DELCO-MORAINE AUTOMATIC ADJUSTER

Buick
Cadillac
Chevrolet
Oldsmobile
Pontiac

DESCRIPTION

Brakes are hydraulic single anchor and use Bendix type shoes. Anchor pins for brake shoes are fixed to backing plate and are non-adjustable. Automatic system is made up of a link, actuating lever, pawl and pawl spring. Pawl spring is mounted on secondary brake shoe. System uses an override pivot plate and spring to protect against binding linkage.

NOTE – *Some models use an adjuster pawl with a separate blade to contact star wheel. This system does not use the override spring.*

OPERATION

Automatic adjusters operate only when brakes are applied as car is moving in reverse. The link, which holds top of actuating lever stationary, forces lever to pivot on secondary shoe. This pivoting action forces pawl downward against tooth on adjuster screw. If the lining-to-drum clearance is correct, the downward movement will stop before adjusting screw is turned. If clearance is too wide, secondary shoe will move outward. This allows pawl to move down enough to turn adjuster screw one notch. This brings lining-to-drum clearance back to correct specifications. If adjuster screw is frozen or clearance is too great, an override device will prevent adjuster movement. This will prevent binding of automatic adjuster linkage.

ADJUSTMENT

BRAKE SHOE ADJUSTMENT

NOTE – *Adjustment should only be required after relining or replacing shoes, or if length of adjusting screw is changed.*

Rear Drum Shoe Adjustment – 1) Raise vehicle and remove wheels and drums. Check to make certain that parking brake cable and linkage, including levers on rear secondary shoes, are free. Measure brake drum inside diameter using inside caliper portion of tool (J-21177).

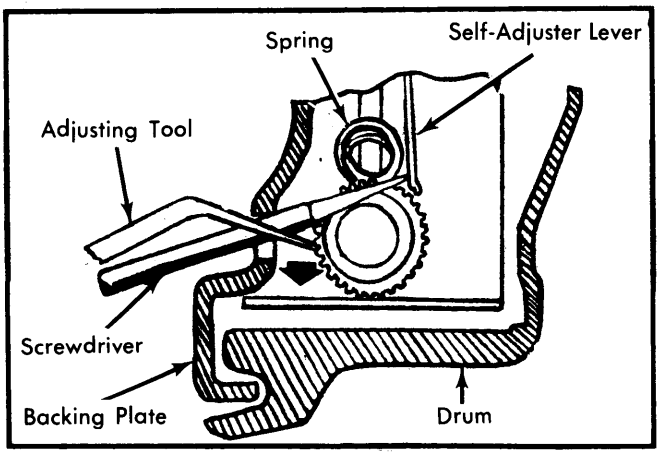

Fig. 1 Adjusting Brake Shoe Clearance (Through Backing Plate)

2) Adjust brake soes to demension obtained on outside caliper portion of tool (J-21177). Check brake fluid level in both master cylinder reserviors. Add fluid if necessary. Adjust parking brake.

3) Install drums and wheel. Tighten wheel mounting nuts. Lower vehicle. Drive car alternately forward and backward, applying brakes moderately in each direction.

PARKING BRAKE ADJUSTMENT

NOTE – *When rear drum brakes are serviced, the parking brake linkage cable at the equalizer must always be readjusted to prevent possible burn out of rear brakes.*

1) Lubricate parking brake linkage at equalizer and cable stud, and ensure free movement of cables. Depress parking brake pedal to approximately 1½" from fully released position. Raise rear wheels. Hold brake cable from turning and tighten equalizer nut 1 turn at a time.

