BRAKE SYSTEM

1988 Chrysler LeBaron Convert/Coupe

1988 BRAKES
Chrysler Motors Brake System

Chrysler; Fifth Avenue, LeBaron, LeBaron GTS, New Yorker, New Yorker Turbo
Dodge; 600, Aries, Daytona, Dynasty, Lancer, Omni, Shadow
Plymouth; Caravelle, Gran Fury, Horizon, Reliant, Sundance

DESCRIPTION

BRAKE BOOSTER

The power brake booster uses intake manifold vacuum and atmospheric pressure to provide its power. Vacuum power unit contains power piston assembly, which houses control valve, reaction mechanism and return spring. Control valve consists of air valve, floating control valve assembly and push rod. Reaction mechanism consists of reaction plate and levers. A vacuum check valve is mounted in front housing for connection to vacuum source.

DISC BRAKES - FRONT

FWD Models

A single piston sliding caliper assembly is used on all models. The disc brake assembly consists of a caliper, disc pads, adapter and rotor.

FWD models use an A.T.E. or Kelsey-Hayes caliper. The A.T.E. caliper is held in position by 2 steel guide pins threaded into steering knuckle adapter. The Kelsey-Hayes caliper is held in position by a single pin threaded into steering knuckle adapter.

RWD Models

A single piston sliding caliper assembly is used on all models. The disc brake assembly consists of a caliper, disc pads, adapter and rotor. A splash shield is used on all RWD models.

A Chrysler Motors caliper is used. The caliper is mounted on 2 machined pads on steering knuckle adapter and held in position by 2 retaining clips. The adapters position and align the calipers from front-to-rear and side-to-side.

DISC BRAKES - REAR

The single piston, floating caliper rear disc brake assembly consists of a hub assembly, caliper, disc pads, adapter, rotor, and a mechanically operated parking brake.

Daytona models use a caliper with a 1.30" (33 mm) piston. Inside the piston assembly is an automatic brake adjuster and self adjusting parking brake mechanism. The caliper assembly rides on rubber bushings, with teflon sleeves on 2 guide pins that attach to the adapter.

Dynasty and New Yorker (except Turbo) models use a caliper with a 1.42" (36 mm) piston and a mechanical parking brake. The caliper assembly rides on rubber bushings with metal sleeves on 2 bolts which mount assembly to an adapter.

DRUM BRAKES

Unit consists of a backing plate, 2 brake shoes, return springs, hold-down spring assemblies, self-adjusting components, and a

wheel cylinder. Automatic adjuster consists of a cable (with spring hook and anchor fitting), cable guide, adjusting lever, lever pivot and adjusting screw (star).

DRUM BRAKE AUTOMATIC ADJUSTER

Adjuster screw thread is opposite that of other models; therefore, adjuster moves upward when brakes are applied. A cage and spring on adjuster cable absorbs secondary shoe movement, except when wear results in enough movement to cause adjuster to rotate. This feature reduces possibility of over-adjustment.

MASTER CYLINDER

All master cylinders are dual-piston, single-bore assemblies. When brake pedal is depressed master cylinder primary piston moves forward. Under normal conditions, combination of hydraulic pressure and force of primary piston spring move secondary piston forward at same time.

When pistons have moved forward, primary cups cover by-pass holes, hydraulic pressure is built up and transmitted to front and rear brake assemblies.

Some master cylinders have a residual pressure valve installed under tube seat insert in drum brake outlet. This valve keeps a small amount of pressure in drum brake systems and prevents air from entering system.

Many master cylinders are equipped with fluid level sensor switches and integral proportioning valves. The proportioning valves are designed to provide better front-to-rear braking balance. Many master cylinders also have a built-in quick take-up feature which allows a large quantity of brake fluid to remain in wheel cylinders for quicker braking action.

ADJUSTMENTS

BRAKE BOOSTER PUSH ROD

NOTE: Chrysler Motors. boosters use factory adjusted or non-adjustable push rods. Do not attempt to adjust this type of push rod.

DISC BRAKES - FRONT

Disc brakes are self-adjusting. Caliper piston seals are designed to retract pistons just enough to allow brake lining to lightly brush disc without any drag.

DISC BRAKES - REAR

Disc brakes are self-adjusting. On Daytona models, caliper should be adjusted only when replacing disc brake pads. See DISC BRAKE CALIPER & PADS - REAR under REMOVAL & INSTALLATION in this article. Caliper seals are designed to retract piston enough to allow only very light brake contact without any drag.

DRUM BRAKE SHOES - FWD MODELS

NOTE: This adjustment is made only after brake lining replacement or if brake applications are insufficient to actuate automatic adjuster.

1) Adjust parking brake after service brake adjustment. Remove adjusting hole covers. Insert adjusting tool, (C-3784; or thin-bladed screwdriver on Horizon and Omni), into star wheel and rotate until road wheel turns with slight drag (locked on Horizon and Omni).

2) Back off star wheel (releasing adjuster lever if equipped) until wheels rotate freely with no drag. Back off 10 clicks on Horizon and Omni. Adjustments must be equal on both wheels.

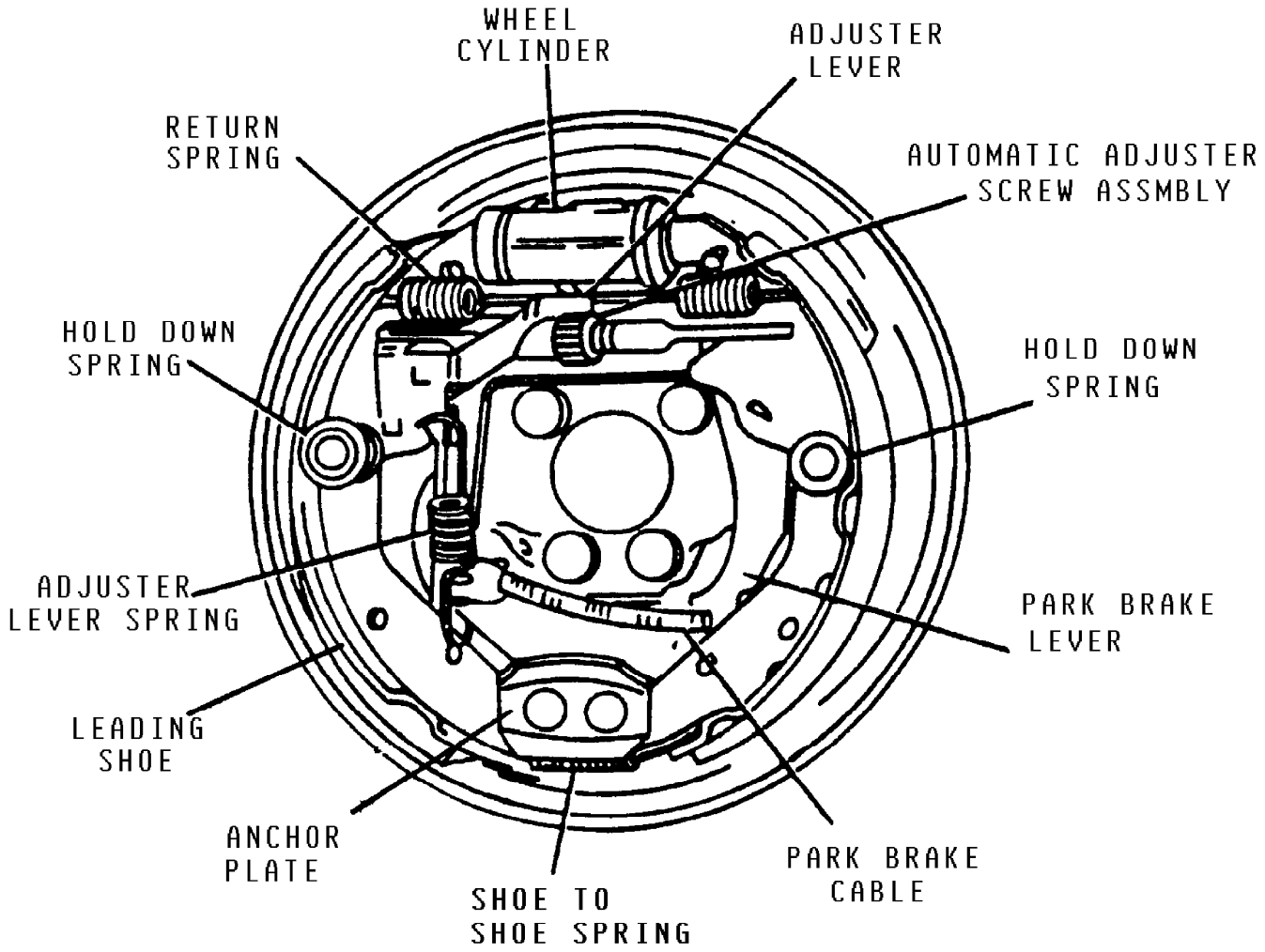

Fig. 1: Kelsey Hayes Automatic Adjuster Brake Assembly
Courtesy of Chrysler Motors

DRUM BRAKE SHOES - RWD MODELS

NOTE: This adjustment is made only after brake lining replacement or if brake applications are insufficient to actuate automatic adjuster.

1) Adjust parking brake after service brake adjustment. Remove adjusting hole covers. Insert Adjuster (C-3784) into star wheel and rotate until road wheel turns with slight drag.

2) Back off star wheel (releasing adjuster lever if equipped) until wheels rotate freely with no drag. Adjustments must be equal on both wheels.

NOTE: On rear wheel drive models with Iso-Clamp rear suspension,

bend rod to match angle of adjusting tool plus a 3/4 reverse bend at contact end. See Fig. 3.

