

BRAKE SYSTEM

1988 Toyota Celica

1988-89 BRAKES

Toyota

Celica, Corolla, MR2, Tercel

DESCRIPTION

The hydraulic brake system uses a tandem master cylinder with a vacuum power assist servo. MR2 and some Celica models are equipped with 4-wheel disc brakes. Corolla and Corolla FX are available with either rear drum or rear disc brakes. Tercel models are equipped with front disc and rear drum brakes.

A load sensing proportioning valve is used on some models to regulate brake pressure between the front and rear circuits. The rear brakes on all models are self-adjusting.

The parking brake lever mechanically activates the rear brakes. On models with rear drum brakes, a cable applies the rear shoes. On MR2, Corolla and Corolla FX models with rear disc brakes, the parking brake applies the rear pads. On Celica models, the parking brake is a duo servo mechanical drum brake design built into the bell of rear rotor assemblies.

DRUM BRAKES ADJUSTMENTS

NOTE: All rear drum brakes have a self-adjuster which is activated when brake pedal is applied as vehicle travels in reverse.

To manually adjust rear brakes, raise and support vehicle. Remove plug from adjustment hole in backing plate. Turn adjusting nut until shoes lock wheel. Back adjuster off until wheel turns freely or with very slight drag. Measured clearance between linings and braking surface of drum should be .024" (.60 mm).

BRAKE PEDAL HEIGHT ADJUSTMENTS

1) Brake pedal height is measured from face of pedal pad to asphalt sheet under carpet. To adjust clearance, loosen stoplight switch and lock nut on brake push rod. See Fig. 1.

2) Adjust pedal height by turning push rod. See BRAKE PEDAL HEIGHT table for correct specification. After setting pedal height, tighten lock nut on push rod. Adjust stoplight switch and tighten switch lock nut.

BRAKE PEDAL HEIGHT TABLE

Application	In. (mm)
Celica	6.0-6.4 (152-163)
Corolla	5.5-5.9 (139-149)
MR2	6.1-6.5 (154-165)
Tercel	
Sedan	5.8-6.2 (147-157)
Wagon	7.2-7.6 (183-193)

BRAKE PEDAL FREE PLAY ADJUSTMENTS

1) Brake pedal free play is distance brake pedal travels before feeling resistance with engine stopped. To check pedal free play, depress brake pedal several times to exhaust vacuum from power assist servo.

2) Depress pedal and measure travel until initial resistance is felt. See BRAKE PEDAL FREE PLAY table. If free play is incorrect, adjust by turning push rod. See Fig. 1. Check brake pedal height if free play is adjusted.

BRAKE PEDAL FREE PLAY TABLE

Application	In. (mm)
All Models .....	.12-.24 (3.0-6.0)

