

(5) Install the guide rod and the retainers (Fig. 8). Be sure the positioning lip of the guide rod is positioned properly in the spring retainer.

(6) Install the drum wheel and tire assembly after backing off the adjusting cams. Adjust the front wheel bearings as described in "Front Suspension", Group 2.

(7) Adjust the brakes.

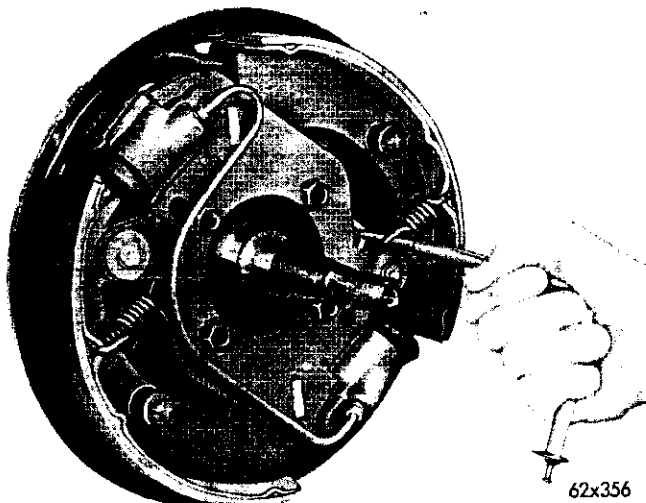


Fig. 13—Installing the Brake Shoe Return Spring

B. Installing the Rear Brake Shoes

Before installing the rear brake shoes, apply a light coat of stick lubriplate on the raised platforms of the dust shield and on the shoe anchor where it contacts the support plate.

(1) Slide the brake shoes into position between the support plates. Be sure the ends of the cylinder push rods engage the toe end of the shoes properly (Fig. 10).

(2) Insert the brake shoe return springs in the link of the support plate (Fig. 10).

(3) Use Tool C-3462, as shown in Figure 13, to attach the springs to the loop of the shoe table.

(4) Install the guide rod retainers (Fig. 8). Be sure the positioning lip of the guide rod slides into the slot of the spring retainer.

(5) Measure the tension of the brake shoe return springs. The spring tension can be measured by hooking a scale at the toe of the shoe and pulling in the direction of piston movement. The scale should read 45 to 50 foot-pounds at the instant the toe of the shoe moves. A dial indicator may be used to indicate the shoe movement.

(6) Install the drum, wheel and tire assembly, after backing off the adjusting cams.

(7) Adjust the brakes.

REMOVING THE FRONT AND REAR SUPPORT PLATES AND WHEEL CYLINDERS

A. Removal—Front Support Plates and Wheel Cylinder

(1) Remove the wheel, tire, and brake drum assembly.

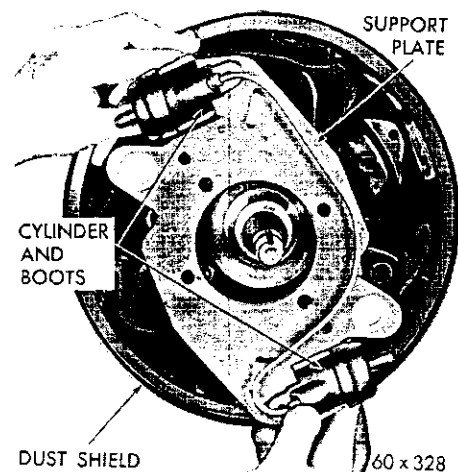


Fig. 14—Removing the Front Support Plate

(2) Remove the four retaining nuts attaching the support plates and dust shield to the steering knuckle.

(3) Disconnect the flexible brake hose from the frame bracket.

(4) Remove the four bolts that attach the brake assembly to the steering knuckle. **Note the location of the bolts and the size. Three different lengths are used.**

(5) Remove the brake assembly, as shown in Figure 14.

CAUTION

Do not allow the dust shield to strike the bearing surface of the knuckle as damage may result.

(6) Remove the brake shoes.

(7) Remove the connecting tube between the wheel cylinders.

NOTE: Do not distort the tube.

(8) Remove each wheel cylinder mounting bolt after removing the sealer. Remove the support plate assembly, from the dust shield, as shown in Figure 15.

(9) Remove the wheel cylinders. If it is necessary to service the wheel cylinders, refer to Paragraph "Servicing the Wheel Cylinders".