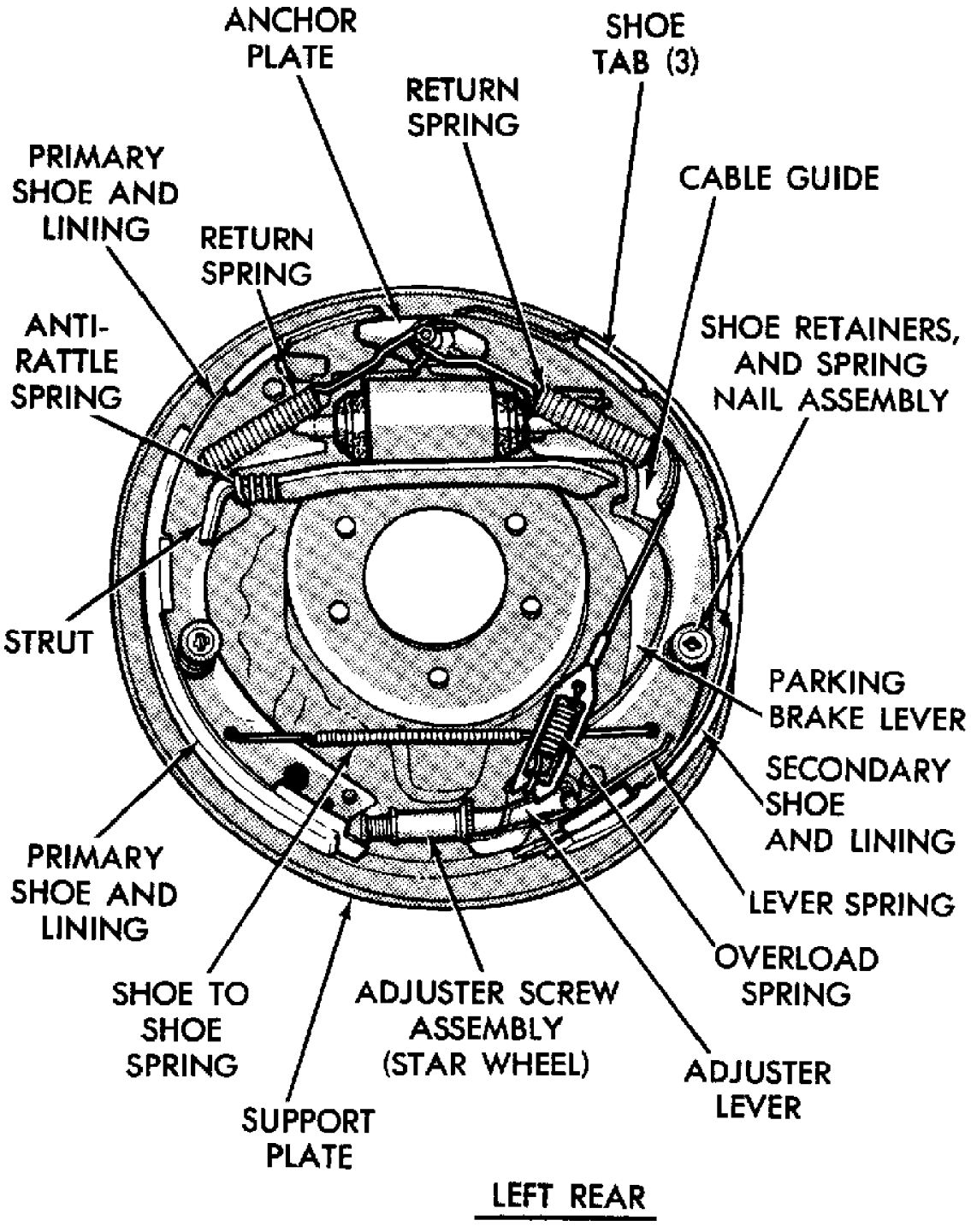

Fig. 2: Bendix Automatic Adjuster Brake Assembly
Chrysler Corp. 10" assembly shown, 11" is similar.

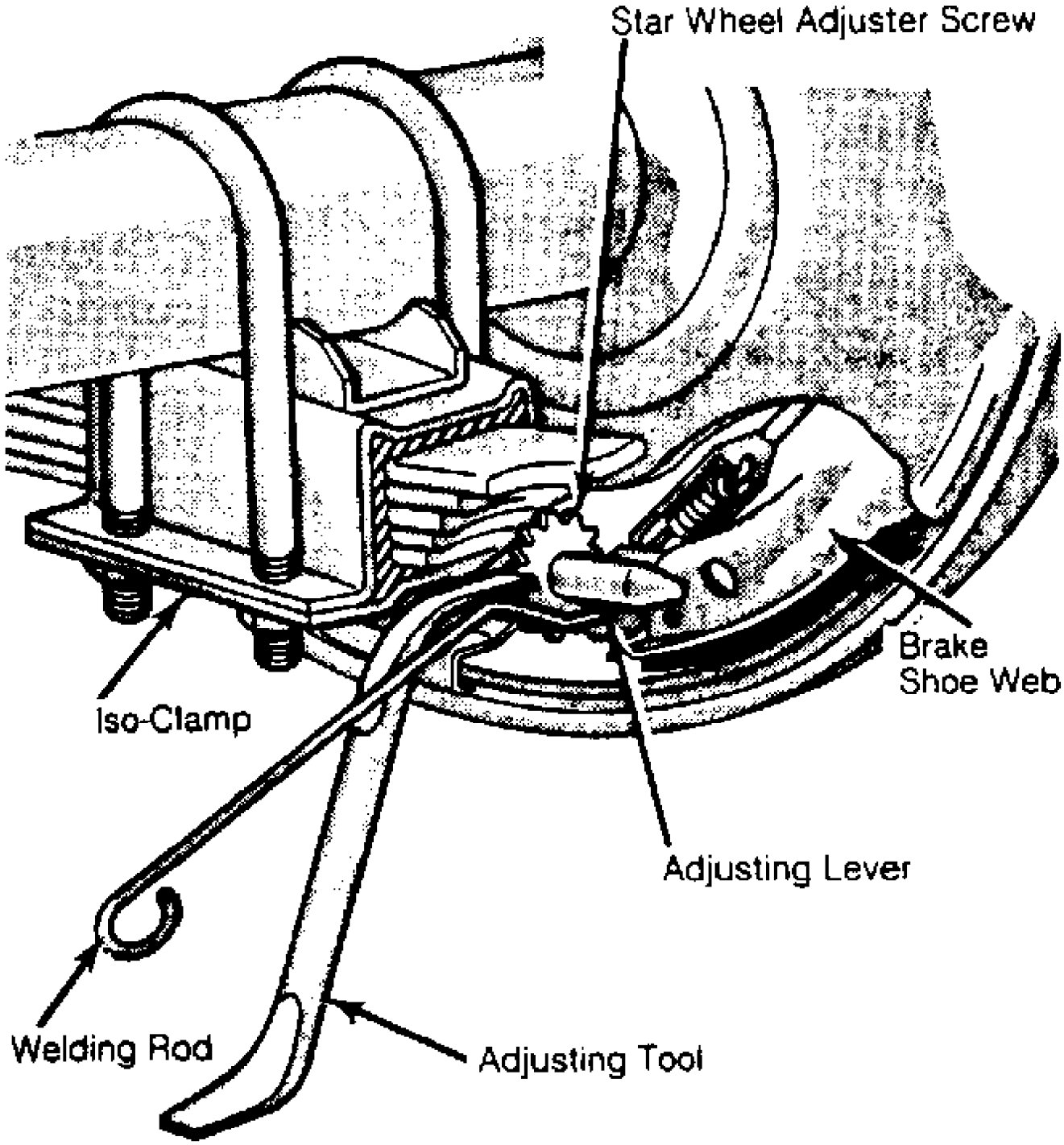

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Fig. 3: Adjusting Rear Brake Shoe-to-Drum Clearance
Adjustment shown on Chrysler Corp. Models with ISO-Clamp suspension

NOTE: Service brakes must be properly adjusted before adjusting parking brake.

1) Raise and support vehicle. Release parking brake and loosen parking brake adjusting nut until cables are slack.
2) Begin tightening adjusting nut. Stop tightening nut, when slight drag is felt while rotating rear wheels.
3) Loosen adjusting nut until rear wheels turn freely. Loosen nut an additional 2 full turns.
4) Apply and release parking brake several times to ensure proper operation.

PARKING BRAKE - MODELS W/REAR DRUM BRAKES

1) Ensure service brakes are properly adjusted. Back off parking brake cable and allow slack in cable. Clean and lubricate cable threads. Using adjusting tool (C-3784) and a thin screwdriver inserted in brake adjusting hole to disengage adjusting lever, rotate star wheel to obtain light contact between brake shoe and drum.
2) Back off star wheel until no drag is felt. Adjust parking brake cable adjuster nut until a slight drag is felt while rotating rear wheels. Loosen adjusting nut until wheels just turn freely, then back off nut 2 full turns. Apply and release parking brake several times to make sure rear wheels do not drag.

STOP LIGHT SWITCH - FWD MODELS EXCEPT HORIZON & OMNI

1) Install switch in retaining bracket and push it forward as far as possible. Brake pedal will move slightly forward.
2) Gently pull back on pedal, bringing striker back toward switch until pedal will go no further. This will cause switch to ratchet backward to correct position.

STOP LIGHT SWITCH - HORIZON & OMNI

Loosen switch assembly screw. Press brake pedal down and release. Place a .130" (3.3 mm) spacer gauge against pedal-to-switch surface. Do not pull brake pedal back at any time. Press switch against spacer until plunger is fully depressed. Tighten switch mounting screw, remove spacer and check switch operation.

STOP LIGHT SWITCH - RWD MODELS

Loosen switch assembly screw. Press brake pedal down and release. Place a .130" (3.3 mm) spacer gauge against pedal-to-switch surface. Do not pull brake pedal back at any time. Press switch against spacer until plunger is fully depressed. Tighten switch mounting screw, remove spacer and check switch operation.

FRONT WHEEL BEARINGS - RWD MODELS

NOTE: Under normal service, front wheel bearings should be inspected, lubricated and adjusted whenever front brakes are serviced or at least every 30,000 miles. For severe service use, check bearings at least every 9000 miles. Lubricate wheel bearings using MOPAR Front Wheel Bearing Grease (High Temperature No. 4318064).

1) Raise and support vehicle. Remove wheel cover, wheel and dust cap. Remove cotter pin and nut lock. Remove brake caliper and support with wire. Tighten adjusting nut to 20-25 ft. lbs. (27-34 N.m) while turning wheel.

2) Stop rotation and back off adjusting nut 1/4 turn (90°) to release preload. Finger tighten adjusting nut while rotating wheel. Position locking nut over adjusting nut, then install cotter pin and dust cover. Adjustment procedure should provide .0001-.0030" (.002-.076 mm) end play.

REAR WHEEL BEARINGS - FWD MODELS W/REAR DISC BRAKES

Tighten adjusting nut to 240-300 INCH lbs. (27-33 N.m) while rotating wheel. Stop rotation and back off adjusting nut 1/4 turn. Finger tighten adjusting nut while again rotating wheel. Position lock nut with slots in line with cotter pin hole. Install cotter pin.

REAR WHEEL BEARINGS - FWD MODELS W/REAR DRUM BRAKES

1) Tighten adjusting nut to 240-300 INCH lbs. (27-33 N.m) while rotating wheel. Stop rotation and back off adjusting nut 1/4 turn. Finger tighten adjusting nut while again rotating wheel.
2) Position nut lock with 1 pair of slots in line with cotter pin hole. Install cotter pin. This adjustment should provide .001-.002" (.025-.076 mm) end play.

ROTOR SERVICING

LATERAL RUNOUT - FRONT

FWD Models
1) To check lateral runout on FWD models, install and tighten lug nuts to hold rotor on hub. Attach dial indicator to suspension so that dial pointer contacts rotor face approximately one inch from outer edge.
2) Rotate rotor and record measurement. If runout exceeds specifications, check hub lateral runout as shown. See Fig. 4.
3) Before removing rotor, chalk mark rotor and one wheel stud on high side of runout. Remove rotor and check hub runout. Runout should not exceed .003" (.08 mm).
4) if runout exceeds specifications, hub must be replaced. if hub runout does not exceed specifications, install the rotor on hub 180 degrees from original position. Recheck lateral runout. If runout exceeds specification, refinish or replace rotor as required.