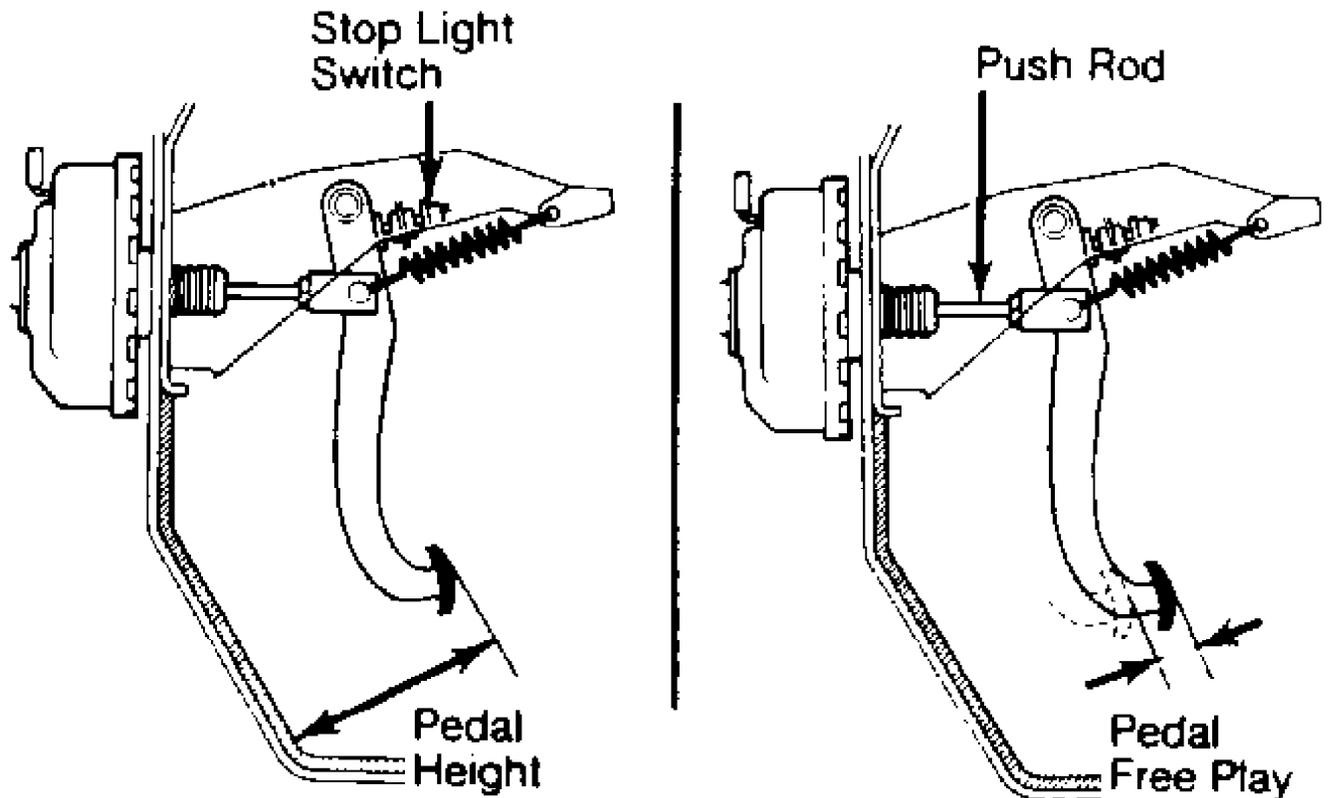


Fig. 1: Measuring Pedal Height & Free Play
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

BRAKE PEDAL RESERVE DISTANCE ADJUSTMENTS

1) Pedal reserve distance is measured from face of pedal pad to asphalt sheet under carpet with brakes applied. Measure reserve distance with engine running and weight of 110 lbs. (50 kg) applied against pedal.

2) See BRAKE PEDAL RESERVE DISTANCE table for minimum reserve distance. If measured reserve distance is less than minimum distance specified in table, entire brake system should be inspected.

BRAKE PEDAL RESERVE DISTANCE TABLE

Application	In. (mm)
Celica	3.15 (80)
Corolla	
Rear Disc Brake	2.36 (60)
Rear Drum Brake	2.17 (55)
MR2	3.43 (87)
Tercel	
Sedan	2.20 (56)
Wagon	3.54 (90)

PARKING BRAKE ADJUSTMENTS

NOTE: Service brake must be correctly adjusted before adjusting parking brake.

Pull on parking brake lever with weight of 44 lbs. (20 kg) to check parking brake adjustment. Count number of notches (clicks) until parking brake is fully applied. Compare actual count to specification in PARKING BRAKE ADJUSTMENT table. Adjust parking brake if travel is incorrect.

MR2

1) Pull parking brake lever up and down several times. Leave lever in released position. Pump brake pedal several times. Remove fuel tank protector. Loosen adjusting nuts at equalizer until there is slack in cable.

2) Ensure that cable bellcrank on caliper is touching stop pin. Tighten adjusting nut until cable is taut, but not so much that bellcrank is pulled off stop pin. Tighten adjusting nuts with equalizer in horizontal position. Install fuel tank protector.

ALL OTHERS

Remove console box or parking brake lever boot to uncover base of lever. Turn adjusting nut on cable until lever travel is correct. Tighten lock nut or adjusting cap. Install console or boot.