B. Removal—Rear Support Plates and Wheel Cylinders

(1) Remove the rear brake shoes.

(2) Disconnect the brake tube at the wheel cylinder. Remove the nuts and lockwashers that attach the support plates and wheel cylinders to the dust shield and axle housing flange.

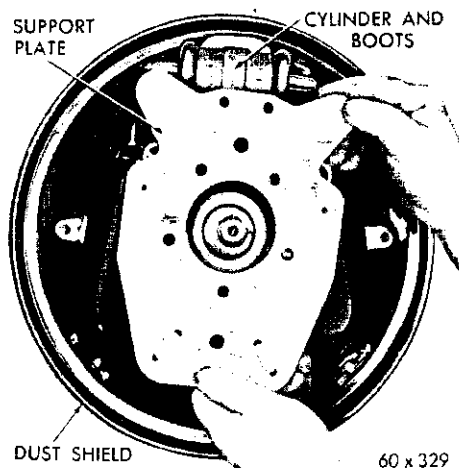


Fig. 15—Removing the Rear Support Plate

(3) Slide the support plates out and away from the axle, as shown in Figure 15. When removing the dust shield, it is advisable to install the seal protector, Tool C-745, then slide the dust shield and seal off axle.

(4) Remove the bolts that attach the wheel cylinder to the support plate. Lift the wheel cylinder away from the plate. Inspect and clean the support plate. If reconditioning the wheel cylinders, refer to Paragraph "Wheel Cylinders".

C. Cleaning and Inspection (Support Plates)

Clean the support plates in a suitable solvent, blow dry with compressed air, and inspect as follows: Check the freeness of the adjusting cams and return spring links. The adjusting cams should turn without binding (7-10 foot-pounds). Do not turn the adjusting cams unnecessarily. A small amount of rotation will tell if cam torque is correct.

Inspect the condition of the adjusting cam dust shield washers. If the washers are cracked or deteriorated, new ones should be installed during assembly. If any visual distortion of the support plates is apparent, new plates should be installed. The support plates must be flat.

D. Cleaning and Inspection (Wheel Cylinders)

Wheel cylinders pistons that are badly scored or corroded should be replaced. The old piston cups should be discarded when reconditioning the hydraulic system.

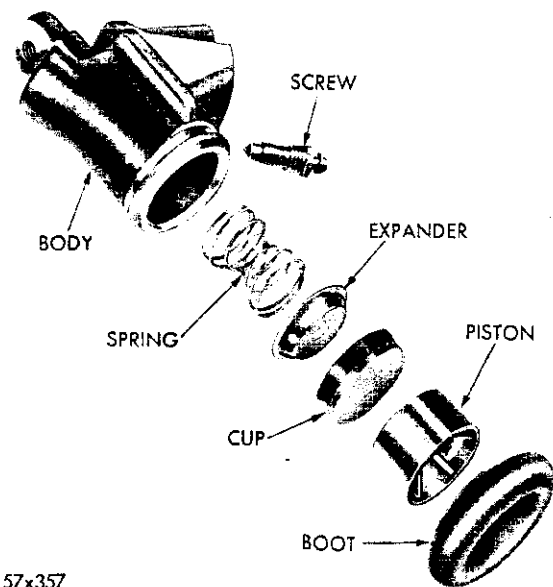


Fig. 16—Front Wheel Cylinder

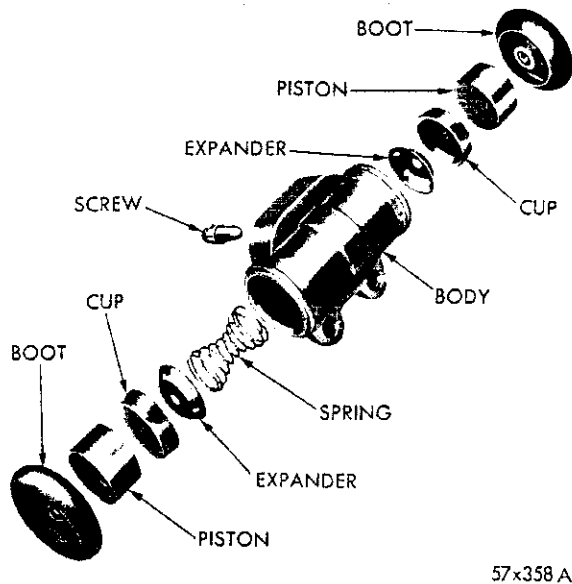


Fig. 17—Rear Wheel Cylinder

57x358 A

Cylinder walls that have very light scratches, or show signs of corrosion, can usually be cleaned up with crocus cloth, using a circular motion. However, cylinders that have scratches or scoring may be honed, using Tool C-3080, providing the diameter of the cylinder bore is not increased by more than .002 inch. Any cylinder bore increased by more than .002 inch should be discarded and a new cylinder installed. (Black stains on the cylinder walls are caused by the piston cups and do not cause any damage.)