RWD Models
1) On RWD models, tighten wheel bearings until all end play is eliminated. Attach dial indicator to suspension so that dial pointer contacts rotor surface approximately one inch from outer edge. Rotate and record measurement.
2) If runout exceeds .004" (.10 mm), refinish or replace rotor/hub assembly as required. Readjust wheel bearing after lateral runout check.

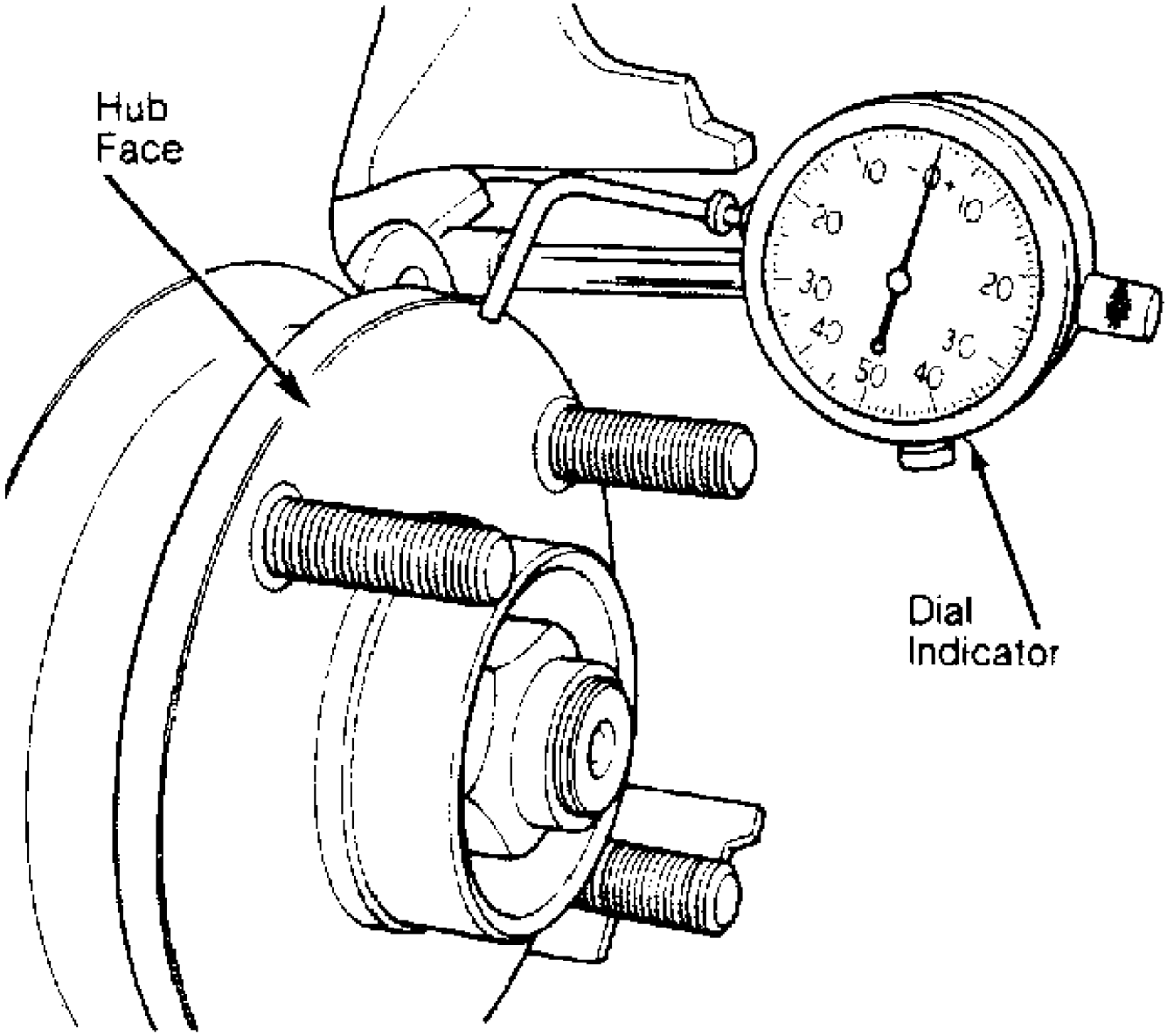

Fig. 4: Checking Hub Runout
Courtesy of Chrysler Motors.

LATERAL RUNOUT - REAR

1) To check lateral runout, install and tighten lug nuts to hold rotor on hub, tighten wheel bearings until all end play is eliminated. Attach dial indicator to the suspension so that the dial pointer contacts rotor face approximately one inch from the outer edge. See Fig. 4.

2) Rotate rotor and record measurement. If runout exceeds specifications, check hub lateral runout as shown.

3) Before removing rotor, chalk mark rotor and one wheel stud on high side of runout. Remove rotor and check hub runout. Runout should not exceed .003" (.08 mm).

4) If runout exceeds specifications, hub must be replaced. If

hub runout does not exceed specifications, install the rotor on hub 180 degrees from original position. Recheck lateral runout. If runout exceeds specification, refinish or replace rotor as required. Readjust wheel bearings.

PARALLELISM

To check parallelism, measure thickness of rotor at 12 points around rotor. Make all measurements one inch from edge of rotor. If rotor exceeds specifications, refinish or replace rotor.

CLEANING & INSPECTION

DISC BRAKE PAD INSPECTION - FRONT

Inspect condition of disc pads any time wheels are removed. When disc pad assembly is worn to a thickness of approximately 5/16" (7.94 mm) it should be replaced. Some vehicles are equipped with an electronic brake lining wear sensor in the disc brake pads.

DISC BRAKE PAD INSPECTION - REAR

Inspect condition of disc pads any time wheels are removed. When a disc pad assembly is worn to a thickness of approximately 9/32" (7.14 mm), it should be replaced.

DRUM BRAKES

NOTE: When servicing brake parts, do not create dust by grinding or sanding brake linings or by using compressed air. Use water dampened shop towel to remove dirt and dust from brake parts during disassembly.

Cleaning

Clean all parts except the brake lining and the brake drums with brake cleaning solvent. To remove brake fluid contamination, clean all parts except the brake lining with denatured alcohol. Contaminated brake lining must be replaced.

Inspection

1) Pull back the wheel cylinder dust boots and check for evidence of leakage. If evidence of leakage is noted, the cylinder should be disassembled, inspected and overhauled.

2) Polish the brake support plate ledges with fine emery cloth and inspect them for grooves that could restrict shoe movement. If grooves exist after polishing, the support plate must be replaced.

3) Inspect lining wear pattern. If wear across the width of the lining is uneven, the drums should be checked for distortion, the shoes for correct positioning, and the support plate for distortion.

4) Inspect all springs for evidence of overheating and fractures. Self-adjusting cables should be inspected for kinks, fraying, or elongation of the eyelet. Inspect adjuster screws for freedom of rotation, and adjuster lever for wear and distortion.

5) Replace defective brake parts.

BRAKE SYSTEM BLEEDING

CAUTION: Vehicles equipped with ABS brake systems MUST follow ABS brake bleeding procedure. See ANTI-LOCK BRAKE SYSTEM article in this section. See the following procedures for vehicles without ABS brake systems.

Hydraulic system bleeding is necessary any time air has been introduced into system. Bleed brakes at all 4 wheels if master cylinder lines have been disconnected or master cylinder has run dry. Bleeding can be accomplished by using pressure bleeding equipment or by manually pumping brake pedal and using a clear bleeder hose.

SERVICING METERING VALVE

1) On disc brake equipped vehicles, the metering section of combination valve must be held open before pressure bleeding.
2) Hold metering valve open while pressure bleeding front brakes. To loosen front mounting bolt and install pressure bleeding tool on combination valve, valve stem should be fully extended or depressed.

NOTE: Never reintroduce brake fluid that has been drained from hydraulic brake system or that has been allowed to stand in an open container for an extended period of time. Also, do not use fluid that contains a petroleum base. Petroleum based fluids will cause swelling and distortion of rubber parts in hydraulic system.

BENCH BLEEDING MASTER CYLINDER

NOTE: Bleed tubes must have a residual pressure check valve installed to keep tubes from siphoning brake fluid.

1) Clamp master cylinder in vise by mounting flange. Install bleed tubes in outlet ports. Fill reservoirs with clean brake fluid so that bleed tubes are below brake fluid level. See Fig. 5.
2) Slowly compress and release piston assemblies until bubbles cease to appear in brake fluid. Remove tubes and plug master cylinder outlets to keep fluid from draining.

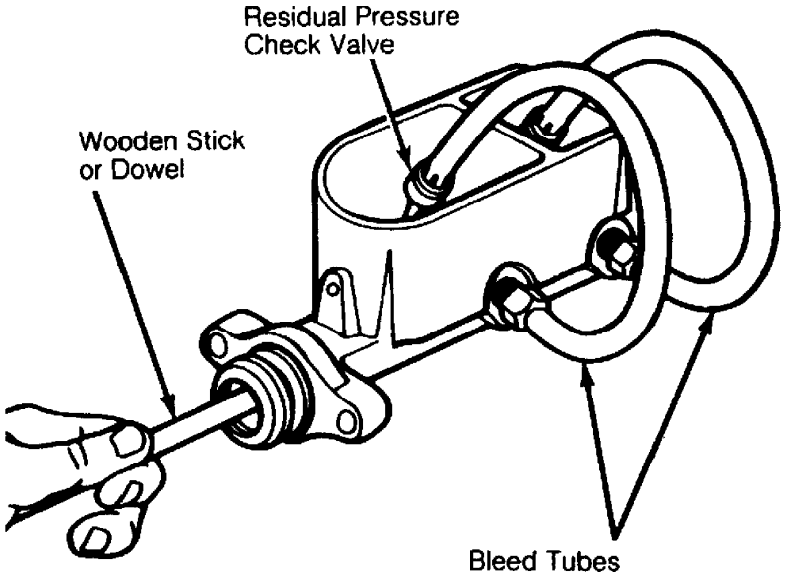

Fig. 5: Bench Bleeding Master Cylinder
Courtesy of Chrysler Motors

MANUAL BLEEDING

NOTE: Ensure that fluid level in master cylinder is adequate at all times during bleeding procedure.

1) Fill master cylinder with clean brake fluid. Install bleeder hose to wheel assembly being serviced. Submerge other end of hose in clean glass jar partially filled with clean brake fluid.
2) Depress brake pedal slowly through its full travel and hold. Open bleed screw 3/4-1 turn. Close bleed screw. Release brake pedal. Repeat procedure until brake fluid shows no signs of air bubbles.

PRESSURE BLEEDING

1) To prevent dirt from falling into reservoir, clean master cylinder and cover/diaphragm assembly, With pressure tank at least 1/3 full, connect to master cylinder using adapters.
2) Install bleeder hose to wheel assembly being serviced. Submerge other end of hose in clean glass jar partially filled with clean brake fluid.
3) Open release valve on pressure bleeder. Open bleed screw 3/4-1 turn. Close bleed screw when brake fluid is clear and free of bubbles. Bleed remaining wheel assemblies in sequence and in same manner. Remove pressure bleeding tool.

