BRAKES - BASE - SERVICE INFORMATION

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BRAKES - BASE - SERVICE INFORMATION

DIAGNOSIS AND TESTING

BASE BRAKE SYSTEM

Base brake components consist of the brake pads, calipers, brake drum in hat rotor in the rear, rotors, brake lines, master cylinder, booster, and parking brake components.

Brake diagnosis involves determining if the problem is related to a mechanical, hydraulic, or vacuum operated component.

The first diagnosis step is the preliminary check.

PRELIMINARY BRAKE CHECK

1. Check condition of tires and wheels. Damaged wheels and worn, damaged, or underinflated tires can cause pull, shudder, vibration, and a condition similar to grab.
2. If complaint was based on noise when braking, check suspension components. Jounce front and rear of vehicle and listen for noise that might be caused by loose, worn or damaged suspension or steering components.
3. Inspect brake fluid level and condition. Note that the brake reservoir fluid level will decrease in proportion to normal lining wear. **Also note that brake fluid tends to darken over time. This is normal and should not be mistaken for contamination.**
   a. If fluid level is abnormally low, look for evidence of leaks at calipers, wheel cylinders, brake lines, and master cylinder.

b. If fluid appears contaminated, drain out a sample to examine. System will have to be flushed if fluid is separated into layers, or contains a substance other than brake fluid. The system seals and cups will also have to be replaced after flushing. Use clean brake fluid to flush the system.

4. Check parking brake operation. Verify free movement and full release of cables and pedal. Also note if vehicle was being operated with parking brake partially applied.
5. Check brake pedal operation. Verify that pedal does not bind and has adequate free play. If pedal lacks free play, check pedal and power booster for being loose or for bind condition. Do not road test until condition is corrected.
6. Check booster vacuum check valve and hose.
7. If components checked appear OK, road test the vehicle.

ROAD TESTING

1. If complaint involved low brake pedal, pump pedal and note if it comes back up to normal height.
2. Check brake pedal response with transmission in Neutral and engine running. Pedal should remain firm under constant foot pressure.
3. During road test, make normal and firm brake stops in 25-40 mph range. Note faulty brake operation such as low pedal, hard pedal, fade, pedal pulsation, pull, grab, drag, noise, etc.
4. Attempt to stop the vehicle with the parking brake only and note grab, drag, noise, etc.

PEDAL FALLS AWAY

A brake pedal that falls away under steady foot pressure is generally the result of a system leak or fluid contamination. The leak point could be at a brake line, fitting, hose, or caliper/wheel cylinder. If leakage is severe, fluid will be evident at or around the leaking component.

Internal leakage (seal by-pass) in the master cylinder caused by worn or damaged piston cups, may also be the problem cause.

An internal leak in the ABS or RWAL system may also be the problem with no physical evidence.

LOW PEDAL

If a low pedal is experienced, pump the pedal several times. If the pedal comes back up worn linings, rotors, drums, or rear brakes out of adjustment are the most likely causes. The proper course of action is to inspect and replace all worn component and make the proper adjustments.

SPONGY PEDAL

A spongy pedal is most often caused by air in the system. However, thin brake drums or substandard brake lines and hoses can also cause a spongy pedal. The proper course of action is to bleed the system, and replace thin drums and substandard quality brake hoses if suspected.

HARD PEDAL OR HIGH PEDAL EFFORT

A hard pedal or high pedal effort may be due to lining that is water soaked, contaminated, glazed, or badly worn. The power booster or check valve or a vacuum hose could also be faulty.

PEDAL PULSATION

Pedal pulsation is caused by components that are loose, or beyond tolerance limits.

The primary cause of pulsation are disc brake rotors with excessive lateral runout or thickness variation, or out of round brake drums. Other causes are loose wheel bearings or calipers and worn, damaged tires.

NOTE: Some pedal pulsation may be felt during ABS activation.

BRAKE DRAG

Brake drag occurs when the lining is in constant contact with the rotor or drum. Drag can occur at one wheel, all wheels, fronts only, or rears only.

Drag is a product of incomplete brake shoe release. Drag can be minor or severe enough to overheat the linings, rotors and drums.

Minor drag will usually cause slight surface charring of the lining. It can also generate hard spots in rotors and drums from the overheat-cool down process. In most cases, the rotors, drums, wheels and tires are quite warm to the touch after the vehicle is stopped.

Severe drag can char the brake lining all the way through. It can also distort and score rotors and drums to the point of replacement. The wheels, tires and brake components will be extremely hot. In severe cases, the lining may generate smoke as it chars from overheating.

Common causes of brake drag are:

- Seized or improperly adjusted parking brake cables.
- Loose/worn wheel bearing.
- Seized caliper or wheel cylinder piston.
- Caliper binding on corroded bushings or rusted slide surfaces.
- Loose caliper mounting.
- Drum brake shoes binding on worn/damaged support plates.
- Mis-assembled components.
- Long booster output rod.

If brake drag occurs at all wheels, the problem may be related to a blocked master cylinder return port, or faulty power booster (binds-does not release).

BRAKE FADE

Brake fade is usually a product of overheating caused by brake drag. However, brake overheating and resulting fade can also be caused by riding the brake pedal, making repeated high deceleration stops in a short time span, or constant braking on steep mountain roads. Refer to the Brake Drag information in this section for causes.

BRAKE PULL

Front brake pull condition could result from:

- Contaminated lining in one caliper
- Seized caliper piston
- Binding caliper
- Loose caliper
- Rusty caliper slide surfaces
- Improper brake pads
- Damaged rotor

A worn, damaged wheel bearing or suspension component are further causes of pull. A damaged front tire (bruised, ply separation) can also cause pull.

A common and frequently misdiagnosed pull condition is where direction of pull changes after a few stops. The cause is a combination of brake drag followed by fade at one of the brake units.

As the dragging brake overheats, efficiency is so reduced that fade occurs. Since the opposite brake unit is still functioning normally, its braking effect is magnified. This causes pull to switch direction in favor of the normally functioning brake unit.

An additional point when diagnosing a change in pull condition concerns brake cool down. Remember that pull will return to the original direction, if the dragging brake unit is allowed to cool down (and is not seriously damaged).

REAR BRAKE GRAB OR PULL

Rear grab or pull is usually caused by improperly adjusted or seized parking brake cables, contaminated lining, bent or binding shoes and support plates, or improperly assembled components. This is particularly true when only one rear wheel is involved. However, when both rear wheels are affected, the master cylinder or proportioning valve could be at fault.

BRAKES DO NOT HOLD AFTER DRIVING THROUGH DEEP WATER PUDDLES

This condition is generally caused by water soaked lining. If the lining is only wet, it can be dried by driving with the brakes very lightly applied for a mile or two. However, if the lining is both soaked and dirt contaminated, cleaning and/or replacement will be necessary.

BRAKE LINING CONTAMINATION

Brake lining contamination is mostly a product of leaking calipers or worn seals, driving through deep water puddles, or lining that has become covered with grease and grit during repair. Contaminated lining should be replaced to avoid further brake problems.

WHEEL AND TIRE PROBLEMS

Some conditions attributed to brake components may actually be caused by a wheel or tire problem.

A damaged wheel can cause shudder, vibration and pull. A worn or damaged tire can also cause pull.

Severely worn tires with very little tread left can produce a grab-like condition as the tire loses and recovers traction. Flat-spotted tires can cause vibration and generate shudder during brake operation. A tire with internal damage such as a severe bruise, cut, or ply separation can cause pull and vibration.

BRAKE NOISES

Some brake noise is common with rear drum brakes and on some disc brakes during the first few stops after a vehicle has been parked overnight or stored. This is primarily due to the formation of trace corrosion (light rust) on metal surfaces. This light corrosion is typically cleared from the metal surfaces after a few brake applications causing the noise to subside.

BRAKE SQUEAK/SQUEAL

Brake squeak or squeal may be due to linings that are wet or contaminated with brake fluid, grease, or oil. Glazed linings and rotors with hard spots can also contribute to squeak. Dirt and foreign material embedded in the brake lining will also cause squeak/squeal.

A very loud squeak or squeal is frequently a sign of severely worn brake lining. If the lining has worn through to the brake pads in spots, metal-to-metal contact occurs. If the condition is allowed to continue, rotors can become so scored that replacement is necessary.

BRAKE CHATTER

Brake chatter is usually caused by loose or worn components, or glazed/burnt lining. Rotors with hard spots can also contribute to chatter. Additional causes of chatter are out-of-tolerance rotors, brake lining not securely attached to the shoes, loose wheel bearings and contaminated brake lining.

THUMP/CLUNK NOISE

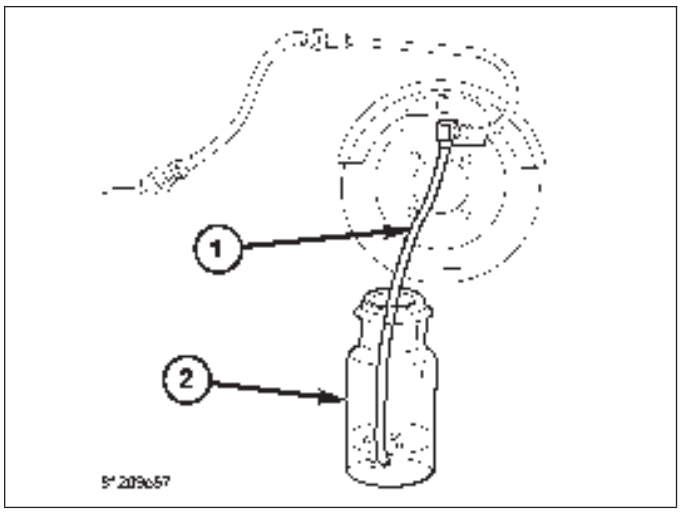
Thumping or clunk noises during braking are frequently **not** caused by brake components. In many cases, such noises are caused by loose or damaged steering, suspension, or engine components. However, calipers that bind on the slide surfaces can generate a thump or clunk noise.

STANDARD PROCEDURE

MANUAL BLEEDING

Use Mopar brake fluid, or an equivalent quality fluid meeting SAE J1703-F and DOT 3 standards only. Use fresh, clean fluid from a sealed container at all times.

1. Remove reservoir filler caps and fill reservoir.
2. If calipers were overhauled, open all caliper bleed screws. Then close each bleed screw as fluid starts to drip from it. Top off master cylinder reservoir once more before proceeding.
3. Attach one end of bleed hose (1) to bleed screw and insert opposite end in glass container (2) partially filled with brake fluid. Be sure end of bleed hose is immersed in fluid.



NOTE: Bleed procedure should be in this order (1) Right rear (2) Left rear (3) Right front (4) Left front.

4. Open up bleeder, then have a helper press down the brake pedal. Once the pedal is down close the bleeder. Repeat bleeding until fluid stream is clear and free of bubbles. Then move to the next wheel.
5. Before moving the vehicle verify the pedal is firm and not mushy.
6. Top off the brake fluid and install the reservoir cap.

PRESSURE BLEEDING

Use Mopar brake fluid, or an equivalent quality fluid meeting SAE J1703-F and DOT 3 standards only. Use fresh, clean fluid from a sealed container at all times.

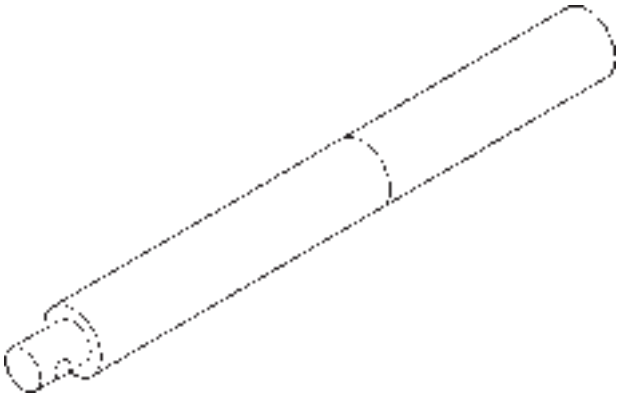
Follow the manufacturers instructions carefully when using pressure equipment. Do not exceed the tank manufacturers pressure recommendations. Generally, a tank pressure of 15-20 psi is sufficient for bleeding.

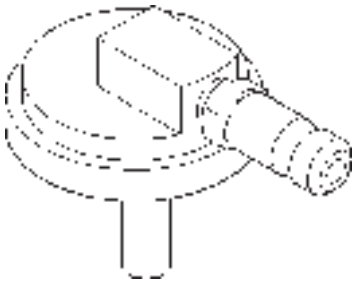
Fill the bleeder tank with recommended fluid and purge air from the tank lines before bleeding.

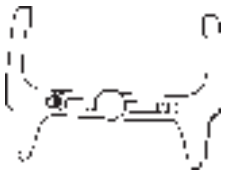
Do not pressure bleed without a proper master cylinder adapter. The wrong adapter can lead to leakage, or drawing air back into the system.

SPECIAL TOOLS

BASE BRAKES



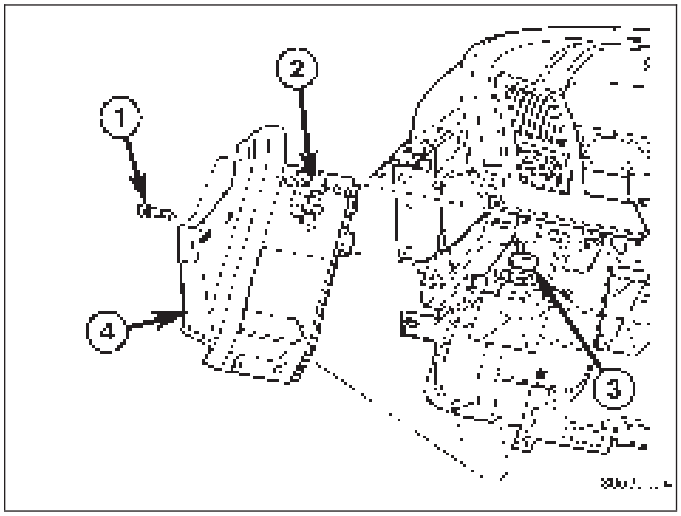




SWITCH-ADJUSTABLE PEDALS

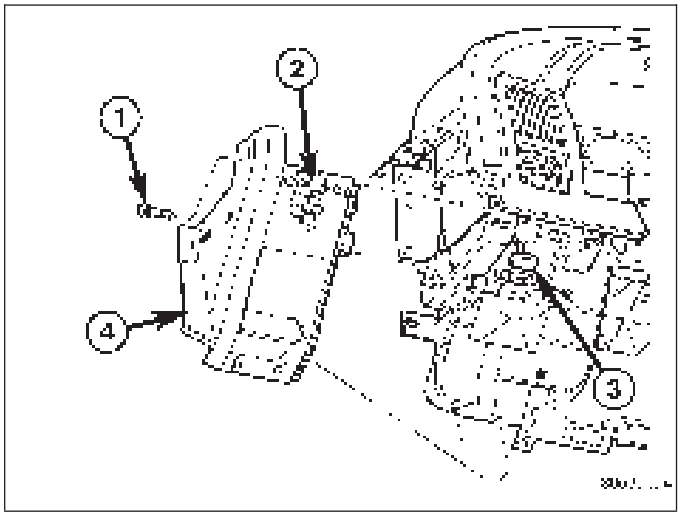
REMOVAL

1. Remove the lower drivers side bezel (4) (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL DR SIDE BEZEL - REMOVAL).
2. Disconnect the electrical connector (3) from the adjustable pedal switch (2).
3. Remove the switch (2) from the lower drivers side bezel (4) by squeezing the retaining clips together and pushing the switch outwards.



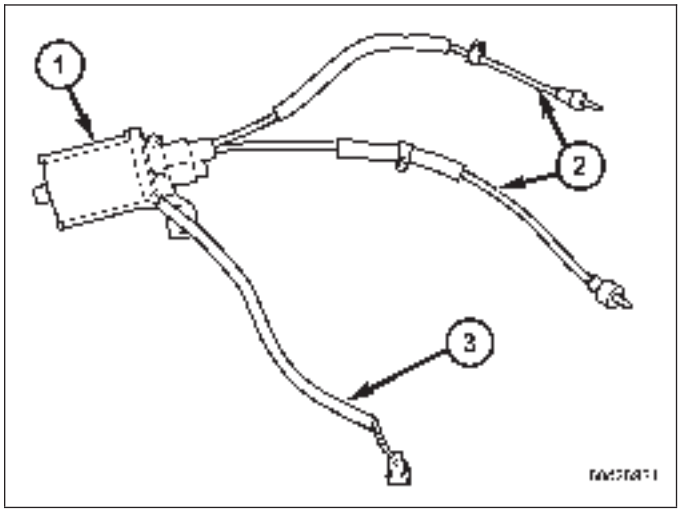
INSTALLATION

1. Install the switch (2) to the lower drivers side bezel (4) by pushing the switch inwards seating the retaining clips to the lower drivers side bezel (4).
2. Reconnect the electrical connector (3) to the adjustable pedal switch (2).
3. Install the lower drivers side bezel (4) (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL DR SIDE BEZEL - INSTALLATION).



MOTOR-ADJUSTABLE PEDALS

DESCRIPTION



The Adjustable Pedals System (APS) is designed to enable the fore and aft repositioning of the brake and accelerator pedals. This results in improved ergonomics in relation to the steering wheel for taller and shorter drivers. Being able to adjust the pedal positions also allows the driver to set steering wheel tilt and seat position to the most comfortable position. The position of the brake and accelerator pedals can be adjusted without compromising safety or comfort in actuating the pedals.

Change of pedal position is accomplished by means of a motor driven screw. Operating the adjustable pedal switch activates the pedal drive motor (1). The pedal drive motor turns a screw that changes the position of the brake and accelerator pedals. The pedal can be moved rearward (closer to the driver) or forward (away from driver). The brake pedal is moved on its drive screw to a position where the driver feels most comfortable.

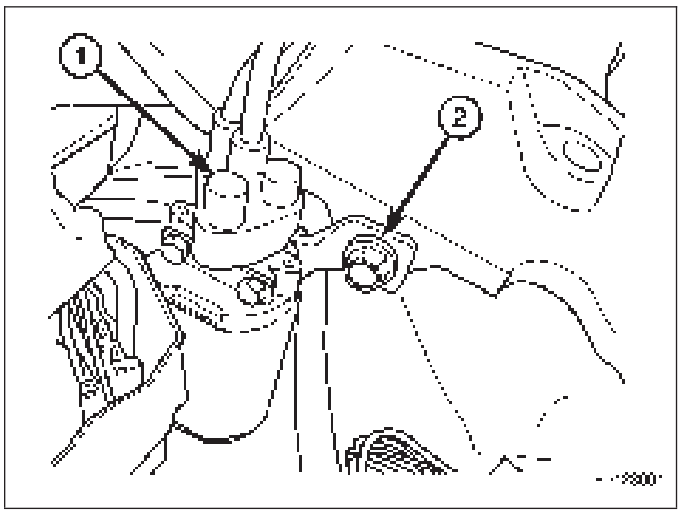
The accelerator pedal is moved at the same time and the same distance as the brake pedal.

Neither the pedal drive motor (1) nor drive mechanism are subject to the mechanical stress of brake or accelerator application.

- SYSTEM FEATURES:
  - Range of Adjustment: The pedals may be adjusted up to 3 in. (75 mm)
  - Pedal Adjustment Speed: 0.5 in./sec (12.5 mm/sec)
  - Pedal Adjustment Inhibitors: Pedal adjustment is inhibited when the vehicle is in reverse or when cruise control is activated.

REMOVAL

1. Disconnect the negative battery cable.
2. Remove the kneeblocker (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).
3. Remove the brake light switch and discard (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/BRAKE LAMP SWITCH - REMOVAL).
4. Disconnect the adjustable pedal cables from the brake and accelerator pedals **Also clutch pedal if equipped with a manual transmission**.
5. Disconnect the electrical connector.
6. Unclip the cable fasteners to the support.
7. Remove the one mounting bolt (2) for the adjustable pedal motor (1).
8. Remove the adjustable pedal motor (1) with the cables.

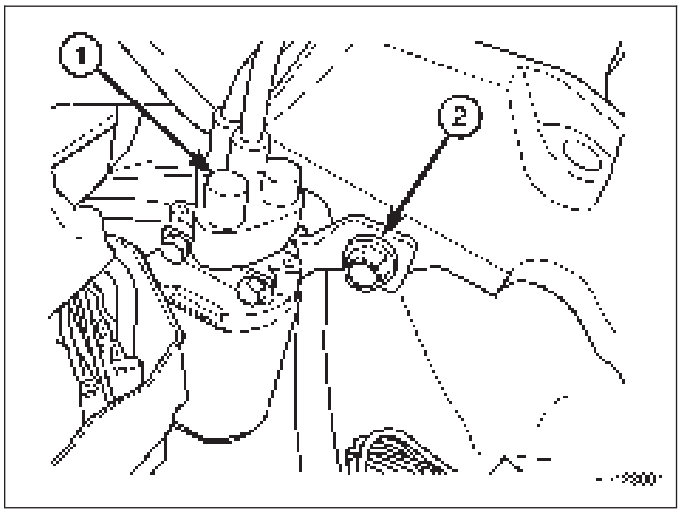


NOTE: Adjustable pedal cables are not serviceable. If they need service the adjustable pedal motor with the cables must be installed.

INSTALLATION

NOTE: Adjustable pedal cables are not serviceable. If they need service the adjustable pedal motor with the cables must be installed.

1. Install the adjustable pedal motor (1) with the cables.
2. Install the one mounting bolt (2) for the adjustable pedal motor (1).



3. Clip the cable fasteners to the support.
4. Reconnect the electrical connector.
5. Reconnect the adjustable pedal cables to the brake and accelerator pedals **Also clutch pedal if equipped with a manual transmission**.
6. Install the new brake light switch (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/BRAKE LAMP SWITCH - REMOVAL).
7. Install the kneeblocker (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).
8. Reconnect the negative battery cable.
9. Check for proper operation of the pedals.

HYDRAULIC/MECHANICAL

SPECIFICATIONS

SPECIFICATIONS - TORQUE CHART

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Brake Booster Mounting Nuts	28	21	250
Master Cylinder Mounting Nuts	18	—	160
Caliper Bleed Screws	19	14	168
Caliper Mounting Pins Front	32	24	—
Caliper Mounting Pins Rear	30	22	—
Caliper Adapter Mounting Bolts Front LD	176	130	—
Caliper Adapter Mounting Bolts Front HD & SRT-10	339	250	—
Caliper Adapter Mounting Bolts Rear LD	135	100	—
Caliper Adapter Mounting Bolts Rear HD & SRT-10	197	145	—
Junction Block Bolts To Frame	10	7.5	—
Brake Pedal Assembly Bracket Nuts	28	21	—
Support Plate Mounting Bolts/Nuts LD	64	47	—
Support Plate Mounting Bolts/Nuts SRT-10 & HD	203	150	—
Brake Line Fittings Master Cylinder	19	14	170

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Brake Line Fittings Junction Block	19	14	170
Caliper Brake Line Banjo Bolt Front	27	20	245
Caliper Brake Line Banjo Bolt Rear	27	20	245
Brake Hose Front Bolts To Frame	10	7.5	—
Brake Hose Front Fitting	19	14	250
Brake Hose Rear Fitting	19	14	250
Parking Brake Pedal Assembly	19	14	250
Rotor to Hub Bolt Rear HD DRW	128	95	—
Extension to Rotor Nut HD DRW Front	130	96	—
Hub/Bearing Bolts LD & SRT-10	163	120	—
Hub/Bearing Bolts Front 4X2 HD	176	130	—

BASE BRAKE

SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Front Disc Brake Caliper Type	Dual Piston Sliding
Rear Disc Brake Caliper Type LD	Single Piston Sliding
Rear Disc Brake Caliper Type SRT-10	Dual Piston Sliding
Rear Disc Brake Caliper Type HD	Dual Piston Sliding
Front Disc Brake Caliper LD	2X54 mm (2.12 in.)
Front Disc Brake Caliper SRT-10	4X57 mm (2.24 in.)
Front Disc Brake Caliper HD	2X56 mm (2.20 in.)
Front Disc Brake Rotor LD	336×28 mm (13.2×1.1 in.)
Front Disc Brake Rotor SRT-10	380×35.5 mm (14.96×1.397 in.)
Front Disc Brake Rotor HD	353×35.5 mm (13.89×1.397 in.)
Front/Rear Disc Brake Rotor Max. Runout LD	0.050 mm (0.002 in.)
Front Disc Brake Rotor Max. Runout SRT-10	0.050 mm (0.002 in.)
Rear Disc Brake Rotor Max. Runout SRT-10	0.050 mm (0.002 in.)
Front/Rear Disc Brake Rotor Max. Runout HD SRW	0.131 mm (0.005 in.)
Rear Disc Brake Rotor Max. Runout HD DRW	0.328 mm (0.012 in.)
Front/Rear Disc Brake Rotor Max. Thickness Variation LD	0.012 mm (0.0005 in.)
Front Disc Brake Rotor Max. Thickness Variation SRT-10	0.012 mm (0.0005 in.)

DESCRIPTION	SPECIFICATION
Rear Disc Brake Rotor Max. Thickness Variation SRT-10	0.012 mm (0.0005 in.)
Front/Rear Disc Brake Rotor Max. Thickness Variation HD	0.013 mm (0.0005 in.) Loose Rotor
Minimum Front Rotor Thickness LD	26.4 mm (1.039 in.)
Minimum Front Rotor Thickness SRT-10	33.9 mm (1.344 in.)
Minimum Front Rotor Thickness HD	34 mm (1.33 in.)
Mininium Rear Rotor Thickness LD	20.4 mm (.803 in)
Mininium Rear Rotor Thickness HD	28.39 mm (1.117 in)
Mininium Rear Rotor Thickness SRT-10	28.4 mm (1.118 in.)
Rear Disc Brake Caliper LD	1x54 mm (2.12 in)
Rear Disc Brake Caliper SRT-10	2x36 mm (1.42 in)
Rear Disc Brake Caliper HD SRW	2x45 mm (1.77 in)
Rear Disc Brake Caliper HD DRW	2x51 mm (2.00 in)
Rear Disc Brake Rotor LD	350x22 mm (13.77 X .86 in)
Rear Disc Brake Rotor SRT-10	350x22 mm (13.77 X .86 in)
Rear Disc Brake Rotor HD	353x30 mm (13.89 X 1.18 in)
Rear Disc Brake Rotor Max Drum Diameter SRT-10 & HD	207.2 mm (8.157 in.)
Brake Booster Type Gasoline Engines LD	Vacuum Dual Diaphragm
Brake Booster Type Gasoline Engines HD SRW	Vacuum Dual Diaphragm
Brake Booster Type Diesel Engines HD DRW	Hydroboost

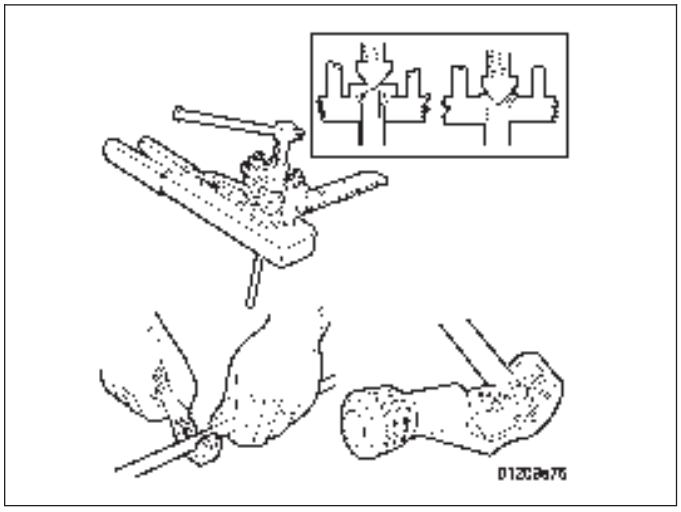
LINES-BRAKE

STANDARD PROCEDURE

DOUBLE INVERTED FLARING

A preformed metal brake tube is recommended and preferred for all repairs. However, double-wall steel tube can be used for emergency repair when factory replacement parts are not readily available.

1. Cut off damaged tube with Tubing Cutter.
2. Ream cut edges of tubing to ensure proper flare.
3. Install replacement tube nut on the tube.
4. Insert tube in flaring tool.
5. Place gauge form over the end of the tube.
6. Push tubing through flaring tool jaws until tube contacts recessed notch in gauge that matches tube diameter.
7. Tighten the tool bar on the tube
8. Insert plug on gauge in the tube. Then swing compression disc over gauge and center tapered flaring screw in recess of compression disc.
9. Tighten tool handle until plug gauge is squarely seated on jaws of flaring tool. This will start the inverted flare.
10. Remove the plug gauge and complete the inverted flare.

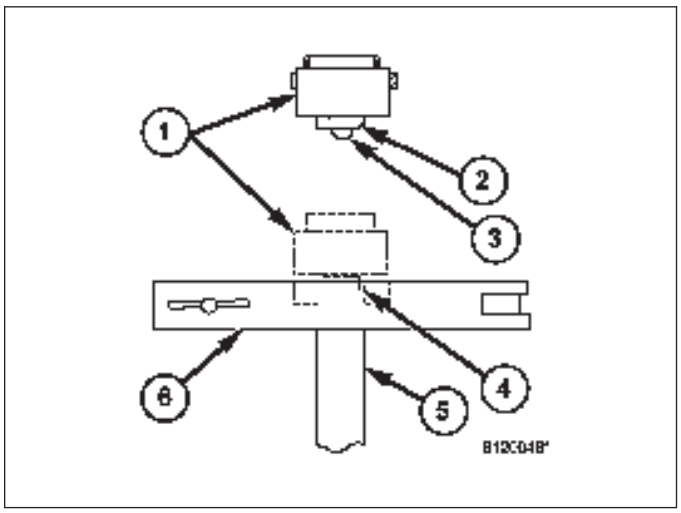


ISO FLARING

A preformed metal brake tube is recommended and preferred for all repairs. However, double-wall steel tube can be used for emergency repair when factory replacement parts are not readily available.

To make a ISO flare use an ISO flaring tool kit.

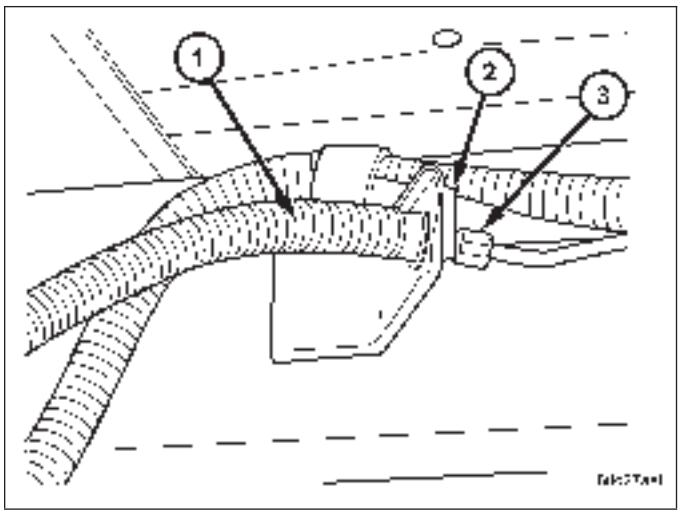
1. Cut off damaged tube with Tubing Cutter.
2. Remove any burrs from the inside of the tube.
3. Install tube nut on the tube.
4. Position the tube in the flaring tool flush with the top of the tool bar (6). Then tighten the tool bar on the tube.
5. Install the correct size adaptor (1) on the flaring tool yoke screw.
6. Lubricate the adaptor (2).
7. Align the adaptor and yoke screw over the tube.
8. Turn the yoke screw in until the adaptor is squarely seated on the tool bar.



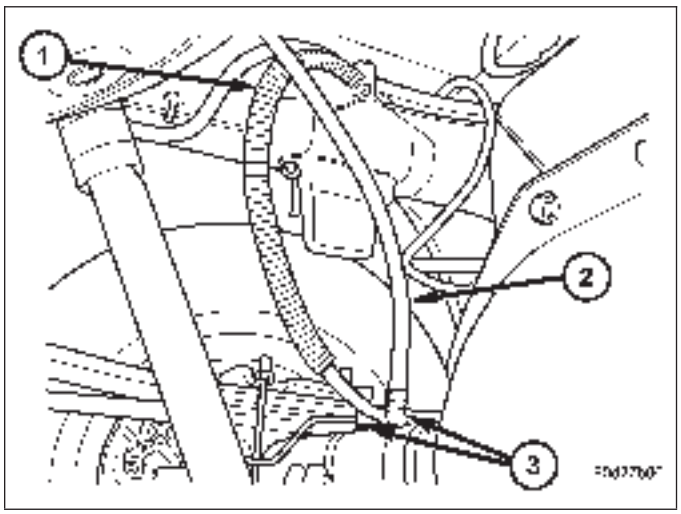
REMOVAL

REAR BRAKE HOSE

1. Raise and support the vehicle.
2. Remove the brake line (3) from the hose (1) at the frame.
3. Remove the brake hose clip (2) at the top of the hose located at the frame.

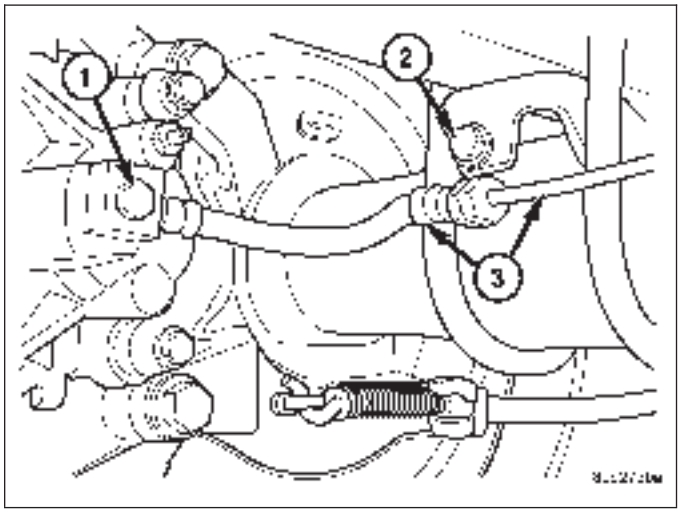


4. Remove the vent hose (2).
5. Remove the two brake lines (3) at the bottom of the hose (1) located at the axle.
6. Remove the mounting bolt for the brake hose at the axle.
7. Remove the hose.