Before assembling the pistons and new cups in the wheel cylinder, dip them in Super Brake Fluid. Refer to Figures 16 and 17, then assemble the brake cylinders. If the boots are deteriorated, or do not fit tightly on the brake shoe push rod or on the wheel cylinder casting, new boots should be installed.

INSTALLING THE FRONT AND REAR SUPPORT PLATES AND WHEEL CYLINDERS

A. Installation (Front Support Plates and Wheel Cylinders)

(1) Install the brake cylinders on the support plates, position the support plates on the dust shield. (Be sure the dust washers are in place).

Install the wheel cylinder attaching bolts and tighten 15 to 20 foot-pounds torque.

(2) Slide the brake assemblies over the steering knuckles. Install the bolts, nuts and tighten to 55 foot pounds torque.

Measure the dust shield for the platform height.

(3) Lubricate the adjusting cams of the support plate assembly lightly with stick lubriplate, then slide brake shoes into position between the support plates.

(4) Install the brake shoe return springs through the link of the support plate and use Tool C-3462 to attach the spring to the brake shoe, as shown in Figure 13.

(5) Install the brake shoe guide rod, spring and retainers.

(6) Install the wheel cylinder connecting tube, being careful not to bend or distort the tube.

(7) Turn the brake adjusting cams to the fully released position. Attach the brake hose to the frame bracket. Connect the brake tube.

(8) Install the drum and wheel assembly. Adjust the front wheel bearing, as described in "Front Suspension", Group 2.

(9) Bleed and adjust the brakes.

B. Installation (Rear Support Plates and Wheel Cylinders)


(1) Place the wheel cylinder on the support plate, and install the attaching bolts. Tighten the bolts 5 to 20 foot pounds torque.

(2) Install a new seal in the dust shield (if needed), and install the seal protector Tool C-745 into the seal. Install the dust shield and the seal over the axle shaft and down against the flange.

(3) Slide the support plate assembly over the axle shaft.

(4) Install the lockwashers and nuts. Tighten the nuts to 35 foot pounds torque. Measure the dust shield platform height.

(5) Slide the brake shoes into position between the support plates, after lubricating the cam finger and anchor reaction area with stick lubriplate.

(6) Install the brake shoe return springs through the link of the support plate and use Tool C-3462 to attach the spring to the  of the brake shoe.

(7) Install the brake shoe guide rod and retainers. **Be sure the positioning lip of the guide rod is positioned into the slot of the retainers.**

(8) Turn the brake adjusting cams to the fully released position, and attach the brake line to the wheel cylinder. Remove the Tool C-745.

(9) Insert the key on the slot in the axle shaft, chalk the axle shaft, and install the drum. Install

the wheel and tire. Bleed and adjust the brakes, as described in Paragraph "Bleeding the Brake System".

BLEEDING THE BRAKE SYSTEM

NOTE: During the following operations, use MoPar Super Brake Fluid.

(1) Clean all the dirt from around the master cylinder reservoir cover and from the bottom of the power brake cylinder (if so equipped).

(2) Remove the reservoir cover and install Brake Bleeder Tank Tool C-3496 (or its equivalent) with adapter Tool C-349A.

(3) Raise the car wheels from the ground and back off the brake shoe adjusting cams to the fully release position. This allows the brake shoe to force the wheel cylinder pistons and cups as far back into the wheel cylinder as possible, trapping all the air near the bleeder screw hole.

(4) Clean all dirt from the wheel cylinder bleed valve and attach Bleeder Hose Tool C-650 to the valve. Place the other end of the hose in a clean, uncontaminated jar so the fluid can be reused. Use only MoPar Heavy Duty Brake Fluid, Part No. 1879268. Bleed each wheel cylinder for a minimum of thirty seconds of continuous fluid flow in the following order: Right rear, left rear, right front lower, right front upper, left front lower left front upper.