BLEEDING PRESSURES

BLEEDING PRESSURES TABLE

Application	Psi (kg/cm²)
All Models	35 (2.46)

BLEEDING SEQUENCE

If vehicle is equipped with power brakes, exhaust vacuum reserve from power unit by depressing brake pedal several times. Bleed master cylinder before bleeding wheel assemblies. Bleed wheel cylinders or calipers in the following sequence:

BLEEDING SEQUENCE TABLE

Application	Sequence
All Models	RR, LR, RF, LF

REMOVAL & INSTALLATION

BRAKE BOOSTER - FWD MODELS

Removal
1) Remove nuts attaching master cylinder to power brake unit. Remove brake tubes between master cylinder and valve assembly. Remove master cylinder.
2) On manual transmission vehicles, remove clutch cable mounting bracket. Pull wiring harness away from and up the strut tower. Disconnect vacuum hose from power brake unit. From under instrument panel, position a small screwdriver between center tang on retainer clip and pin in brake pedal.
3) Rotate screwdriver enough to allow retainer clip center tang to pass over end of brake pedal pin and pull from pin. Discard

retainer clip. Remove stoplight switch and striker plate (if equipped). Remove 4 power brake unit mounting nuts. Remove power brake unit from vehicle.

Installation

To install, reverse removal procedure and bleed brakes. See BRAKE SYSTEM BLEEDING in this article.

BRAKE BOOSTER - RWD MODELS

Removal

1) Remove nuts attaching master cylinder to power brake unit. Carefully slide master cylinder off mounting studs and allow to rest against fender shield. Disconnect vacuum hose from power brake.

2) From under dash panel, position a small screwdriver between center tang on retainer clip and pin in brake pedal. Rotate screwdriver enough to allow retainer clip center tang to pass over end of brake pedal pin and pull retainer clip from pin. Discard retainer clip.

3) Remove lower pivot retaining bolt and nut. Remove 4 power brake unit attaching nuts. Rotate linkage as necessary and remove power brake unit from vehicle. Remove pivot bushing and sleeve for reuse.

Installation

To install, reverse removal procedure.

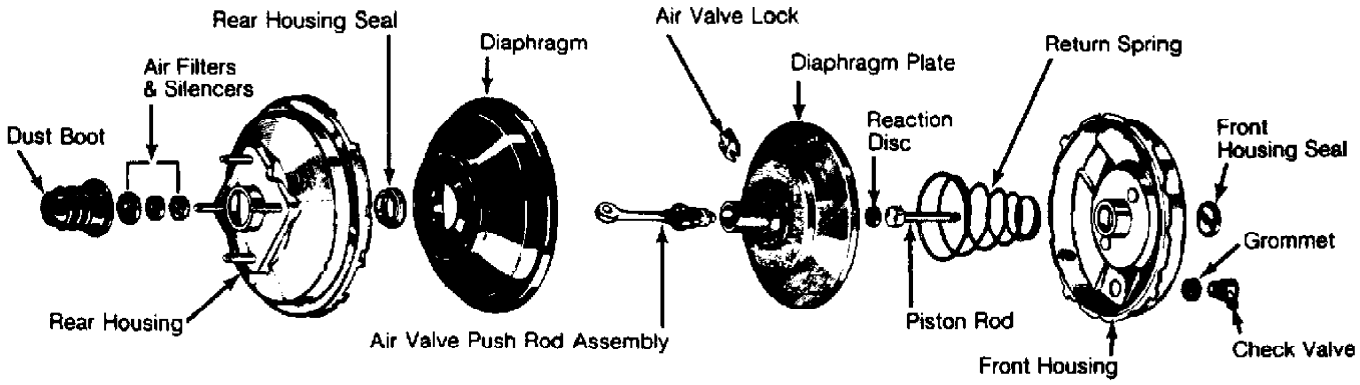

Fig. 6: Exploded View of Bendix Single Diaphragm Booster
Courtesy of Chrysler Motors

DISC BRAKE CALIPER

Caliper removal and installation procedures are the same as for disc pad assembly replacement, except that it will be necessary to disconnect brake hose from caliper.

DISC BRAKE CALIPER & PADS - FRONT (FWD MODELS)

Removal

1) Raise and support front of vehicle. Remove wheel and tire assembly. On A.T.E. calipers, remove hold-down spring from caliper by pushing in at center of spring and pushing it outward. Loosen but do not remove caliper guide pins until caliper is free. Remove guide pins only if bushings or sleeves are to be replaced.

2) On Kelsey-Hayes calipers, remove caliper guide pin. After pin removal, use a screwdriver to pry the caliper away from rotor.

3) Remove either caliper by slowly sliding it out and away from rotor. Suspend caliper with wire to prevent damage to brake hose.

Remove inner pad from caliper piston and outer pad from adapter on A. T.E. calipers. Remove outer pad, rotor and inner pad from Kelsey-Hayes calipers.

NOTE: Before compressing caliper piston back into bore, remove a small amount of brake fluid from master cylinder, or an overfill condition will occur.

Installation

1) Slowly push pistons back into caliper bores until bottomed. Clean machined ways and lubricate adapter and guides with multipurpose lubricant. Remove protective paper from noise suppression gasket on pads.

2) On A.T.E. calipers, install inner pad on caliper while pushing retainer into bore of piston. Install outer pad on adapter and carefully lower caliper over outer pad and rotor.

3) On Kelsey-Hayes calipers, install inner pad on adapter and install rotor on drive hub. Install outer pad on adapter and carefully lower caliper over pads and rotor.

4) Install caliper guide pins, using care not to cross threads. Tighten to specification. Install hold-down spring on A.T.E. calipers. Pump brake pedal several times until a firm pedal is obtained. Refill master cylinder and bleed brake system if necessary.

5) Install wheel and tire assembly. Tighten lug nuts to specification. Skip every other nut while going around. Repeat sequence to full torque. Road test vehicle.

DISC BRAKE CALIPER & PADS - FRONT (RWD MODELS)

Removal

Raise and support front of vehicle. Remove wheel and tire assembly. Remove retaining screws, clips and anti-rattle springs. Slowly slide caliper out and away from rotor. Remove outer pad by prying between pad and caliper fingers. Suspend caliper with wire to prevent damage to brake hose. Remove inner pad.

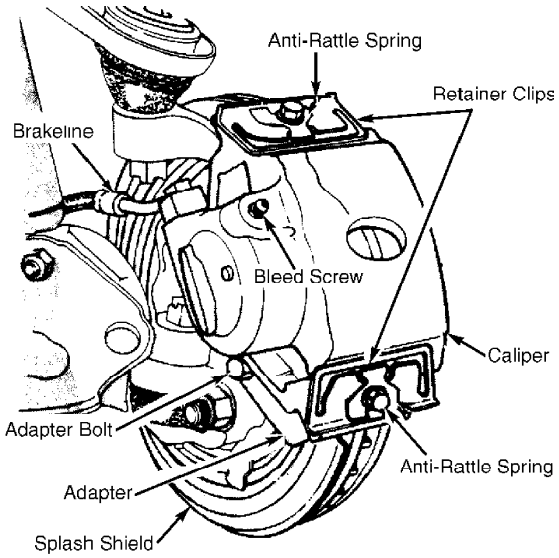

Fig. 7: Chrysler Motors Caliper Assembly
Courtesy of Chrysler Motors.

Installation

1) Remove a small amount of brake fluid at master cylinder to

prevent overflow as piston is pushed back into caliper. Slowly and carefully push piston into bore of caliper until bottomed. Install outer pad into recess of caliper. No free play between outer pad flanges and caliper fingers should exist.

2) If free play is evident by vertical pad movement after installation, remove pad and bend flanges to eliminate free play. Install pad after modification, using a "C" clamp if necessary. Install inner pad with flanges in machined guides of adapter. Slowly slide caliper assembly into adapter and over rotor. Align caliper on machined guides of adapter.

CAUTION: Be careful not to pull dust boot from its groove as piston and boot slide over inner pad.

3) Install anti-rattle springs and retaining clips and tighten retaining screws. Make sure inner anti-rattle spring is installed on top of retaining spring plate.

4) Pump brake pedal several times until a firm brake pedal is obtained. Refill master cylinder and bleed brake system if necessary. Install wheel and tire assembly and lower vehicle.

DISC BRAKE CALIPER & PADS - REAR (DAYTONA)

NOTE: Rear calipers are not serviceable. If fluid leaks are detected around caliper piston, calipers must be replaced as an assembly.

Removal

1) Raise and support vehicle. Remove wheel and tire assembly. Clean area around access plug and remove plug. See Fig. 8.

2) Insert 4 mm Allen wrench through access hole and turn retraction shaft counterclockwise a few turns. This will increase disc pad clearance. Remove anti-rattle spring. Do not bend spring.

3) Back out guide pins enough to remove caliper assembly. Lift caliper up and away from disc. Suspend caliper on wire hook to prevent damage to brake hose. Remove disc pads.

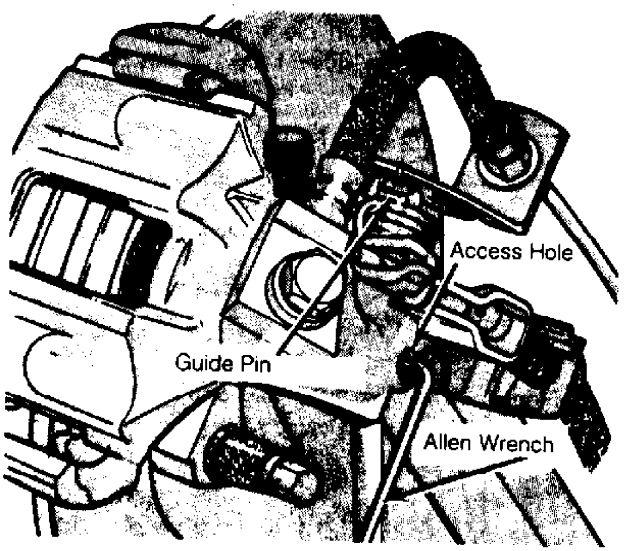

Fig. 8: Rear Disc Brake Assembly (Daytona)
Courtesy of Chrysler Motors.

NOTE: Rear calipers are not serviceable. If fluid leaks are detected around caliper piston, calipers must be replaced as

an assembly.

Installation

1) Installation of new disc pads will require retracting caliper piston further. Insert Allen wrench through access hole. Apply pressure to face of piston and turn Allen wrench counterclockwise until slight increase in pressure is felt.

2) Install inboard disc pad into caliper piston. Install outboard pad on adapter. Be sure to note outboard pad markings, "R" or "L".

3) Carefully lower caliper over disc and outboard pad. Install guide pins and torque to specification.

4) Initial pad clearance must be adjusted. Insert Allen wrench through access hole and turn clockwise until pads are snug (no clearance between disc and pad). Turn Allen wrench back 1/3 turn and install access plug. Pump brakes to ensure pedal is firm. Road test and check for leaks.