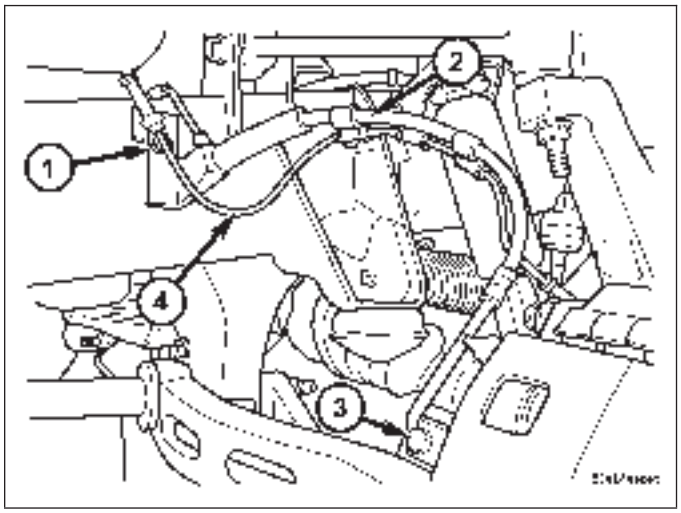
REAR TUBE / HOSE ASSEMBLY

1. Raise and support the vehicle.
2. Remove the brake line located at the axle.
3. Remove the mounting bolt (2) for the brake hose (3) at the axle.
4. Remove the banjo bolt (1) at the caliper.
5. Remove the hose.



FRONT HOSE

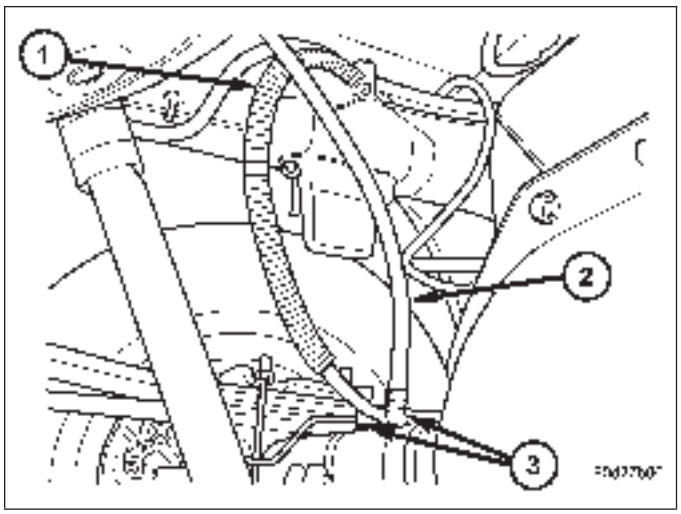
1. Raise and support vehicle.
2. Remove the tire and wheel assembly.
3. Remove the brake hose (2) from the brake line located at the frame.
4. Remove the brake hose banjo bolt (3) at the caliper.
5. Remove the mounting bolt securing the brake hose (2) to the frame and remove the wheel speed sensor wire (4) from the brake hose (2).
6. Remove the hose.



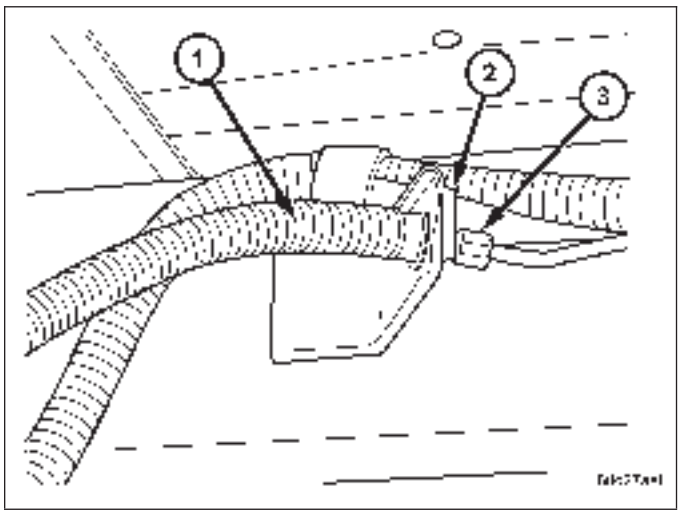
INSTALLATION

REAR BRAKE HOSE

1. Install the hose (1).
2. Install the mounting bolt for the brake hose (1) at the axle.
3. Install the two brake lines (3) at the bottom of the hose located at the axle.
4. Install the vent hose (2).

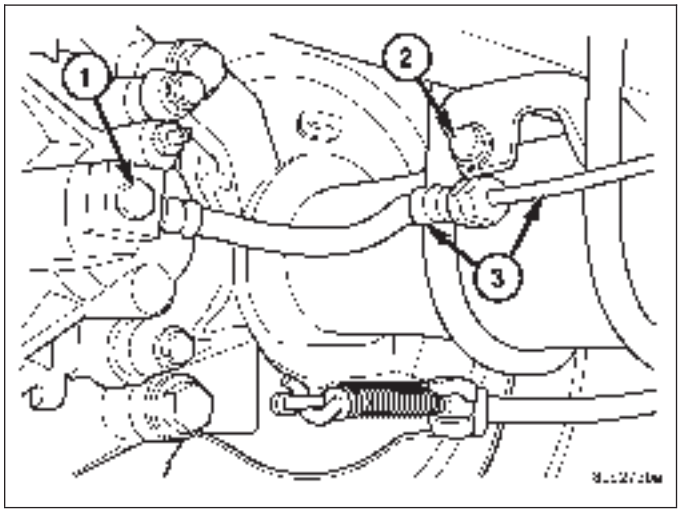


5. Install the brake hose clip (2) at the top of the hose (1) located at the frame.
6. Install the brake line (3) to the hose at the frame.
7. Lower the vehicle and remove the support.
8. Bleed the brake system (Refer to 5 - BRAKES - STANDARD PROCEDURE).



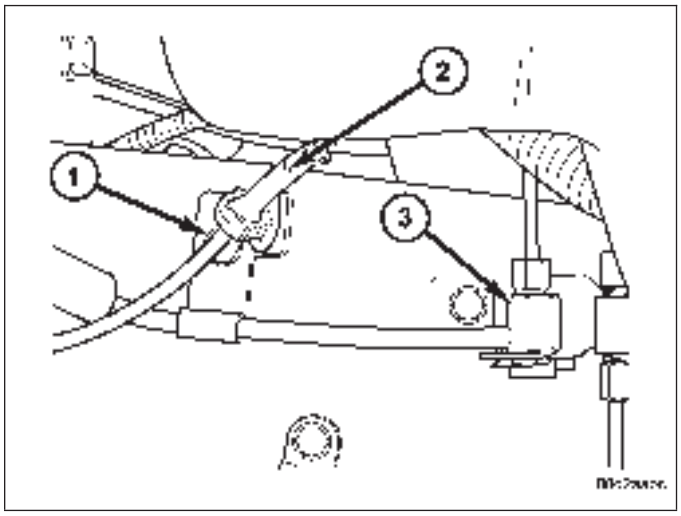
REAR TUBE / HOSE ASSEMBLY

1. Install the hose (3).
2. Install the banjo bolt (1) at the caliper and tighten fitting bolt to 27 N·m (245 in. lbs.).
3. Install the mounting bolt (2) for the brake hose (3) at the axle.
4. Install the brake line located at the axle.
5. Lower the vehicle and remove the support.
6. Bleed the brake system (Refer to 5 - BRAKES - STANDARD PROCEDURE).



FRONT BRAKE HOSE

1. Install the hose (3).
2. Install the mounting bolt (1) for the brake hose (3) at the frame.
3. Install the brake hose banjo bolt at the caliper.
4. Reinstall the wheel speed sensor wire (2) to the brake hose.
5. Remove the support and lower the vehicle.
6. Bleed the brake system (Refer to 5 - BRAKES - STANDARD PROCEDURE).

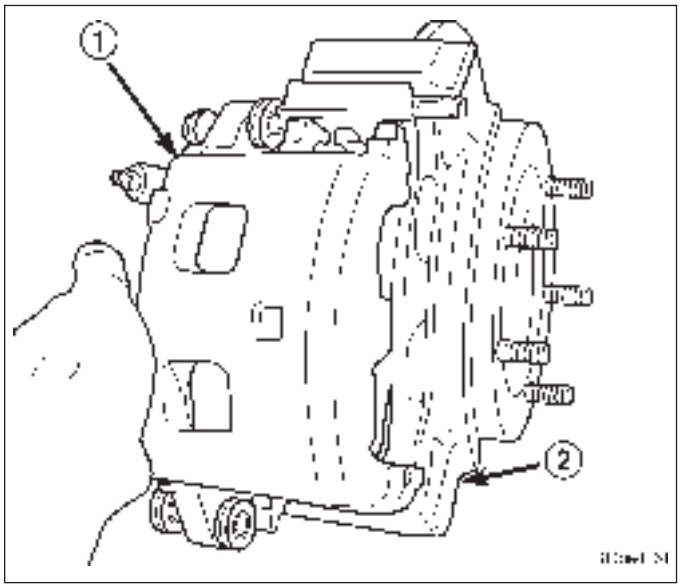


PADS - BRAKE

REMOVAL

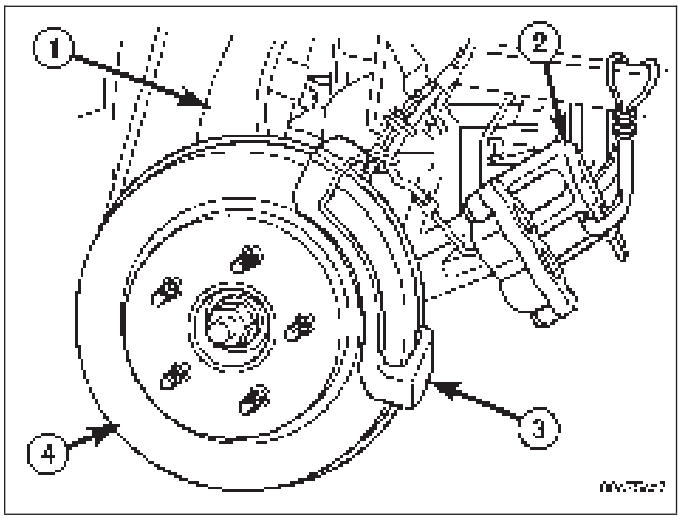
FRONT

1. Raise and support vehicle.
2. Remove the wheel and tire assemblies.
3. Compress the caliper.
4. Remove the caliper (1), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
5. Remove the caliper (1) by tilting the top up and off the caliper adapter (2).

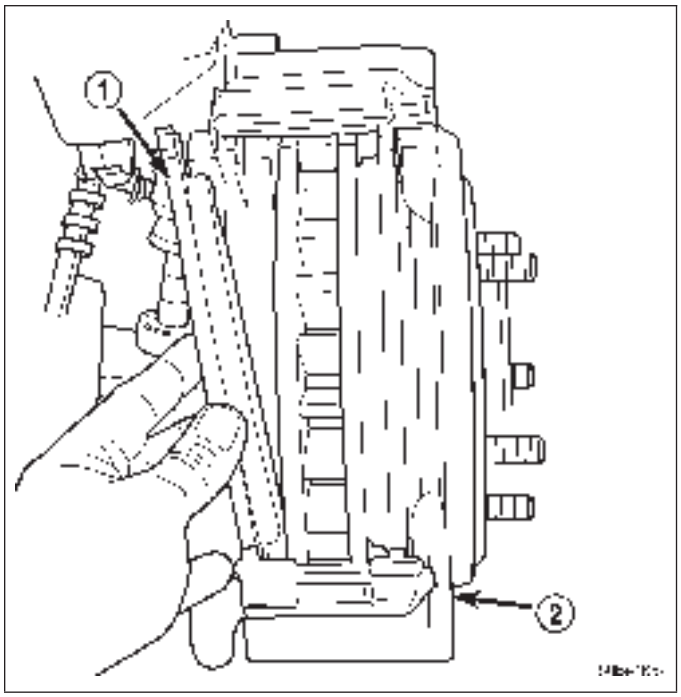


NOTE: Do not allow brake hose to support caliper assembly.

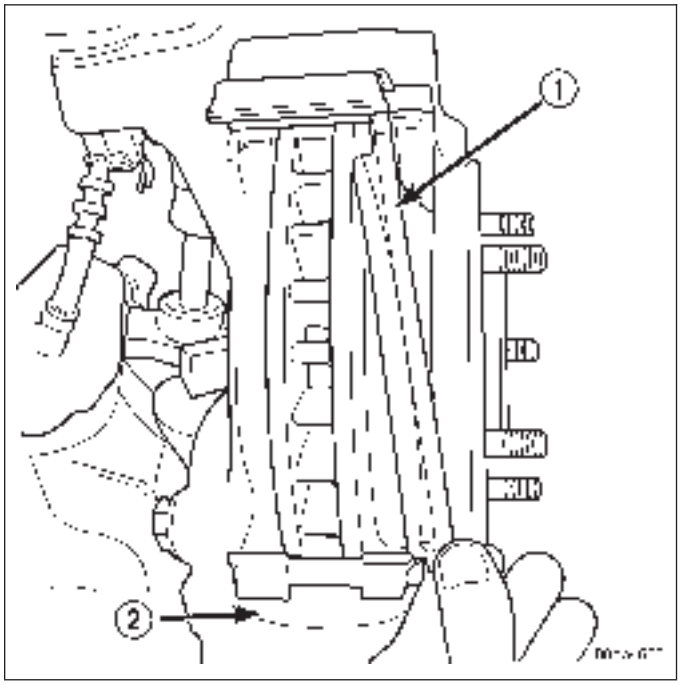
6. Support and hang the caliper (2).



7. Remove the inboard brake shoe (1) from the caliper adapter (2).

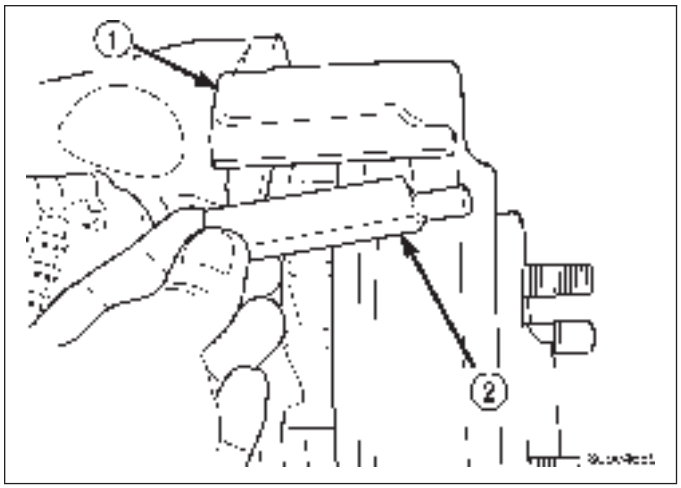


8. Remove the outboard brake shoe (1) from the caliper adapter (2).

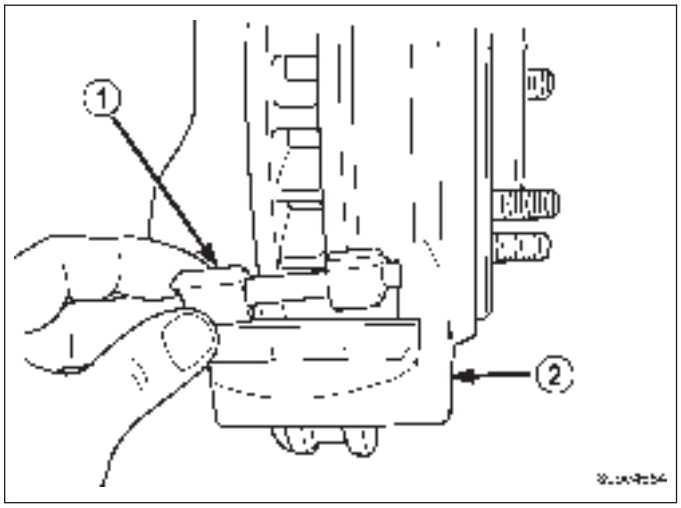


NOTE: Anti-rattle springs are not interchangeable.

9. Remove the top anti-rattle springs (2) from the caliper adapter (1).

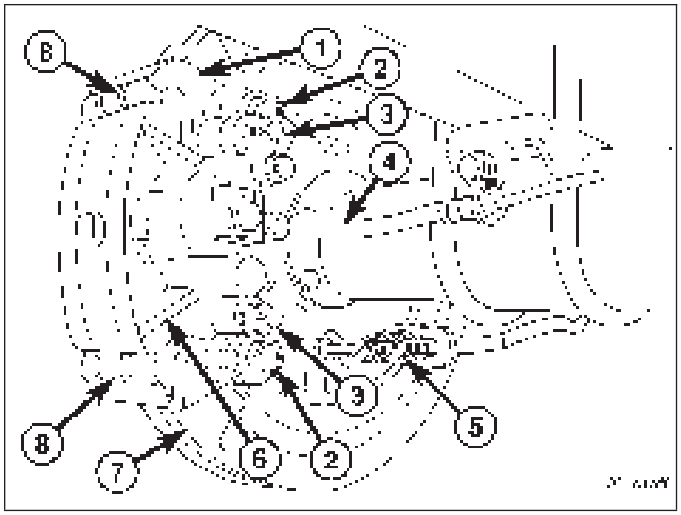


10. Remove the bottom anti-rattle springs (2) from the caliper adapter (1).



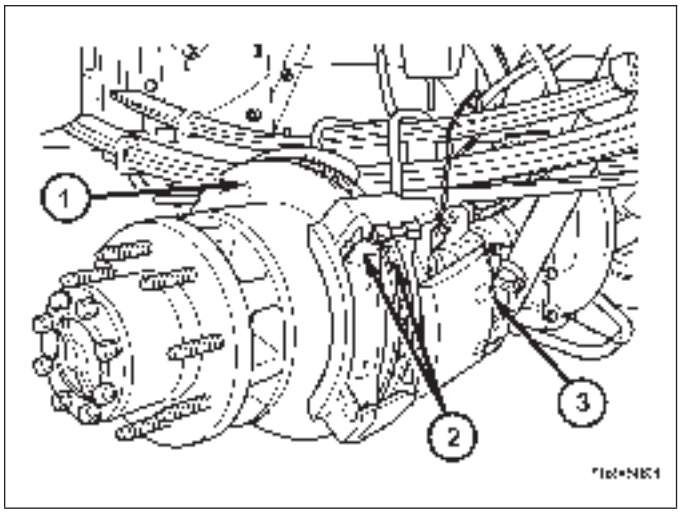
REAR

1. Raise and support the vehicle.
2. Remove the rear wheel and tire assemblies.
3. Compress the caliper.
4. Remove caliper slide bolts (3).

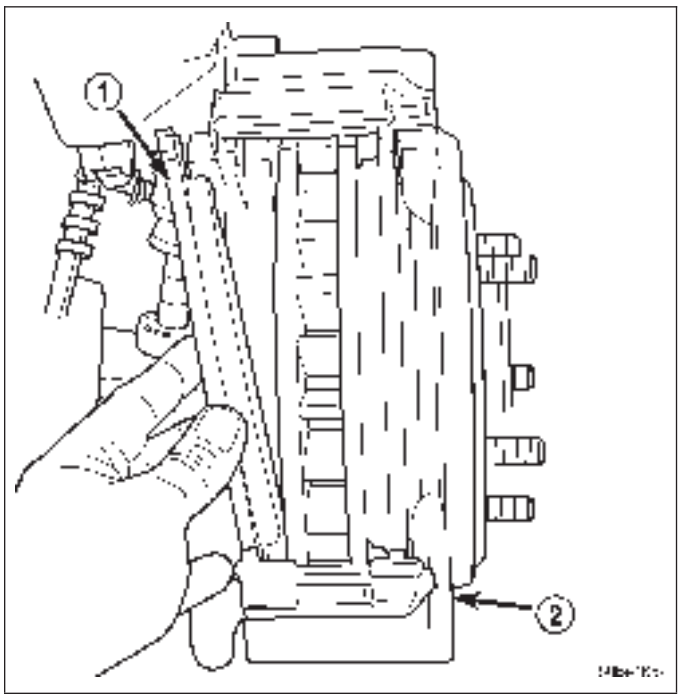


NOTE: Do not allow brake hose to support caliper assembly.

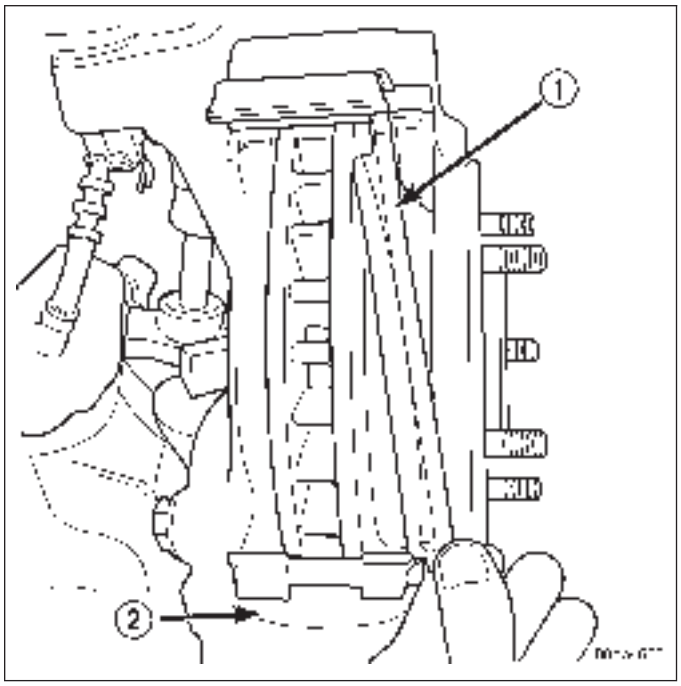
5. Remove the caliper (3), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL) and then tilt the top up and off the caliper adapter.



6. Remove inboard brake shoe (1) from the caliper adapter (2).

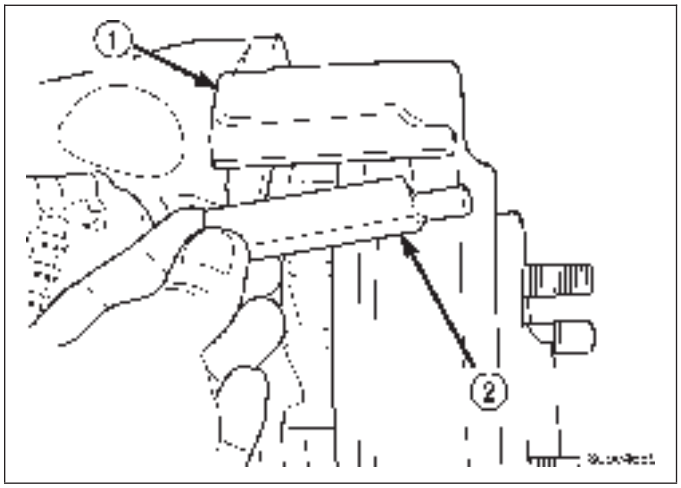


7. Remove outboard brake shoe (1) from caliper adapter (2).

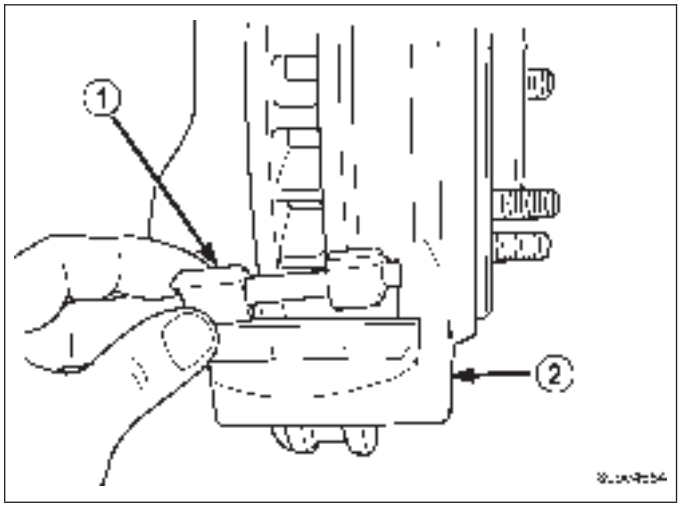


NOTE: Anti-rattle springs are not interchangeable.

8. Remove the top anti-rattle spring (2) from the caliper adapter (1).



9. Remove the top anti-rattle spring (2) from the caliper adapter (1).



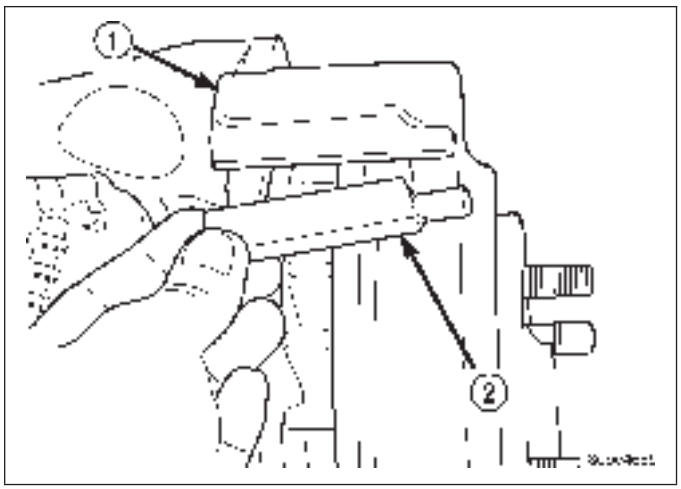
INSTALLATION

FRONT

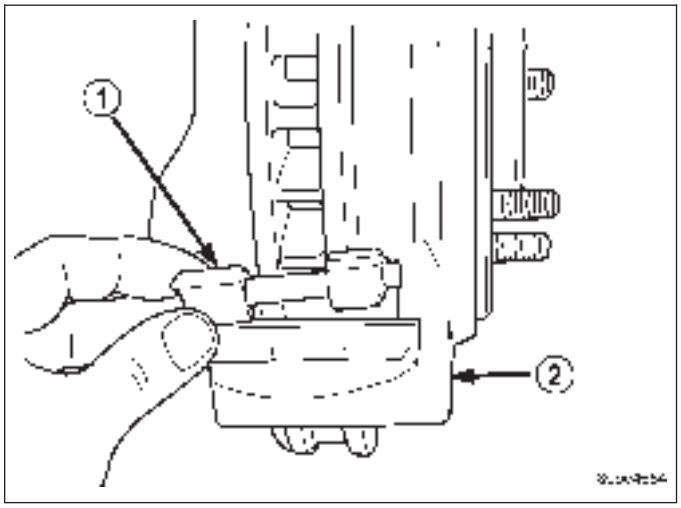
1. Bottom pistons in caliper bore with C-clamp. Place an old brake shoe between a C-clamp and caliper piston.
2. Clean caliper mounting adapter (1) and anti-rattle springs (2).
3. Lubricate anti-rattle springs with Mopar brake grease.

NOTE: Anti-rattle springs are not interchangeable.

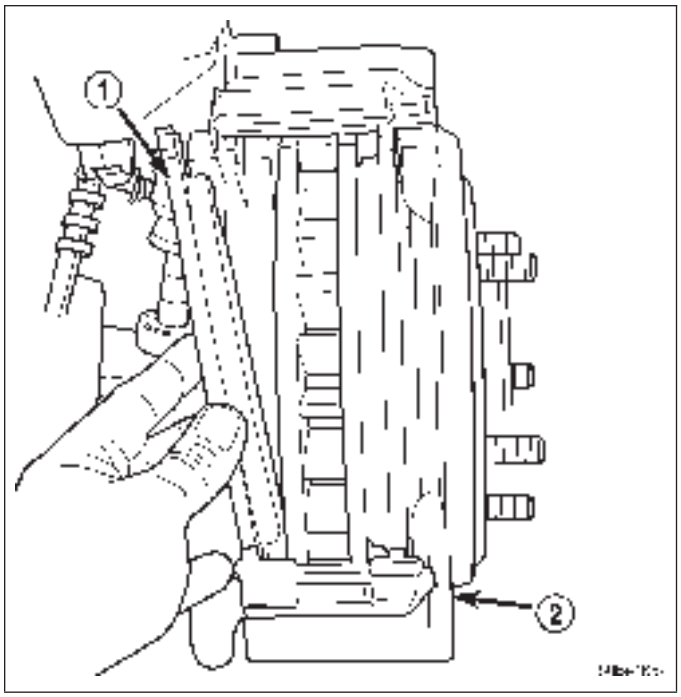
4. Install **new** top anti-rattle springs (2).



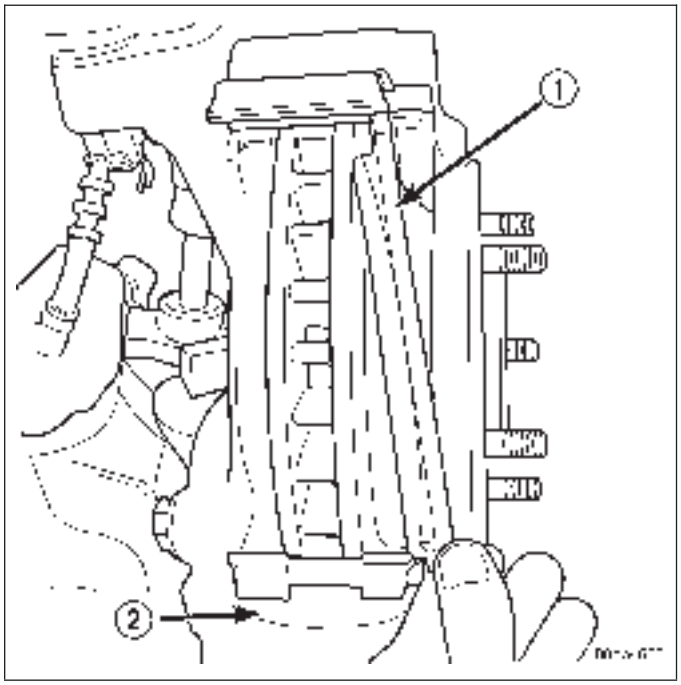
5. Install **new** bottom anti-rattle springs (1).



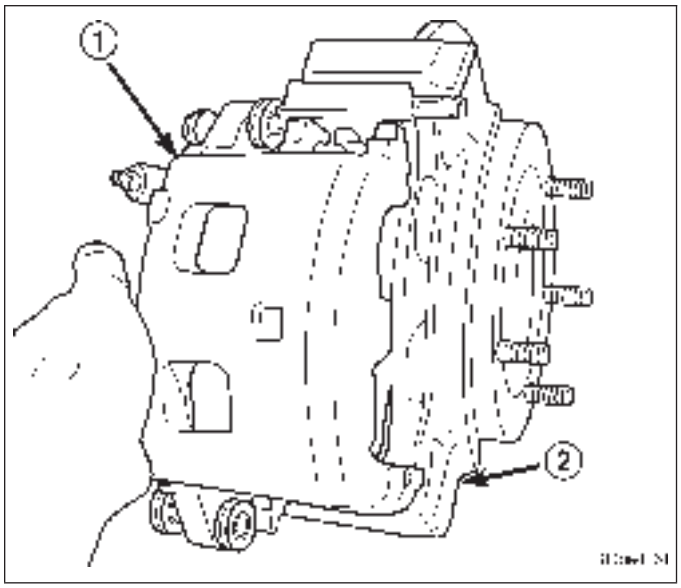
6. Install inboard brake shoe (1) in adapter (2).



7. Install outboard brake shoe (1) in adapter (2).



8. Tilt the top of the caliper (1) over rotor and under adapter (2). Then push the bottom of the caliper down onto the adapter.
9. Install caliper (1), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
10. Install wheel and tire assemblies and lower vehicle, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
11. Apply brakes several times to seat caliper pistons and brake shoes and obtain firm pedal.
12. Top off master cylinder fluid level.

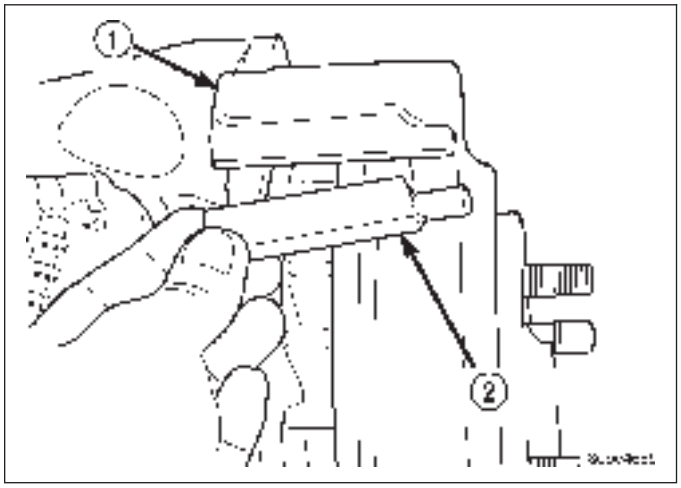


REAR

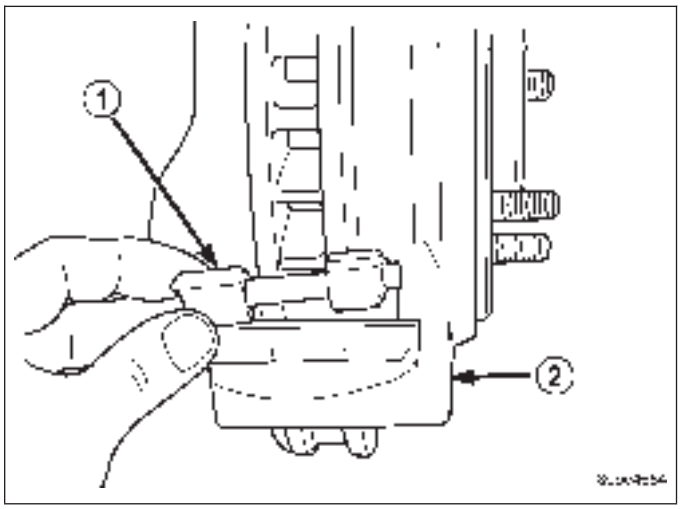
1. Clean caliper mounting adapter (1) and anti-rattle springs (2).
2. Lubricate anti-rattle springs with Mopar brake grease.

NOTE: Anti-rattle springs are not interchangeable.

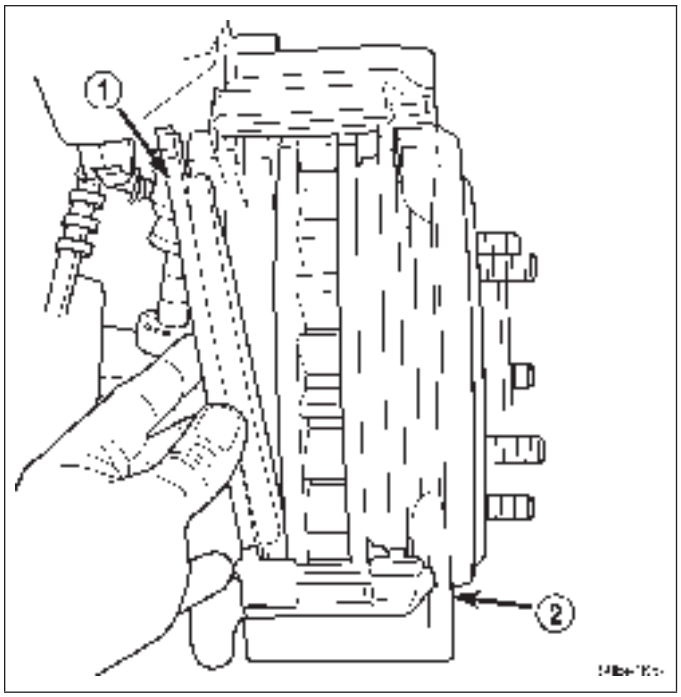
3. Install **new** top anti-rattle spring (2).