CAUTION

Water and any type of mineral oil product such as gasoline, engine oil etc. will contaminate brake fluid. It is extremely important that the container used to catch the brake fluid be clean, free of moisture and must never at any time have contained mineral oil in any form.

(5) Remove the bleeder tank and install the reservoir cover. Adjust all the brake shoes as outlined in the "Brake Shoe Adjustment" Procedures.

TEST FOR FLUID CONTAMINATION

In order to determine if contamination exists in the brake fluid, which may be indicated by swollen, deteriorated rubber cups, the following simple tests can be made.

(1) Place a small amount of drained brake fluid in a small clean clear glass bottle. Separation of the fluid into two distinct layers may indicate mineral oil contamination.

(2) Add 1 part water to two parts of the drained

brake fluid and shake. If the contents become milky, mineral oil may be present. If the contents remain clear, it is not contaminated with mineral oil. Be safe and discard old brake fluid that has been bled from the system.

NOTE: Fluid drained from the bleeding operation may contain dirt particles or other contamination and should not be reused.

ADJUSTING THE BRAKES

All cams have a $\frac{1}{16}$ inch hex adjusting head, and operate against the toe end of the shoe web and extend through the brake dust shield.

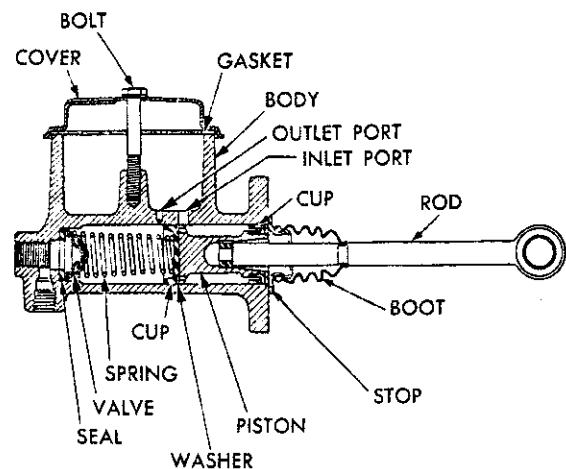
The four shoes in the front wheel brakes and the two forward shoes in the rear wheel brakes are self-energized when the vehicle is moving forward; these shoes are tightened in the forward direction while the rear shoes in the rear wheels are tightened in the reverse direction, as shown in Figure 6.

NOTE: Whenever the brakes have been relined or new shoes have been installed, always apply pedal prior to adjusting the brakes. This causes the brake shoes to center themselves to assist in the adjustment.

A. Front Brake Adjustment

(1) Perform the following operations on one cam at a time on both front wheels. Turn the adjusting cam in the direction of wheel forward rotation until the shoe lining is solidly against the drum, as shown in Figure 6, and the wheel is locked.

(2) Turn the adjusting cam slowly in the opposite direction until no drag is felt. Repeat the operation on the other cam.



57x145B

Fig. 18—Master Cylinder (Cross Section View)
(Manual Brake)

B. Rear Brake Adjustment

The rear wheel forward brake shoe adjusting cam is rotated in the direction of forward wheel rotation to bring the shoe lining nearer to the drum. The rear brake shoe adjusting cam is rotated in the direction of wheel reverse rotation, as shown in Figure 6. Repeat the adjustment procedure on rear wheels as outlined in the "Front Brake Adjustment."

SERVICING THE MASTER CYLINDER (Figs. 18 and 19)

NOTE: The master cylinder on vehicles without power brakes, has a fluted dust boot and retainer. This retainer acts as a master cylinder piston stop. The pedal return spring and pedal stop have been eliminated.

A. Removal

- (1) Remove the master cylinder push rod clevis pin.
- (2) Disconnect the push rod.
- (3) Disconnect the brake tube at the master cylinder.
- (4) Disconnect the stop light switch leads.
- (5) Remove the nuts that attach the master cylinder to the dash panel. Slide the master cylinder straight out and away from dash panel.

B. Cleaning and Inspection

Clean the outside of the master cylinder thoroughly, remove the cover and drain all brake fluid. Refer to Figure 17, and disassemble the master cylinder for inspection.

If the master cylinder piston is badly scored or corroded, replace it with a new one. The piston cups and valve assembly should be replaced when reconditioning the master cylinder.