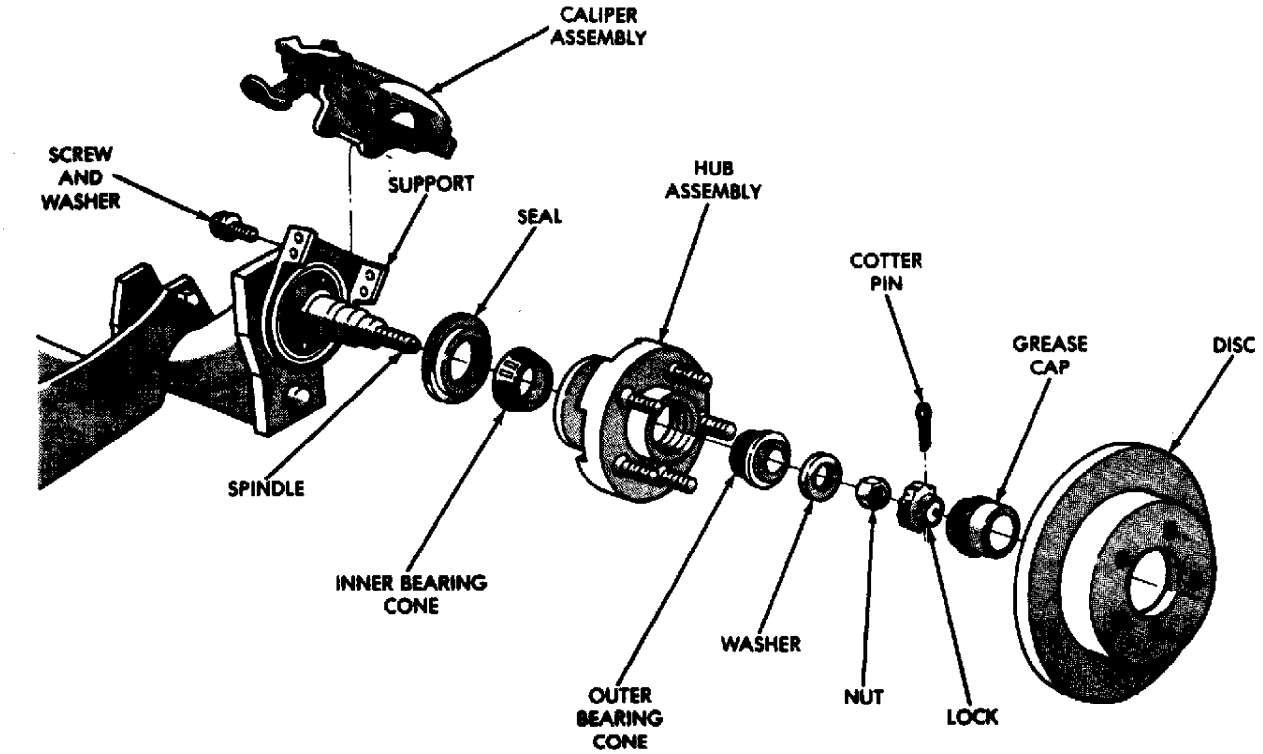

Fig. 9: Exploded View of Daytona Rear Brake Assembly
Courtesy of Chrysler Motors.

NOTE: Before compressing caliper piston back into the bore, remove a small amount of brake fluid from master cylinder or overflow will occur.

2) Carefully place caliper over disc and pads. Lower end must be installed first. Install anti-rattle clip through top opening in caliper.

3) Drive disc pad retainer pin through caliper and disc pads. Push down caliper mounting bolts. Install wheels and tires. Pump brakes and ensure pedal is firm. Road test vehicle. Check for leaks.

NOTE: Rear calipers are not serviceable. If fluid leaks are detected around caliper piston, calipers must be replaced as an assembly.

Removal

1) Raise and support vehicle. Remove wheel and tire assembly. Drive out disc pad retainer pin and remove 2 caliper mounting bolts. See Fig. 10.

2) Lift caliper up and away from disc. Suspend caliper on wire hook to prevent damage to brake hose. Remove disc pads.

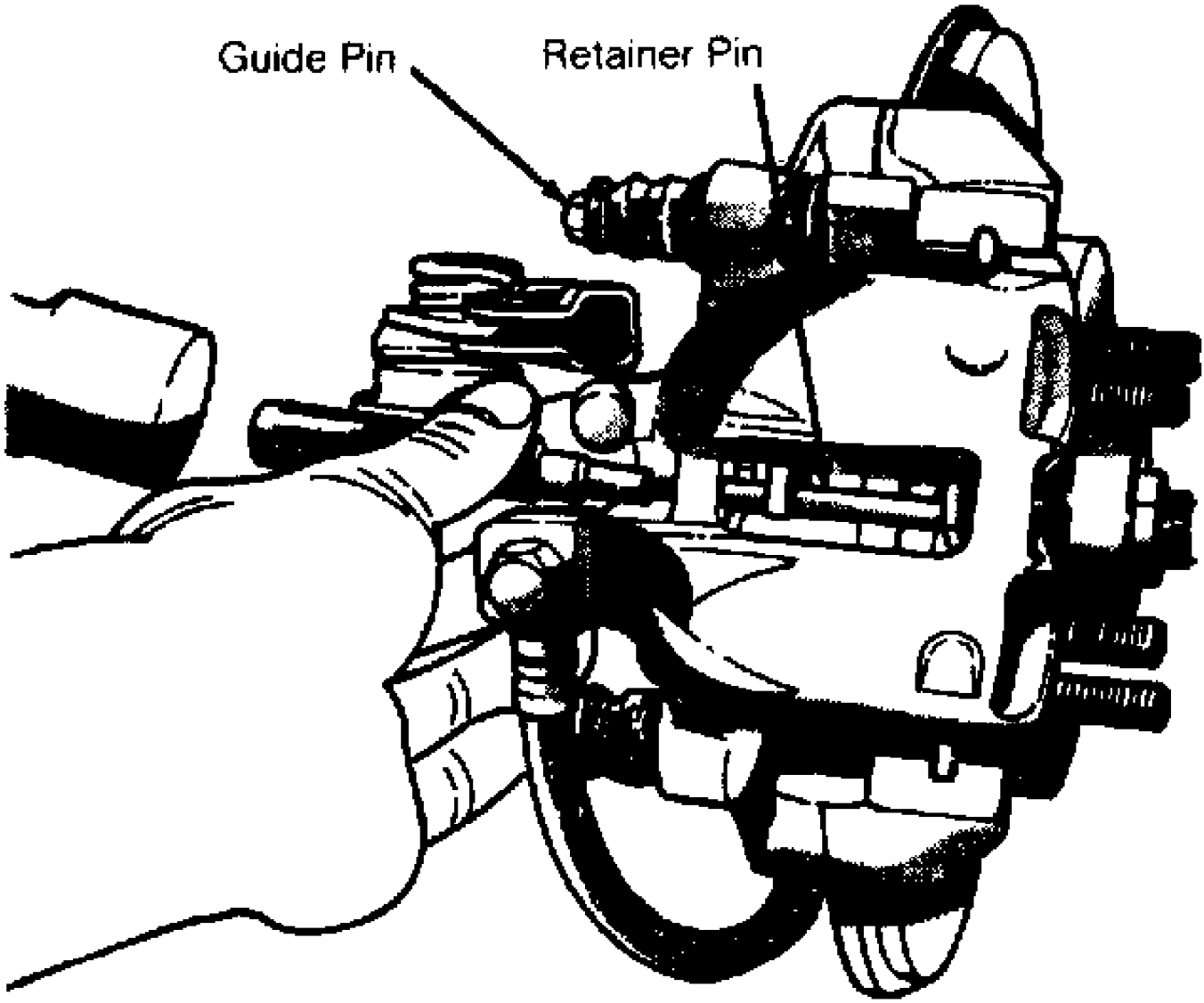

Fig. 10: "C" Body Rear Brake Assembly
Courtesy of Chrysler Motors.

Installation

NOTE: Before compressing caliper piston back into bore, remove a small amount of brake fluid from master, or overfill condition will occur.

1) Slowly push piston back into caliper bores until bottomed. Clean and lubricate machined ways. Install new disc pads.

2) Carefully, place caliper over disc and pads. Lower end must be installed first. Install anti-rattle clip through top opening in caliper.

3) Drive disc pad retainer pin through caliper and disc pads. Push down caliper assembly and torque upper and then lower caliper mounting bolts. Install wheels and tires. Pump brakes and ensure pedal is firm. Road test and check for leaks.

DISC BRAKE ROTOR - FWD MODELS

Removal & Installation

Raise and support front of vehicle. Remove wheel and tire assembly. Remove caliper assembly and support out of the way. Remove adapter from knuckle (A.T.E. front and rear disc only). Remove rotor from drive hub. Clean both sides of rotor with alcohol or suitable solvent. Reverse removal procedure to complete installation.

DISC BRAKE ROTOR - RWD MODELS

Removal & Installation

Raise and support front of vehicle. Remove wheel and tire assembly. Remove caliper assembly and support out of the way. Remove grease cap, cotter pin, nut lock, nut, thrust washer, and outer wheel bearing. Remove rotor/hub assembly from spindle. Install rotor/hub assembly after servicing rotor.

DRUM BRAKE SHOE & LINING - FWD MODELS

Removal

1) Release brake adjustment. Remove grease cap, cotter pin, lock nut and washer. Remove brake drum and bearings. Remove parking brake cable, shoe anchor springs and hold-down springs. Spread shoes and remove adjuster assembly.

2) Remove brake shoes by raising parking brake lever, then pulling shoe away from support to remove spring tension and disengaging spring from support. Remove springs from brake shoes.

Installation

1) Install primary shoe return spring. Install primary shoe while engaging return spring end in support and shoe end under anchor plate. Install secondary shoe and spring in same manner. Spread shoes and install adjuster assembly with forked end in shoe and leading curved tines DOWN.

2) Install hold-down pins, springs and anchor springs. Compress parking brake cable housing spring to expose cable. Slide cable into parking brake lever. Position washer between parking brake cable housing spring and parking brake lever.

3) Install drum, bearing, washer, nut, cotter pin and grease cap. Adjust wheel bearing and bleed brakes. See REAR WHEEL BEARINGS under ADJUSTMENTS. Check for proper brake operation before moving vehicle.

DRUM BRAKE SHOE & LINING - RWD MODELS

Removal

1) Remove brake drums, releasing brake adjustment if necessary. Remove return springs, adjuster cable, overload spring, cable guide and anchor plate. Disengage adjusting lever from spring and remove by working it out from under spring. Remove spring from

pivot. Remove shoe-to-shoe spring.

2) Disengage shoes from push rods (if equipped) and remove adjusting wheel assembly. Remove parking brake strut and anti-rattle spring. Remove brake shoe retainers, springs and nails. Disconnect parking brake cable and remove lever. Remove brake shoes.

Installation

1) Lubricate all brake shoe contact points and pivot end of parking brake lever. Insert brake lever into hole of secondary shoe from inner side of shoe web. Connect brake lever to cable. Slide secondary shoe against backing plate and anchor pin, while engaging shoe web with push rod (if equipped).