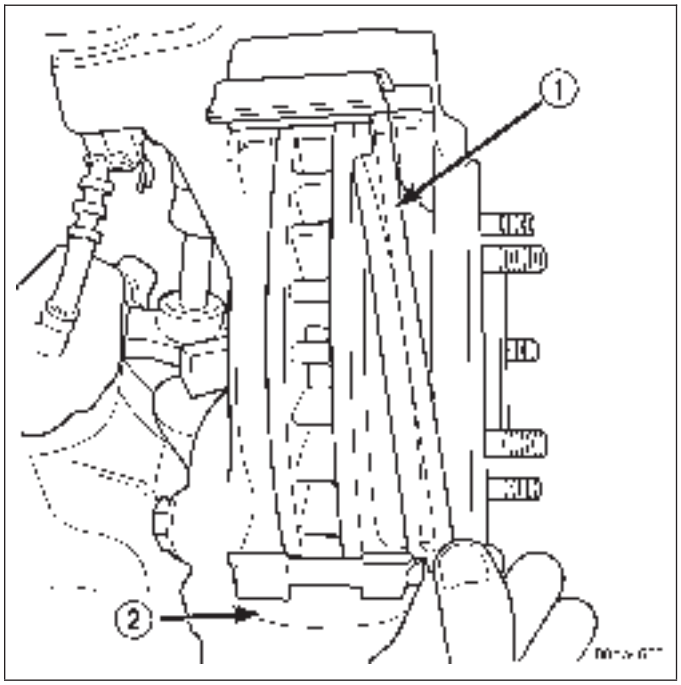
4. Install **new** bottom anti-rattle spring (1).



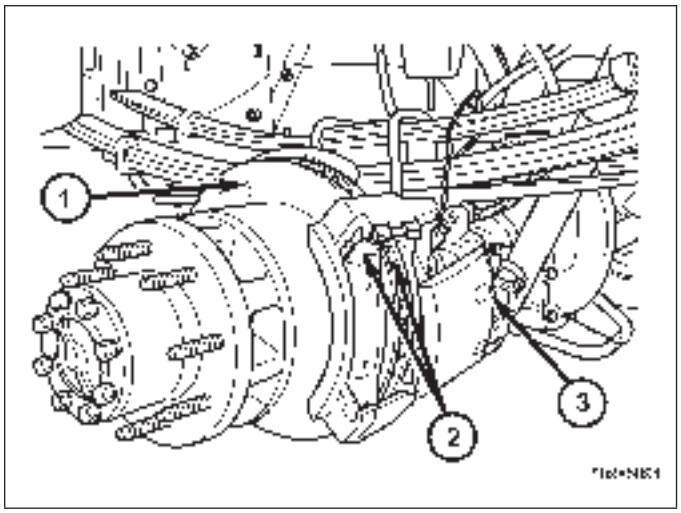
5. Install inboard brake shoe (1) in adapter (2).



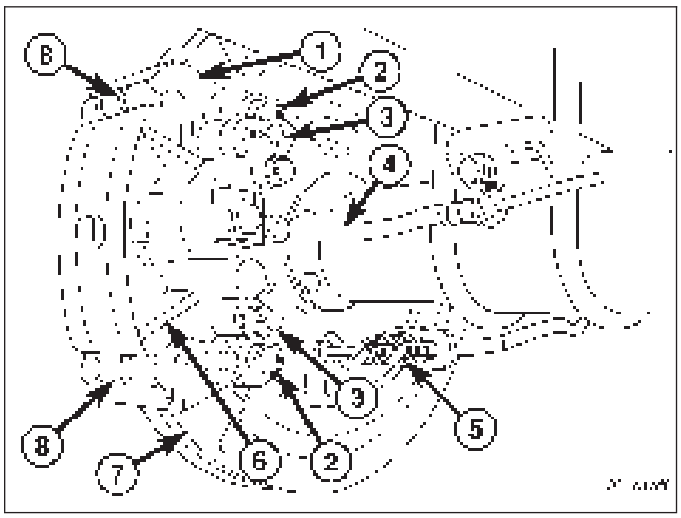
6. Install outboard brake shoe (1) in adapter (2).



7. Tilt the bottom of the caliper (3) over rotor (1) and under adapter. Then push the top of the caliper down onto the adapter.



8. Install caliper (6), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION) (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
9. Install wheel and tire assemblies and lower vehicle, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
10. Apply brakes several times to seat caliper pistons and brake shoes and obtain firm pedal.
11. Top off master cylinder fluid level.



CALIPERS-DISC BRAKE

DESCRIPTION

LIGHT DUTY (LD) CALIPERS

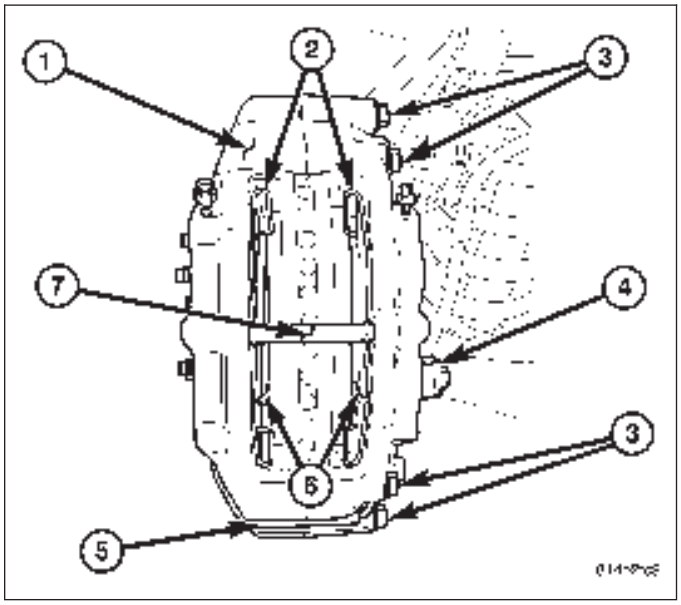
The calipers are a single piston type in the rear and dual piston type in the front. The calipers are free to slide laterally, this allows continuous compensation for lining wear.

HEAVY DUTY (HD) CALIPERS

The calipers are a dual piston type in the front & rear. The calipers are free to slide laterally, this allows continuous compensation for lining wear.

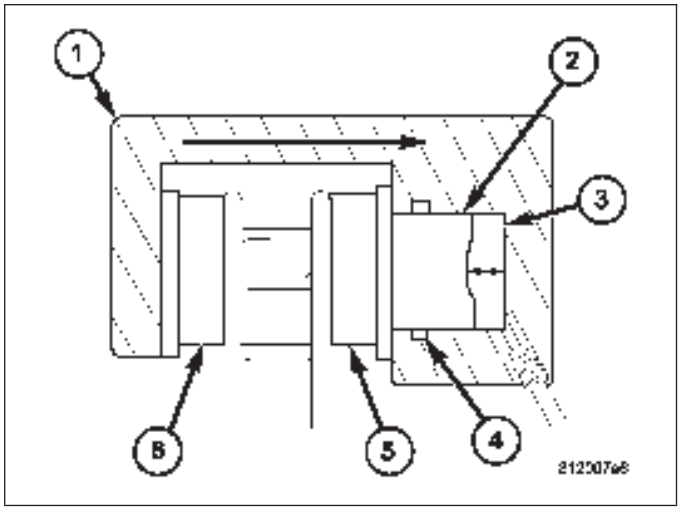
FRONT CALIPERS – SRT-10

The front calipers (1) are a four piston type and the rear calipers are a dual piston type. The calipers are free to slide laterally, this allows continuous compensation for lining wear.



OPERATION

When the brakes are applied fluid pressure is exerted against the caliper piston (2). The fluid pressure is exerted equally and in all directions. This means pressure exerted against the caliper piston and within the caliper bore will be equal.



Fluid pressure applied to the piston is transmitted directly to the inboard brake pad (5). This forces the pad lining against the inner surface of the disc brake rotor. At the same time, fluid pressure within the piston bore forces the caliper to slide inward on the mounting bolts. This action brings the outboard brake pad lining (6) into contact with the outer surface of the disc brake rotor.

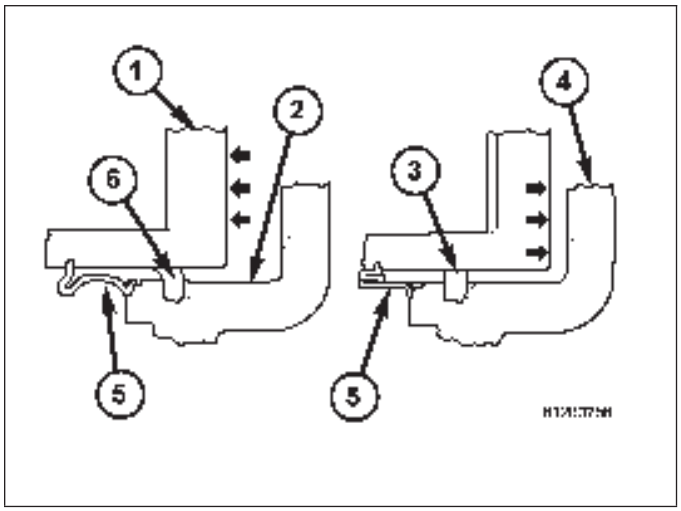
In summary, fluid pressure acting simultaneously on both piston and caliper, produces a strong clamping action. When sufficient force is applied, friction will attempt to stop the rotors from turning and bring the vehicle to a stop.

Application and release of the brake pedal generates only a very slight movement of the caliper and piston. Upon release of the pedal, the caliper and piston return to a rest position. The brake pads do not retract an appreciable distance from the rotor. In fact, clearance is usually at, or close to zero. The reasons for this are to keep road debris from getting between the rotor and lining and in wiping the rotor surface clear each revolution.

The caliper piston seal (4) controls the amount of piston (2) extension needed to compensate for normal lining wear.

During brake application, the seal is deflected outward by fluid pressure and piston movement(6). When the brakes (and fluid pressure) are released, the seal relaxes and retracts the piston (3).

The amount of piston retraction is determined by the amount of seal deflection. Generally the amount is just enough to maintain contact between the piston and inboard brake pad.

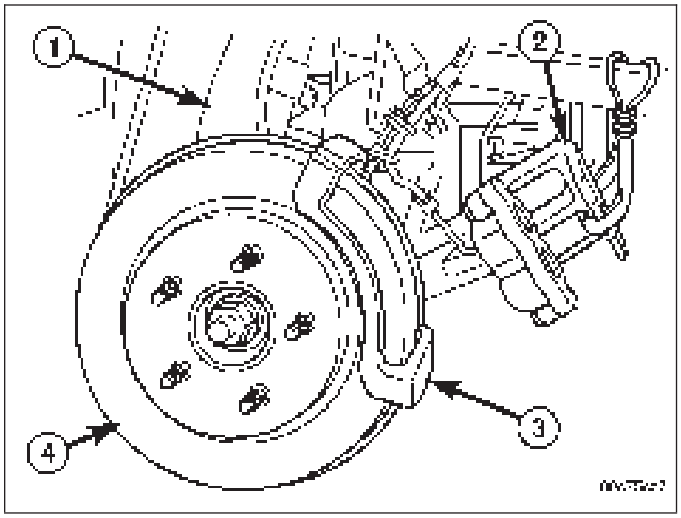


REMOVAL

FRONT

CAUTION: Never allow the disc brake caliper to hang from the brake hose. Damage to the brake hose will result. Provide a suitable support to hang the caliper securely.

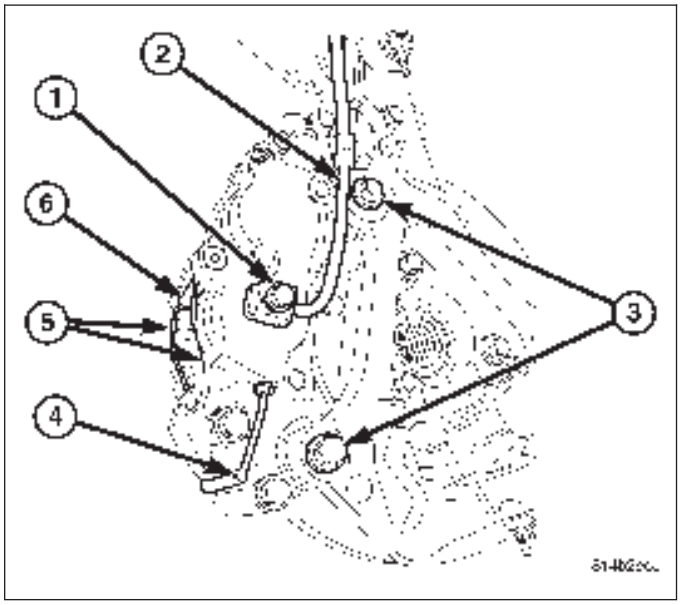
1. Raise and support the vehicle.
2. Remove the tire and wheel assembly.
3. Compress the disc brake caliper.
4. Remove the banjo bolt and discard the copper washer.
5. Remove the caliper slide bolts.
6. Remove the disc brake caliper (2).



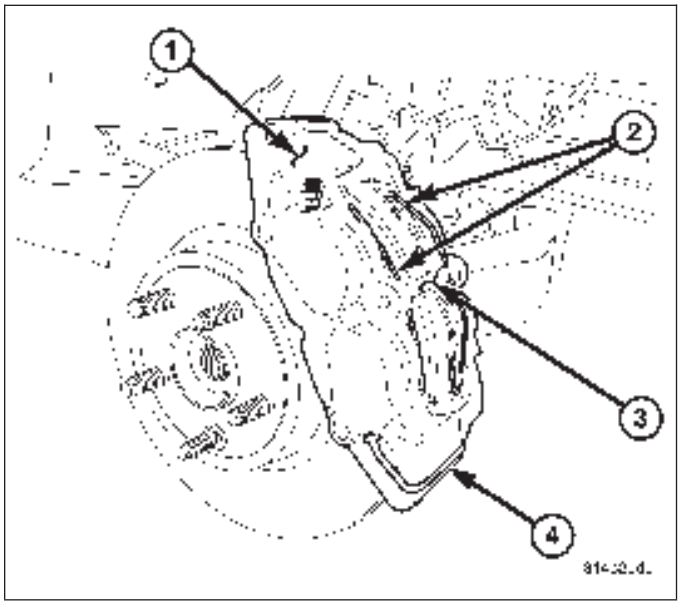
FRONT - SRT-10

CAUTION: Never allow the disc brake caliper to hang from the brake hose. Damage to the brake hose will result. Provide a suitable support to hang the caliper securely.

1. Raise and support the vehicle.
2. Remove the tire and wheel assembly.
3. Compress the disc brake caliper.
4. Remove the banjo bolt (1) and discard the copper washer.
5. Remove the caliper mounting bolts (3).



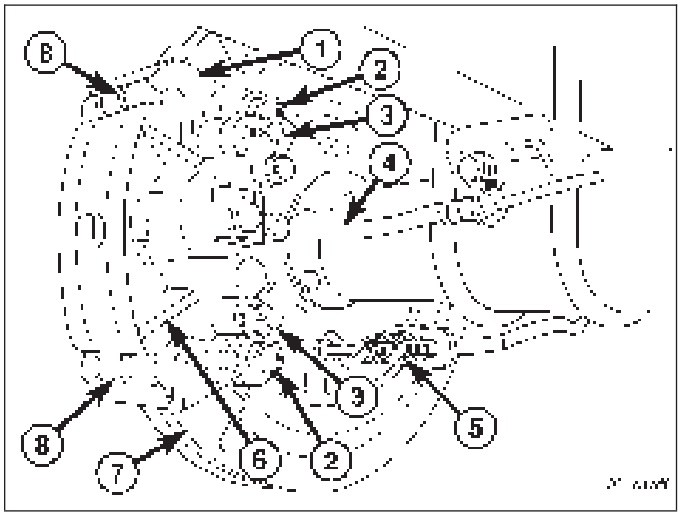
6. Remove the disc brake caliper (1).



REAR

CAUTION: Never allow the disc brake caliper to hang from the brake hose. Damage to the brake hose will result. Provide a suitable support to hang the caliper securely.

1. Raise and support vehicle.
2. Remove the wheel and tire assembly.
3. Drain small amount of fluid from master cylinder brake reservoir with suction gun.
4. Remove the brake hose banjo bolt and discard the copper washers if replacing caliper.
5. Remove the caliper slide bolts (3).
6. Remove the caliper (6) from vehicle.

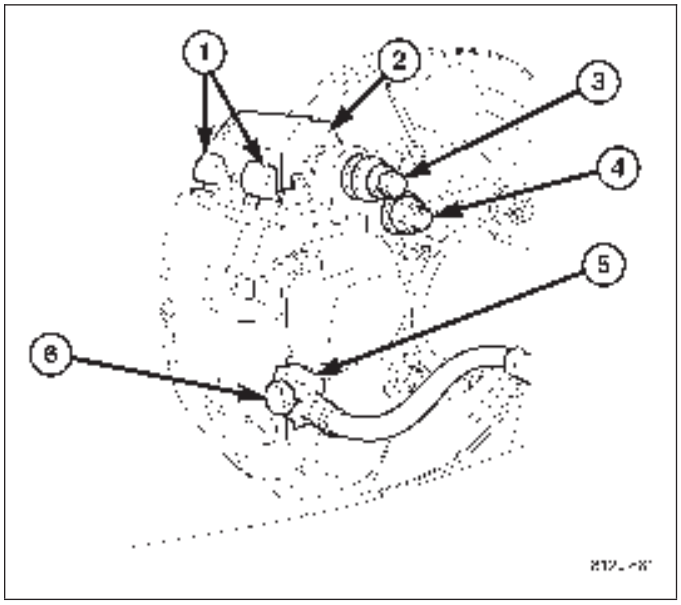


REAR - SRT-10

1. Raise and support the vehicle.
2. Remove the tire and wheel assembly.
3. Compress the disc brake caliper using tool #C4212F.
4. Remove the caliper pin bolts (3).
5. Remove the banjo bolt (6) and discard the copper washer.

CAUTION: Never allow the disc brake caliper to hang from the brake hose. Damage to the brake hose with result. Provide a suitable support to hang the caliper securely.

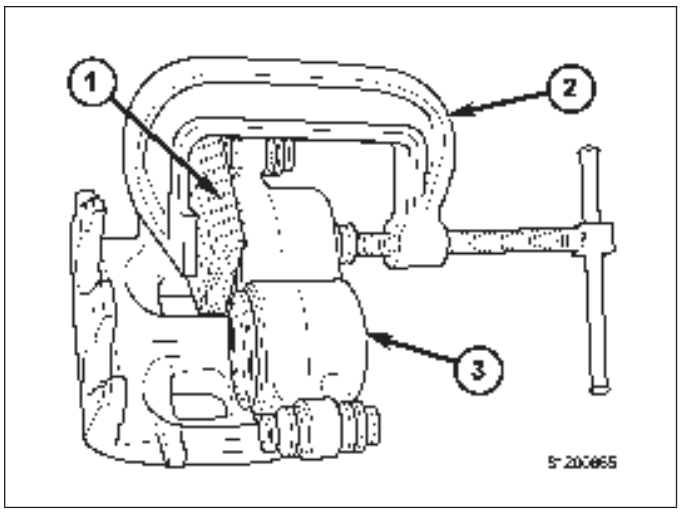
6. Remove the rear disc brake caliper.



DISASSEMBLY

DISC BRAKE CALIPER

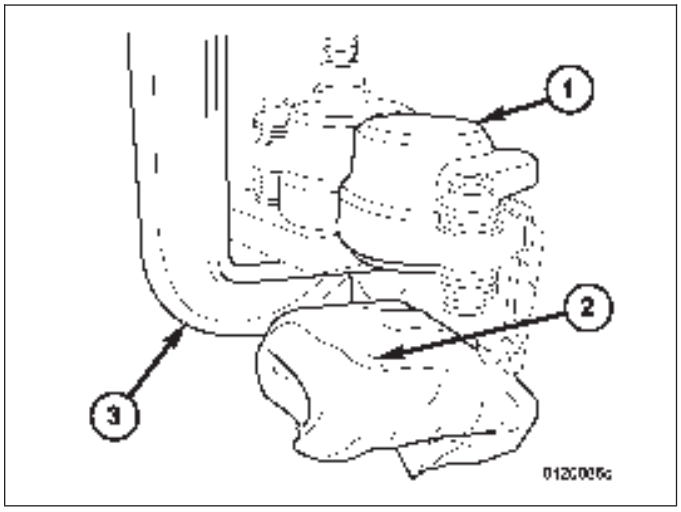
1. Drain the brake fluid from caliper.
2. C-clamp (2) a block of wood (1) over one piston.



3. Take another piece of wood and pad it with one-inch thickness of shop towels (2). Place this piece in the outboard shoe side of the caliper in front of the other piston. This will cushion and protect caliper piston during removal.
4. To remove the caliper piston direct **short bursts of low pressure air** with a blow gun through the caliper brake hose port. Use only enough air pressure to ease the piston out.

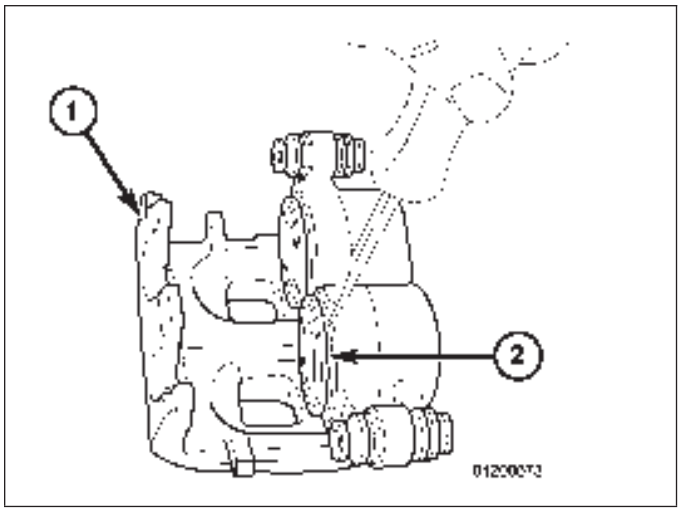
CAUTION: Do not blow the piston out of the bore with sustained air pressure. This could result in a cracked piston.

WARNING: NEVER ATTEMPT TO CATCH THE PISTON AS IT LEAVES THE BORE. THIS COULD RESULT IN PERSONAL INJURY.



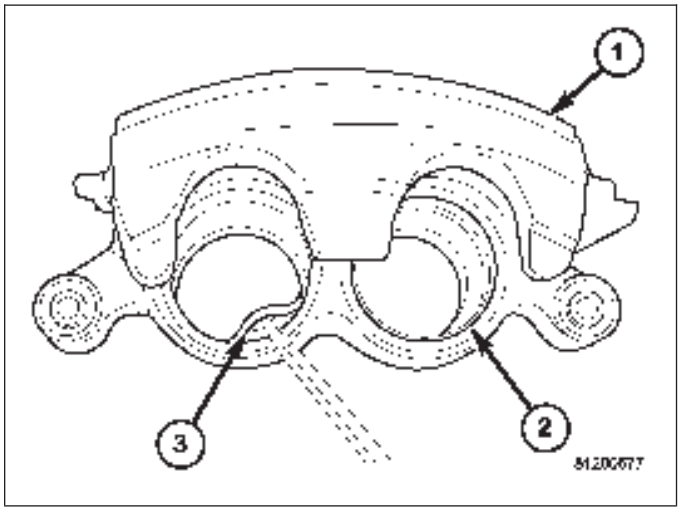
5. Remove the C-clamp and block of wood from the caliper and clamp it over the dust boot of the first piston removed. This will seal the empty piston bore.
6. Move the padded piece of wood in front of the other piston.
7. Remove the second piston using the same procedure with **short bursts of low pressure air**.

8. Remove piston dust boots (2) with a suitable pry tool.

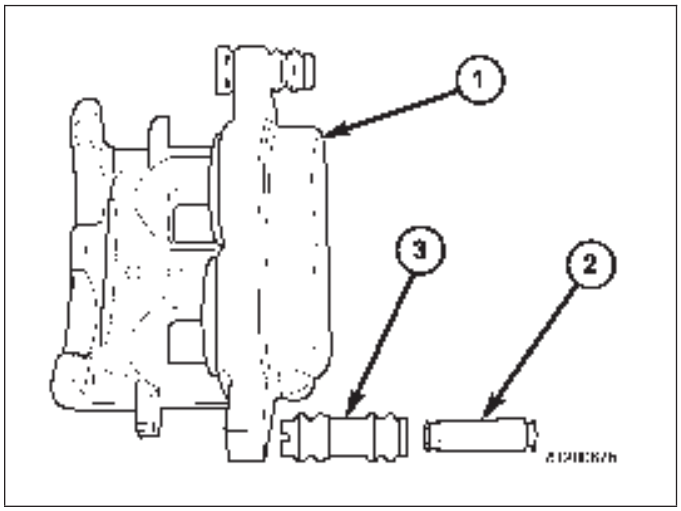


CAUTION: Do not scratch piston bore while removing the seals.

9. Remove piston seals (3) from caliper (1).



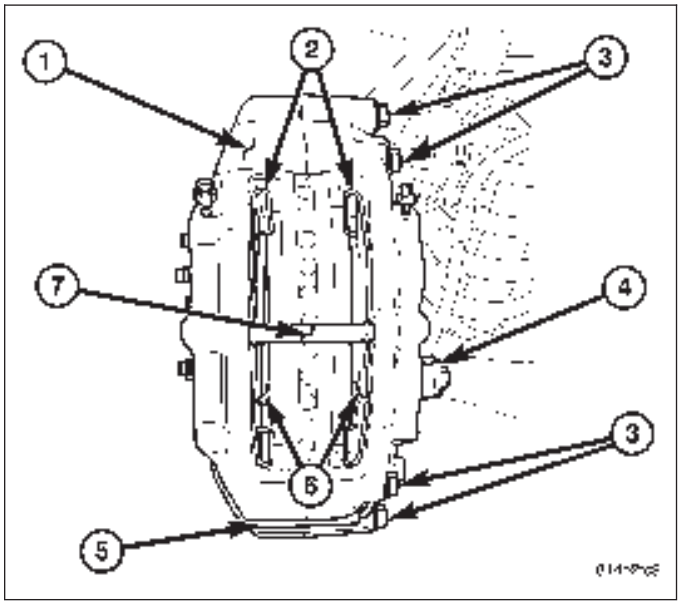
10. Push caliper mounting bolt bushings (3) out of the boot seals (2) and remove the boot seals from the caliper (1).
11. Remove caliper bleed screw.



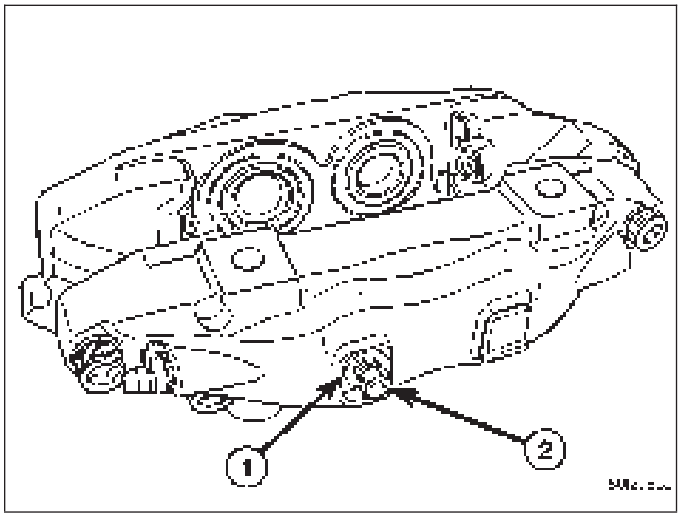
DISC BRAKE CALIPER - FRONT - SRT-10

NOTE: Before disassembling caliper, clean and inspect it. (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER - CLEANING) (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER - INSPECTION)

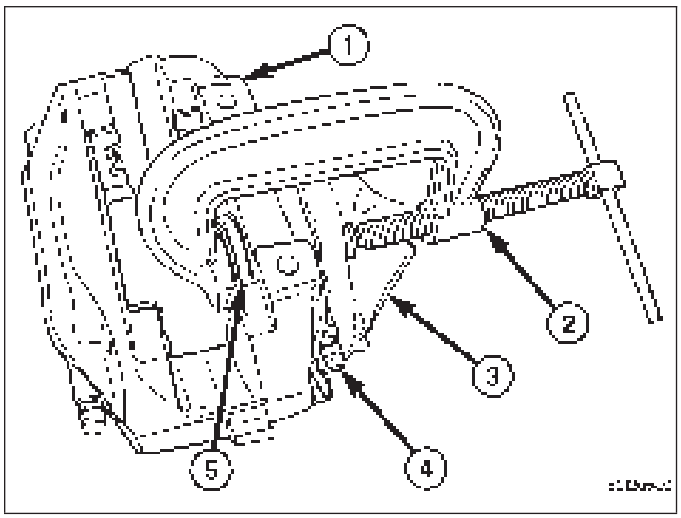
1. Remove front disc brake caliper (1) from vehicle. (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER - REMOVAL).
2. If brake pads were not removed from caliper prior to removing caliper from vehicle, remove brake pads (6). (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/BRAKE PADS/pads - REMOVAL)
3. Remove transfer brake tube (5) between inboard and outboard caliper halves.



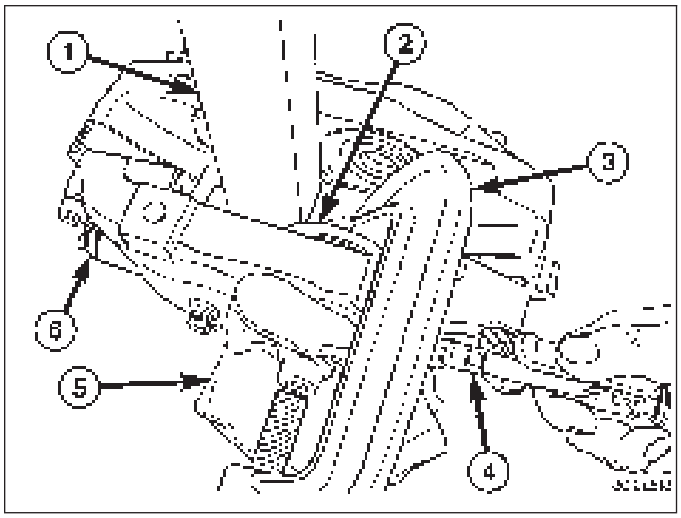
4. Install M10 X 1.0 threaded plug(2) in flex hose banjo bolt hole (1). This hole needs to be plugged to remove caliper inboard pistons using compressed air.



5. Install C-clamp (2) over inboard caliper piston nearest to bleeder screw as follows:
   a. Lay shop towel (3) over outside of inboard caliper half to protect finish.
   b. Place Installer, Special Tool 6454 (5), over piston and boot nearest to bleeder screw and hold in place. Either side of Installer will work.
   c. Place C-clamp (2) over tool and towel as shown and tighten C-clamp. DO NOT USE EXCESSIVE FORCE; excessive force could damage caliper or piston.



6. Place an appropriate size block (1) of wood inside center area of caliper, in front of first piston to be removed. Block of wood should be large enough to allow piston to exit piston bore just far enough for piston to be pulled out remaining distance by hand, but not exit the bore completely.

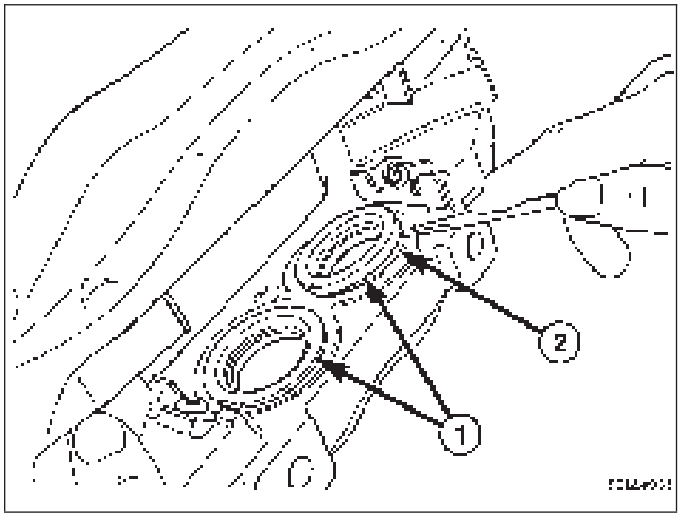


WARNING: DO NOT PLACE FACE OR HANDS NEAR PISTONS OR INTO CENTER AREA OF CALIPER WHEN USING COMPRESSED AIR TO REMOVE PISTONS FROM BORE OF CALIPER. PERSONAL INJURY CAN RESULT FROM SUCH ACTION.

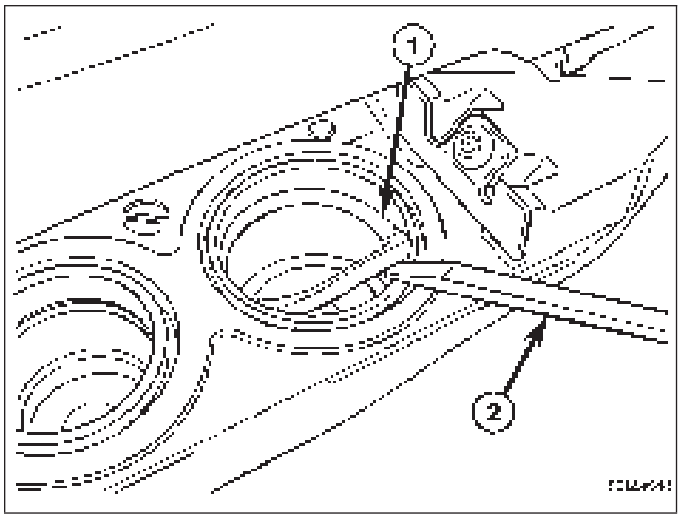
WARNING: UNDER NO CONDITIONS SHOULD HIGH PRESSURE AIR BE USED TO REMOVE PISTON FROM CALIPER BORE. PERSONAL INJURY CAN RESULT FROM SUCH ACTION.

7. Using a rubber tipped air nozzle (4), apply short bursts of low pressure compressed air to caliper transfer port to force piston from bore.
8. Remove block of wood (1) from center area of caliper.
9. Remove piston from caliper bore, but leave piston dust boot in place.
10. Transfer C-clamp (3) and Installer to cover piston boot and bore where piston was just removed. It may be necessary to place a small piece of rubber over hole in center of Installer to seal off installer.
11. Place block of wood (1) inside center area of caliper, in front of second piston to be removed.
12. Using a rubber tipped air nozzle (4), apply short bursts of low pressure compressed air to caliper transfer port to force piston from bore.
13. Remove block of wood (1) from center area of caliper.
14. Remove piston from caliper bore.
15. Remove C-clamp (3) and Installer.