2) Check for brake drag after each turn by turning wheel forward. When light drag is felt on both wheels, release parking brake. No drag should be present at either wheel. After adjustment, apply approximately 125 lbs. of force to pedal. Travel should be:

- **BUICK**
  Regal, LeSabre & Electra – 5¼" to 6¾" @ 125 Lbs.
  Riviera – 4" to 5½" @ 125 Lbs.
  Century & Skylark – No more than 16 and no less than 9 ratchet clicks @ 125 Lbs.
- **CADILLAC**
  Cimarron – Adjust at equalizer between rear wheels. (Light drag).
  Eldorado & Seville – 4" to 5½" @ 125 Lbs.
  All Other Models – 5¼" to 6¾" @ 125 Lbs.
- **CHEVROLET**
  Camaro (Drum Brakes) – Pull up ratchet handle 2 clicks and adjust brake cable. (Light drag).
  Camaro (Disc Brakes) – Ratchet handle should travel 14 clicks and have 150 Lbs. pull on handle.
  Cavalier – Adjust at equalizer between rear wheels. (Light drag).
  Chevette – Apply parking brake 3 notches from release and tighten equalizer nut. (Light drag).
  Citation & Celebrity – No more than 16 and no less than 9 ratchet clicks @ 125 Lbs.
  Impala, Caprice, Malibu, Monte Carlo & El Camino – No more than 16 and no less than 9 ratchet clicks @ 125 Lbs.
- **OLDSMOBILE**
  Cutlass Ciera & Omega – No more than 16 and no less than 9 ratchet clicks @ 125 Lbs.
  Firenza – Adjust at equalizer between rear wheels. (Light drag).
  Cutlass Supreme, Delta 88, Ninety-Eight & Toronado – 4" to 5½" @ 125 Lbs.
- **PONTIAC**
  Bonneville & Grand Prix – No more than 16 and no less than 9 ratchet clicks @ 125 Lbs.
  Firebird (Drum Brakes) – Pull up ratchet handle 2 clicks and adjust brake cable. (Light drag).
  Firebird (Disc Brakes) – Ratchet handle should travel 14 clicks and have 150 Lbs. pull on handle.
  J2000 – Adjust at equalizer between rear wheels. (Light drag).

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Phoenix & 6000 – No more than 16 and no less than 9 ratchet clicks @ 125 Lbs.
T1000 – Apply parking brake 3 notches from release and tighten equalizer nut. (Light drag).

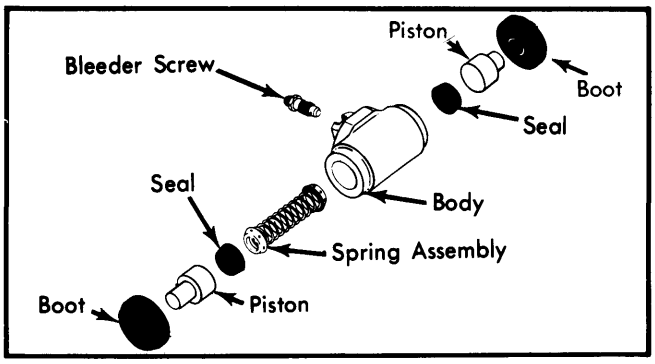

Fig. 2 Wheel Cylinder Assembly

SERVICING

SHOE & LINING REPLACEMENT

NOTE – *Mark position of springs and star adjusters as they are removed, for installation in original position.*

Removal – 1) Release parking brake and loosen parking brake cable at equalizer. If necessary, back off brake adjustment before removing brake drums. Remove return springs. Remove brake shoe hold down springs and cups. Lift up on parking brake actuator lever and remove actuator link. Remove actuator lever and return spring.

2) Separate brake shoes from wheel cylinder connecting links. Remove parking brake strut and spring. Disconnect parking brake cable. Remove brake shoes, spring and adjusting screw from backing plate. Detach spring and screw from brake shoes. Remove parking brake lever from secondary shoe.