2) Slide parking brake strut behind hub and into lever slot. Install anti-rattle spring on strut. Spring tab must point up and rearward on outside of shoe web on 10" left brake and, point down and forward on inside of shoe web on 10" right brake.

3) Slide primary shoe into position, engaging shoe with push rod (if equipped) and strut. Install anchor plate and adjuster cable. Install primary shoe return spring. While holding cable guide in position on secondary shoe, install return spring through guide and into web. Place other end over anchor pin. Squeeze spring ends around anchor pin with pliers until parallel.

NOTE: Cable guide must remain flat and secondary spring must overlap primary spring.

4) Install adjusting assembly between shoes with star wheel next to secondary shoe. Install shoe-to-shoe spring; coil must be forward and opposite adjuster lever on 11" brakes.

NOTE: Left star wheel is cadmium plated and stamped "L" on stud end; right star is Black and stamped "R" on stud end. Assemblies must be installed as indicated.

5) Install adjusting lever and spring over pivot pin. Lock lever in position by sliding it lightly rearward. Install shoe retaining nails, retainers and springs. Thread adjuster cable over guide and hook end of overload spring in lever. Install drums. Adjust and bleed brakes. Check for proper brake operation before moving vehicle.

NOTE: Cable eye must be tight against anchor and in a straight line with guide.

MASTER CYLINDER

Removal

1) On power brake systems, disconnect brake fluid level indicator and brake warning switch leads (if equipped). Disconnect hydraulic brake lines. Remove master cylinder attaching nuts and remove master cylinder.

2) On manual brake systems, disconnect negative battery cable and warning switch lead (if equipped). Disconnect hydraulic brake lines. Remove push rod at brake pedal and remove stoplight switch (if equipped). Remove master cylinder attaching nuts and remove master cylinder.

Installation

1) Bleed master cylinder. To complete installation, reverse remainder of removal procedure. Bleed hydraulic brake system. See BRAKE SYSTEM BLEEDING in this article.

2) Check master cylinder compensating ports. Remove master cylinder cover and observe brake fluid. A slight surge or small spurt

should appear in one or both reservoirs upon brake application. If no spurt appears, push rod may be improperly adjusted.

3) Adjust push rod at brake pedal, on manual brakes. Push rod should have a slight amount of play when brake pedal is released. On power brakes, push rod is non-adjustable.

REAR AXLE SEAL & BEARINGS - RWD MODELS

Removal

1) Raise and support vehicle. Remove wheels and brake drums. Loosen housing cover screws to drain lubricant. Remove housing cover. Turn differential case for access to lock screw. Remove lock screw and pinion shaft. Push axle shafts toward center of vehicle. Remove "C" locks from groove in axle shafts. Remove shafts from housing.

2) Do not damage roller bearings which remain in axle housing. Remove shaft seal from housing bore. Dents caused by axle shaft splines should be polished smooth or rubber on outside diameter of seal will be torn and seal leakage will result.

3) To remove bearing, use bearing separator. If axle shaft and bearing are not damaged, then they may be reused. DO NOT reuse axle shaft seal after removal.

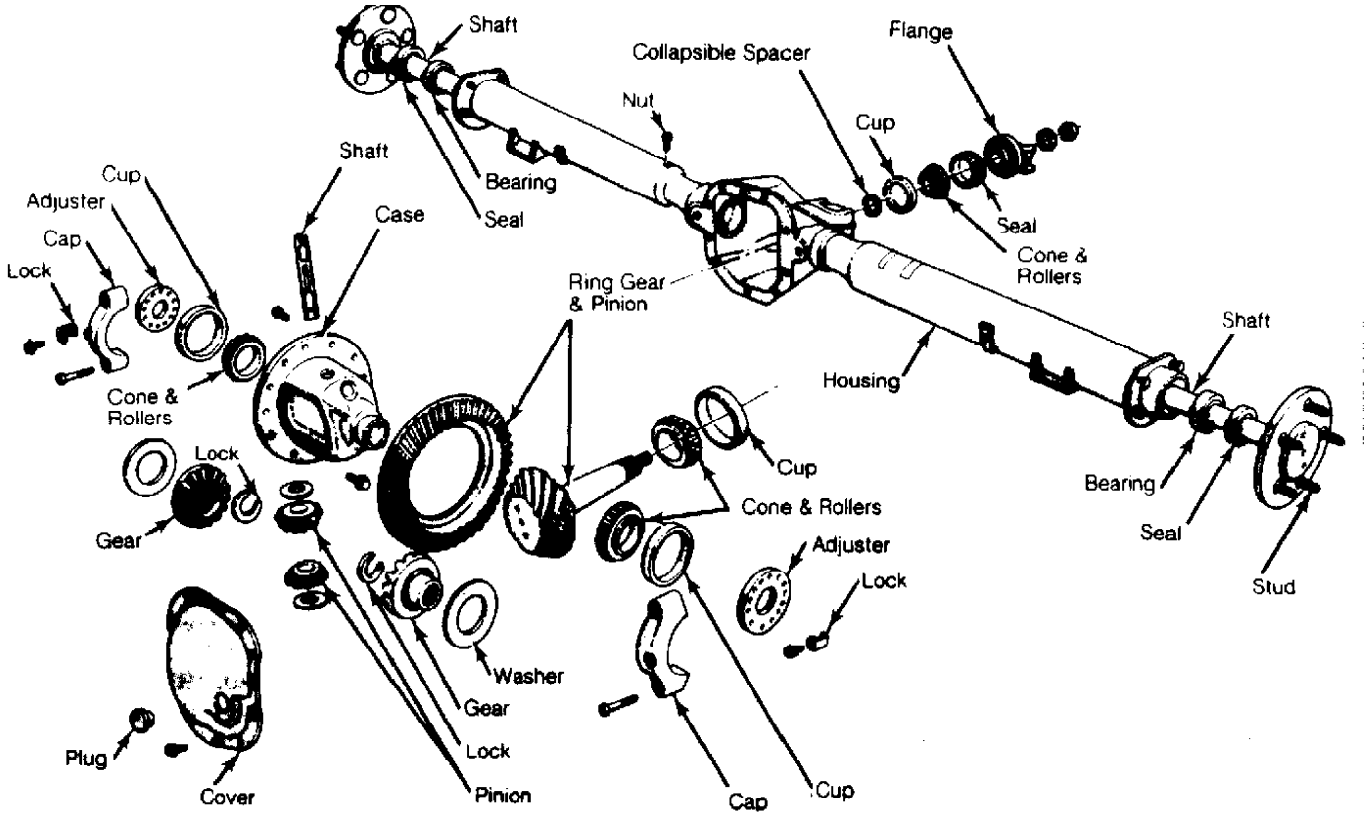

Fig. 11: Chrysler Corp. 7 1/4" Rear Axle Assembly
Courtesy of Chrysler Motors

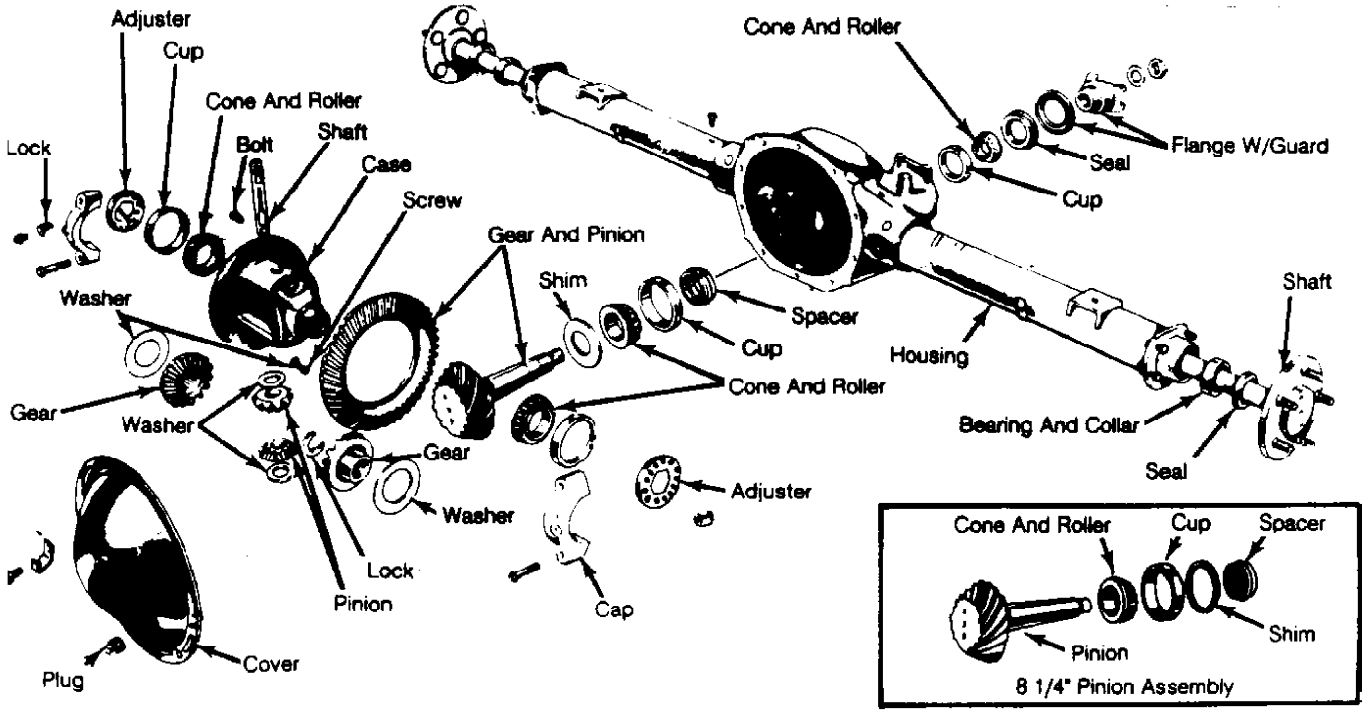

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Fig. 12: Chrysler Corp. 8 1/4" Rear Axle Assembly
Courtesy of Chrysler Motors

FRONT WHEEL BEARINGS - RWD MODELS

Removal

1) Raise and support vehicle. Remove wheel and tire assembly. Remove grease cap, cotter pin, nut lock, and bearing adjusting nut. Remove disc brake sliding caliper retaining clips and anti-rattle springs. Slowly slide caliper assembly away from brake disc and support caliper housing on steering knuckle.

2) Remove thrust washer and outer bearing cone. Slide wheel hub and disc assembly off spindle. Carefully drive out inner seal and remove bearing cone with 3/4" diameter non-metallic rod.

Installation

1) If cup is damaged, install new cup. Force grease between all rollers and case of bearing. Apply a small amount of grease to hub cavity. Install inner cone and new seal with lip of seal facing inward.

2) Using seal installer (C-4210), position seal flush with end of hub. Clean spindle and apply a light coat of grease to polished surfaces. Install hub and braking disc assembly to spindle and install bearing outer cone, thrust washer and adjusting nut.