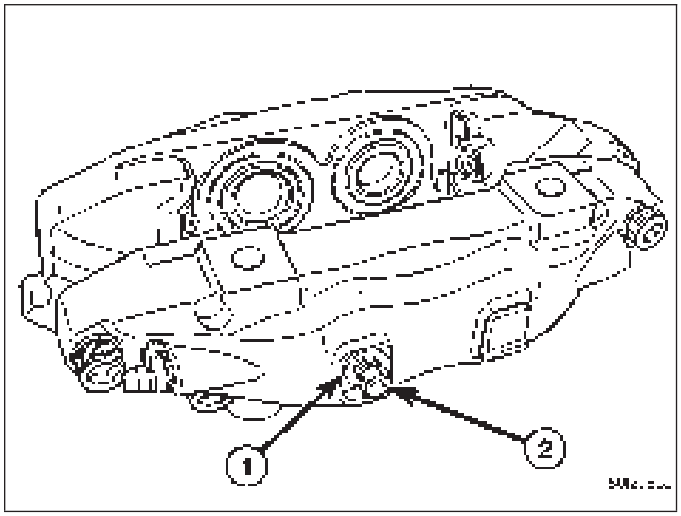
16. Remove piston dust boots (1) from empty piston bores of caliper. To do so, carefully pry each boot from its retaining groove using a small screwdriver. The screwdriver must be inserted between outer edge of dust boot and caliper. **Do not insert screwdriver into bore of caliper to remove boot; scoring of bore may occur.**



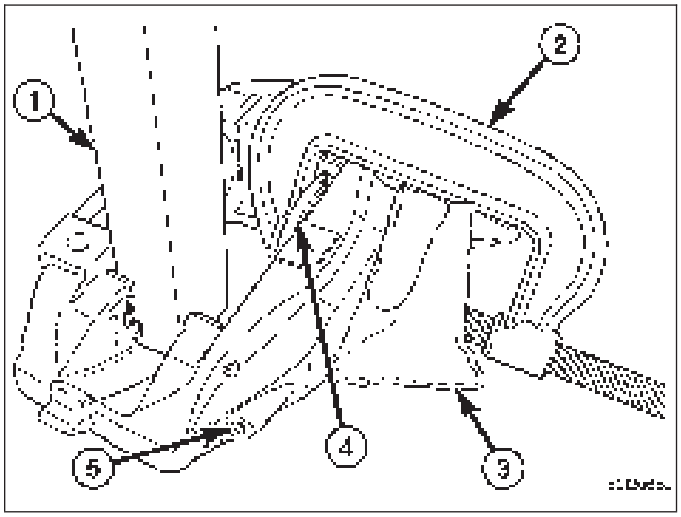
17. Remove piston seal (1) from each empty piston bores using a trim stick (2) or other suitable tool. **Do not use a screwdriver or other metal tool; scoring of bore or burring of seal groove may occur.**



18. Remove bleeder screw from inboard half of caliper.
19. Remove threaded plug (2) from banjo bolt hole (1) in inboard half of caliper.

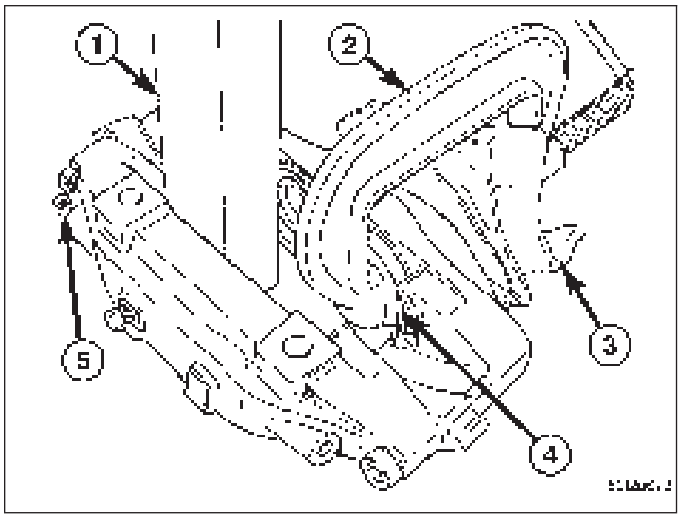


20. Install C-clamp (2) over outboard caliper piston nearest to bleeder screw as follows:
    a. Lay shop towel (3) over outside of outboard caliper half to protect finish.
    b. Place Installer, Special Tool 6454 (4) , over piston and boot nearest to bleeder screw and hold in place. Either side of Installer will work.
    c. Place C-clamp (2) over tool and cloth as shown and tighten C-clamp. DO NOT USE EXCESSIVE FORCE; excessive force could damage caliper or piston.
21. Place an appropriate size block of wood (1) inside center area of caliper, in front of piston nearest transfer tube port. Block of wood should be large enough to allow piston to exit piston bore just far enough for piston to be pulled out remaining distance by hand, but not exit the bore completely.



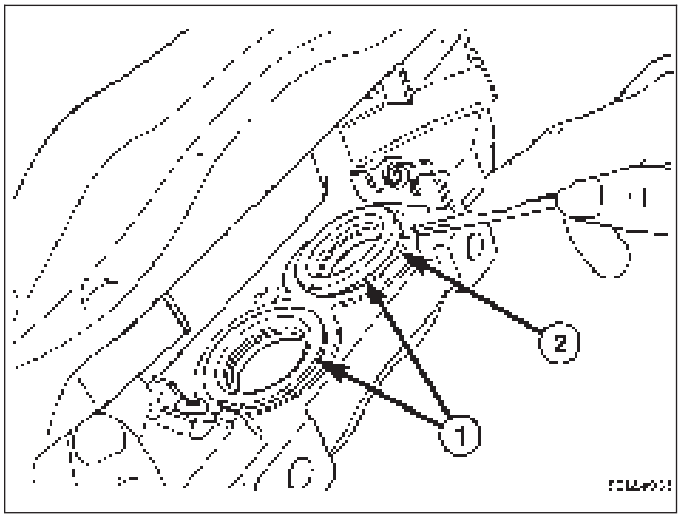
WARNING: DO NOT PLACE FACE OR HANDS NEAR PISTONS OR INTO CENTER AREA OF CALIPER WHEN USING COMPRESSED AIR TO REMOVE PISTONS FROM BORE OF CALIPER. PERSONAL INJURY CAN RESULT FROM SUCH ACTION.

WARNING: UNDER NO CONDITIONS SHOULD HIGH PRESSURE AIR BE USED TO REMOVE PISTON FROM CALIPER BORE. PERSONAL INJURY CAN RESULT FROM SUCH ACTION.

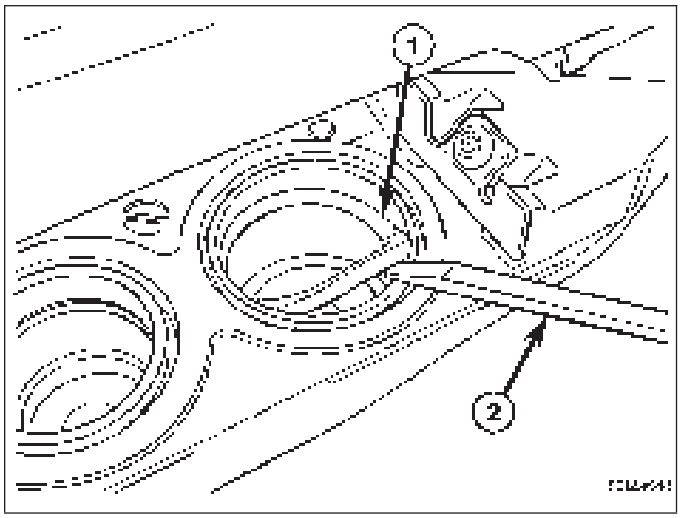


22. Using a rubber tipped air nozzle, apply short bursts of low pressure compressed air to caliper transfer port to force piston from bore.
23. Remove block of wood (1) from center area of caliper.
24. Remove piston from caliper bore, but leave piston dust boot in place.
25. Transfer C-clamp (2) and Installer to cover piston boot and bore where piston was just removed. It may be necessary to place a small piece of rubber over hole in center of Installer to seal off installer.
26. Place the piece of wood (1) inside center area of caliper, in front of piston to be removed.
27. Using a rubber tipped air nozzle, apply short bursts of low pressure compressed air to caliper transfer port to force piston from bore.
28. Remove piece of wood from center area of caliper.
29. Remove piston from caliper bore.
30. Remove C-clamp and Installer.

31. Remove piston dust boots (1) from empty piston bores of outboard half of caliper. To do so, carefully pry each boot from its retaining groove (2) using a small screwdriver. The screwdriver must be inserted between outer edge of dust boot and caliper. **Do not insert screwdriver into bore of caliper to remove boot; scoring of bore may occur.**



32. Remove piston seal (1) from each empty piston bore of outboard half of caliper using a trim stick (2) or other suitable tool. **Do not use a screwdriver or other metal tool; scoring of bore or burring of seal groove may occur.**
33. Remove bleeder screw on outboard half of caliper.



34. Thoroughly clean each of the four pistons using Mopar® Non-Clorinated Brake Parts Cleaner, alcohol or other suitable solvent and wipe dry using a lint free towel. Inspect all surfaces of each piston for any signs of corrosion or scoring. If any corrosion on piston cannot be removed using these products, or if piston is scored, replace piston. **Do not sand piston to remove corrosion or scoring.**

CAUTION: Do not attempt to hone piston bores of this caliper. If bores cannot be cleaned using appropriate solvents, caliper must be replaced.

35. Clean piston bores of caliper using Mopar® Non-Clorinated Brake Parts Cleaner, alcohol or another suitable solvent saturated into a lint free towel. Once thoroughly cleaned, wipe each bore dry using a clean lint free towel. Inspect all surfaces inside caliper bores for any signs of corrosion or scoring. If any corrosion inside piston bores cannot be removed using these products, or if any bore is scored, the caliper assembly must be replaced.
36. Using compressed air, blow out piston bores of caliper to remove any particles that may be left from cleaning procedure and to ensure bore is dry.
37. Proceed to Assembly to assemble caliper. (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER - ASSEMBLY)

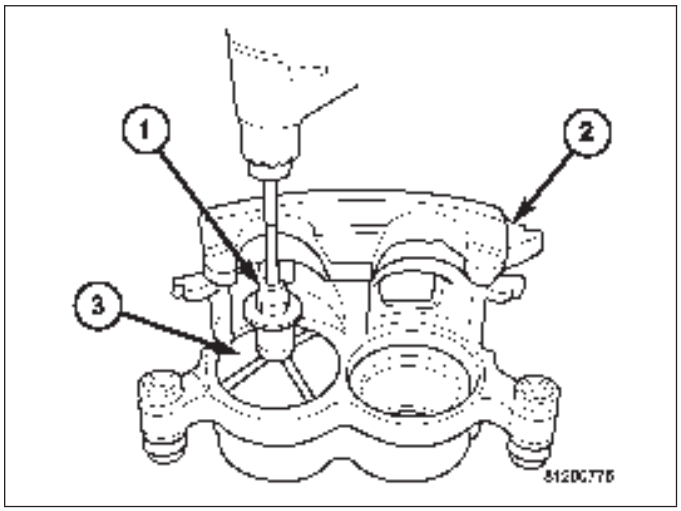
INSPECTION

The piston is made from a phenolic resin (plastic material) and should be smooth and clean.

The piston must be replaced if cracked or scored. Do not attempt to restore a scored piston surface by sanding or polishing.

CAUTION: If the caliper piston is replaced, install the same type of piston in the caliper. Never interchange phenolic resin and steel caliper pistons. The pistons, seals, seal grooves, caliper bore and piston tolerances are different.

The bore can be **lightly** polished with a brake hone (3) to remove very minor surface imperfections. The caliper should be replaced if the bore is severely corroded, rusted, scored, or if polishing would increase bore diameter more than 0.025 mm (0.001 inch).



ASSEMBLY

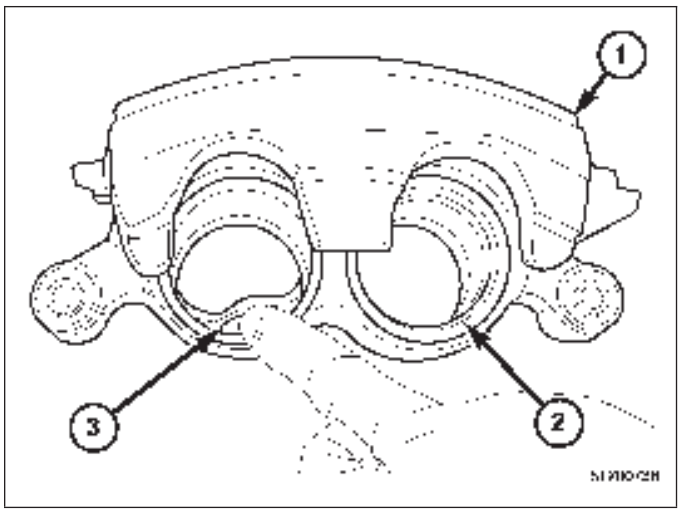
DISC BRAKE CALIPER

CAUTION: Dirt, oil, and solvents can damage caliper seals. Insure assembly area is clean and dry.

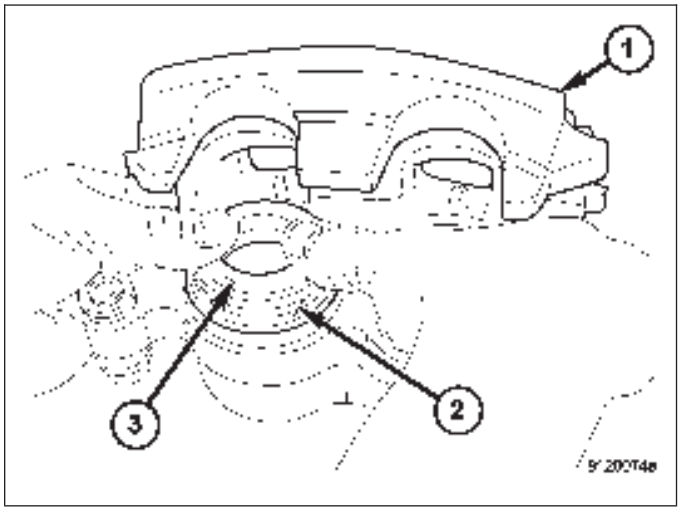
1. Lubricate caliper pistons, piston seals and piston bores with clean, fresh brake fluid.

NOTE: Verify seal is fully seated and not twisted.

2. Install new piston seals (3) into caliper bores (2).



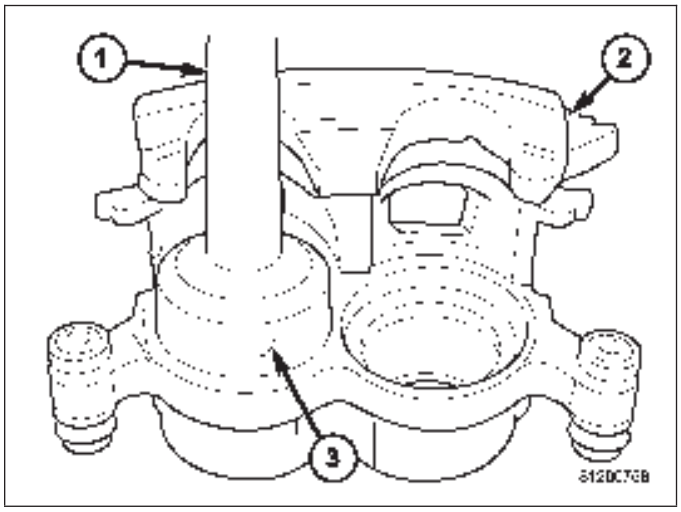
3. Lightly lubricate lip of new boot with silicone grease. Install boot on piston and work boot lip into the groove at the top of piston (3).
4. Stretch boot (2) rearward to straighten boot folds, then move boot forward until folds snap into place.
5. Install piston (3) into caliper bore and press piston down to the bottom of the caliper bore by hand or with hammer handle.



6. Seat dust boot in caliper (2) with Handle C-4171 (1) and Installer (3):
   - 54 mm caliper: Installer C-3716-A
7. Install the second piston and dust boot.
8. Lubricate caliper mounting bolt bushings, boot seals and bores with Mopar brake grease or Dow Corning® 807 grease only.

CAUTION: Use of alternative grease may cause damage to the boots seals.

9. Install the boot seals into the caliper seal bores and center the seals in the bores.
10. Install mounting bolt bushings into the boot seals and insure seal lip is engaged into the bushing grooves at either end of the bushing.



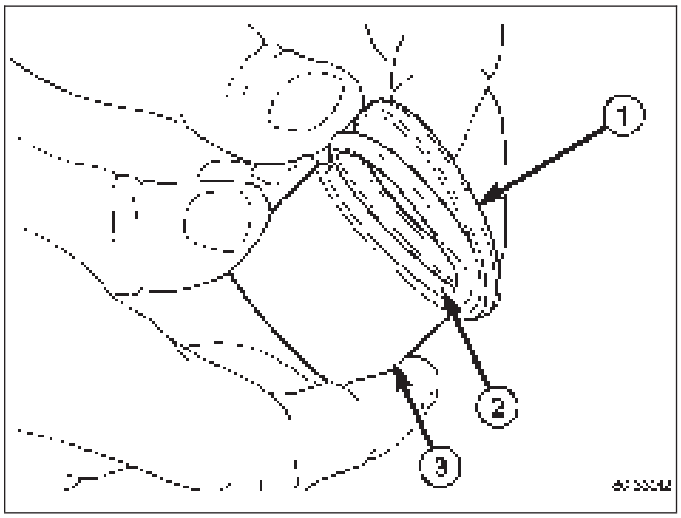
11. Install caliper bleed screw.

DISC BRAKE CALIPER - FRONT - SRT-10

NOTE: Perform Step 1 through Step 4 for each piston and bore of caliper. Keep in mind there are two different size pistons, bores, seals and boots used on each caliper.

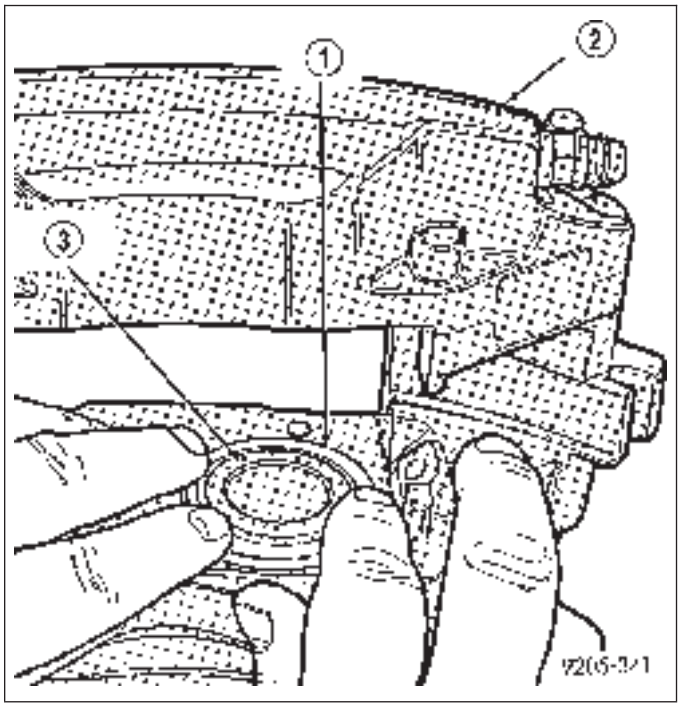
1. Dip NEW piston seal in fresh clean Mopar® brake fluid conforming to DOT 4 specifications. By hand, gently work seal into seal groove in caliper piston bore until the seal is properly seated.

2. Lightly coat inside of NEW dust boot (1) with fresh clean Mopar® brake fluid conforming to DOT 4 specifications. Install dust boot on caliper piston (3). Be sure dust boot is completely seated in retaining groove (2) of caliper piston.

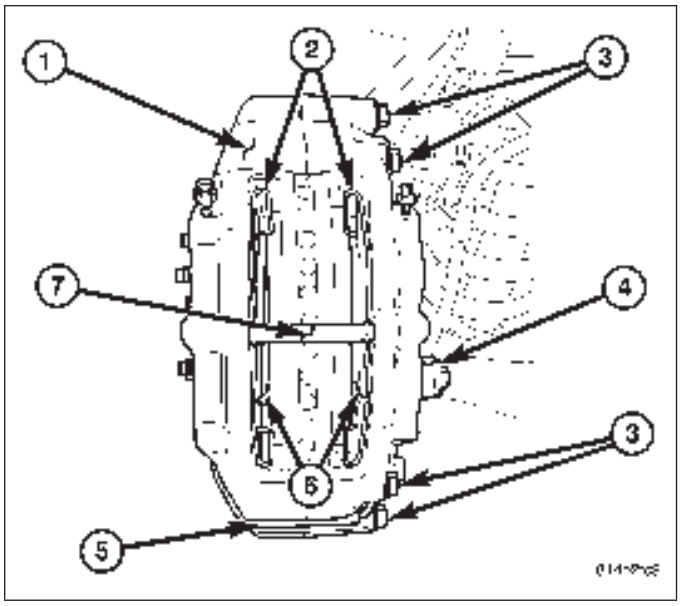


CAUTION: When installing piston (3), force must be applied to the piston uniformly to avoid cocking and binding the piston in the bore.

3. Squarely position piston (3) into top portion of piston bore. Using finger pressure, evenly apply pressure to top of piston, pressing it into bore until it is past piston seal, bottomed in bore.
4. Using finger pressure, press outer ring of dust boot into retaining groove surrounding caliper bore until flush with caliper machined surface.



5. Repeat above procedure for remaining pistons and bores.
6. Install bleeder screws in top of caliper.
7. Install transfer brake fluid tube (5) between inboard and outboard caliper halves. Tighten tube nuts to 17 N·m (145 in. lbs.) torque.
8. Install brake pads (6) in caliper (1). (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/BRAKE PADS/SHOES - INSTALLATION)
9. Install caliper (1) on vehicle. (Refer to 5 - BRAKES/ HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER - INSTALLATION)



INSTALLATION

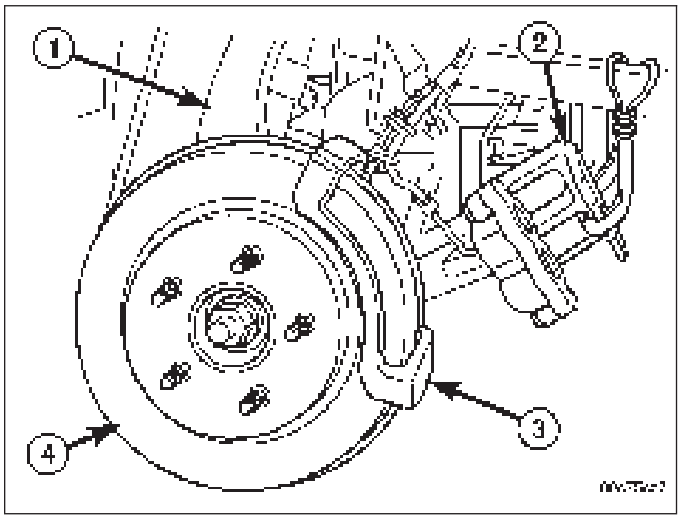
FRONT

NOTE: Install a new copper washers on the banjo bolt when installing

1. Install the disc brake caliper (2).

CAUTION: Verify brake hose is not twisted or kinked before tightening fitting bolt.

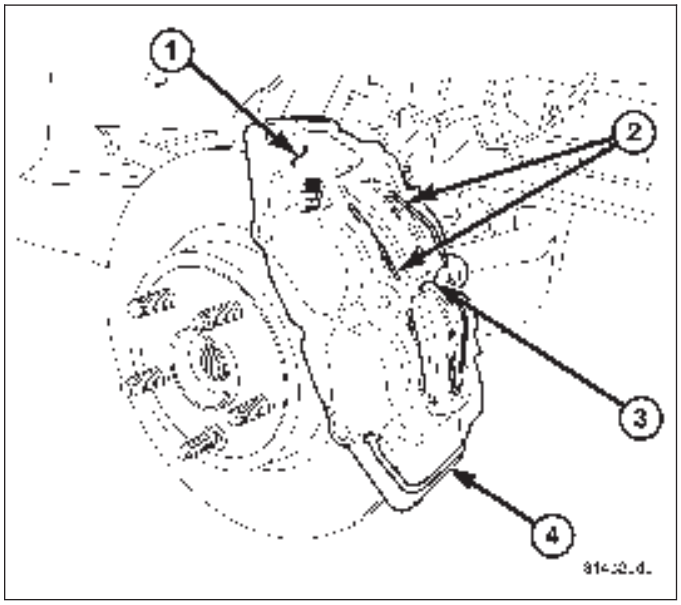
2. Install the banjo bolt with new copper washers to the caliper. Tighten to 27 N·m (20 ft. lbs.)
3. Install the caliper slide pin bolts. tighten to 32 N·m (24 ft. lbs.)
4. Bleed the base brake system, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL - STANDARD PROCEDURE).
5. Install the tire and wheel assembly, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
6. Lower the vehicle.



FRONT - SRT-10

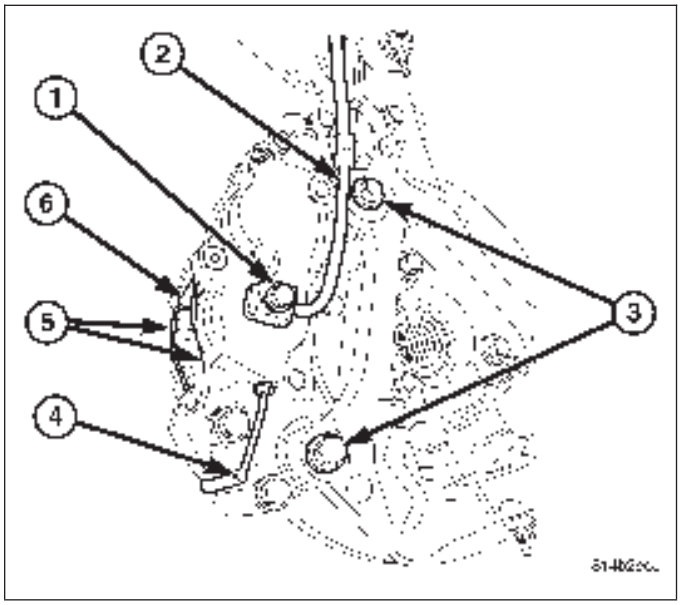
NOTE: Install a new copper washers on the banjo bolt when installing

1. Install the disc brake pads, anti-rattle springs (2) and pad retaining pin (3).
2. Install the disc brake caliper (1).



CAUTION: Verify brake hose is not twisted or kinked before tightening fitting bolt.

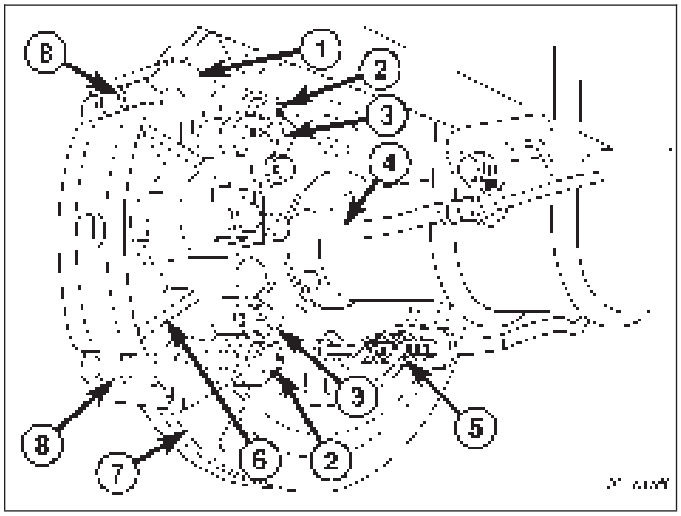
3. Install the brake hose (2) banjo bolt (1) with new copper washers to the caliper. Tighten to 27 N·m (20 ft. lbs.)
4. Install the caliper mounting bolts (3). tighten to 32 N·m (24 ft. lbs.).
5. Bleed the base brake system, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL - STANDARD PROCEDURE).
6. Install the tire and wheel assembly, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
7. Lower the vehicle.



REAR

1. Install caliper (6) to the caliper adapter (1).
2. Coat the caliper mounting slide pin bolts (3) with silicone grease. Then install and tighten the bolts to 30 N·m (22 ft. lbs.).
3. Install the brake hose banjo bolt if removed.
4. Install the brake hose (4) to the caliper (6) with **new seal washers** and tighten fitting bolt to 27 N·m (245 in. lbs.).

CAUTION: Verify brake hose is not twisted or kinked before tightening fitting bolt.

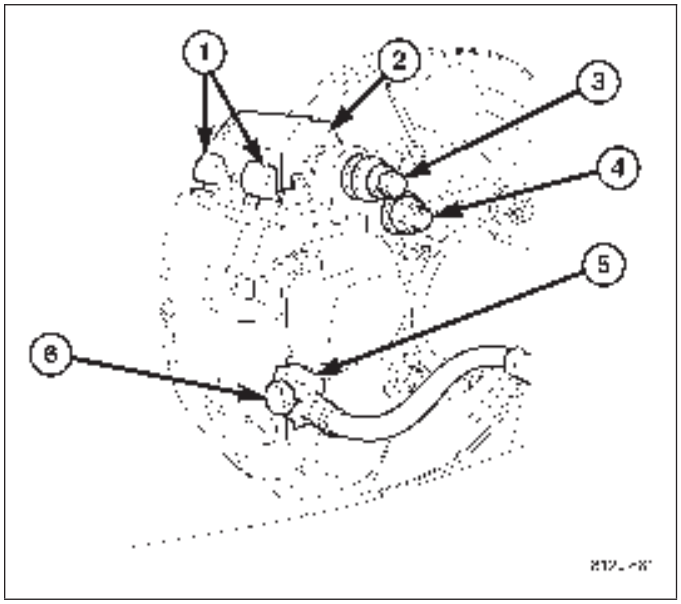


5. Bleed the base brake system, (Refer to 5 - BRAKES - STANDARD PROCEDURE) OR (Refer to 5 - BRAKES - STANDARD PROCEDURE).
6. Install the wheel and tire assemblies (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
7. Remove the supports and lower the vehicle.
8. Verify a firm pedal before moving the vehicle.

REAR - SRT-10

NOTE: Install a new copper washers on the banjo bolt when installing

1. Install the rear disc brake caliper.
2. Install the banjo bolt (6) with new copper washers to the caliper.tighten to 27 N·m (20 ft. lbs.)
3. Install the caliper pin bolts (3). tighten to 30 N·m (22 ft. lbs.)
4. Bleed the base brake system, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL - STANDARD PROCEDURE).
5. Install the tire and wheel assembly, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
6. Lower the vehicle.

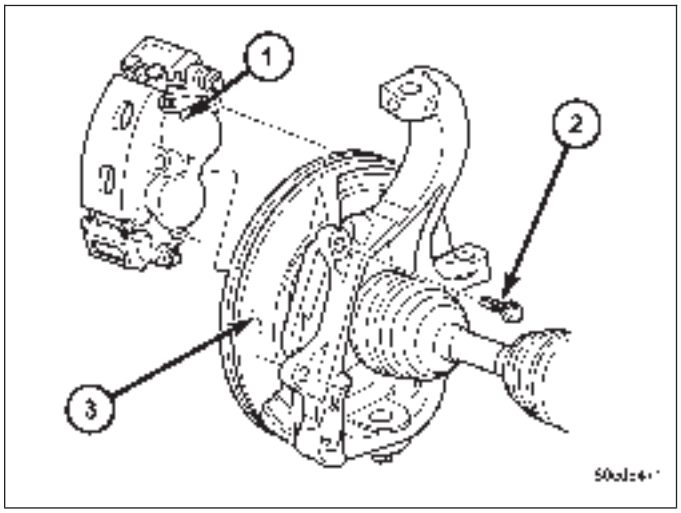


ADAPTER-DISC BRAKE CALIPER

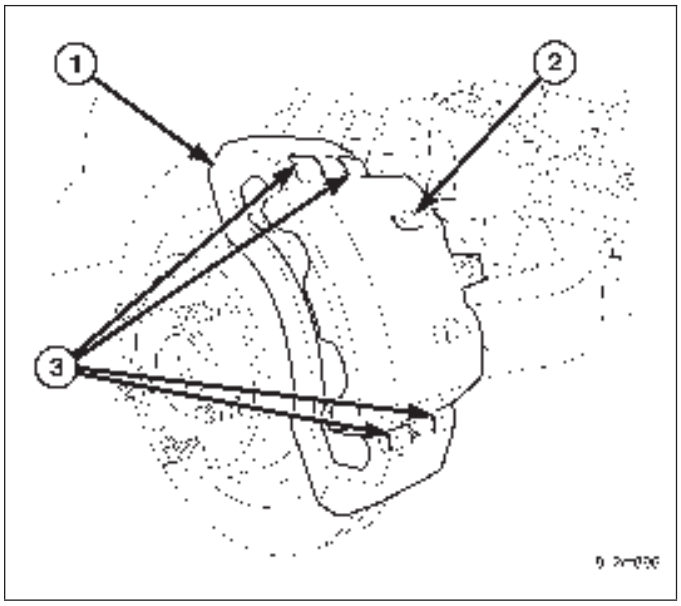
REMOVAL

FRONT

1. Raise and support the vehicle.
2. Remove the tire and wheel assembly.
3. Remove the disc brake caliper (1) (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
4. Remove the bolts (2) securing the caliper adapter to the steering knuckle.



5. Remove the caliper adapter (1).

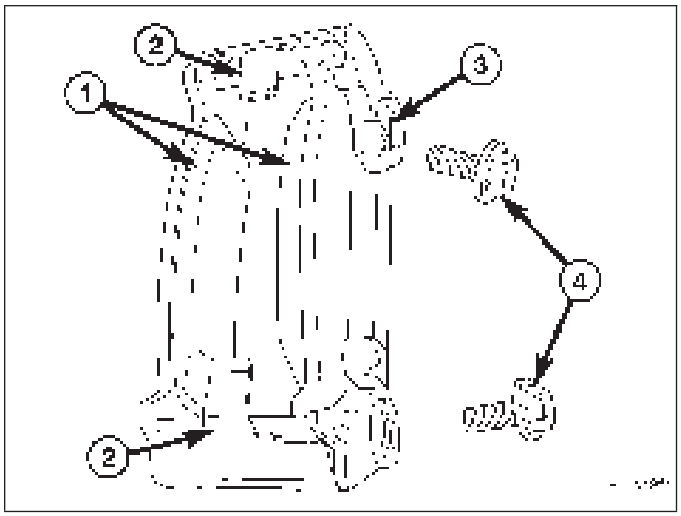


REAR

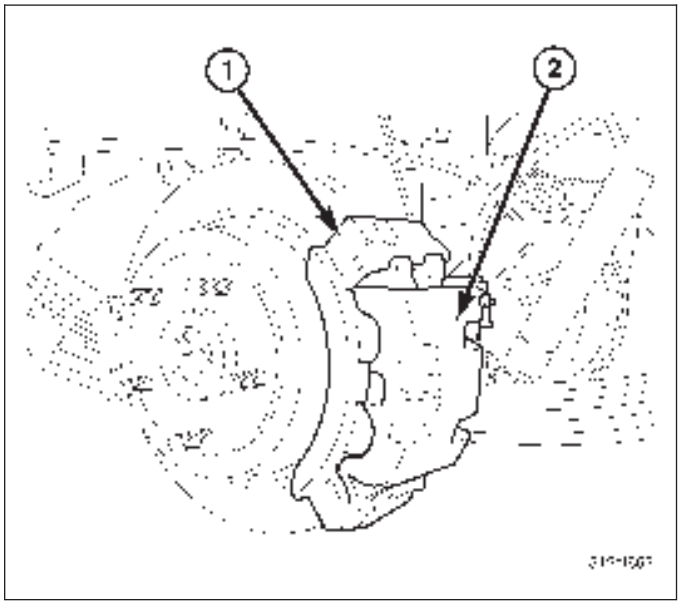
1. Raise and support the vehicle.
2. Remove the wheel and tire assembly.
3. Drain a small amount of fluid from master cylinder brake reservoir with a **clean** suction gun.
4. Bottom the caliper pistons into the caliper by prying the caliper over.
5. Remove the caliper slide bolts.
6. Remove the disc brake caliper from the mount.