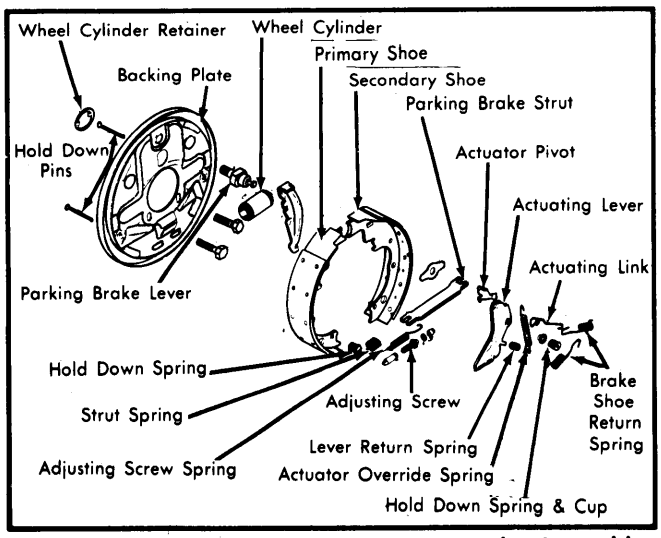

Fig. 3 Exploded View of Rear Drum Brake Assembly (Century, Cutlass, El Camino, Grand Prix, LeMans, Malibu & Monte Carlo)

Installation – 1) Lubricate fulcrum end of parking brake lever and attach to secondary shoe. Connect adjusting screw spring, then place screw in position. Ensure that star is aligned with adjusting hole. Lubricate surfaces where shoe and parking brake cable contact backing plate. Position shoes and insert into wheel cylinder links.

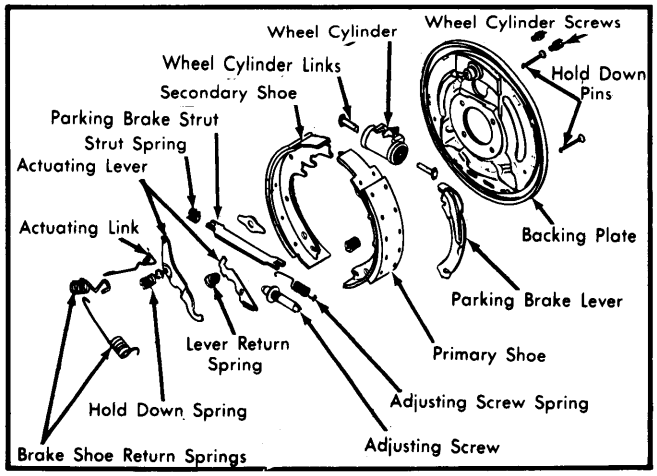

Fig. 4 Exploded View of Rear Drum Brake Assembly (All Other Models)

2) Connect cable to parking brake lever and install strut and spring between lever and primary shoe. Install actuator, actuator return spring and actuating link. Replace brake drums and wheels. Adjust parking brake and brake shoes. Check for proper operation of brakes before moving vehicle.

WHEEL CYLINDER REPLACEMENT

Removal (Century, Cutlass, El Camino, Grand Prix, LeMans & Monte Carlo) – Remove dirt and foreign material from around wheel cylinder and pilot. Disconnect inlet tube line. Remove wheel cylinder retainer using 2 awls or pins of 1/8" diameter or less. Insert awls or pins into access slots between wheel cylinder pilot and retaining lock tabs. Bend both tabs away simultaneously until wheel cylinder is released.

Installation – To install, hold cylinder on backing plate by inserting a wood block between wheel cylinder and axle flange. Install a new retaining spring over wheel cylinder, lining up retainer tabs with cylinder tab grooves. Drive retainer into position using a 1 1/8" socket and a 10" extension. Retainer is in position when tabs are snapped under retainer abutment.

Removal (All Other Models) – Disconnect inlet tube line and remove 2 screws holding wheel cylinder to backing plate. Remove wheel cylinder.

Installation – To install, replace wheel cylinder in position and install screws. Connect inlet tube line.

BLEEDING SYSTEM

See Hydraulic Brake Bleeding in this section.

OVERHAUL

WHEEL CYLINDER

Disassembly – With wheel cylinder removed from vehicle, remove rubber boots from ends of cylinder. Remove piston, piston return spring, cups and bleeder screw. Inspect cylinder bore for scoring or corrosion. Replace wheel cylinder if corrosion cannot be removed with crocus cloth or if bore is scored. Rinse with brake fluid.