3) Tighten adjusting nut to 20-25 ft. lbs. (27-34 N.m) while turning wheel. Stop rotation and back off adjusting nut 1/4 turn (90°) to release preload. Finger tighten adjusting nut while rotating wheel.

4) Position locking nut over adjusting nut, then install cotter pin and dust cover. Adjustment procedure should provide .0001-.0030" (.002-.076 mm) end play.

REAR WHEEL BEARINGS - FWD MODELS W/REAR DISC BRAKES

1) Raise and support vehicle. Remove wheel. Remove grease

cap, cotter pin, nut lock and bearing adjusting nut. Remove thrust washer and outer bearing. Remove caliper and shoes from support. See DISC BRAKE CALIPER & PADS - REAR under REMOVAL & INSTALLATION. Remove rotor.

2) Carefully drive out inner seal and remove bearing race with 3/4" diameter non-metallic rod. To install wheel bearing, seat new bearing race into hub. Press bearing in until it bottoms against shoulder of hub.

3) Force lubricant between all bearing rollers. Install inner race and new seal. Face lip of seal inward. Position seal flush with end of hub.

4) Clean spindles and apply a light coat of wheel bearing lubricant to polished surfaces. Install drum on spindle and install outer bearing, thrust washer and adjusting nut.

5) Tighten adjusting nut to 240-300 INCH lbs. (27-33 N.m) while rotating wheel. Stop rotation and back off adjusting nut 1/4 turn. Finger tighten adjusting nut while again rotating wheel. Install lock nut and cotter pin. Install wheel. Lower vehicle.

REAR WHEEL BEARINGS - FWD W/REAR DRUM BRAKES

Removal

Raise vehicle and support off floor. Remove grease cap, cotter pin, nut lock, and bearing adjusting nut. Remove thrust washer and outer bearing cone. Slide drum off spindle. Carefully drive out inner seal and remove bearing cone with 3/4" diameter non-metallic rod.

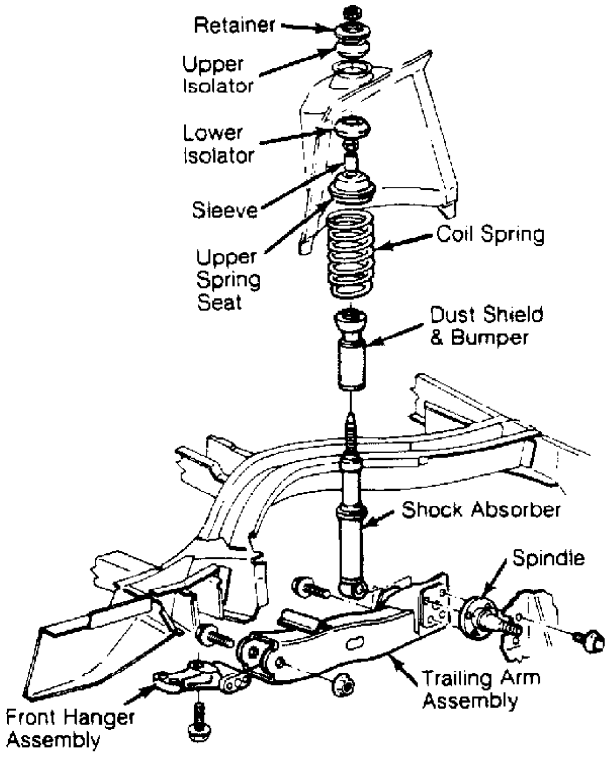

Fig. 13: Rear Suspension Assembly (Charger, Omni, Horizon & Turismo) Courtesy of Chrysler Motors

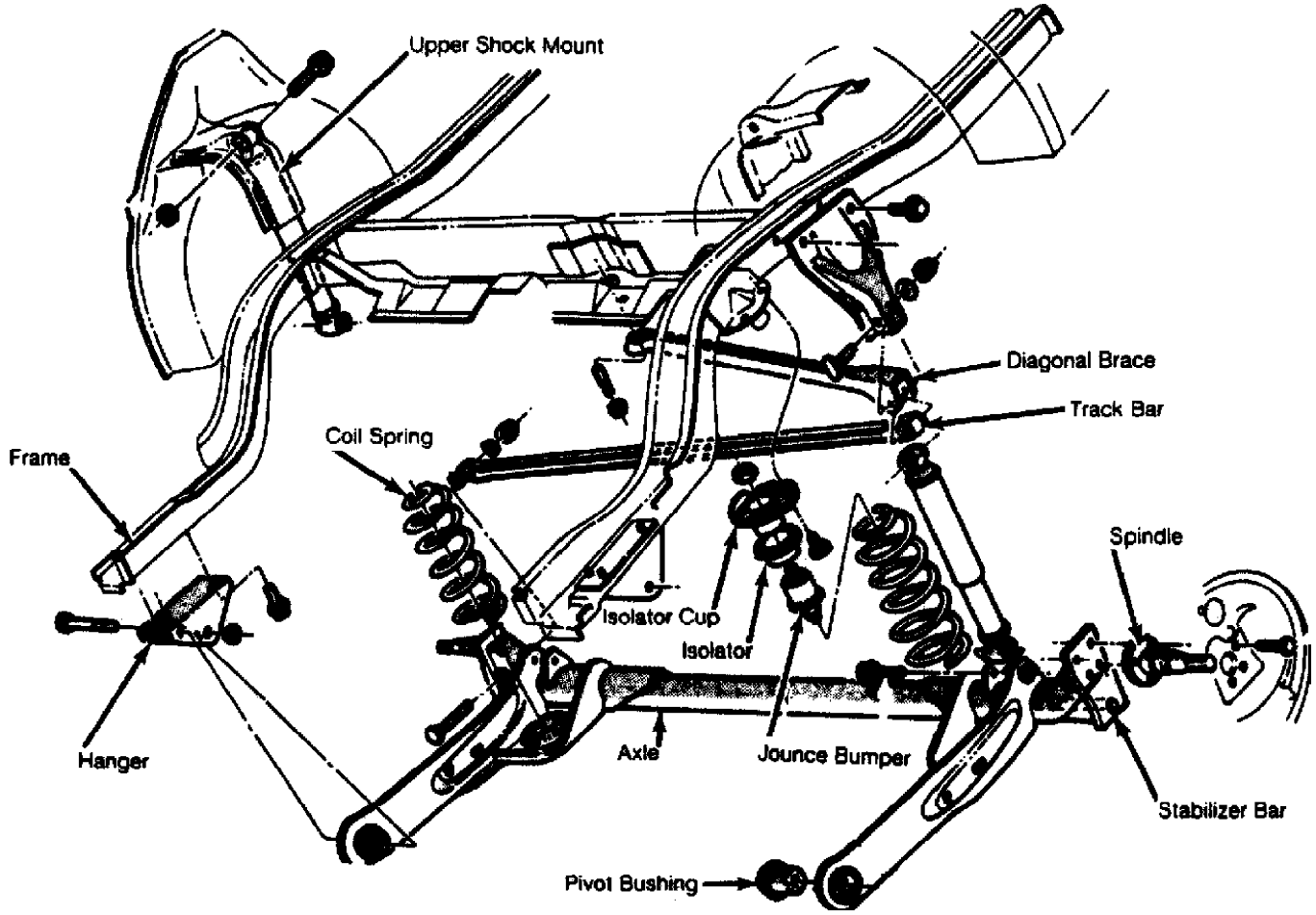

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Fig. 14: Rear Suspension Assembly (All Other FWD Models)
Courtesy of Chrysler Motors

Installation

To install, seat new bearing cup against shoulder of hub. Force lubricant between all bearing cone rollers. Install inner cone and new seal. Face lip of seal inward. Position seal flush with end of hub. Clean spindles and apply a light coat of wheel bearing lubricant to polished surfaces. Install drum on spindle and install outer bearing cone, thrust washer, and adjusting nut. Install wheel and tire and lower vehicle.

OVERHAUL

BRAKE BOOSTER

NOTE: If brake booster is damaged or inoperative, replace it with a new booster. Do not attempt to disassemble booster as it is serviced as a complete assembly only.

DISC BRAKE CALIPER - FRONT (FWD MODELS)

CAUTION: Chrysler Motors recommends that compressed air not be used to remove piston from caliper.

Disassembly

1) With caliper removed from rotor and brake hose still attached, carefully depress brake pedal to hydraulically force piston out of bore. If both pistons are to be removed, disconnect flexible brake line at frame bracket after removing first piston. Plug brake tube and repeat procedure.

2) Disconnect brake hose from caliper. Place caliper in vise and remove dust boot. Using a small wooden or plastic stick, pry piston seal from caliper bore groove. Remove bushings from A.T.E. and Kelsey-Hayes calipers. Discard bushings and Teflon sleeves on A.T.E. calipers.

Cleaning & Inspection

Clean all components (including bleeder screw) using alcohol or suitable solvent. Blow out all passages and bores with compressed air. Inspect piston and bore for scoring or pitting. Clean light scoring or corrosion with crocus cloth. Bores with deep scoring may be honed, providing diameter of bore is not increased more than .001" (.025 mm). If specification is exceeded, replace caliper.

Reassembly

1) Dip new piston seal in clean brake fluid and gently work seal into groove until seated. Coat new piston boot with clean brake fluid, leaving a generous amount inside boot.

2) Position dust boot over piston. Install piston, pushing it past seal, until it bottoms in bore. Position boot in counterbore. Using a hammer and dust boot installer, drive boot into counterbore.

3) Remove Teflon sleeves from bushings before installing bushings into A.T.E. caliper. Install new bushings on either caliper by pressing in on bushings until seated. Be sure that bushing flanges extend evenly over caliper casting. After bushings are installed, reinstall Teflon sleeves. Clean machined ways of caliper to remove rust and corrosion before lubricating or reinstalling.

DISC BRAKE CALIPER - FRONT (RWD MODELS)

CAUTION: Chrysler Motors recommends that compressed air not be used to remove piston from caliper.

Disassembly

1) With caliper removed from rotor and brake hose still attached, carefully depress brake pedal to hydraulically force piston out of bore. If both pistons are to be removed, disconnect flexible brake line at frame bracket after removing first piston. Plug brake tube and repeat procedure.

2) Disconnect brake hose from caliper. Place caliper in vise and remove dust boot. Using a small wooden or plastic stick, pry piston seal from caliper bore groove.

Cleaning & Inspection

Clean all components (including bleeder screw) using alcohol or suitable solvent. Blow out all passages and bores with compressed air. Inspect piston and bore for scoring or pitting. Clean light scoring or corrosion with crocus cloth. Bores with deep scoring may be honed, providing diameter of bore is not increased more than .001" (.025 mm). If specification is exceeded, replace caliper.

Reassembly

1) Dip new piston seal in clean brake fluid and gently work seal into groove until seated. Coat new piston boot with clean brake fluid, leaving a generous amount inside boot.

2) Position dust boot over piston. Install piston, pushing it past seal, until it bottoms in bore. Position boot in counterbore.

Using a hammer and dust boot installer, drive boot into counterbore.

3) Install new bushings by pressing in on bushings until seated. Be sure that bushing flanges extend evenly over caliper casting. Clean machined ways of caliper to remove rust and corrosion before lubricating or reinstalling.