CAUTION: Never allow the disc brake caliper to hang from the brake hose. Damage to the brake hose will result. Provide a suitable support to hang the caliper securely.

7. Remove the inboard and outboard brake pads (1).
8. Remove the anti-rattle clips (2).
9. Remove the caliper adapter mounting bolts (4).



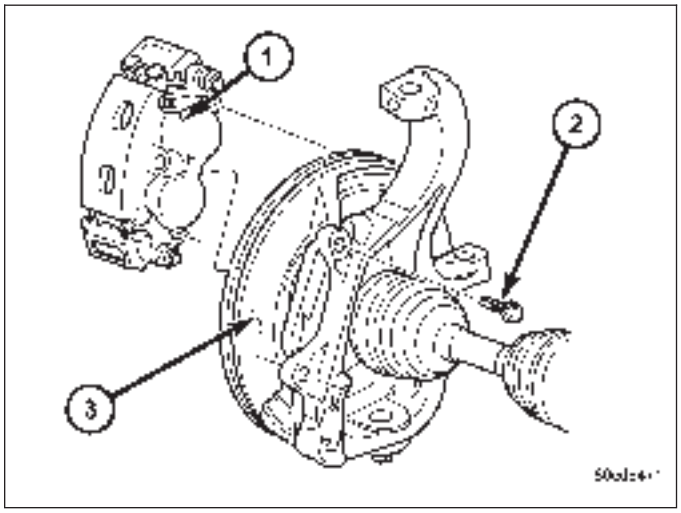
10. Remove the caliper adapter (1).



INSTALLATION

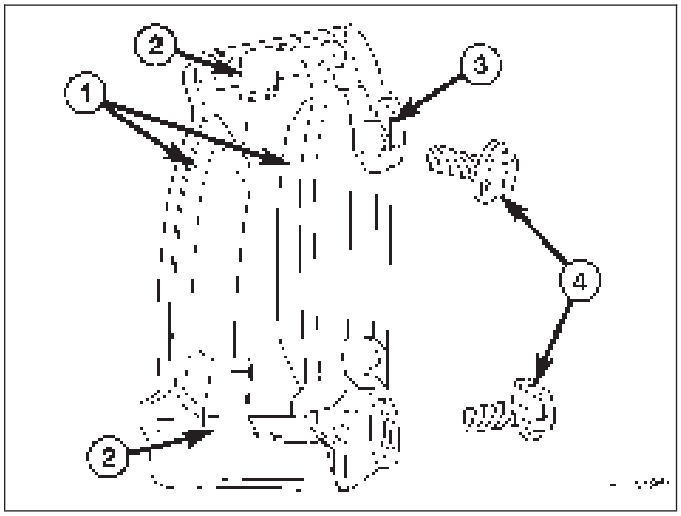
FRONT

1. Install the caliper adapter to the steering knuckle.
2. Install the caliper adapter mounting bolts (2) and tighten to 176 N·m (130 ft.lbs.) **LD** or tighten to 339 N·m (250 ft.lbs.) **HD** .
3. Install the disc brake caliper (1) (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
4. Install the tire and wheel assembly (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
5. Remove the support and lower the vehicle.



REAR

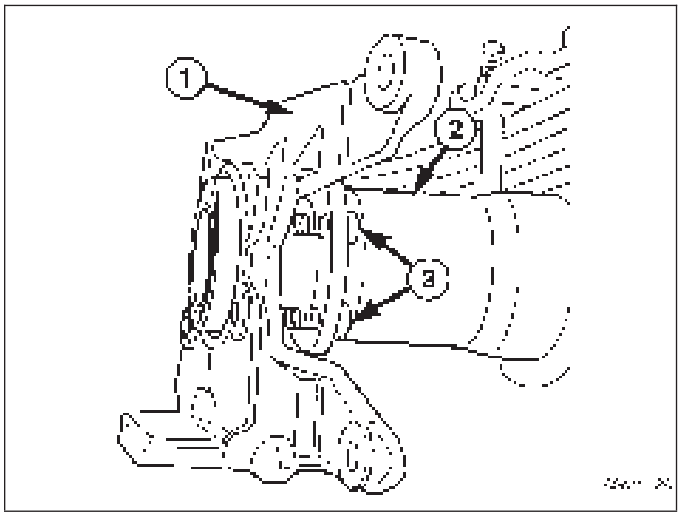
1. Install the caliper adapter mounting bolts (4). Tighten the mounting bolts to 135 N·m (100 ft.lbs) **LD** or tighten to 197 N·m (145 ft.lbs.) **HD**.
2. Install the anti-rattle clips (2).
3. Install the inboard and outboard pads (1).
4. Install the caliper mounting bolts.
5. Install the tire and wheel assembly.



MOUNT-DISC BRAKE CALIPER ADAPTER

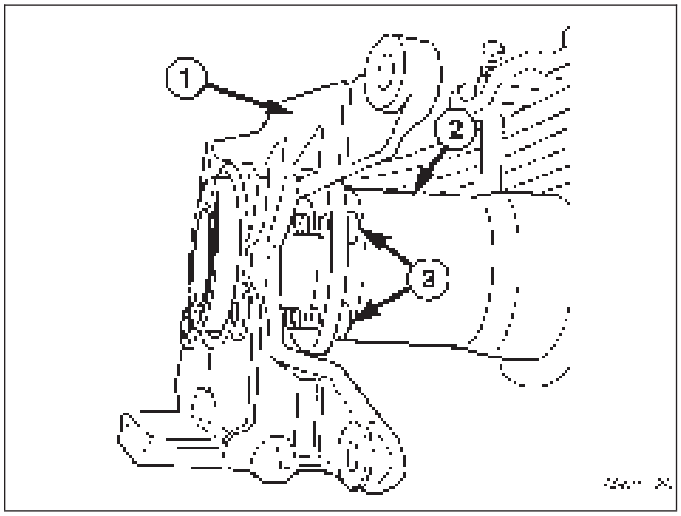
REMOVAL - REAR

1. Remove wheel and tire assembly.
2. Remove the disc brake caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
3. Remove the caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER ADAPTER - REMOVAL).
4. Remove the rotor (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL).
5. Remove the axle shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 9 1/4/AXLE SHAFTS - REMOVAL).
6. Remove the park brake shoes (Refer to 5 - BRAKES/PARKING BRAKE/SHOES - REMOVAL).
7. Remove the parking brake cable from the brake lever.
8. Remove the bolts (3) attaching the support plate to the axle and remove the support plate.
9. Remove the caliper adapter mount (1) from the axle housing (2).



INSTALLATION

1. Install the caliper adapter mount (1) on the axle housing (2).
2. Install support plate on axle flange. Tighten attaching bolts (3) to 68 N·m (50 ft. lbs.) **LD** or tighten to 203 N·m (150 ft.lbs.) **HD**.



3. Install parking brake cable in the brake lever.
4. Install the park brake shoes (Refer to 5 - BRAKES/PARKING BRAKE/SHOES - INSTALLATION)..
5. Install axle shaft, (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 9 1/4/AXLE SHAFTS - INSTALLATION).
6. Adjust brake shoes to drum with brake gauge (Refer to 5 - BRAKES/PARKING BRAKE/SHOES - ADJUSTMENTS).
7. Install the rotor (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION).
8. Install the caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER ADAPTER - INSTALLATION).
9. Install the caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
10. Install wheel and tire assembly.

FLUID

DIAGNOSIS AND TESTING

BRAKE FLUID CONTAMINATION

Indications of fluid contamination are swollen or deteriorated rubber parts.

Swollen rubber parts indicate the presence of petroleum in the brake fluid.

To test for contamination, put a small amount of drained brake fluid in clear glass jar. If fluid separates into layers, there is mineral oil or other fluid contamination of the brake fluid.

If brake fluid is contaminated, drain and thoroughly flush system. Replace master cylinder, proportioning valve, caliper seals, wheel cylinder seals, Antilock Brakes hydraulic unit and all hydraulic fluid hoses.

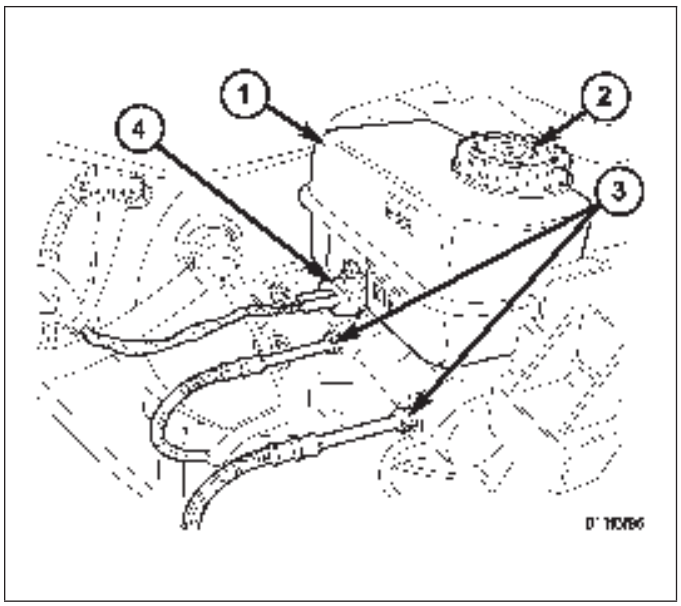
STANDARD PROCEDURE

BRAKE FLUID LEVEL

Always clean the master cylinder reservoir (1) and cap (2) before checking fluid level. If not cleaned, dirt could enter the fluid.

The fluid fill level is indicated on the side of the master cylinder reservoir (1).

The correct fluid level is to the MAX indicator on the side of the reservoir. If necessary, add fluid to the proper level.



SPECIFICATIONS

BRAKE FLUID

The brake fluid used in this vehicle must conform to DOT 3 specifications and SAE J1703 standards. No other type of brake fluid is recommended or approved for usage in the vehicle brake system. Use only Mopar brake fluid or an equivalent from a tightly sealed container.

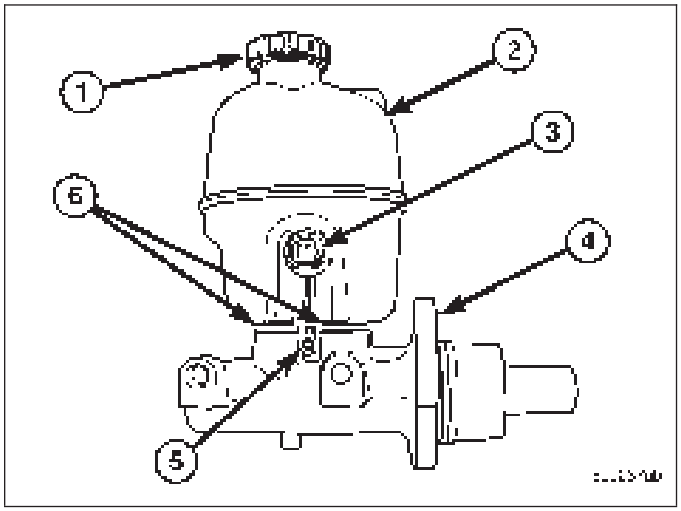
CAUTION: Never use reclaimed brake fluid or fluid from an container which has been left open. An open container of brake fluid will absorb moisture from the air and contaminate the fluid.

CAUTION: Never use any type of a petroleum-based fluid in the brake hydraulic system. Use of such type fluids will result in seal damage of the vehicle brake hydraulic system causing a failure of the vehicle brake system. Petroleum based fluids would be items such as engine oil, transmission fluid, power steering fluid, etc.

RESERVOIR-FLUID

REMOVAL

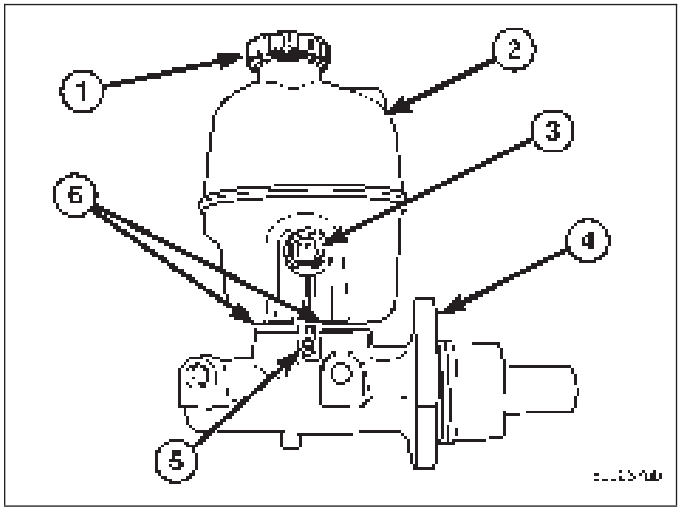
1. Install the prop rod on the brake pedal to keep pressure on the brake system.
2. Remove the reservoir cap (1) and siphon fluid into a drain container.
3. Remove the electrical connector from the fluid level switch (3) in the reservoir (2).
4. Remove the reservoir mounting bolt (5).
5. Remove the reservoir (2) from the master cylinder (4) by pulling upwards.
6. Remove old grommets from cylinder body.



INSTALLATION

CAUTION: Do not use any type of tool to install the grommets. Tools may cut, or tear the grommets creating a leak problem after installation. Install the grommets using finger pressure only.

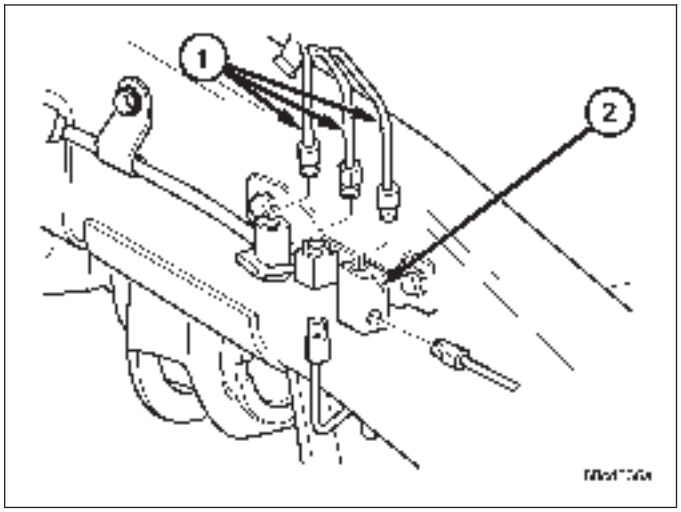
1. Lubricate the new grommets (6) with clean brake fluid and Install new grommets in cylinder body. Use finger pressure to install and seat grommets (6).
2. Start the reservoir (2) in grommets (6). Then rock the reservoir back and forth while pressing downward to seat it into the grommets.
3. Install the mounting bolt (5) for the reservoir (2) to the master cylinder (4).
4. Reconnect the electrical connector to the fluid reservoir level switch (3).
5. Remove the prop rod from the vehicle.
6. Fill and bleed base brake system, (Refer to 5 - BRAKES - STANDARD PROCEDURE).



BRAKE JUNCTION BLOCK

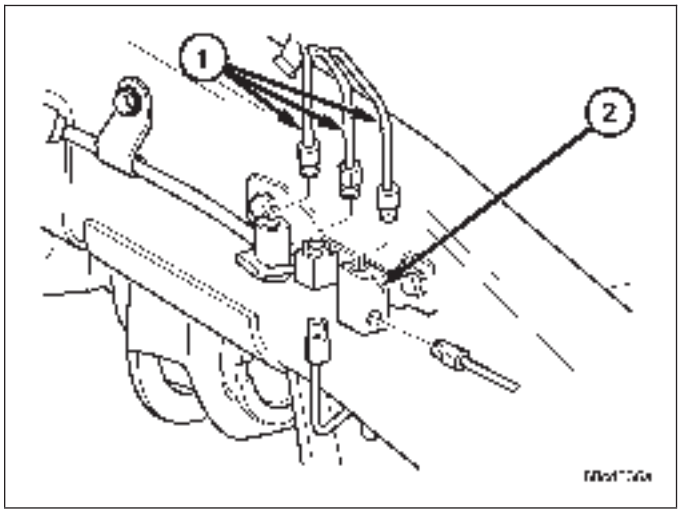
REMOVAL

1. Remove the brake lines (1) from the junction block (2).
2. Remove the junction block (2) mounting bolt and remove the junction block from the bracket.



INSTALLATION

1. Position the junction block (2) on the bracket and install the mounting bolt. Tighten the mounting bolt to 23 N·m (210 in. lbs.).
2. Install the brake lines (1) into the junction block (2) and tighten to 19-23 N·m (170-200 in. lbs.).
3. Bleed the base brake system, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL - STANDARD PROCEDURE).



MASTER CYLINDER

DESCRIPTION

A two-piece master cylinder is used on all models. The cylinder body containing the primary and secondary pistons is made of aluminum. The removable fluid reservoir is made of nylon reinforced with glass fiber. The reservoir stores reserve brake fluid for the hydraulic brake circuits and has a switch for indicating low fluid levels. The reservoir is the only serviceable component.

The fluid compartments of the nylon reservoir are interconnected to permit fluid level equalization. However, the equalization feature does not affect circuit separation in the event of a front or rear brake malfunction. The reservoir compartments will retain enough fluid to operate the functioning hydraulic circuit.

Care must be exercised when removing/installing the master cylinder connecting lines. The threads in the cylinder fluid ports can be damaged if care is not exercised. Start all brake line fittings by hand to avoid cross threading.

The cylinder reservoir can be replaced when necessary. However, the aluminum body section of the master cylinder is not a repairable component.

NOTE: If diagnosis indicates that an internal malfunction has occurred, the aluminum body section must be replaced as an assembly.

OPERATION

The master cylinder bore contains a primary and secondary piston. The primary piston supplies hydraulic pressure to the front brakes. The secondary piston supplies hydraulic pressure to the rear brakes.

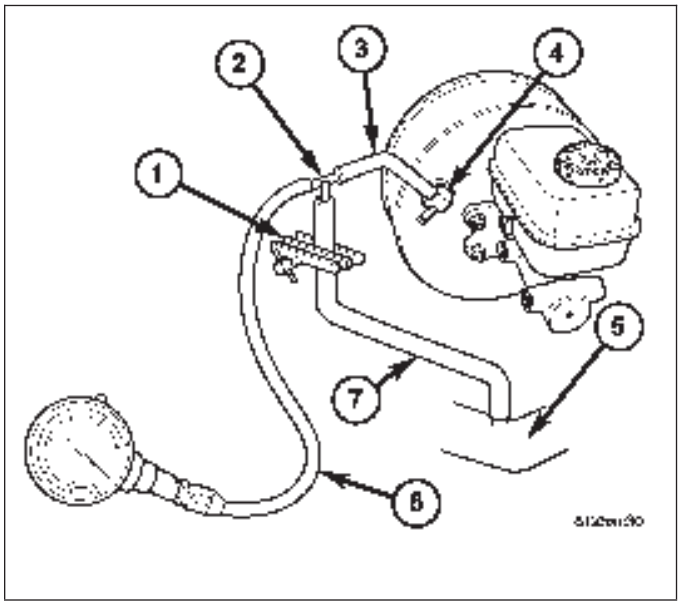
DIAGNOSIS AND TESTING

MASTER CYLINDER/POWER BOOSTER

1. Start engine and check booster vacuum hose connections. A hissing noise indicates vacuum leak. Correct any vacuum leak before proceeding.
2. Stop engine and shift transmission into Neutral.
3. Pump brake pedal until all vacuum reserve in booster is depleted.
4. Press and hold brake pedal under light foot pressure. The pedal should hold firm, if the pedal falls away master cylinder is faulty (internal leakage).
5. Start engine and note pedal action. It should fall away slightly under light foot pressure then hold firm. If no pedal action is discernible, power booster, vacuum supply, or vacuum check valve is faulty. Proceed to the POWER BOOSTER VACUUM TEST.
6. If the POWER BOOSTER VACUUM TEST passes, rebuild booster vacuum reserve as follows: Release brake pedal. Increase engine speed to 1500 rpm, close the throttle and immediately turn off ignition to stop engine.
7. Wait a minimum of 90 seconds and try brake action again. Booster should provide two or more vacuum assisted pedal applications. If vacuum assist is not provided, booster is faulty.

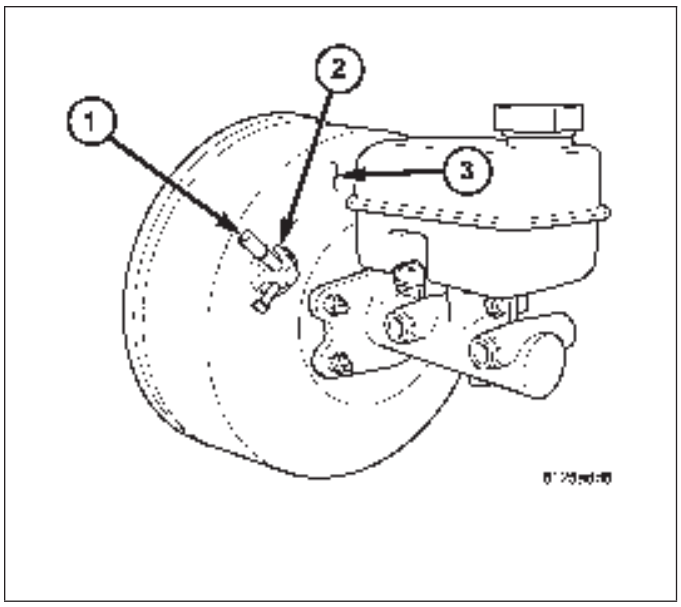
POWER BOOSTER VACUUM TEST

1. Connect vacuum gauge (6) to booster check valve (4) with short length of hose (3) and T-fitting (2).
2. Start and run engine at curb idle speed for one minute.
3. Observe the vacuum supply. If vacuum supply is not adequate, repair vacuum supply.
4. Clamp (1) hose (7) shut between intake vacuum source (5) and check valve (4).
5. Stop engine and observe vacuum gauge (6).
6. If vacuum drops more than one inch HG (33 millibars) within 15 seconds, booster diaphragm or check valve is faulty.



POWER BOOSTER CHECK VALVE TEST

1. Disconnect vacuum hose from check valve (1).
2. Remove check valve (1) and valve seal (2) from booster (3).
3. Use a hand operated vacuum pump for test.
4. Apply 15-20 inches vacuum at large end of check valve.
5. Plug off the small end to prevent vacuum leakage.
6. Vacuum should hold steady. If gauge on pump indicates vacuum loss, check valve is faulty and should be replaced.

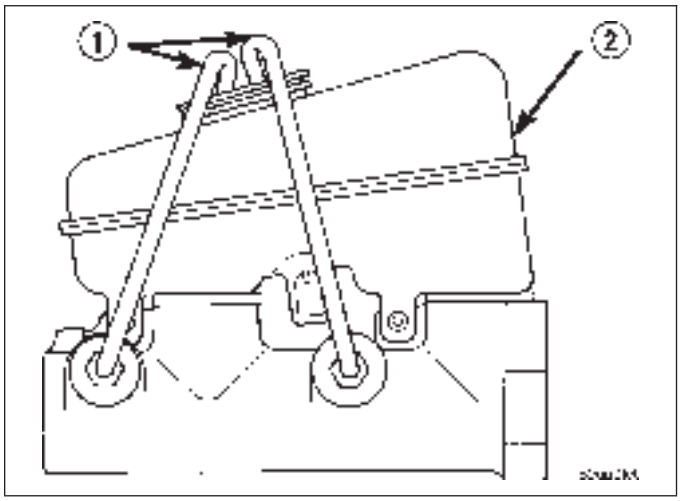


STANDARD PROCEDURE

MASTER CYLINDER BLEEDING

A new master cylinder should be bled before installation on the vehicle. Required bleeding tools include bleed tubes and a wood dowel to stroke the pistons. Bleed tubes can be fabricated from brake line.

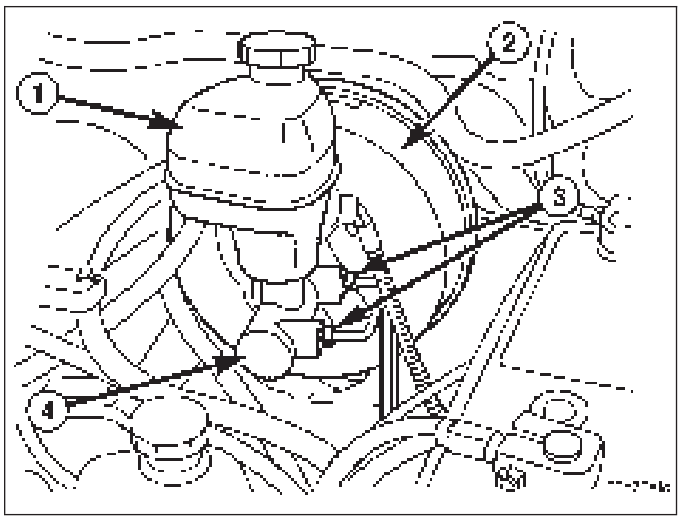
1. Mount master cylinder in vise.
2. Attach bleed tubes to cylinder outlet ports (1). Then position each tube end into reservoir (2).
3. Fill reservoir with fresh brake fluid.
4. Press cylinder pistons inward with wood dowel. Then release pistons and allow them to return under spring pressure. Continue bleeding operations until air bubbles are no longer visible in fluid.



REMOVAL

ALL EXCEPT HYDROBOOST

1. Depress the brake pedal five times to deplete any vacuum that may remain in the booster unit.
2. Siphon and drain the fluid from the reservoir.
3. Disconnect the electrical connector for the low fluid level.
4. Place a towel or rag under the master cylinder outlet port area to protect the vehicle from brake fluid damage.
5. Remove the brake lines (3) from the master cylinder (4).
6. Remove the mounting nuts from the master cylinder (4).
7. Remove the master cylinder (4).

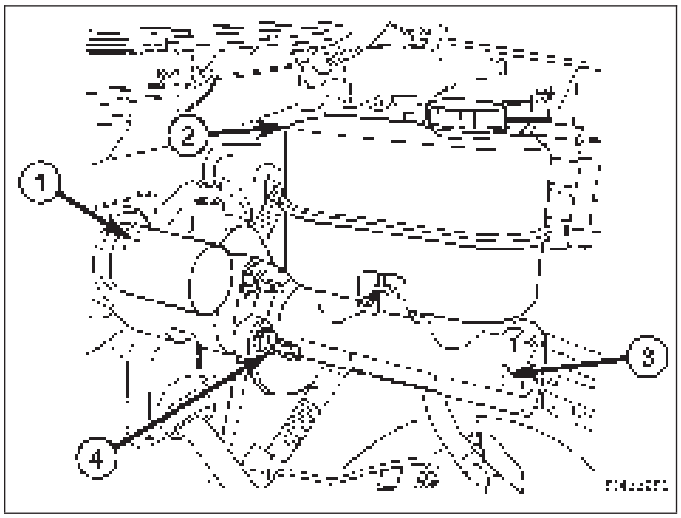


NOTE: Gently ease the master cylinder & reservoir assembly away from the booster, During removal the master cylinder should be kept as perpendicular to the front of the booster as possible to avoid excess interference with the booster output rod and in order not to dislodge the output rod from its seat inside the booster.

HYDROBOOST

1. Remove the brake lines from the master cylinder.
2. Disconnect the electrical connector for the low fluid level.
3. Remove the mounting nuts (4) from the master cylinder (3).
4. Remove the master cylinder (3).

NOTE: Using care remove the master cylinder directly forward in order not to dislodge the output rod from its seat inside the booster.



INSTALLATION

ALL EXCEPT HYDROBOOST

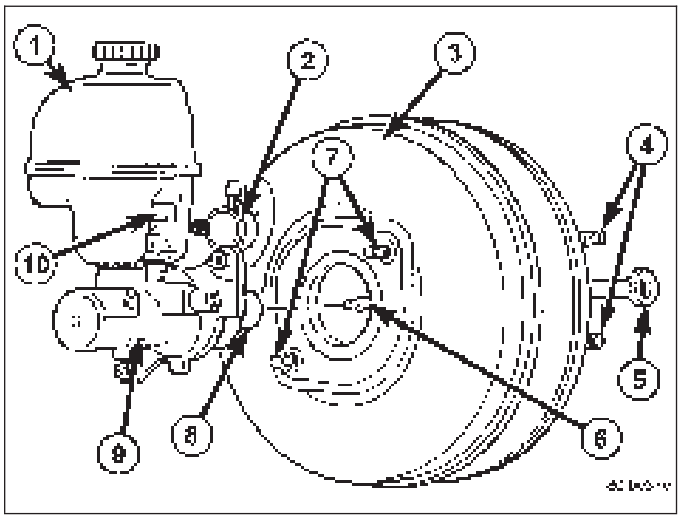
NOTE: If master cylinder is replaced bleed cylinder before installation.

NOTE: Make sure the output rod of the brake booster is in position and retained by a output rod retaining ring, by looking into the boosters master cylinder mounting hole. This position will enable the output rod to enter inside of the master cylinder plunger sleeve during installation. Proper position is obtained when the output rod is centered perpendicular to the master cylinder mounting hole.

NOTE: Prior to installing the master cylinder assembly check that there is a vacuum seal present at the shoulder of the master cylinder flange and it's neck. A square seal must be present to ensure vacuum integrity with the booster.

1. Gently install the master cylinder (9) on the booster mounting studs (4).

NOTE: Take precautions to locate the master cylinder plunger over the booster output rod, before installing the master cylinder. If correctly fitted the master cylinder should slide easily onto the booster output rod before the mounting studs are engaged in the flange holes of the master cylinder.

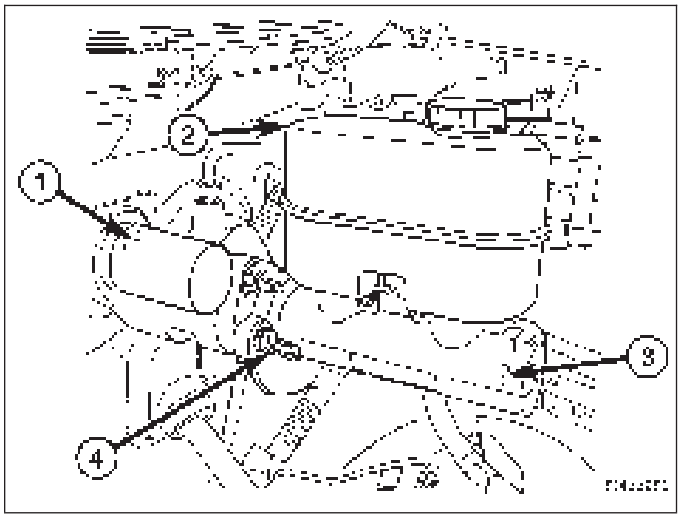


2. Install new mounting nuts and tighten to 25 N·m (221 in. lbs.)
3. Install the brake lines and tighten to 19 N·m (170 in. lbs.)
4. Reconnect the electrical connector for the low fluid level switch.
5. Fill and bleed the base brake system. (Refer to 5 - BRAKES - STANDARD PROCEDURE).

HYDROBOOST

NOTE: If master cylinder is replaced bleed cylinder before installation.

1. Install the master cylinder (3) on the booster mounting studs.
2. Install new mounting nuts (4) and tighten to 25 N·m (221 in. lbs.)
3. Install the brake lines and tighten to 19 N·m (170 in. lbs.)
4. Reconnect the elctrical connector for the low fluid level switch.
5. Fill and bleed the base brake system. (Refer to 5 - BRAKES - STANDARD PROCEDURE).

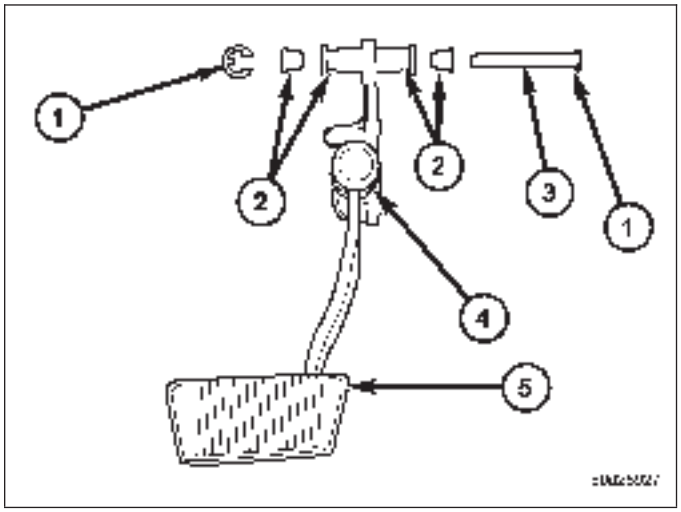


PEDAL

DESCRIPTION

NOTE: The brake pedal is serviced as a complete assembly including accelerator pedal and the bracket.

A suspended-type brake pedal is used. The pedal is attached to the pedal support bracket with a pivot shaft pin (3) and bushings (2). If the bushings (2) become dry a spray lubricant can be used to eliminate noises. The booster push rod is attached to the pedal with a clip (1). The pedal (4), bushings (2), pivot pin (3) and support bracket are not serviceable components.



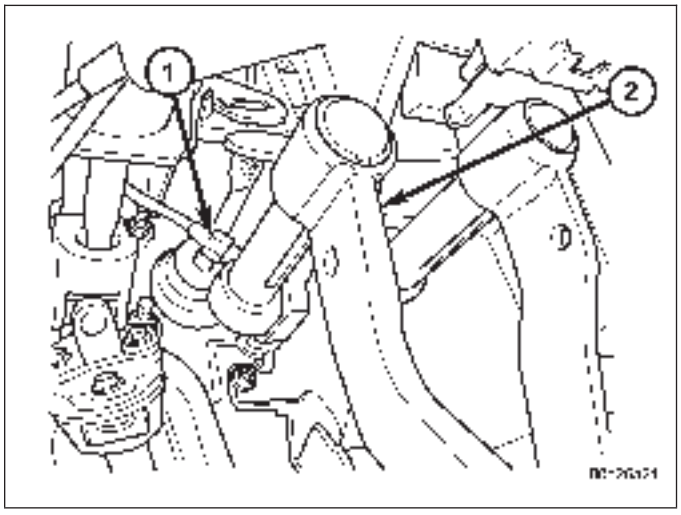
OPERATION

The brake pedal is attached to the booster push rod. When the pedal is depressed, the primary booster push rod is depressed which moves the booster secondary rod. The booster secondary rod depress the master cylinder piston.