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Reassembly – Install bleeder screw. Lubricate cylinder bore with brake fluid and install piston cup in 1 end of cylinder with lip toward center and install piston with flat side toward cup. Install rubber boot into end of cylinder. Install spring and expander assembly into opposite end. Install remaining cup, piston and rubber boot.

TIGHTENING SPECIFICATIONS

WHEEL LUG NUTS

Application	Ft. Lbs. (N·m)
Buick	
Riviera	100 (136)
Skylark	103 (141)
Century Aluminum Wheels	90 (122)
All Others	80 (109)
Cadillac	100 (136)
Chevrolet	
Chevette	70 (95)
Citation	103 (141)
Camaro Aluminum Wheels	90 (122)
Impala & Caprice Wagon	100 (136)
All Others	80 (109)
Oldsmobile	
Cutlass Aluminum Wheels	90 (122)
88 Wagon, 98 & Toronado	100 (136)
Omega	103 (141)
All Others	80 (109)
Pontiac	
Phoenix	103 (141)
Aluminum Weels	90 (122)
All Others	80 (109)

DRUM BRAKE SPECIFICATIONS

Application	Drum Diam.	Drum Width	Maximum Refinish①	Wheel Cyl. Diam. Drum	Master Cyl. Diam.
Buick					
Century & Skylark	7.87″	1.77″	7.899″	.689″	.874″
Regal	9.50″	2.00″	9.560″	.750″	1.125″
LeSabre	9.50″	2.00″	9.560″	.875″ or .937″	1.125″
Heavy Duty	11.00″	2.00″	11.060″	1.000″	1.125″
Electra	11.00″	2.00″	11.6060″	.937″	1.125″
Riviera	9.50″	2.00″	9.060″	.750″	1.125″
Cadillac					
Cimarron	7.88″	1.77″	7.900″	.630″	.866″
Brougham	11.00″	2.00″	11.060″	1.000″	1.125″
DeVille	12.00″	2.50″	12.060″	1.000″	1.125″
Eldorado & Seville	②	②	②	②	1.000″
Chevrolet					
Camaro	9.50″	2.00″	9.560″	.748″	.945″
Camaro (Disc)	②	②	②	②	1.000″
Cavalier	7.88″	1.77″	7.900″	.630″	.866″
Chevette	7.88″	1.77″	7.900″	.750″	.750″
Citation & Celebrity	7.87″	1.77″	7.899″	.689″	.874″
Impala & Caprice	9.50″	2.00″	9.560″	.875″ or .937″	1.125″
Heavy Duty	11.00″	2.00″	11.060″	1.000″	1.125″
Monte Carlo	9.50″	2.00″	9.560″	.750″	1.125″
El Camino & Malibu	9.50″	2.00″	9.560″	.750″	1.125″
Oldsmobile					
Cutlass Ciera & Omega	7.87″	1.77″	7.889″	.689″	.874″
Firenza	7.88″	1.77″	7.900″	.630″	.866″
Cutlass Supreme	9.50″	2.00″	9.560″	.750″	973″ or 1.062″
Delta 88	9.50″	2.00″	9.560″	.875″	1.125″ or 1.187″
Ninety-Eight & Heavy Duty	11.00″	2.00″	11.060″	1.000″ or .937″	1.125″ or 1.187″
Toronado	②	②	②	②	1.00″ or 1.062″
Pontiac					
Bonneville & Grand Prix	9.50″	2.00″	9.560″	.750″	1.125″
Heavy Duty	11.00″	2.00″	11.060″	.750″	1.125″
Firebird	9.50″	2.00″	9.560″	.748″	1.000″
J2000	7.88″	1.77″	7.900″	.630″	.866″
Phoenix & 6000	7.87″	1.77″	7.899″	.689″	.874″
T1000	7.88″	1.77″	7.899″	.750″	.750″

① – Discard diameter is .030″ more than Maximum Refinish.
② – Four wheel disc brakes.