DISC BRAKE CALIPER - REAR

NOTE: Rear calipers are not serviceable. If fluid leaks are detected around caliper piston, calipers must be replaced as an assembly. Only dust boots, bushings and sleeves are serviceable.

Dust Boot Removal & Installation

Clean caliper with alcohol or suitable solvent. Remove dust boot and retainer (retainer for Daytona only). Dip new dust boot in clean brake fluid and install. On Dynasty and New Yorker, use Tool (C-4383-7). On Daytona, use retainer only.

Bushing & Sleeve Removal & Installation

Remove old sleeve, and then bushing. Clean caliper with alcohol or suitable solvent. Compress new bushings with fingers and work into proper position. Insert new sleeves, ensure bushing is seated in sleeve groves.

MASTER CYLINDER

Disassembly

1) Clean outside of master cylinder. Remove caps or cover/diaphragm assembly. Remove brake fluid level indicator (if equipped). Pump and drain all brake fluid from master cylinder. Clamp master cylinder in vise by mounting flange. Remove plastic reservoir and grommets on 2-piece master cylinders.

2) Press primary piston inward and remove stop bolt (if equipped). Press primary piston inward and remove snap ring. Remove primary piston assembly. Apply compressed air to furthest back bleeder screw hole and remove secondary piston assembly.

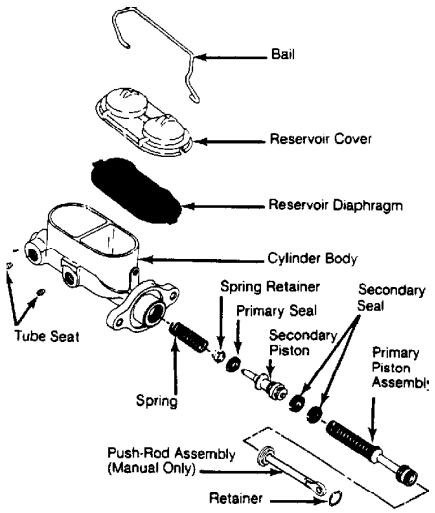

Fig. 15: Typical Cast Iron Tandem Master Cylinder
Courtesy of Chrysler Motors

Inspection

1) Wash master cylinder body, bore and piston assemblies with

denatured or isopropyl alcohol. Inspect piston assemblies and return springs. Replace pistons if they are scored galled, worn, cracked or broken. Replace springs if they are broken, bent, collapsed, distorted or fatigued.

2) Inspect tube seat inserts in outlet ports. Replace if they are cracked, scored, loose, cocked or worn. If removal kits are not available, replace by using spiral easy-out.

3) Remove check valve and spring from drum brake outlet (if equipped). Inspect cylinder bore for scoring, corrosion or wear. Aluminum master cylinders are anodized. Wear on the anodized surface, as evidenced by lighter areas, is normal.

4) Use crocus cloth to polish out light corrosion on cast iron master cylinders. Replace master cylinder if bore does not clean up using crocus cloth. Aluminum master cylinders may not be polished and must be replaced.

5) Inspect compensator and by-pass ports at bottom of reservoir. If they are plugged or dirty, clean them using brake cleaning solvent and compressed air only.

CAUTION: Do not install check valve in disc brake outlet, as this will cause disc brakes to lock up.

Reassembly

1) Install check valve and spring in drum brake outlet (if removed). Using a spare tubing nut, press tube seat insert into place (if removed). Turn nut until tube seat insert bottoms. Remove nut and inspect outlet for burrs or shavings.

2) Coat bore of cylinder and piston assemblies with clean brake fluid. Install secondary and primary piston assemblies into bore. Press primary piston inward and install snap ring. Press primary piston inward and install stop bolt (if equipped). Install push rod (if equipped).

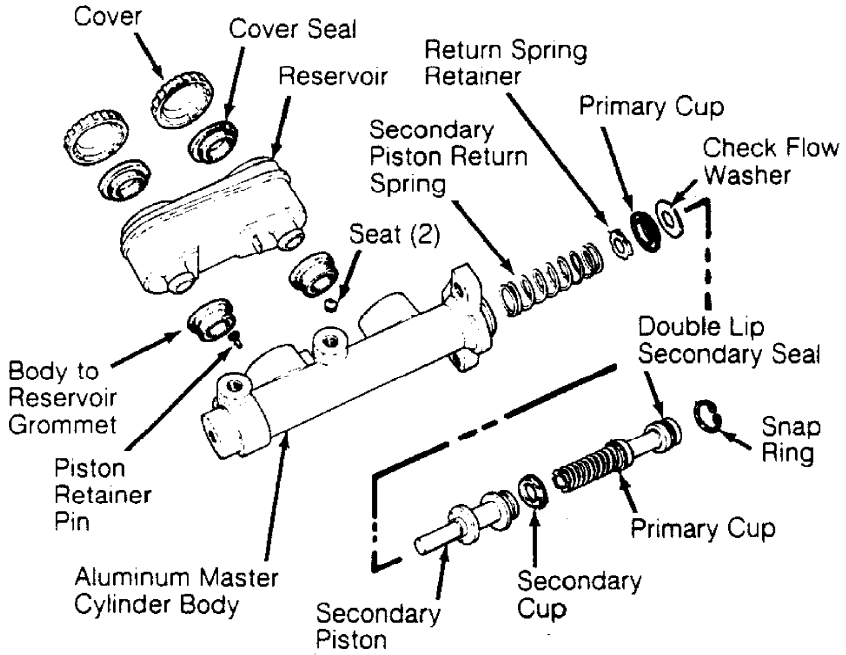

Fig. 16: Chrysler Motors Composite Master Cylinder
Courtesy of Chrysler Motors

3) On 2-piece master cylinders, lubricate grommets with clean brake fluid and install in master cylinder making sure that they are

properly seated. Place reservoir on hard surface and install plastic reservoir with a rocking motion.

4) Fill reservoir with clean brake fluid and bleed master cylinder. See BENCH BLEEDING MASTER CYLINDER under BRAKE SYSTEM BLEEDING in this article.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Booster-to-Dash	12-26 (16-35)
Brake Hose to Caliper	19-29 (26-40)
Brake Line-to-Master Cylinder	
FWD Models	12-19 (16-26)
RWD Models	10-14 (14-19)
Brake Support Plate Retaining Nut	
RWD Models	35 (47)
Caliper Adapter Mounting Bolts	
Front	
FWD Models	130-190 (176-258)
RWD Models	95-125 (130-169)
Rear	130-190 (176-258)
Caliper Retainer Plate Screws	
RWD Models	14-22 (19-29)
Cowl Intrusion Bolt	13-25 (18-34)
Front Spindle Nut	
RWD Models	(1)
Guide Pins	
Front	
Kelsey-Hayes	25-35 (34-47)
Rear	18-26 (24-35)
Master Cylinder-to-Booster Nuts	
FWD Models	17-19 (23-26)
RWD Models	17-25 (23-34)
Splash Shield Mounting Bolts (Minimum)	
RWD Models	13 (18)
Wheel Lug Nuts	
FWD Models	95 (129)
RWD Models	85 (115)
	INCH Lbs. (N.m)
Bleeder Screw	80-170 (10-19)

(1) - Tighten adjusting nut to 20-25 ft. lbs. (27-34 N.m) while turning wheel. Back off adjusting nut 1/4 turn. Finger tighten adjusting nut while rotating wheel. Install locking nut, cotter pin and dust cover. End play is .0001-.0030" (.002-.076 mm).

BRAKE SYSTEM SPECIFICATIONS

DISC BRAKE SPECIFICATIONS

DISC BRAKE SPECIFICATIONS TABLE - FRONT

Application	In. (mm)

Horizon & Omni	
Disc Diameter	8.98 (228.0)
Lateral Runout	0.005 (0.13)
Parallelism	0.0005 (0.013)
Original Thickness	0.490-0.505 (12.5-12.8)
Minimum Refinish Thickness	0.461 (11.71)
Discard Thickness	0.431 (10.95)
All Other FWD Models	
Disc Diameter (1)	9.45 (240.0)
Lateral Runout	0.005 (0.13)
Parallelism	0.0005 (0.013)
Original Thickness	0.930-0.940 (23.6-23.9)
Minimum Refinish Thickness	0.912 (23.2)
Discard Thickness	0.882 (22.4)
RWD Models	
Disc Diameter	11.0 (279.4)
Lateral Runout	0.004 (0.10)
Parallelism	0.0005 (0.013)
Original Thickness	1.000-1.010 (25.4-25.7)
Minimum Refinish Thickness	0.970 (24.6)
Discard Thickness	0.940 (23.9)

(1) - Heavy Duty Disc is 10.24" (260.0 mm).

DISC BRAKE SPECIFICATIONS TABLE - REAR

Application	In. (mm)
Daytona	
Disc Diameter	10.8 (275)
Lateral Runout	.005 (.13)
Parallelism	.0005 (.013)
Original Thickness	.340-.348 (8.65-8.85)
Minimum Refinish Thickness	.321 (8.2)
Discard Thickness	.291 (7.4)
Dynasty & New Yorker	
Disc Diameter	10.8 (275)
Lateral Runout	.003 (.008)
Parallelism	.0005 (.013)
Original Thickness	.350-.358 (8.9-9.10)
Minimum Refinish Thickness	.369 (9.4)
Discard Thickness	.339 (8.6)

DRUM BRAKE SYSTEM SPECIFICATIONS

DRUM BRAKE SPECIFICATIONS TABLE

Application	In. (mm)
Aries, Horizon, Lancer, LeBaron Omni, Reliant, Shadow, Sundance	
Drum Diameter	7.87 (200.0)
Drum Width	1.28 (32.50)
Max. Drum Refinish Diam. (1)	7.92 (201.2)
Wheel Cyl. Diameter	.626 (16.00)
Master Cyl. Diameter	.827 (21.00)
Aries (2), Caravelle, Daytona, Dynasty, Laser, LeBaron (2), New Yorker, 600, Reliant (2)	
Drum Diameter	8.66 (220.00)
Drum Width	1.58 (40.00)
Max. Drum Refinish Diam. (1)	.....

Wheel Cyl. Diameter	.562 (14.30)
Master Cyl. Diameter	.827 (21.00)
RWD Models	
Standard	
Drum Diameter	10.00 (254)
Drum Width	2.50 (63.5)
Max. Drum Refinish Diam. (1)	10.06 (255.5)
Wheel Cyl. Diameter	.938 (23.80)
Master Cyl. Diameter	1.03 (26.1)
Heavy Duty (3)	
Drum Diameter	11.00 (279.4)
Drum Width	2.50 (63.5)
Max. Drum Refinish Diam. (1)	11.06 (280.90)
Wheel Cyl. Diameter	.938 (23.80)
Master Cyl. Diameter	1.03 (26.10)

(1) - Discard diameter is any measurement more than Maximum Refinish Diameter.
(2) - Heavy duty or wagon models.
(3) - Heavy duty models are Station Wagons, Police, Taxi and models with Trailer Towing package.