REMOVAL

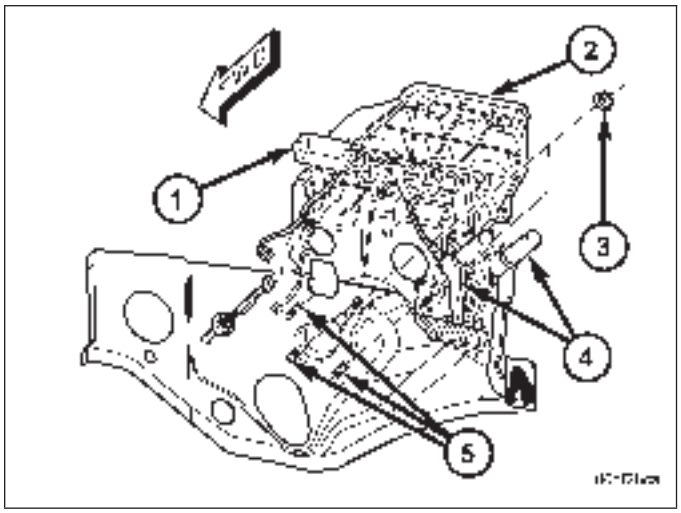
NOTE: The brake pedal is serviced as a complete assembly including accelerator pedal and the bracket.

1. Disconnect the negative battery cable.
2. Remove the steering column opening cover (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).
3. Remove the brake lamp switch and discard (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/BRAKE LAMP SWITCH - REMOVAL).
4. **On vehicles equipped with adjustable pedals.** Disconnect the adjuster cable (1) to the pedal (2).



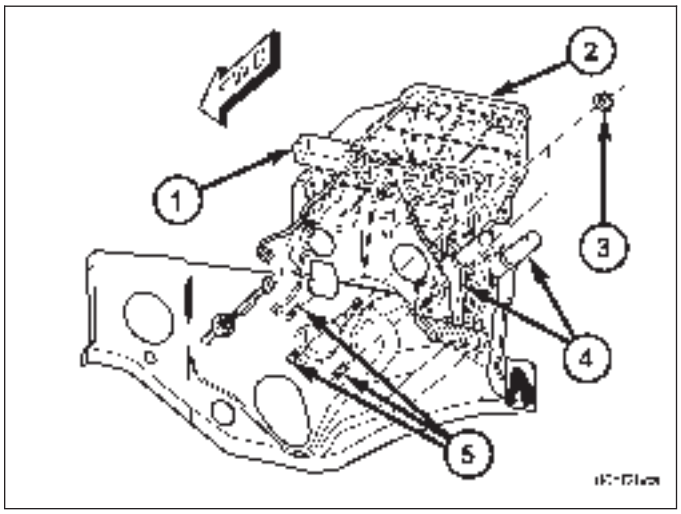
5. Remove the steering column (Refer to 19 - STEERING/COLUMN - REMOVAL).

6. Remove the brake booster (5) (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/POWER BRAKE BOOSTER - REMOVAL).
7. Disconnect the electrical connectors.
8. Remove the module mounting bolts.
9. Disconnect the accelerator pedal cable.
10. Remove the pedal assembly mounting nuts/fasteners (4).

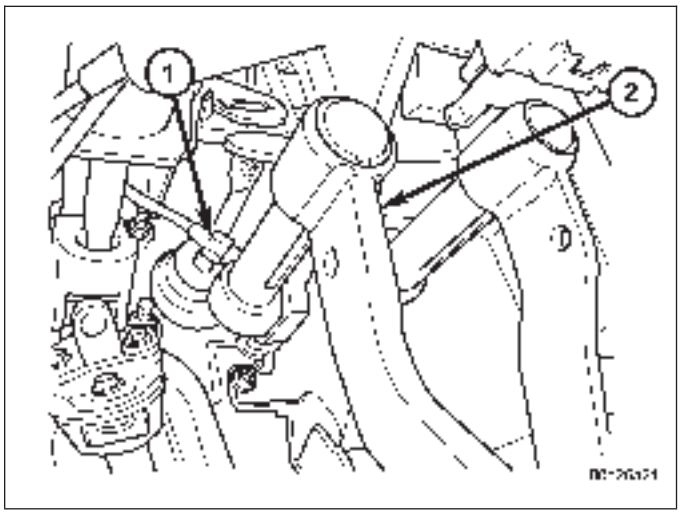


INSTALLATION

1. Install the pedal assembly (4) to the vehicle.
2. Install the mounting bolts (3) and tighten to 28 N·m (21 ft. lbs.).



3. Reconnect the accelerator cable (1) to the pedal (2).



4. Install the module mounting bolts and tighten to 38 N·m (28 ft. lbs.).
5. Reconnect the electrical connectors.

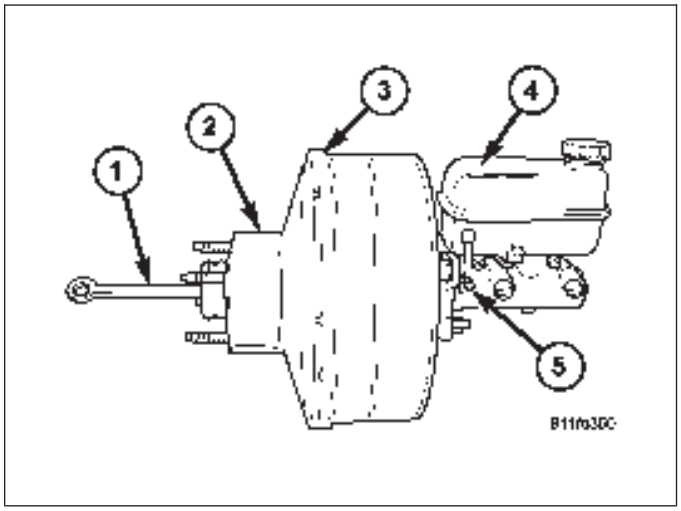
6. Install the brake booster (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/POWER BRAKE BOOSTER - INSTALLATION).
7. Install the steering column (Refer to 19 - STEERING/COLUMN - INSTALLATION).
8. Install a new brake lamp switch. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/BRAKE LAMP SWITCH - REMOVAL).
9. **On vehicles equipped with adjustable brake pedal.**Reconnect the electrical connector to the motor and the adjuster cable at the pedal.
10. Install the steering column opening cover (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).
11. Reconnect the negative battery cable.

BOOSTER-POWER BRAKE

DESCRIPTION

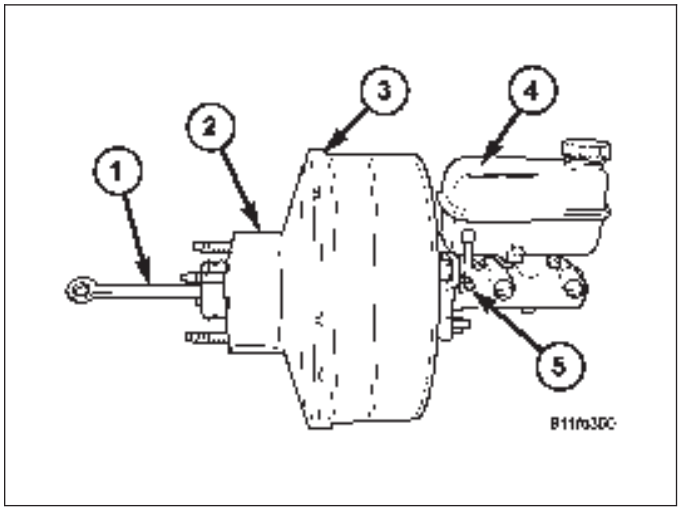
All models use a tandem diaphragm, power brake booster (3).

NOTE: The power brake booster is not a repairable component. The booster must be replaced as an assembly if diagnosis indicates a malfunction has occurred.



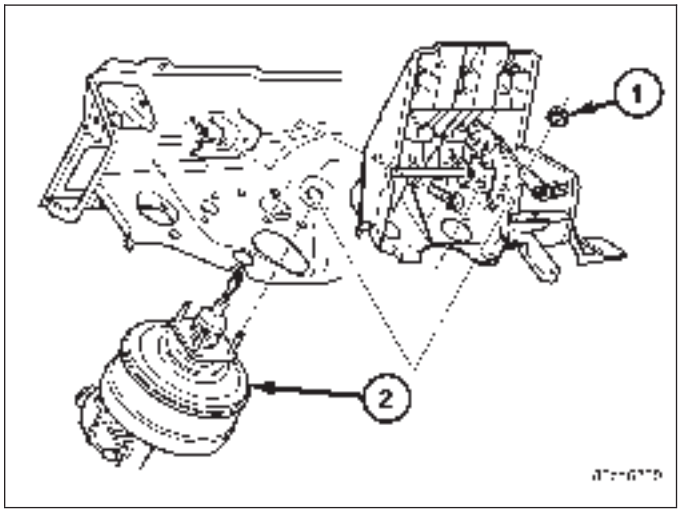
OPERATION

The booster unit consists of a single housing divided into two by a tandem diaphragm (3). The outer edge of the diaphragm is secured to the housing. A spacer block (2) is located in between the cowl and the booster housing. The booster push rod (1), connects the booster to the brake pedal and master cylinder (4), is attached to the center of the diaphragm. A check valve (5) is used in the booster outlet connected to the engine intake manifold. Power assist is generated by utilizing a combination of vacuum and atmospheric pressure to boost brake assist.



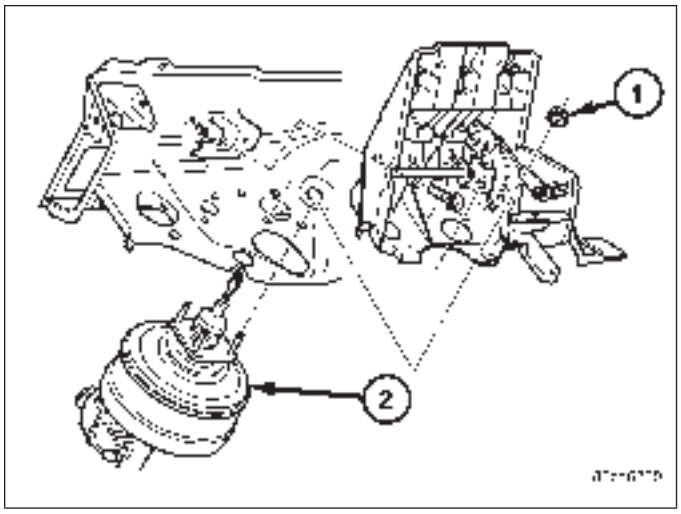
REMOVAL

1. Remove master cylinder. (Refer to 5 - BRAKES/ HYDRAULIC/MECHANICAL/MASTER CYLINDER - REMOVAL).
2. Disconnect vacuum line at booster.
3. Remove clip securing booster push rod to brake pedal (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/PEDAL - REMOVAL)..
4. Remove the nuts (1) from the booster mounting studs.
5. Remove the booster (2) and gasket from front cowl panel.



INSTALLATION

1. Guide the booster (2) studs into the cowl panel holes and seat the booster on the panel.
2. Install and tighten new booster attaching nuts (1) to 28 N·m (250 in. lbs.).



3. Install the booster push rod on brake pedal and install clip.
4. Install the booster check valve if removed and connect the vacuum hose to the check valve.
5. Install the master cylinder. (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/MASTER CYLINDER - INSTALLATION).
6. Fill and bleed the brake system. (Refer to 5 - BRAKES - STANDARD PROCEDURE).

BOOSTER-HYDRO-BOOST BRAKE

DIAGNOSIS AND TESTING

HYDRAULIC BOOSTER

The hydraulic booster uses hydraulic pressure from the power steering pump. Before diagnosing a booster problem, first verify the power steering pump is operating properly. Perform the following checks.

- Check the power steering fluid level.
- Check the brake fluid level.
- Check all power steering hoses and lines for leaks and restrictions.

- Check power steering pump pressure.

NOISES

The hydraulic booster unit will produce certain characteristic booster noises. The noises may occur when the brake pedal is used in a manner not associated with normal braking or driving habits.

HISSING

A hissing noise may be noticed when above normal brake pedal pressure is applied, 40 lbs. or above. The noise will be more noticeable if the vehicle is not moving. The noise will increase with the brake pedal pressure and an increase of system operating temperature.

CLUNK-CHATTER-CLICKING

A clunk-chatter-clicking may be noticed when the brake pedal is released quickly, after above normal brake pedal pressure is applied 50-100 lbs..

BOOSTER FUNCTION TEST

With the engine off depress the brake pedal several times to discharge the accumulator. Then depress the brake pedal using 40 lbs. of force and start the engine. The brake pedal should fall and then push back against your foot. This indicates the booster is operating properly.

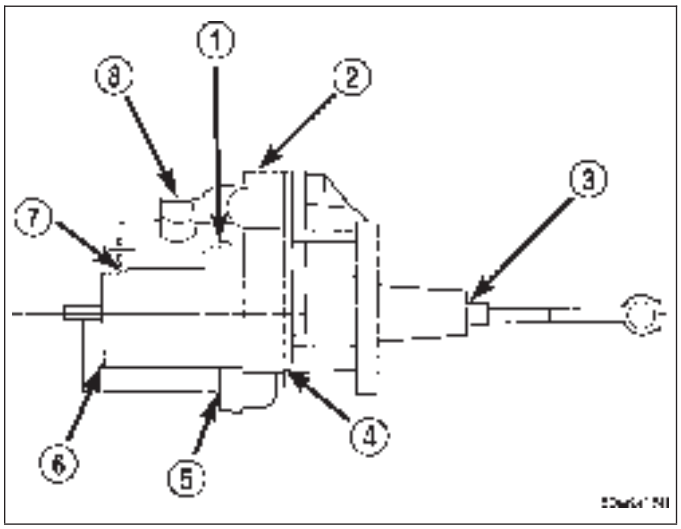
ACCUMULATOR LEAKDOWN

1. Start the engine, apply the brakes and turn the steering wheel from lock to lock. This will ensure the accumulator is charged. Turn off the engine and let the vehicle sit for one hour. After one hour there should be at least two power assisted brake application with the engine off. If the system does not retain a charge the booster must be replaced.
2. With the engine off depress the brake pedal several times to discharge the accumulator. Grasp the accumulator and see if it wobbles or turns. If it does the accumulator has lost a gas charge and the booster must be replaced.

SEAL LEAKAGE

If the booster leaks from any of the seals the booster assembly must be replaced.

- **INPUT ROD SEAL (3):** Fluid leakage from rear end of the booster.
- **PISTON SEAL (6):** Fluid leakage from vent at front of booster.
- **HOUSING SEAL (4):** Fluid leakage between housing and housing cover.
- **SPOOL VALVE SEAL (7):** Fluid leakage near spool plug.
- **RETURN PORT FITTING SEAL (8):** Fluid leakage from port fitting.



HYDRAULIC BOOSTER DIAGNOSIS CHART

CONDITION	POSSIBLE CAUSES	CORRECTION
Slow Brake Pedal Return	1. Excessive seal friction in booster.	1. Replace booster.
	2. Faulty spool valve action.	2. Replace booster.
	3. Restriction in booster return hose.	3. Replace hose.
	4. Damaged input rod.	4. Replace booster.
Excessive Brake Pedal Effort.	1. Internal or external seal leakage.	1. Replace booster.
	2. Faulty steering pump.	2. Replace pump.
Brakes Self Apply	1. Dump valve faulty.	1. Replace booster.
	2. Contamination in hydraulic system.	2. Flush hydraulic system and replace booster.
	3. Restriction in booster return hose.	3. Replace hose.
Booster Chatter, Pedal Vibration	1. Slipping pump belt.	1. Replace power steering belt.
	2. Low pump fluid level.	2. Fill pump and check for leaks.
Grabbing Brakes	1. Low pump flow.	1. Test and repair/replace pump.
	2. Faulty spool valve action.	2. Replace booster.

STANDARD PROCEDURE

BLEEDING

The hydraulic booster is generally self-bleeding, this procedure will normally bleed the air from the booster. Normal driving and operation of the unit will remove any remaining trapped air.

1. Fill power steering pump reservoir.
2. Disconnect fuel shutdown relay and crank the engine for several seconds, Refer to Fuel System for relay location and WARNING.
3. Check fluid level and add if necessary.
4. Connect fuel shutdown relay and start the engine.
5. Turn the steering wheel slowly from lock to lock twice.
6. Stop the engine and discharge the accumulator by depressing the brake pedal 5 times.
7. Start the engine and turn the steering wheel slowly from lock to lock twice.
8. Turn off the engine and check fluid level and add if necessary.

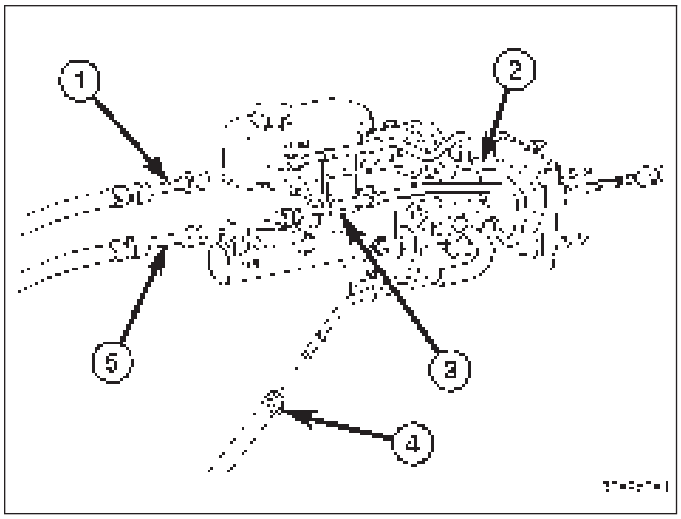
NOTE: If fluid foaming occurs, wait for foam to dissipate and repeat steps 7 and 8.

REMOVAL

NOTE: If the booster is being replaced because the power steering fluid is contaminated, flush the power steering system before replacing the booster.

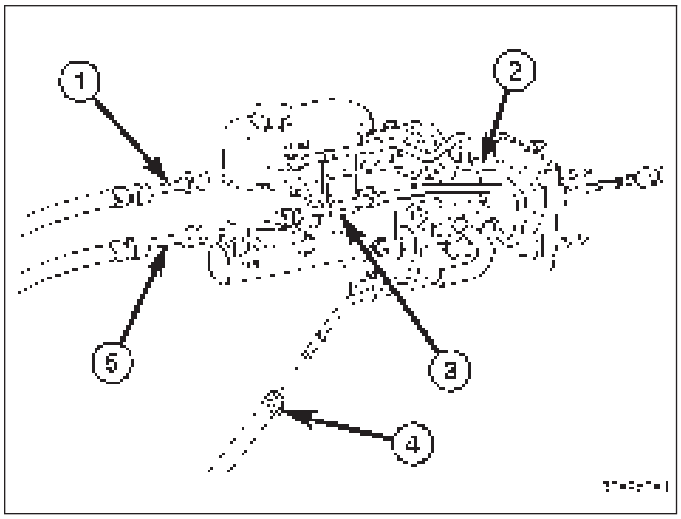
1. With engine off depress the brake pedal 5 times to discharge the accumulator.
2. Remove brake lines from master cylinder.
3. Remove mounting nuts from the master cylinder.
4. Remove the bracket from the hydraulic booster lines and master cylinder mounting studs.

5. Remove the master cylinder (3).
6. Remove the return hose (4) and the two pressure lines (1&5) from the hydraulic booster (2).
7. Remove the booster push rod clip, washer and rod remove from the brake pedal.
8. Remove the mounting nuts from the hydraulic booster and remove the booster.



INSTALLATION

1. Install the hydraulic booster (2) and tighten the mounting nuts to 28 N·m (21 ft. lbs.).
2. Install the booster push rod, washer and clip onto the brake pedal.
3. Install the master cylinder (3) on the mounting studs. and tighten the mounting nuts to 23 N·m (17 ft. lbs.).
4. Install the brake lines to the master cylinder and tighten to 19 N·m (170 in. lbs.).
5. Install the hydraulic booster line bracket onto the master cylinder mounting studs.
6. Install the master cylinder mounting nuts and tighten to 23 N·m (17 ft. lbs.).
7. Install the hydraulic booster pressure lines (1&5) to the bracket and booster.
8. Tighten the pressure lines to 41 N·m (30 ft. lbs.).



NOTE: Inspect o-rings on the pressure line fittings to insure they are in good condition before installation. Replace o-rings if necessary.

9. Install the return hose (4) to the booster.
10. Bleed base brake system, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL - STANDARD PROCEDURE).
11. Fill the power steering pump with fluid, (Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

CAUTION: MOPAR (MS-9602) ATF+4 is to be used in the power steering system. No other power steering or automatic transmission fluid is to be used in the system. Damage may result to the power steering pump and system if any other fluid is used, and do not overfill.

12. Bleed the hydraulic booster (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/POWER BRAKE BOOSTER - STANDARD PROCEDURE).

ROTORS

DIAGNOSIS AND TESTING

DISC BRAKE ROTOR

The rotor braking surfaces should not be refinished unless necessary.

Light surface rust and scale can be removed with a lathe equipped with dual sanding discs. The rotor surfaces can be restored by machining with a disc brake lathe if surface scoring and wear are light.

Replace the rotor for the following conditions:

- Severely Scored
- Tapered
- Hard Spots
- Cracked
- Below Minimum Thickness

ROTOR MINIMUM THICKNESS

Measure rotor thickness at the center of the brake shoe contact surface. Replace the rotor if below minimum thickness, or if machining would reduce thickness below the allowable minimum.

Rotor minimum thickness is usually specified on the rotor hub. The specification is either stamped or cast into the hub surface.

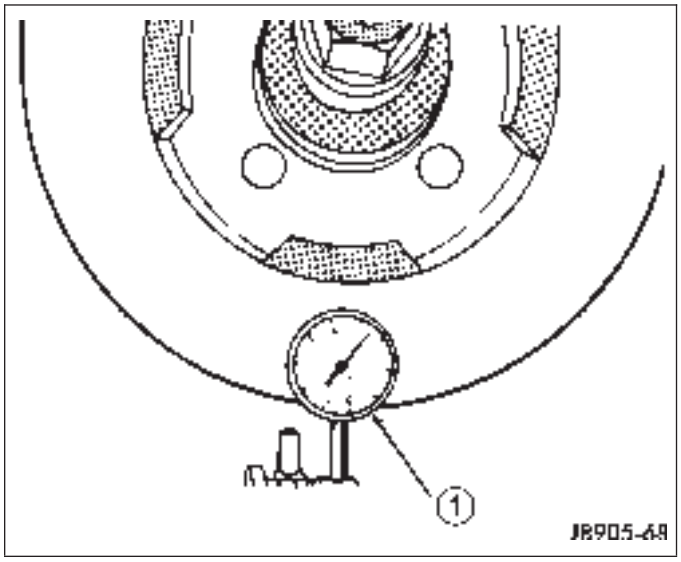
ROTOR RUNOUT

Check rotor lateral runout with dial indicator C-3339 (1). Excessive lateral runout will cause brake pedal pulsation and rapid, uneven wear of the brake shoes. Position the dial indicator plunger approximately 25.4 mm (1 in.) inward from the rotor edge.

NOTE: Be sure wheel bearing has zero end play before checking rotor runout.

Maximum allowable rotor runout is 0.131 mm (0.005 in.) **HD**.

Maximum allowable rotor runout is 0.050 mm (0.002 in.) **LD**.



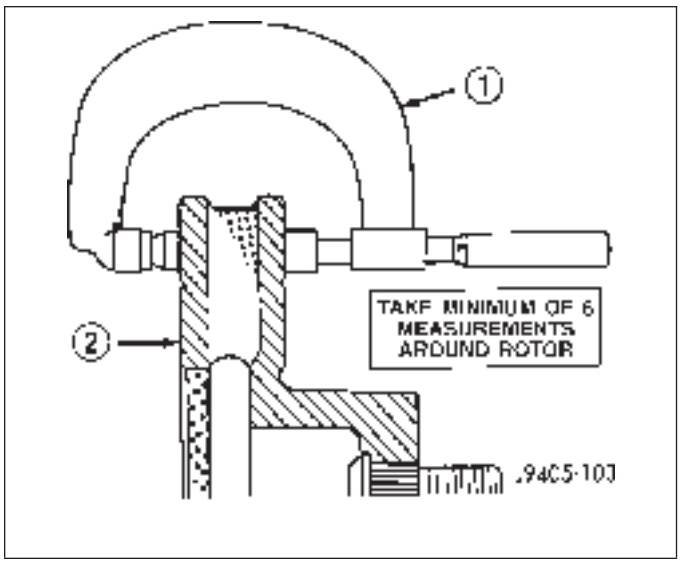
ROTOR THICKNESS VARIATION

Variations in rotor thickness will cause pedal pulsation, noise and shudder.

Measure rotor thickness at 6 to 12 points around the rotor face.

Position the micrometer (1) approximately 25.4 mm (1 in.) from the rotor (2) outer circumference for each measurement.

Thickness should not **vary** by more than 0.015 mm (0.0059 in.) from point-to-point on the rotor. Machine or replace the rotor if necessary.



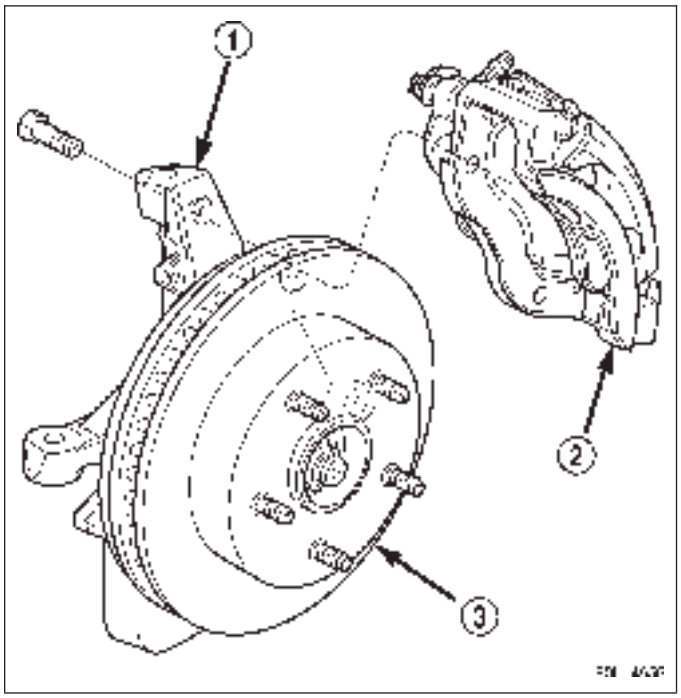
REMOVAL

FRONT

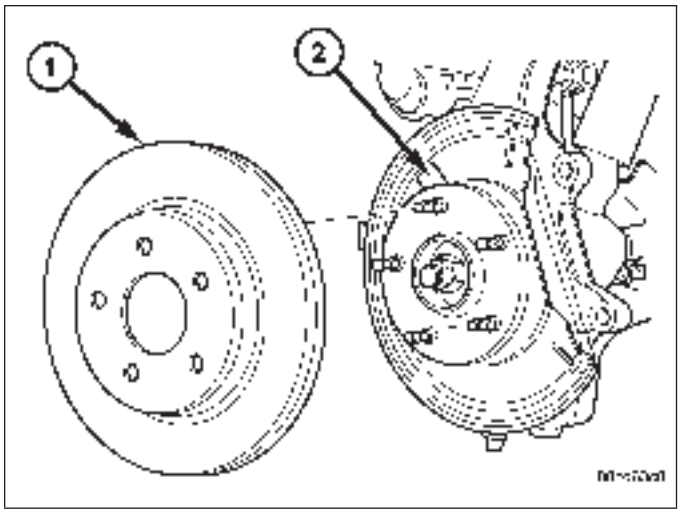
1. Raise and support the vehicle.
2. Remove the wheel and tire assembly.

NOTE: Do not allow brake hose to support caliper adapter assembly.

3. Remove the caliper (2) from the steering knuckle (1), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL) and remove caliper adapter assembly.

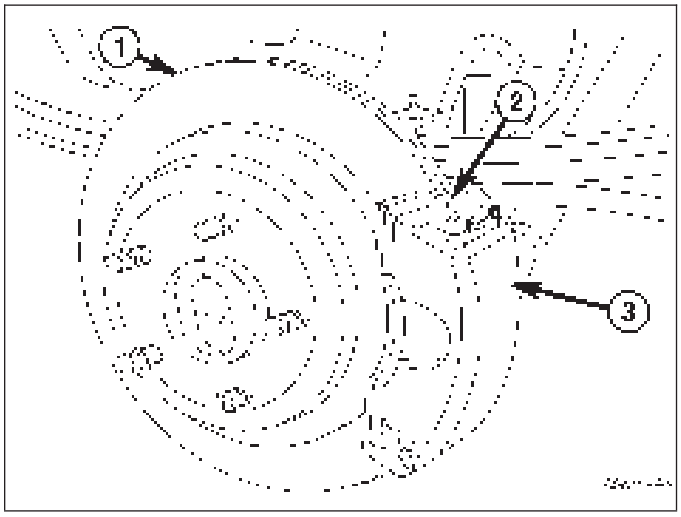


4. Remove the extension to the rotor nuts **HD DRW ONLY**.
5. Remove the rotor (1) from the hub/bearing (2) wheel studs.



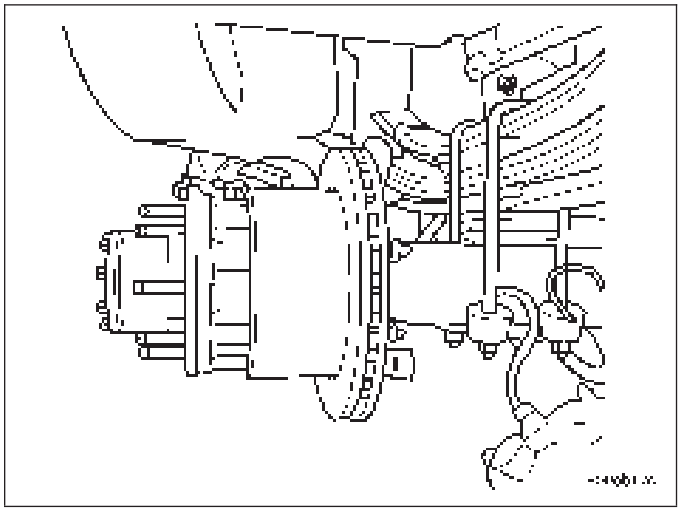
REAR

1. Raise and support the vehicle
2. Remove the tire and wheel assembly.
3. Remove the disc brake caliper (3), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
4. Remove the caliper adapter (2) bolts. (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER ADAPTER - REMOVAL)
5. Remove the retaining clips and rotor assembly (1).



REAR DUAL WHEELS

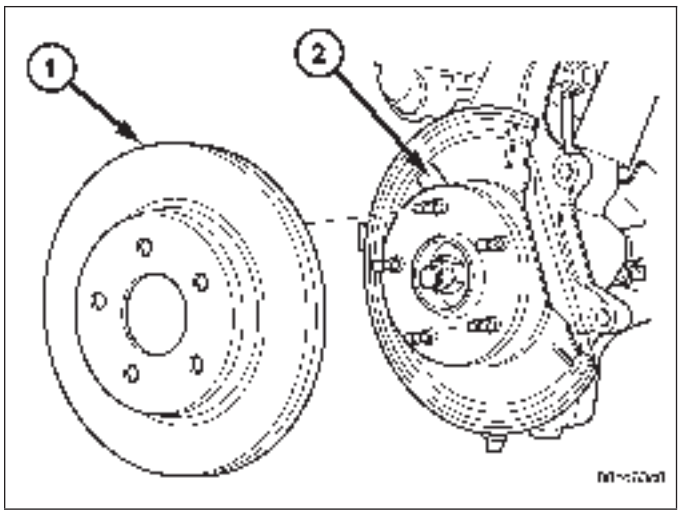
1. Raise and support the vehicle
2. Remove the tire and wheel assembly.
3. Remove the disc brake caliper, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
4. Remove the caliper adapter bolts.
5. Remove the rear axle shaft from the housing on dual rear wheels, (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 286RBI/AXLE SHAFTS - REMOVAL).
6. Remove the hub and rotor assembly (C3500 only).



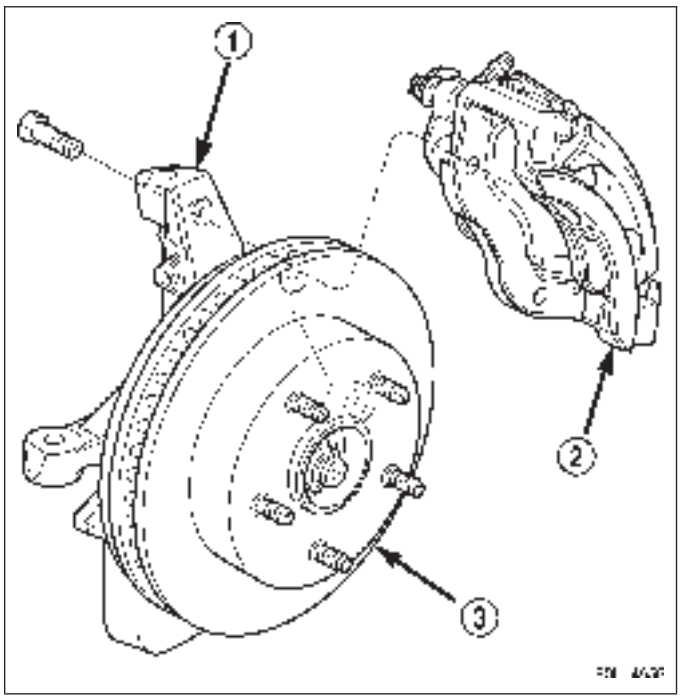
INSTALLATION

FRONT

1. On models with all-wheel antilock system (ABS), check condition of tone wheel on hub/bearing (2). If teeth on wheel are damaged, hub/bearing assembly will have to be replaced (tone wheel is not serviced separately).
2. Install the hub extension and nuts to the front rotor. Tighten nuts to 130 N·m (96 ft.lbs). **HD DRW ONLY.**
3. Install the rotor (1) onto the hub/bearing (2) wheel studs.