PARKING BRAKE ADJUSTMENT TABLE

Application	Notches
Celica	4-7
Corolla	
Disc	5-8
Drum	4-7
MR2	5-8
Tercel	
Sedan	7-9
Wagon	6-8

STOPLIGHT SWITCH ADJUSTMENTS

Stoplight switch is located above brake pedal. See Fig. 1. To adjust, remove panel and air duct (if necessary). Loosen lock nuts and turn switch until it touches pedal stop. Tighten lock nut. Check pedal height and brake light operation.

REMOVAL & INSTALLATION

NOTE: Location or numbers of anti-rattle springs, anti-squeal shims, pad support and guide plates will vary between models. Note component locations during removal process for reassembly reference.

FRONT PADS R & I

REMOVAL (COROLLA & TERCEL)

1) Remove a small amount of fluid from master cylinder. Raise vehicle and support securely. Remove wheels. Hold rotor in place with lug nuts. Remove 2 guide bolts. See Fig. 2.

2) Leave hose connected and hang caliper from suspension so that no tension is placed on hose. Remove anti-squeal springs (if equipped), brake pads, anti-squeal shims, pad wear indicator plates and pad support plates.

INSTALLATION

1) Install new pad support plates on torque plate. Put new pad wear indicators on pads. Arrow on wear indicators must point in direction that rotor turns. Put new anti-squeal shims on pads. On MR2 models, cover both sides of No. 3 anti-squeal shim with disc brake grease.

2) On all models, install pads on support plates. Press piston into caliper with C-clamp or wooden hammer handle. Install caliper carefully so that piston dust boot does not wedge against brake pads. Check level of fluid in reservoir.