Master cylinder walls that have very light scratches or show signs of corrosion, can usually be cleaned up with crocus cloth. Cylinders that have scratches or scoring may be honed, providing the diameter of the cylinder bore is not increased by more than .002 inch should be discarded and a new master cylinder used. (Black stains on the cylinder wall are caused by the piston cups and will do no harm.) Use extreme care in cleaning the master cylinder after reconditioning. Remove all dust or grit

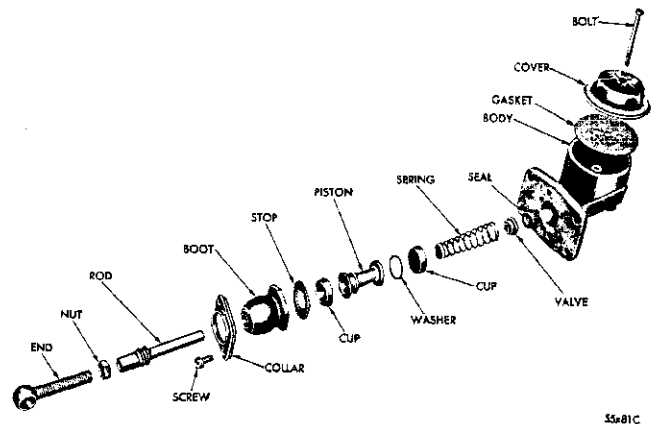


Fig. 19—Master Cylinder (Disassembled View)
(Power Brake)

by flushing the cylinder with alcohol; wipe dry with a clean lintless cloth, and clean the second time with alcohol. Dry the master cylinder with air pressure, then flush with clean, heavy duty brake fluid. (Be sure the compensating port in the master cylinder is open.)

C. Assembly

Before assembling, the piston, cups and valve assembly should be dipped in new brake fluid. (Refer to Figure 18 for master cylinder assembled.)

BRAKE HOSE AND LINES

Inspection of brake hose should be included in all brake service operations. The hoses should be checked for:

- (1) Correct length, severe surface cracks, pulling, scuffing or worn spots.
- (2) Faulty installation causing twisted hose and wheel, tire or chassis interference.
- (3) Always use the factory recommended hose to insure quality, length and long service life. Care should be taken to make sure the seating surfaces are clean and free from nicks and burrs. Copper washers are to be used, and the tube nuts and connections properly made and tightened.
- (4) Double tubing should always be used to insure long life and corrosion resistance. Flares and acute angles should always be accomplished with the proper tools to guard against leaks and restrictions from reduced tube cross section.

VACUUM BRAKE BOOSTER

The tandem diaphragm type brake booster is a self contained vacuum hydraulic power braking unit. It is of the vacuum suspended type which utilizes engine intake manifold vacuum and atmospheric pressure for its power. This type of unit does not require a vacuum reservoir. The basic elements of the vacuum unit are as follows.

(a) The vacuum power chamber consists of a front and rear shell, a center plate, front and rear diaphragm, hydraulic push-rod and a vacuum diaphragm return spring. (Fig. 20).

(b) A mechanically actuated control valve integral with the vacuum power diaphragms, controls the degree of power brake application or release in accordance with the foot pressure applied to the

valve operating rod through the brake pedal linkage.

The control valve is of a single poppet type valve with an atmospheric port and a vacuum port. The vacuum port seat is a part of the valve body attached to the diaphragm assembly. The atmospheric port is a part of the valve plunger which moves within the valve housing and vacuum power diaphragm assembly.

(c) A hydraulic master cylinder which contains all of the elements of the standard brake master cylinder except for the special hydraulic push rod which is a part of the brake booster.

CAUTION

Do not attempt to adjust the hydraulic push rod.

SERVICE PROCEDURES

BRAKE BOOSTER REMOVAL

(1) Disconnect the brake line from the master cylinder.

(2) Disconnect the vacuum line from the check valve.

(3) From under the dash, remove the push rod nut and bolt from the brake booster and brake pedal.

(4) From under the dash remove the four brake booster attaching nuts and washers.

(5) Withdraw the brake booster and master cylinder assembly from the booster support bracket.

(6) Remove the four master cylinder attaching nuts and washers and remove the master cylinder from the brake booster.

CAUTION

Do not attempt to disassemble the brake booster as

this unit will be serviced by the Manufacturer's Service Station.