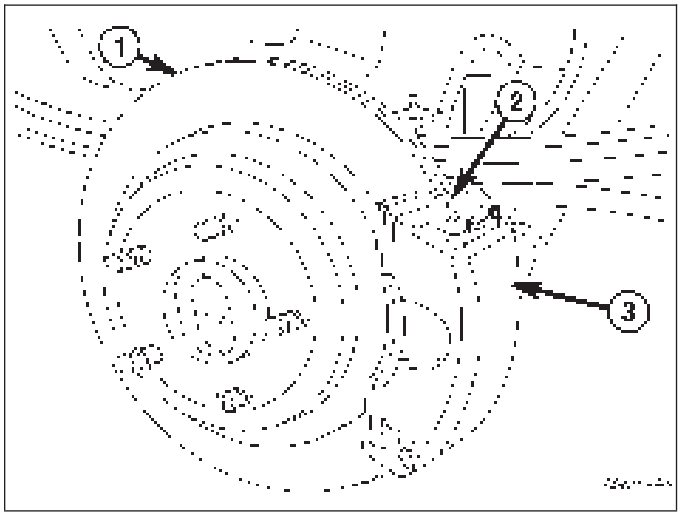


4. Install the caliper adapter assembly (2), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION) and tighten adapter bolts to:
5. Install the wheel and tire assembly, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE) and lower the vehicle.
6. Apply the brakes several times to seat brake pads. Be sure to obtain firm pedal before moving vehicle.



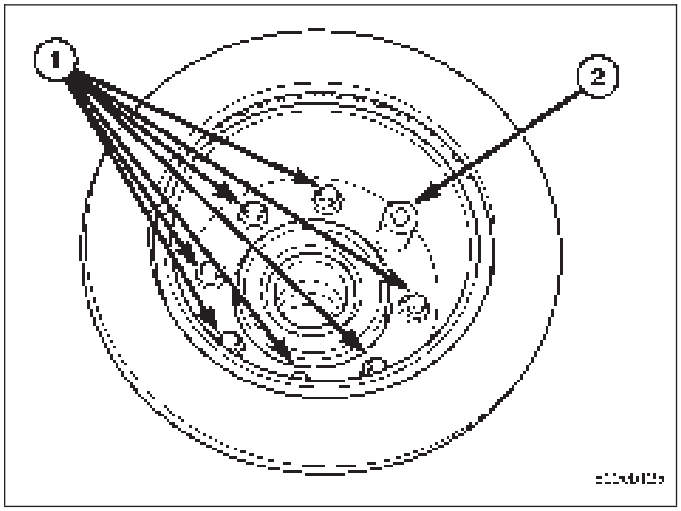
REAR

1. Install the rotor (1) to the axleshaft.
2. Install the caliper adapter (2) (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER ADAPTER - INSTALLATION).
3. Install the caliper adapter bolts and tighten the mounting bolts to 135 N·m (100 ft.lbs) **LD** or 197 N·m (145 ft.lbs) **HD**.
4. Install the disc brake caliper (3), (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
5. Install the tire and wheel assembly (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
6. Lower the vehicle.



REAR DUAL WHEELS

1. Install the hub to the rotor. Tighten the bolts (1) to 128 N·m (95 ft. lbs.).



2. Install the hub and rotor assembly.
3. Install the rear axle shaft to the housing with dual wheels, (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 286RBI/AXLE SHAFTS - INSTALLATION).
4. Install the caliper adapter bolts 197 N·m (145 ft.lbs) **LD**.
5. Install the disc brake caliper, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION)..
6. Install the tire and wheel assembly, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
7. Lower the vehicle.

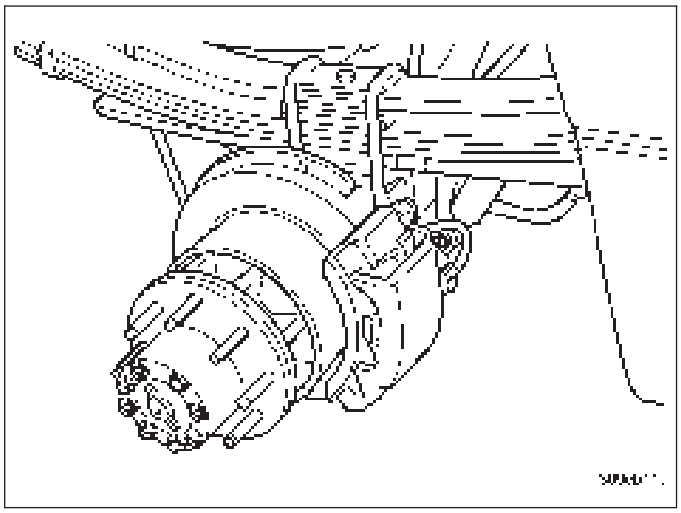
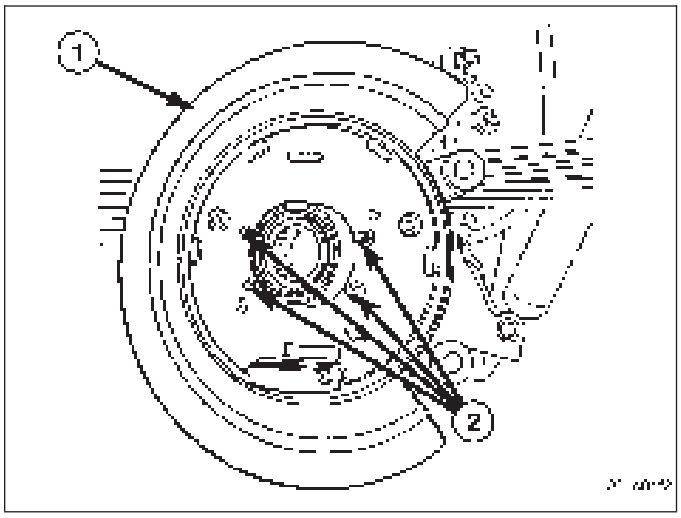


PLATE-SUPPORT

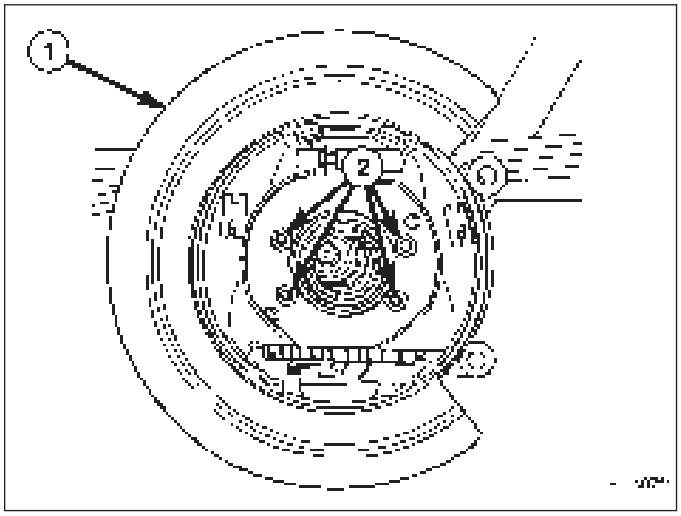
REMOVAL

1. Remove wheel and tire assembly.
2. Remove the disc brake caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
3. Remove the caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER ADAPTER - REMOVAL).
4. Remove the rotor (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL).
5. Remove the axle shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 9 1/4/AXLE SHAFTS - REMOVAL).
6. Remove the park brake shoes (Refer to 5 - BRAKES/PARKING BRAKE/SHOES - REMOVAL).
7. Remove the parking brake cable from the brake lever.
8. Remove the bolts (2) attaching the support plate (1) to the axle and remove the support plate.



INSTALLATION

1. Install support plate (1) on axle flange. Tighten attaching bolts (2) to 68 N·m (50 ft. lbs.) **LD** or 203 N·m (150 ft.lbs) **HD**.
2. Install parking brake cable in the brake lever.
3. Install the park brake shoes (Refer to 5 - BRAKES/ PARKING BRAKE/SHOES - INSTALLATION)..



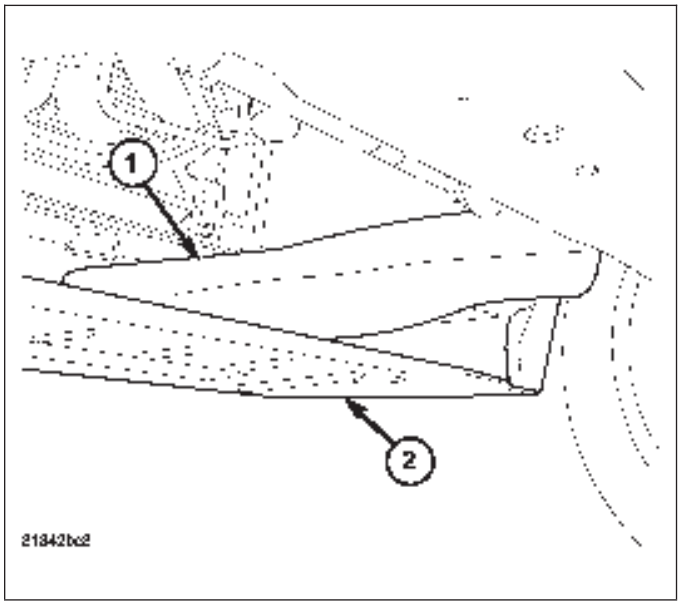
4. Install axle shaft, (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 9 1/4/AXLE SHAFTS - INSTALLATION).
5. Adjust brake shoes to drum with brake gauge (Refer to 5 - BRAKES/PARKING BRAKE/SHOES - ADJUSTMENTS).

6. Install the rotor (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION).
7. Install the caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPER ADAPTER - INSTALLATION).
8. Install the caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
9. Install the wheel and tire assembly (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).

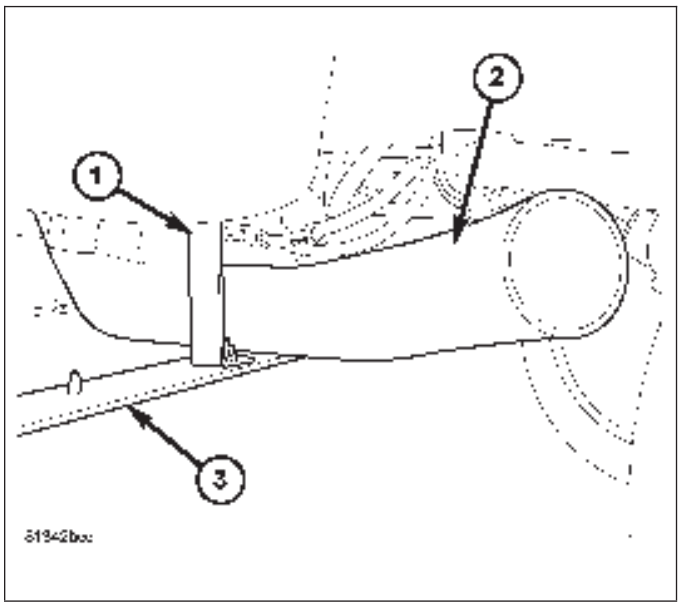
DUCTS-BRAKE COOLING - SRT-10

REMOVAL

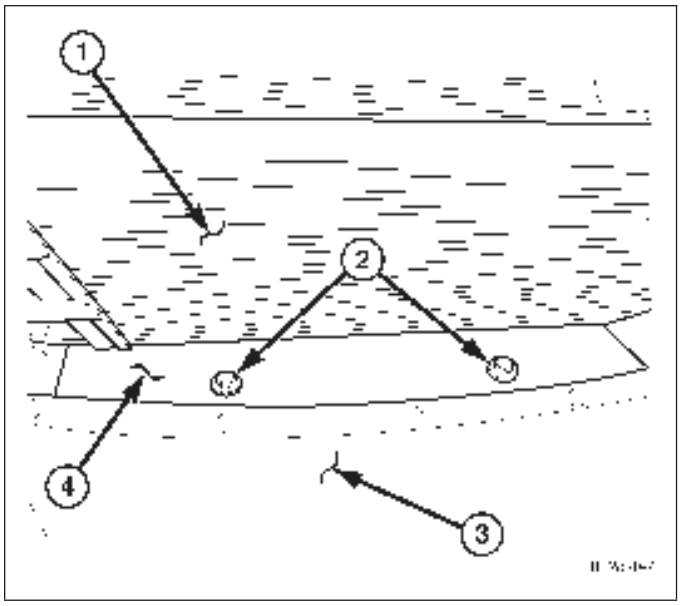
1. Raise and support the vehicle.
2. Remove the lower air deflector (2) (Refer to 23 - BODY/EXTERIOR/BELLY PAN - DESCRIPTION).



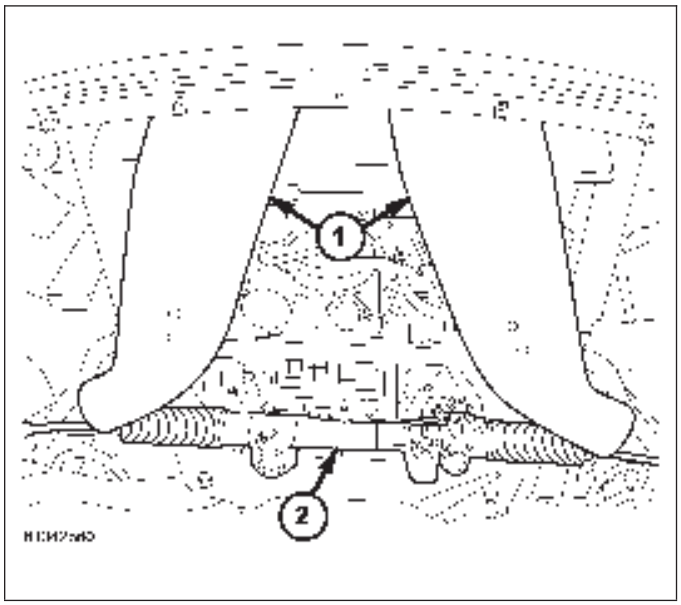
3. Disconnect the brake cooling duct support bracket (1) from the cooling duct (2).



4. Remove the front fascia (Refer to 13 - FRAME & BUMPERS/BUMPERS/FRONT FASCIA - REMOVAL).
5. Remove the air deflector (4) between the a/c condenser and the bumper (3).

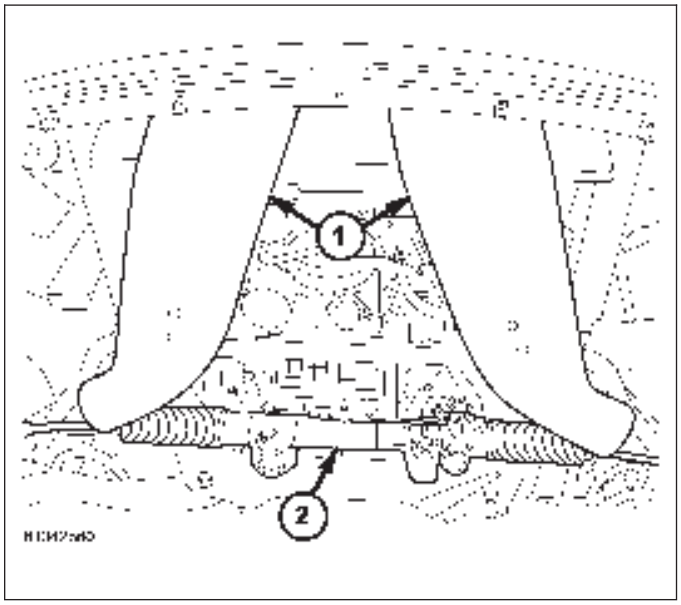


6. Remove the brake duct (1) upper retaining mounts.
7. Remove the brake cooling duct (1).

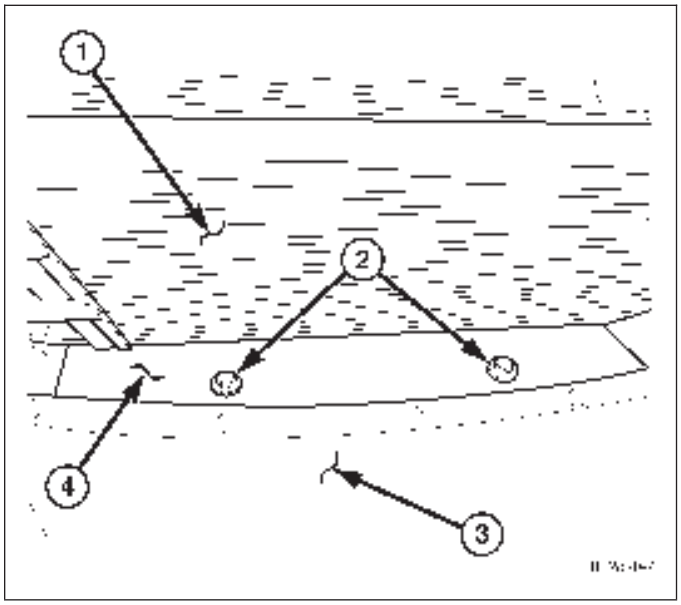


INSTALLATION

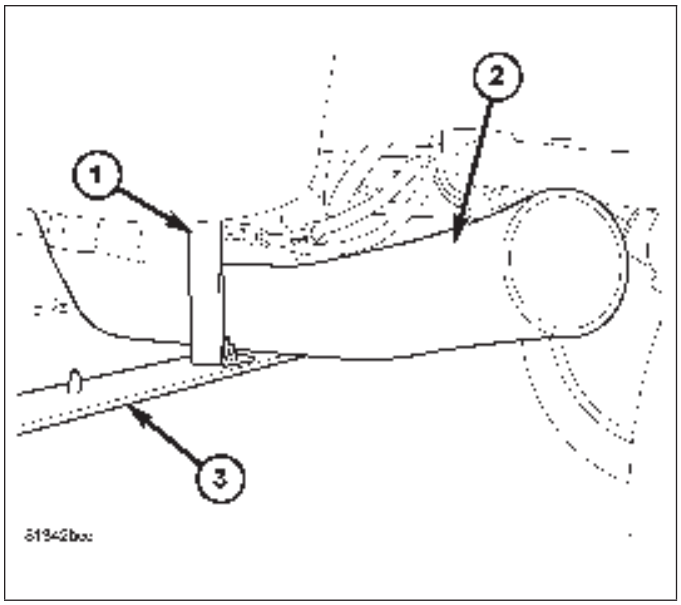
1. Install the brake cooling duct (1) to the vehicle.
2. Install the brake duct upper retaining screws by the bumper.



3. Install the air deflector (4) between the A/C condenser and bumper (3).
4. Install the front fascia (Refer to 13 - FRAME & BUMPERS/BUMPERS/FRONT FASCIA - INSTALLATION).



5. Install the cooling duct (2) to the bracket (1).
6. Install the lower air deflector (3) (Refer to 23 - BODY/EXTERIOR/BELLY PAN - DESCRIPTION).

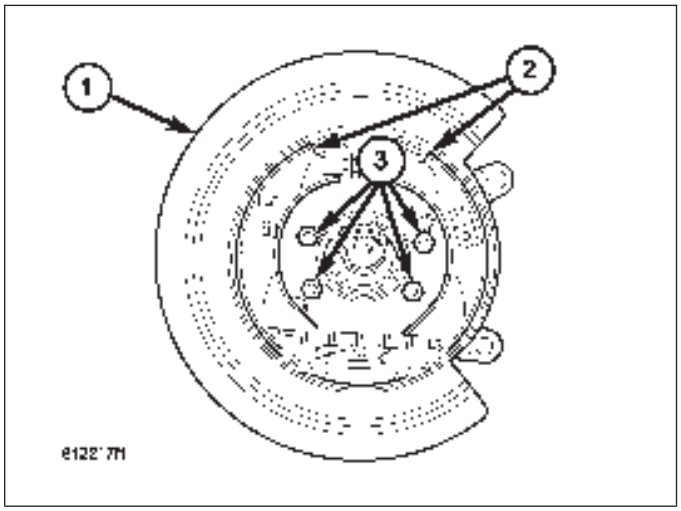


PARKING BRAKE

DESCRIPTION

The parking brakes are secured to a support plate (1) and operated by a system of cables and levers attached to a primary and secondary shoe (2) positioned within the drum section of the rotor.

The drum-in-hat design utilizes an independent set of shoes (2) to park the vehicle.



OPERATION

To apply the parking brake the pedal is depressed. This creates tension in the cable which pulls forward on the park brake lever. The lever pushes the park brake shoes outward and into contact with the drum section of the rotor. The contact of shoe to rotor parks the vehicle.

A torsion locking mechanism is used to hold the pedal in an applied position. Parking brake release is accomplished by the hand release.

A parking brake switch is mounted on the parking brake lever and is actuated by movement of the lever. The switch, which is in circuit with the red warning light in the dash, will illuminate the warning light whenever the parking brake is applied.

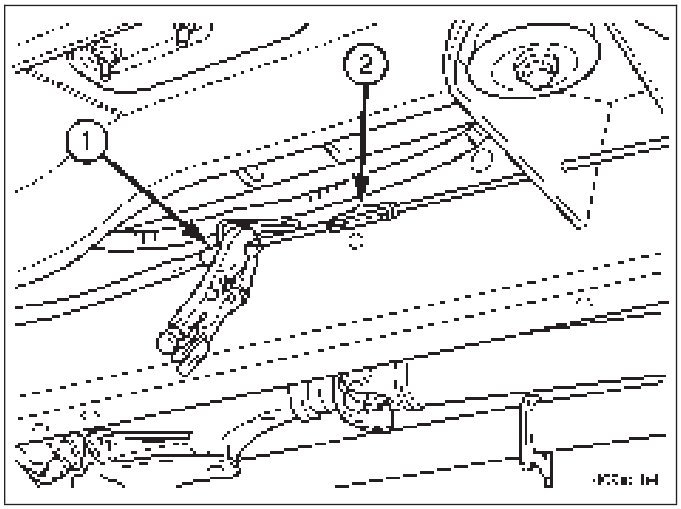
Parking brake adjustment is controlled by a cable tensioner mechanism. The cable tensioner, once adjusted at the factory, should not need further adjustment under normal circumstances. Adjustment may be required if a new tensioner, or cables are installed, or disconnected.

CABLES

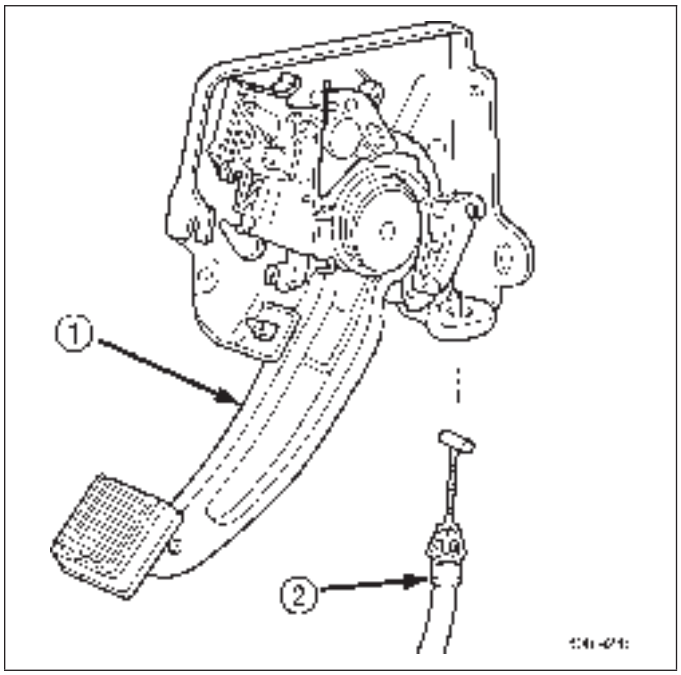
REMOVAL

FRONT PARKING BRAKE CABLE

1. Raise and support vehicle.
2. Lockout the parking brake cable (2).

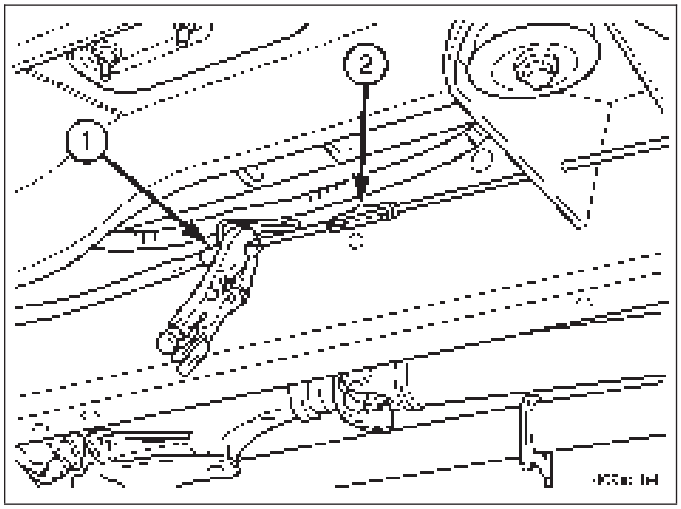


3. Loosen adjusting nut to create slack in front cable.
4. Remove the front cable from the cable connector.
5. Compress cable end fitting at underbody bracket and remove the cable from the bracket.
6. Lower vehicle.
7. Push ball end of cable out of pedal clevis with small screwdriver.
8. Compress cable end fitting at the pedal bracket (1) and remove the cable (2).
9. Remove the left cowl trim and sill plate.
10. Pull up the carpet and remove the cable from the body clip.
11. Pull up on the cable and remove the cable with the body grommet.

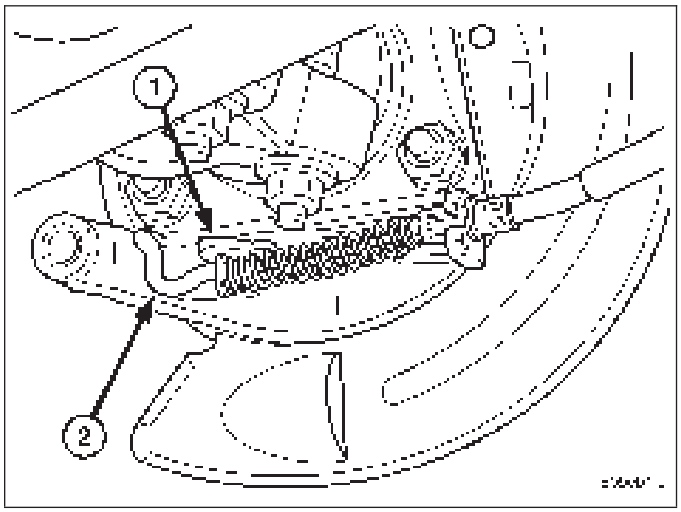


REAR PARK BRAKE CABLE

1. Raise and support the vehicle.
2. Lockout the parking brake cable (2).

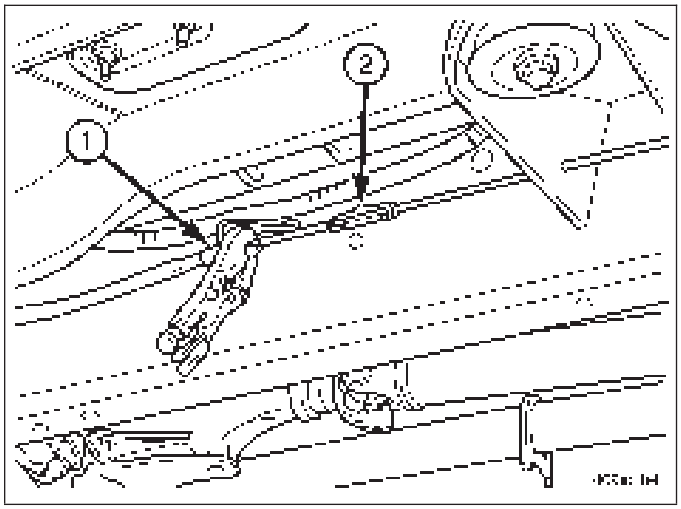


3. Loosen cable adjuster nut.
4. Remove the rear park brake cable from the intermediate park brake cable.
5. Compress tabs on cable end fitting on the rear park brake cable to the frame mount bracket. Then pull the cable through the bracket.
6. Disengage the park brake cable (2) from behind the rotor assembly..
7. Compress cable tabs on each cable end fitting at the brake cable support plate.
8. Remove the cables from the brake cable support plates.



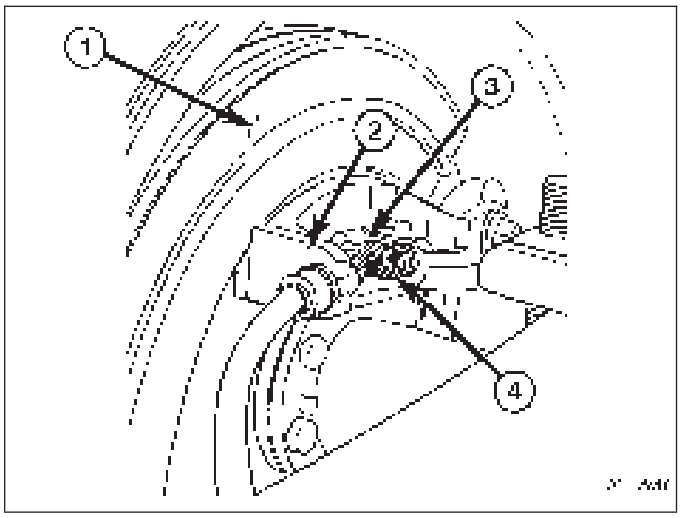
RIGHT REAR CABLE

1. Raise and support the vehicle.
2. Lockout the parking brake cable (2).



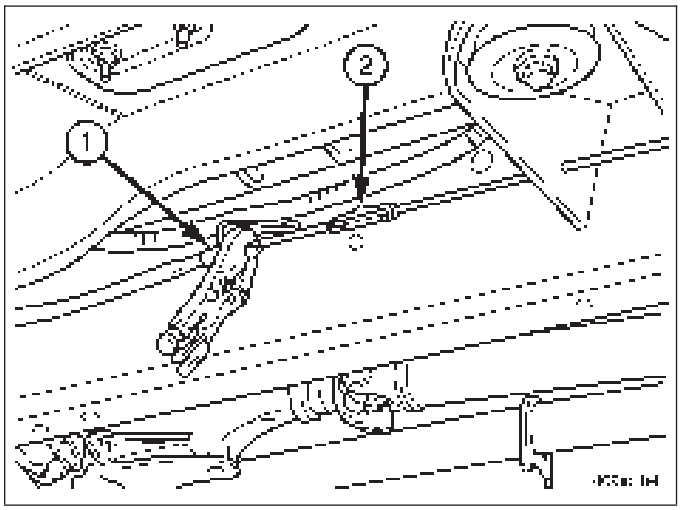
3. Loosen the brake cable at the equalizer and adjuster nut.

4. Remove the right cable from the front cable.
5. Remove the right cable from the equalizer.
6. Remove the cable from the frame bracket.
7. Remove the cable from the axle bracket.
8. Remove the cable bracket from the shock bracket.
9. Remove the brake cable (4) from the brake lever (3).

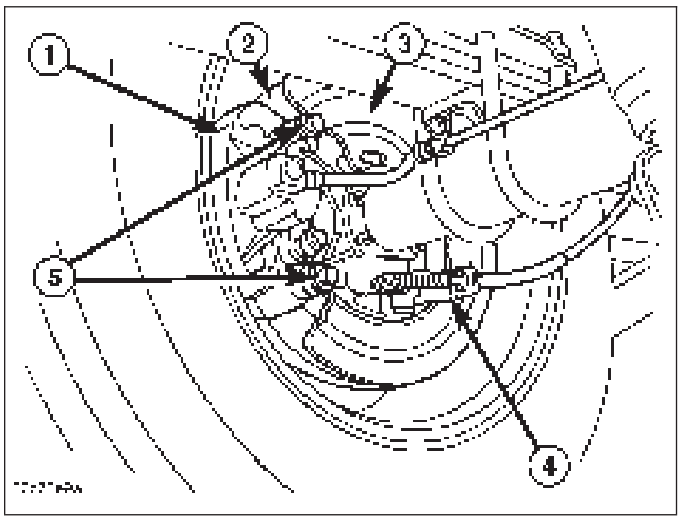


LEFT REAR CABLE

1. Raise and support the vehicle.
2. Lockout the parking brake cable (2).
3. Loosen the brake cable at the equalizer and adjuster nut.



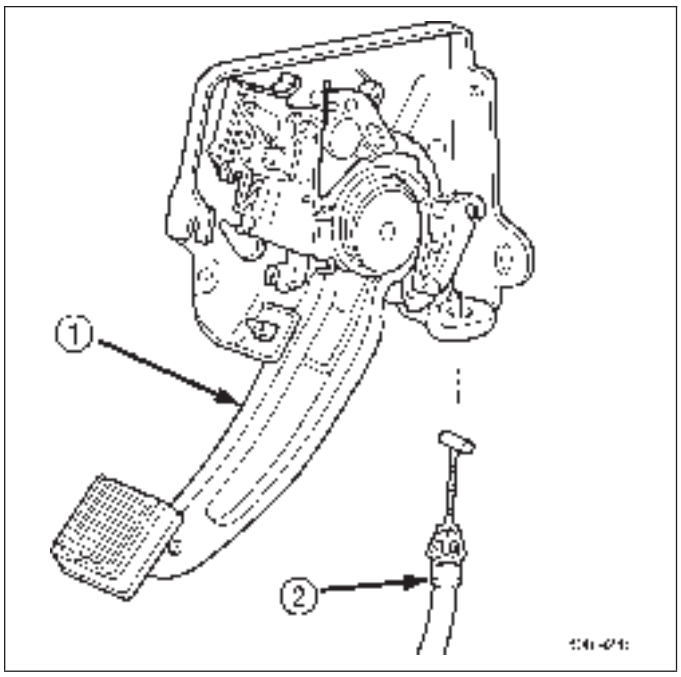
4. Remove the left brake cable from the equalizer.
5. Remove the brake cable (4) from the frame bracket.
6. Remove the brake cable (4) from the brake lever.



INSTALLATION

FRONT PARKING BRAKE CABLE

1. From inside the vehicle, insert the cable end fitting (2) into the hole in the pedal assembly (1).
2. Seat the cable retainer in the pedal assembly (1).
3. Engage the cable ball end in clevis on the pedal assembly.



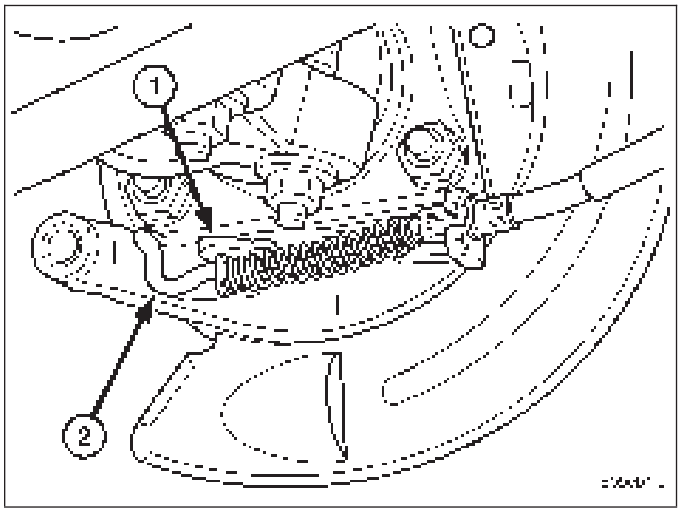
4. Route the cable through the floorpan and install the body grommet.
5. Place the carpet down and install the left cowl trim and sill plate.
6. Raise and support the vehicle.
7. Route the cable through the underbody bracket and seat the cable end fitting in the bracket.
8. Connect the cable to the cable connector.
9. Perform the park brake adjustment procedure, (Refer to 5 - BRAKES/PARKING BRAKE/CABLE TENSIONER - ADJUSTMENTS).
10. Lower the vehicle.