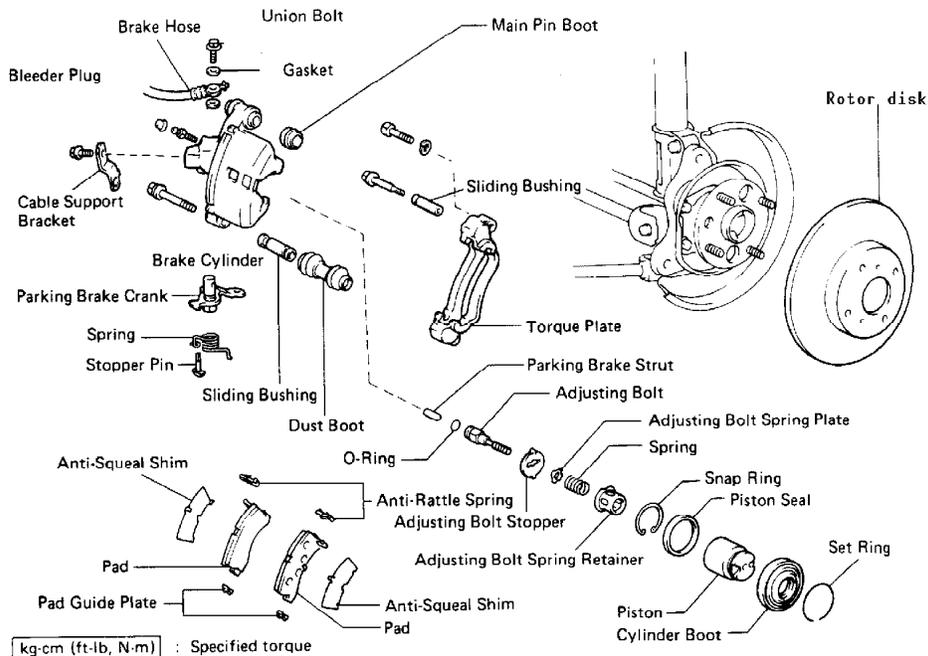


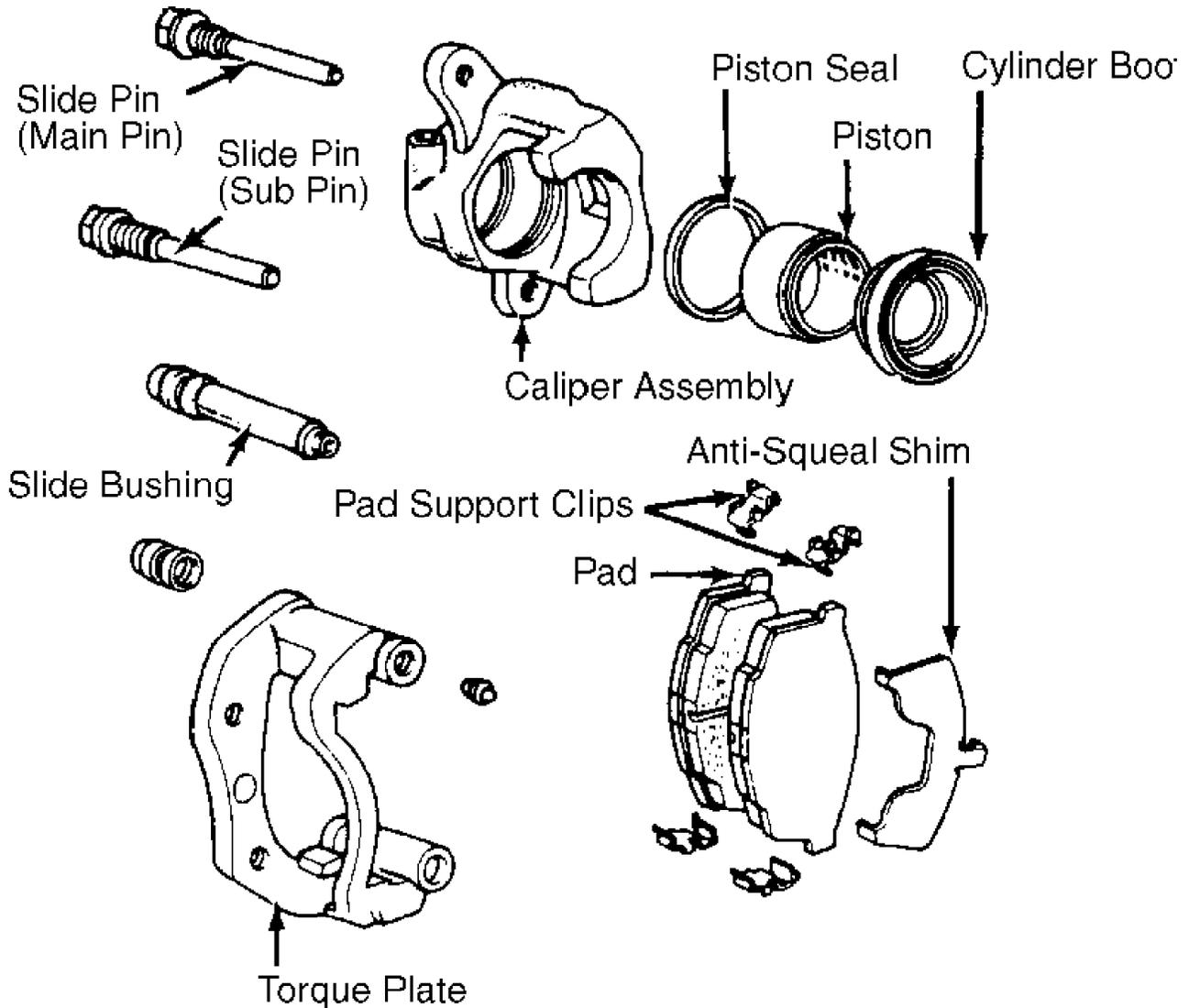
Fig. 2: Corolla & Tercel Sliding Caliper Assembly
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

REMOVAL (CELICA & MR2)

Loosen master cylinder reservoir cap. Raise and support vehicle. Remove wheels. Remove slide bolts. Leaving brake hose connected, tie caliper to suspension to keep it out of way. Remove brake pads, anti-squeal shim and support plates. See Fig. 3.

INSTALLATION

Push piston into caliper bore using C-clamp or wooden hammer handle. Reverse removal procedure to complete installation. Check level of fluid in reservoir and tighten cap.