BRAKE BOOSTER INSTALLATION

(1) Install the master cylinder on the brake booster.

(2) Insert the brake booster push rod through the brake support and install the four attaching washers and nuts.

(3) Install the push rod attaching bolt and nut through the push rod and brake pedal.

(4) Attach the vacuum hose to the check valve.

(5) Attach the brake line to the master cylinder.

(6) Fill the master cylinder and bleed the brakes.

(7) Inspect the adjustment of the stop light switch.

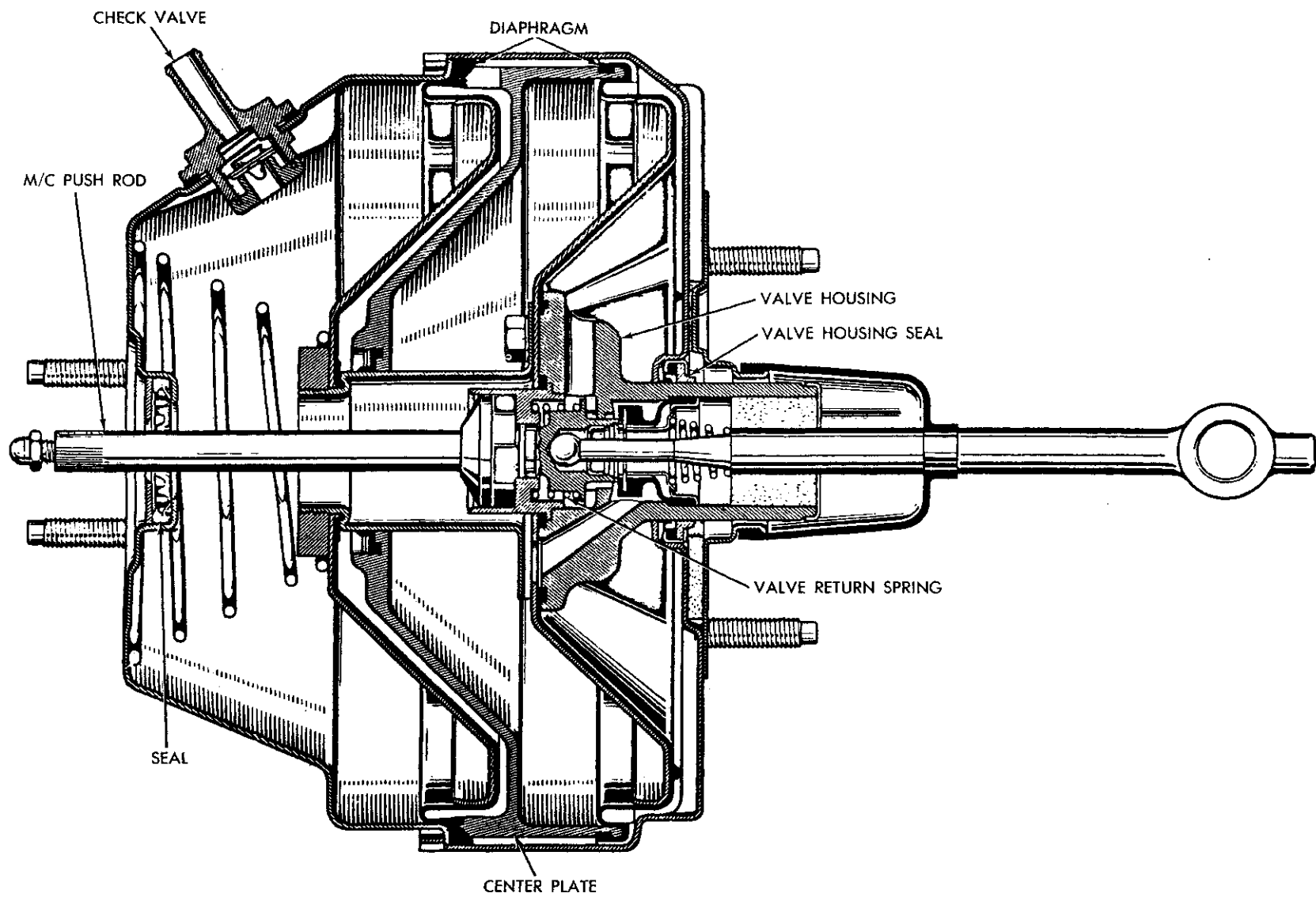


Fig. 20—Vacuum Brake Booster

SERVICE DIAGNOSIS

SERVICE BRAKES

Condition	Possible Cause	Correction
Brake Pedal goes to the Floor	(a) Excessive shoe clearance. (b) Dry master cylinder. (c) Worn brake lining. (d) Broken brake line. (e) Scored master cylinder cup.	(a) Adjust the brakes. (b) Fill the master cylinder. (c) Adjust or replace the brake shoes. (d) Replace the broken brake line and bleed system. (e) Recondition the master cylinder.
Dragging Brakes	(a) Insufficient shoe clearance. (b) Restricted brake line or hose (c) Brake shoes binding on support plate. (d) Weak or improper brake shoe return. (e) Swollen wheel cylinder cups. (f) Bent or out of round brake drum.	(a) Adjust the brakes. (b) Clean the lines or replace the hose. (c) Sand and lubricate the brake shoe platforms. (d) Replace the brake shoe return springs. (e) Replace the wheel cylinder cups. (f) Reface or replace the brake drum.
Hard Brake Pedal	(a) Lining hard or glazed. (b) Frozen brake pedal linkage. (c) Restricted brake line or hose. (d) Inoperative power unit.	(a) Replace the brake shoes. (b) Free up and lubricate the brake pedal linkage. (c) Clean out the brake line or replace the brake hose. (d) Test operation of the power unit, correct as required.
Soft or Spongy Brake Pedal	(a) Air in hydraulic system. (b) Brakes improperly adjusted. (c) Flexible hose deteriorated by grease or oil. (d) Bent brake shoes.	(a) Bleed the hydraulic system. (b) Adjust the brakes. (c) Replace the brake hose and bleed the hydraulic system. (d) Replace the brake shoes.