REAR PARK BRAKE CABLE

1. Push each cable end (2) through the brake cable support plate hole until the cable end fitting tabs lock into place.

NOTE: Pull on the cable to ensure it is locked into place.

2. Push the cable through the frame bracket.
3. Lock the left cable end fitting tabs into the frame bracket hole.
4. Install the rear cables into the tensioner rod behind the rear of the brake assembly.

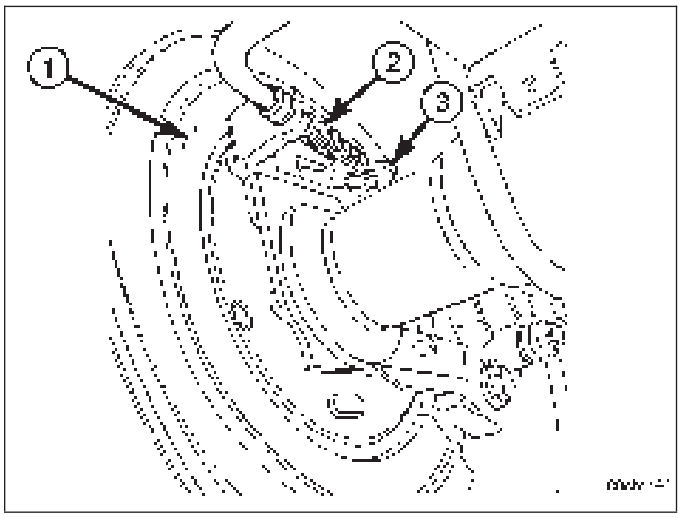


5. Install the cable to the intermediate cable connector.

6. Release and remove the lock out device.
7. Perform the park brake adjustment procedure, (Refer to 5 - BRAKES/PARKING BRAKE/CABLE TENSIONER - ADJUSTMENTS).
8. Remove the supports and lower the vehicle.

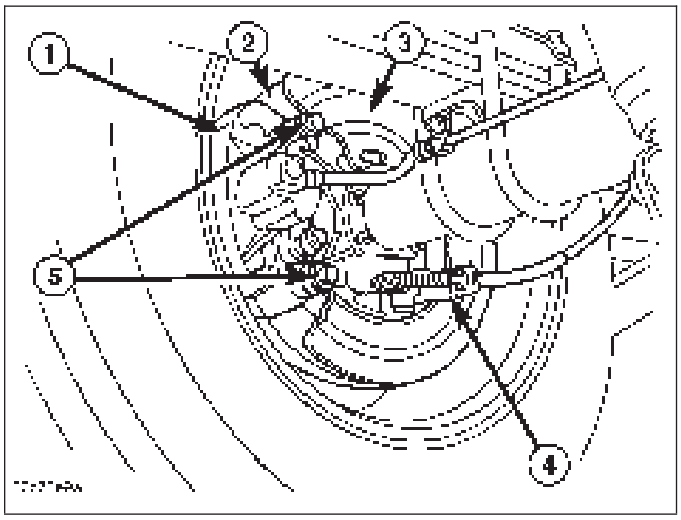
RIGHT REAR CABLE

1. Install the brake cable (2) to the brake lever (3).
2. Install the cable bracket to the shock bracket.
3. Install the cable to the axle bracket.
4. Install the cable to the frame bracket.
5. Install the right cable to the equalizer.
6. Install the right cable to the front cable.
7. Adjust the brake cable at the equalizer and using the adjuster nut.



LEFT REAR CABLE

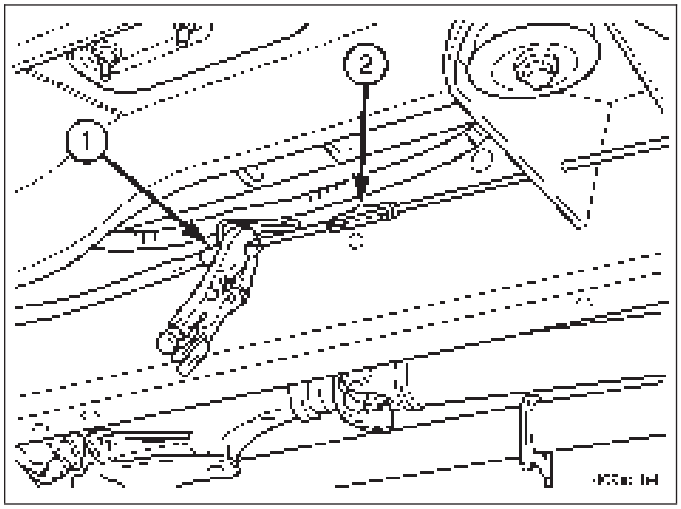
1. Install the brake cable (4) to the brake lever.
2. Install the brake cable to the frame bracket.
3. Install the left brake cable to the equalizer.
4. Adjust the brake cable at the equalizer and adjuster nut.



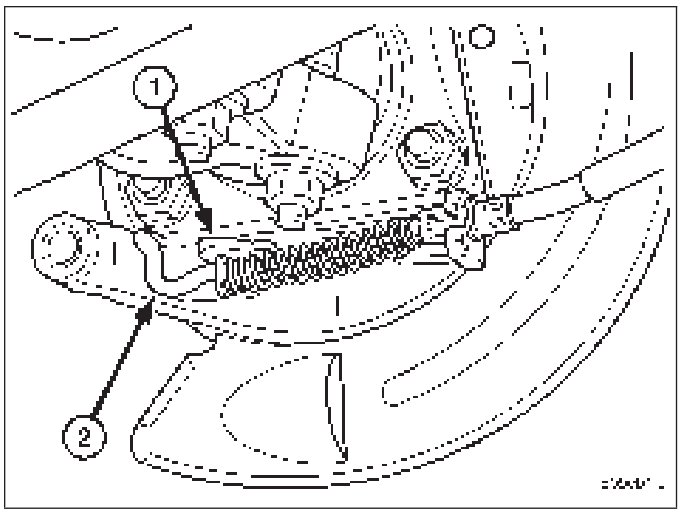
SHOES

REMOVAL

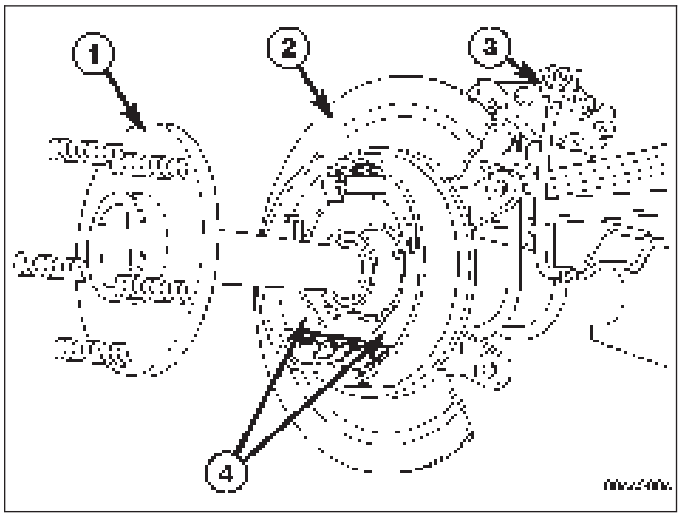
1. Raise and support the vehicle.
2. Remove the tire and wheel assembly.
3. Remove the disc brake caliper, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
4. Remove the disc brake rotor, (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL).
5. Lockout the parking brake cable (2).



6. Disengage the park brake cable (2) from behind the rotor assembly to allow easier disassembly of the park brake shoes.



7. Remove the axleshaft (1) (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 11 1/2 AA/AXLE SHAFTS - REMOVAL).
8. Disassemble the rear park brake shoes (4).



CLEANING - REAR DRUM IN HAT BRAKE

Clean the individual brake components, including the support plate exterior, with a water dampened cloth or with brake cleaner. Do not use any other cleaning agents. Remove light rust and scale from the brake shoe contact pads on the support plate with fine sandpaper.

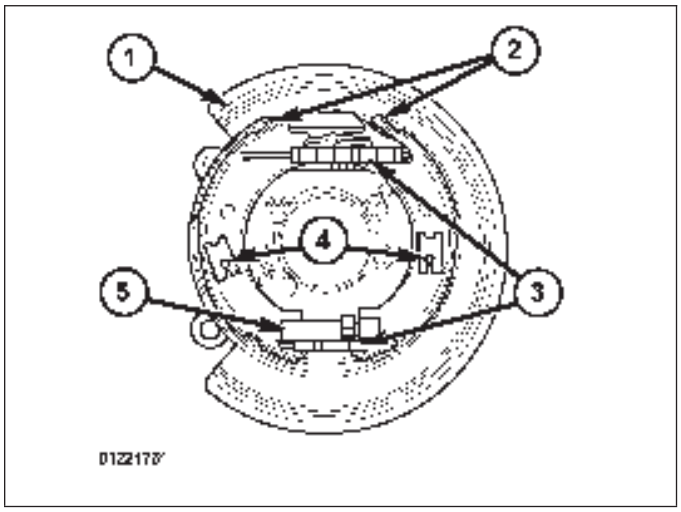
INSPECTION - REAR DRUM IN HAT BRAKE

As a general rule, riveted brake shoes (2) should be replaced when worn to within 0.78 mm (1/32 in.) of the rivet heads. Bonded lining should be replaced when worn to a thickness of 1.6 mm (1/16 in.).

Examine the lining contact pattern to determine if the shoes are bent or the drum is tapered. The lining should exhibit contact across its entire width. Shoes (2) exhibiting contact only on one side should be replaced and the drum checked for runout or taper.

Inspect the adjuster screw assembly (5). Replace the assembly if the star wheel or threads are damaged, or the components are severely rusted or corroded.

Discard the brake springs (3) and retainer components (4) if worn, distorted or collapsed. Also replace the springs if a brake drag condition had occurred. Overheating will distort and weaken the springs.

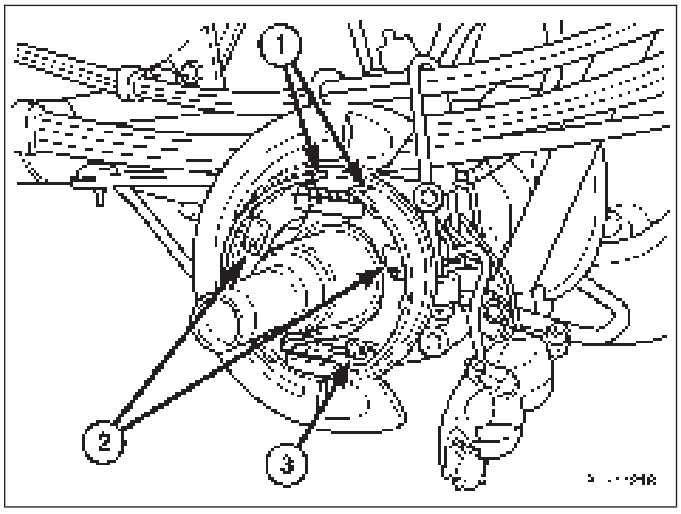


Inspect the brake shoe contact pads on the support plate (1), replace the support plate if any of the pads are worn or rusted through. Also replace the plate (1) if it is bent or distorted.

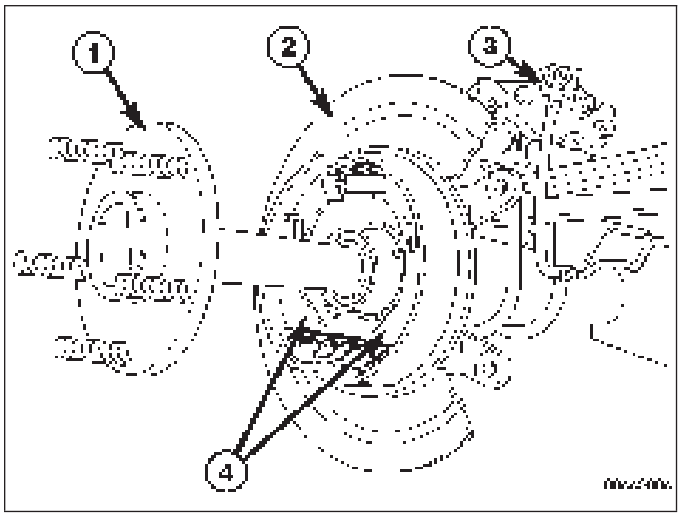
INSTALLATION

NOTE: On a new vehicle or after parking brake lining replacement, it is recommended that the parking brake system be conditioned prior to use. This is done by making one stop from 25 mph on dry pavement or concrete using light to moderate force on the parking brake foot pedal.

1. Reassemble the rear park brake shoes (1) or.



2. Install the axleshaft (1) (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 9 1/4/AXLE SHAFTS - INSTALLATION) or (Refer to 3 - DIFFERENTIAL & DRIVELINE/REAR AXLE - 11 1/2 AA/10 1/2 AA/AXLE SHAFTS - INSTALLATION).

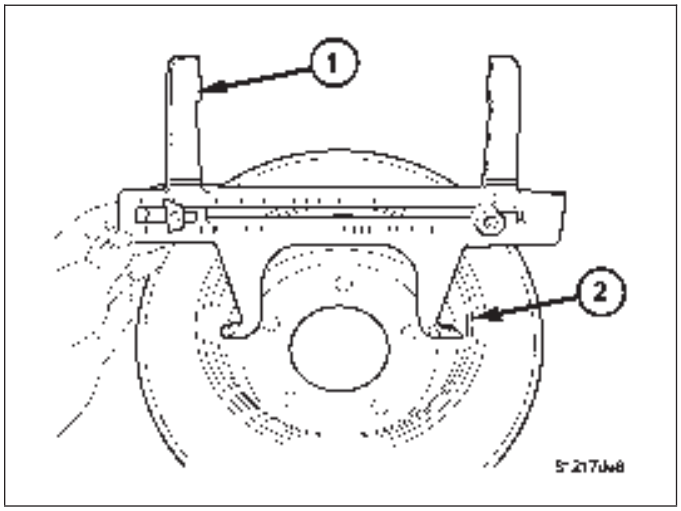


3. Install the park brake cable to the lever behind the support plate.
4. Unlock the park brake cable.
5. Install the disc brake rotor (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION).
6. Install the disc brake caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
7. Adjust the rear brake shoes (Refer to 5 - BRAKES/PARKING BRAKE/SHOES - ADJUSTMENTS).
8. Install the tire and wheel assembly (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
9. Lower the vehicle.

ADJUSTMENTS

PARKING BRAKE SHOES

CAUTION: Before adjusting the park brake shoes be sure that the park brake pedal is in the fully released position. If park brake pedal is not in the fully released position, the park brake shoes can not be accurately adjusted.

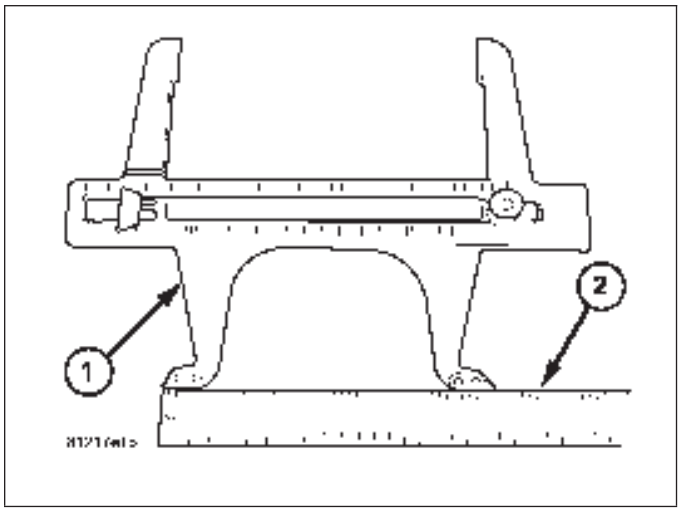


1. Raise vehicle.
2. Remove tire and wheel.
3. Remove disc brake caliper from caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
4. Remove rotor from the axleshaft (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL).

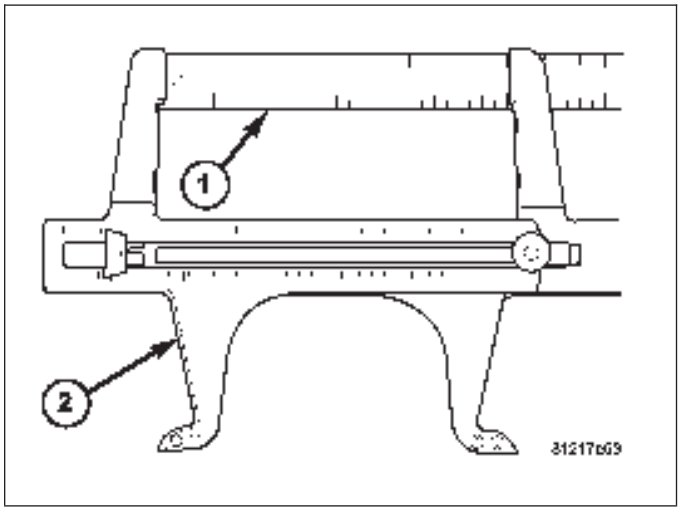
NOTE: When measuring the brake drum diameter, the diameter should be measured in the center of the area in which the park brake shoes contact the surface of the brake drum.

5. Using Brake Shoe Gauge, Special Tool C-3919 (1), or equivalent, **accurately** measure the inside diameter of the park brake drum portion (2) of the rotor.

6. Using a ruler (2) that reads in 64th of an inch, accurately read the measurement of the inside diameter of the park brake drum from the special tool (2).



7. Reduce the inside diameter measurement of the brake drum that was taken using Special Tool C-3919 (2) by 1/64 of an inch. Reset Gauge, Brake Shoe, Special Tool C-3919 (2) or the equivalent used, so that the outside measurement jaws are set to the reduced measurement.



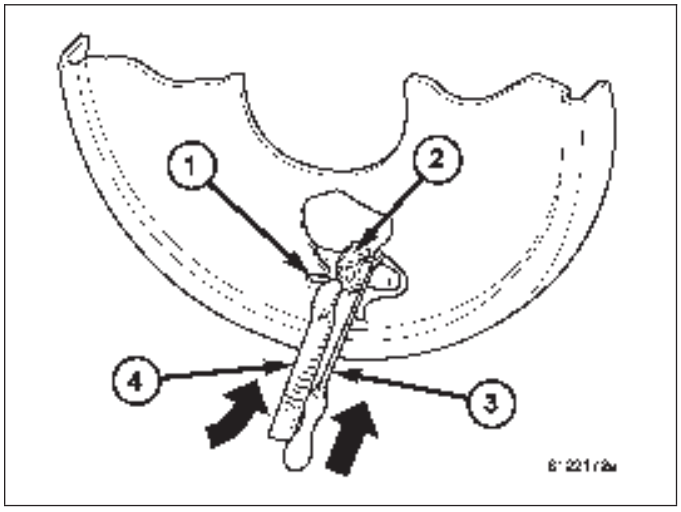
8. Place Gauge, Brake Shoe, Special Tool C-3919, or equivalent over the park brake shoes. The special tool must be located diagonally across at the top of one shoe and bottom of opposite shoe (widest point) of the park brake shoes.
9. Using the star wheel adjuster, adjust the park brake shoes until the lining on the park brake shoes just touches the jaws on the special tool.
10. Repeat step 8 above and measure shoes in both directions.
11. Install brake rotor on the axleshaft (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION).
12. Rotate rotor to verify that the park brake shoes are not dragging on the brake drum. If park brake shoes are dragging, remove rotor and back off star wheel adjuster one notch and recheck for brake shoe drag against drum. Continue with the previous step until brake shoes are not dragging on brake drum.
13. Install disc brake caliper on caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
14. Install wheel and tire.
15. Tighten the wheel mounting nuts in the proper sequence until all nuts are torqued to half the specified torque. Then repeat the tightening sequence to the full specified torque of 129 N·m (95 ft. lbs.) **LD**, 197 N·m (145 ft. lbs.) **HD SRW**, 210 N·m (155 ft. lbs.) **HD DRW**.
16. Lower vehicle.
17. Apply and release the park brake pedal one time. This will seat and correctly adjust the park brake cables.

CAUTION: Before moving vehicle, pump brake pedal several times to ensure the vehicle has a firm enough pedal to stop the vehicle.

18. Road test the vehicle to ensure proper function of the vehicle's brake system.

WITH ADJUSTING TOOL

Adjustment can be made with a standard brake gauge or with adjusting tool. Adjustment is performed with the complete brake assembly installed on the backing plate.



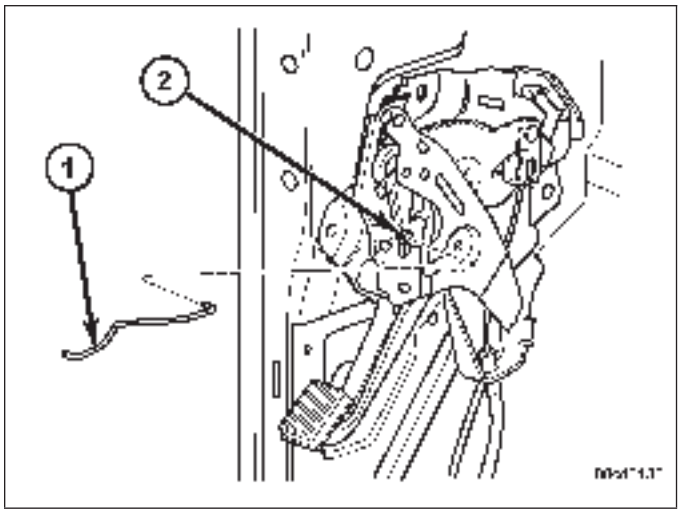
1. Be sure parking brake lever is fully released.
2. Raise vehicle so rear wheels can be rotated freely.
3. Remove plug from each access hole in brake support plates.
4. Loosen parking brake cable adjustment nut until there is slack in front cable.
5. Insert adjusting tool (4) through support plate access hole (1) and engage tool in teeth of adjusting screw star wheel (2).
6. Rotate adjuster screw star wheel (move tool handle upward) until slight drag can be felt when wheel is rotated.
7. Push and hold adjuster lever away from star wheel with thin screwdriver (3).
8. Back off adjuster screw star wheel until brake drag is eliminated.
9. Repeat adjustment at opposite wheel. Be sure adjustment is equal at both wheels.
10. Install support plate access hole plugs.
11. Adjust parking brake cable and lower vehicle.
12. Depress park brake pedal and make sure park brakes hold the vehicle staionary.
13. Release park brake pedal.

PEDAL

REMOVAL

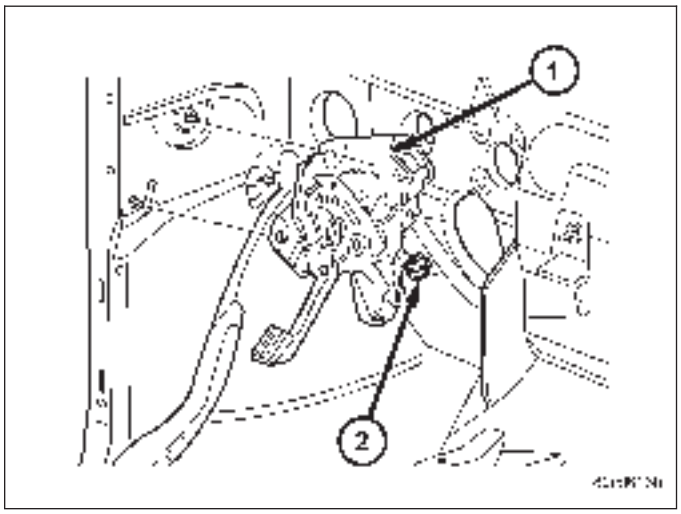
1. Release the parking brake.
2. Raise the vehicle.
3. Loosen the cable tensioner nut at the equalizer to create slack in the front cable.
4. Lower the vehicle.
5. Remove the knee bolster, (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).

6. Disconnect the brake lamp wire from the switch on the pedal assembly (2).
7. Roll the carpet back, loosen the front cable grommet from the floorpan and the cable retainer.
8. Disengage the release rod (1) from the arm on the pedal assembly (2).
9. Remove the bolts/nuts from the pedal assembly (2) and remove the assembly.



INSTALLATION

1. Position the replacement pedal assembly (1) on the dash and cowl.
2. Install the bolts/nuts (2) and tighten to 28 N·m (21 ft. lbs.).
3. Install the park brake release rod.
4. Connect the front cable to the arm on the pedal assembly (1).
5. Install the front cable grommet into the floorpan and the cable retainer, roll the carpet back.
6. Connect the wires to the brake lamp switch.
7. Install the knee bolster, (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).
8. Raise the vehicle.



9. Adjust the parking brake cable tensioner (Refer to 5 - BRAKES/PARKING BRAKE/CABLE TENSIONER - ADJUSTMENTS).

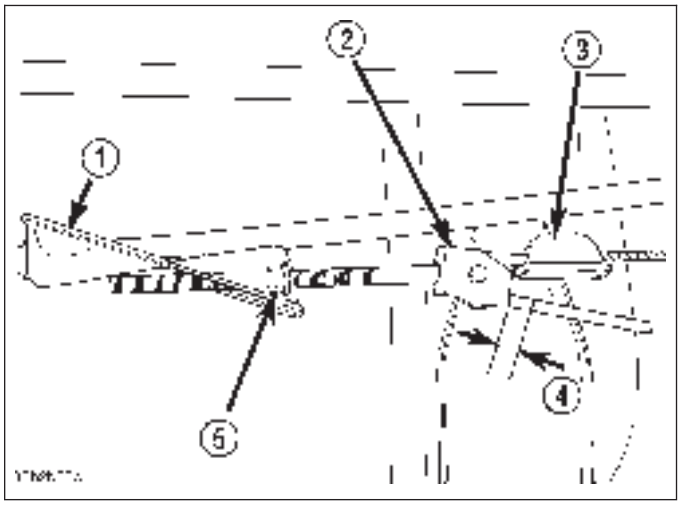
TENSIONER-CABLE

ADJUSTMENTS

CABLE TENSIONER

NOTE: Tensioner adjustment is only necessary when the tensioner, or a cable has been replaced or disconnected for service. When adjustment is necessary, perform adjustment only as described in the following procedure. This is necessary to avoid faulty park brake operation.

1. Raise the vehicle.
2. Back off the cable tensioner adjusting nut (5) to create slack in the cables.



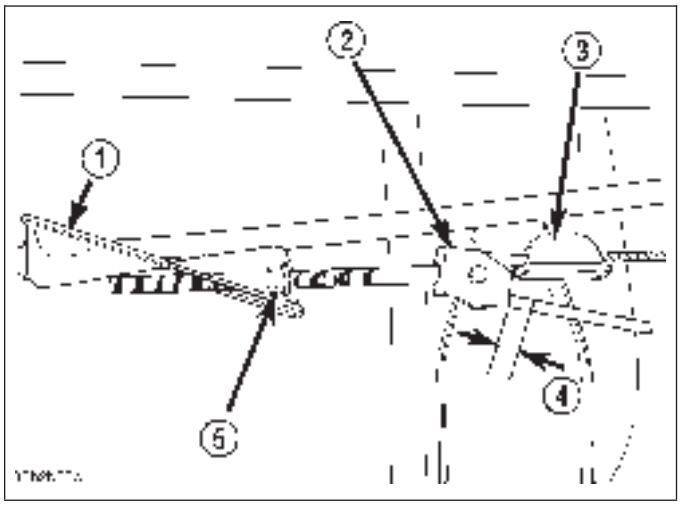
3. Remove the rear wheel/tire assemblies. Then remove the brake rotors (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL).
4. Verify the brakes are in good condition and operating properly.
5. Verify the park brake cables operate freely and are not binding, or seized.
6. Check the rear brake shoe adjustment with standard brake gauge (Refer to 5 - BRAKES/PARKING BRAKE/SHOES - ADJUSTMENTS).
7. Install the rotors (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION) and verify that the rotors rotate freely without drag.
8. Install the wheel/tire assemblies, (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).
9. Lower the vehicle enough for access to the park brake foot pedal. Then fully apply the park brakes.

NOTE: Leave park brakes applied until adjustment is complete.

10. Raise the vehicle again.
11. Mark the tensioner rod 6.35 mm (1/4 in.) from edge of the tensioner (2).
12. Tighten the adjusting nut (5) on the tensioner rod until the mark is no longer visible.

CAUTION: Do not loosen, or tighten the tensioner adjusting nut for any reason after completing adjustment.

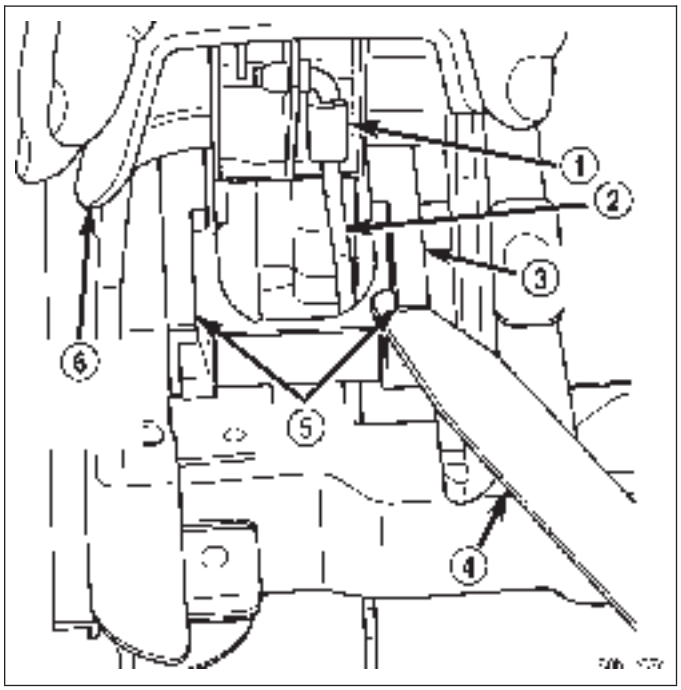
13. Lower the vehicle until the rear wheels are 15-20 cm (6-8 in.) off the shop floor.
14. Release the park brake foot pedal and verify that rear wheels rotate freely without drag. Then lower the vehicle.



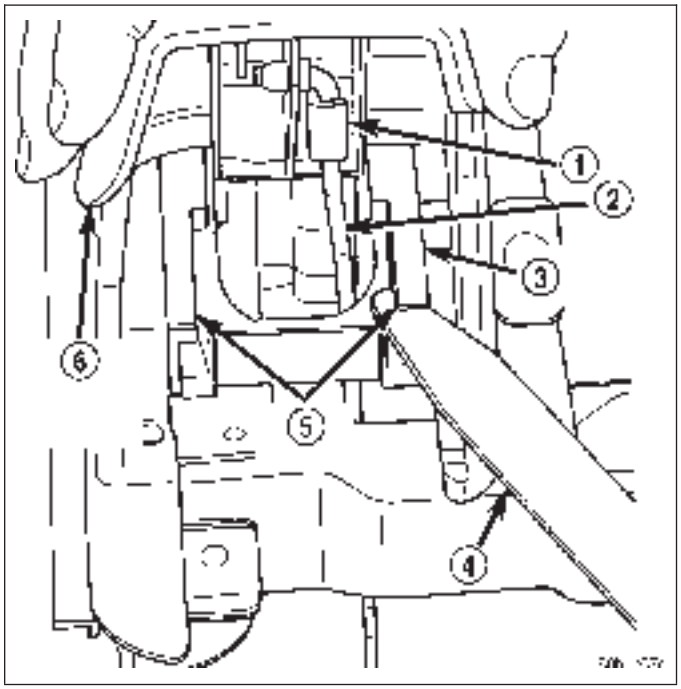
HANDLE-RELEASE

REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Reach under the driver side outboard end of the instrument panel to access and unsnap the plastic retainer clip that secures the park brake release linkage rod to the park brake mechanism on the left cowl side inner panel.
3. Disengage the park brake release linkage rod end from the park brake mechanism.
4. Lift the park brake release handle to access and unsnap the plastic retainer clip that secures the park brake release linkage rod to the lever on the back of the park brake release handle.
5. Lower the park brake release handle and reach under the driver side outboard end of the instrument panel to disengage the park brake release linkage rod end from the lever on the back of the park brake release handle.
6. Lift the park brake release handle to access the handle mounting bracket.
7. Using a trim stick (4) or another suitable wide flat-bladed tool, gently pry each of the park brake release handle (6) mounting bracket latch tabs (5) away from the retaining notches in the instrument panel receptacle.
8. With both of the park brake release handle mounting bracket latches released, slide the handle and bracket assembly down and out of the instrument panel receptacle.



INSTALLATION



1. Position the park brake release handle to the instrument panel.
2. Slide the handle and bracket assembly up into the instrument panel receptacle until both of the park brake release handle (6) mounting bracket latches are engaged with the notches in the instrument panel receptacle.
3. Lower the park brake release handle and reach under the driver side outboard end of the instrument panel to engage the park brake release linkage rod end with the lever on the back of the park brake release handle (6).
4. Lift the park brake release handle to access and snap the plastic retainer clip that secures the park brake release linkage rod to the lever on the back of the park brake release handle over the linkage rod.
5. Reach under the driver side outboard end of the instrument panel to access and engage the park brake release linkage rod end to the park brake mechanism.
6. Snap the plastic retainer clip that secures the park brake release linkage rod to the park brake mechanism on the left cowl side inner panel over the linkage rod.
7. Reconnect the battery negative cable.

BRAKES - ABS - SERVICE INFORMATION

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BRAKES - ABS - SERVICE INFORMATION

DESCRIPTION

The antilock brake system (ABS) is an electronically operated, three channel brake control system. The vehicle has Electronic Variable Brake Proportioning (EVBP) designed into the system which eliminates the combination/proportioning valve.

The system is designed to prevent wheel lockup and maintain steering control during braking. Preventing lockup is accomplished by modulating fluid pressure to the wheel brake units.

The hydraulic system is a three channel design. The front wheel brakes are controlled individually and the rear wheel brakes in tandem. The ABS electrical system is separate from other electrical circuits in the vehicle. A specially programmed controller antilock brake unit operates the system components.

ABS system major components include:

- Controller Antilock Brakes (CAB)
- Hydraulic Control Unit (HCU)
- Wheel Speed Sensors (WSS)
- ABS Warning Light

OPERATION

Battery voltage is supplied to the CAB. The CAB performs a system initialization procedure at start up. A check of the ABS motor is performed at 15 miles per hour. Initialization consists of a static and dynamic self check of system electrical components.

The static and dynamic checks occurs at ignition start up. During the dynamic check, the CAB briefly cycles solenoids to verify operation. An audible noise may be heard during this self check. This noise should be considered normal. The ABS motor and pump are then checked at a speed of 15 mile per hour.

If an ABS component exhibits a fault during initialization, the CAB illuminates the amber warning light and registers a fault code in the microprocessor memory.