Brakes Pull	(a) Lining saturated with grease or brake fluid. (b) Out of round brake drum. (c) Frozen wheel cylinder. (d) Restricted brake line or hose. (e) Loose lower control arm strut.	(a) Reline both fronts or rears or all four. (b) Reface or replace the brake drum. (c) Recondition or replace the wheel cylinder. (d) Clean out the brake line or replace hose. (e) Tighten the lower control arm strut.
One Wheel Locks	(a) Saturated lining. (b) Smooth tire tread. (c) Restricted brake line or hose. (d) Rough or scored brake drum.	(a) Reline both fronts or rears or all four. (b) Match the tire treads, fronts or rears. (c) Clean the brake line or replace the brake hose. (d) Reface or replace the brake drum.
Brakes Chatter or Squeal	(a) Saturated brake lining. (b) Loose support plate. (c) Rough or scored brake drum. (d) Bent support plate. (e) Bent brake shoes. (f) Machining grooves in contact surface of brake drum.	(a) Replace both fronts or rears or all four. (b) Tighten the support plate. (c) Reface or replace the drum. (d) Replace the support plate. (e) Replace the brake shoes. (f) Reface or replace the brake drum.

SERVICE DIAGNOSIS
VACUUM BRAKE BOOSTER

Condition	Possible Cause	Correction
1. Hard Pedal or Lack of Assist	(a) Stalled engine with loss of vacuum.	(a) Start and adjust the engine for proper idle.
	(b) Restricted or collapsed vacuum hose.	(b) Inspect and replace the faulty hose.
	(c) Leaking vacuum hose or fittings.	(c) Inspect the hoses and replace the faulty hose. Tighten and seal all fittings.
	(d) Faulty check valve.	(d) Replace the check valve.
	(e) Faulty brake booster assembly.	(e) Replace the brake booster.
	(f) Master cylinder piston binding in the bore.	(f) Recondition the master cylinder.
	(g) Hydraulic push rod out of adjustment.	(g) Remove the brake booster and deliver to the servicing dealer for adjustment.
2. Brake Pedal Slow to Return (or Fail to Release)	(a) Clogged air cleaner.	(a) Clean with solvent and dry with compressed air.
	(b) Incorrect master cylinder push rod adjustment.	(b) Remove the brake booster and master cylinder and deliver to the servicing dealer for adjustment.
	(c) Weak or broken brake booster return spring.	(c) Remove the brake booster and deliver to the servicing dealer.
	(d) Binding brake pedal linkage.	(d) Free up the linkage and lubricate.