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Fig. 3: Typical Single Piston Caliper (2WD Pickup Is Shown)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

REMOVAL

1) Raise vehicle and remove wheel(s). Disconnect hydraulic line and spring clip. Plug line to prevent fluid spillage. Remove caliper mounting bolts or slide pins as necessary.

2) On models with fixed main pin, pivot caliper up to clear edge of rotor. Slide caliper off main pin. On all other models, remove caliper from knuckle or torque plate.

INSTALLATION

To install, reverse removal procedure. On units with fixed main pin, boot end must be installed in groove of main pin.

REMOVAL & INSTALLATION (CELICA, COROLLA FWD, MR2 & TERCEL)

Remove caliper assembly with hose connected. Support caliper from frame with wire. Remove torque plate from knuckle. Slide rotor off hub assembly. To install, reverse removal procedure.

FRONT WHEEL BEARING & OIL SEAL R & I

REMOVAL (CELICA, COROLLA FWD & TERCEL)

1) Remove cotter pin and bearing lock nut cap. Hold foot on brake pedal and loosen bearing lock nut. Remove brake caliper from steering knuckle and suspend on wire. Remove brake disc.

2) Remove cotter pin and nut from end of tie rod. Remove speed sensor (if equipped). Separate tie rod end from steering knuckle. Place matchmarks on strut housing lower bracket and camber adjustment cam for reassembly reference.

3) Separate steering knuckle from strut housing. Remove 2 bolts holding lower control arm to steering knuckle. On Celica and Tercel Wagon use a 2-jaw puller to remove axle hub from drive shaft. On all others, use a plastic hammer to tap drive shaft through hub.

4) Place steering knuckle in vise. Using screwdriver, remove dust deflector. Using slide hammer with inside puller, pull oil seal out of steering knuckle. Remove snap ring from inside housing. Remove 3 bolts holding brake dust cover to steering knuckle.

5) Using 2-jaw puller, push axle hub out of steering knuckle. Remove inside bearing inner race from bearing. Using inside puller, pull oil seal out of steering knuckle.

6) Using 2-jaw puller, pull inner race of outer bearing from axle hub. Install outside bearing inner race on bearing to be removed. Using press with driver and support for knuckle, press bearing out of steering knuckle.

INSTALLATION

1) Using press and Bearing Replacer (09316-60010) for Tercel Sedan, Bearing Replacer (09309-35010) for Tercel Wagon or Steering Knuckle Oil Seal Replacer (09608-32010) for all others, press new bearing into steering knuckle. Install outside bearing inner race to bearing.

2) To install new outside oil seal to steering knuckle, use Oil Seal Driver (09608-10010) for Tercel, Oil Seal Driver (09515-35010 for Tercel Wagon) or Oil Seal Replacer (09608-32010) and Bushing Tool (09710-14012) for all other models.

3) Apply liquid sealer to dust cover and steering knuckle connection and assemble. Insert axle hub into steering knuckle. Invert

steering knuckle and install inside bearing inner race.

4) For all models except Tercel Sedan, using an arbor press, Adapter (09228-22020) and Countershaft Bearing Replacer (09310-35010), press inside bearing inner race until it is tightly against shoulder of hub.

NOTE: DO NOT interchange inner and outer bearing races when installing.

5) Place steering knuckle in vise with hub facing down. Using snap ring pliers, install snap ring into hole of steering knuckle. Place new inside oil seal on steering knuckle hole.

6) Use Oil Seal Driver (09608-10010) for Tercel Sedan, Oil Seal Driver (09309-35010) for Tercel Wagon, or Oil Seal Replacer (09608-32010) and Bushing Tool (09710-14012) for all other models. On Tercel Wagon, seal should be positioned .13" (3.3 mm) from end surface.

7) Using Adapter (09608-16050) for Tercel Wagon or Crankshaft Rear Oil Seal Replacer (09223-41020) for all models except Tercel, drive new dust deflector into steering knuckle. On Tercel, install bolts. On all models, install steering knuckle assembly to lower arm. Install axle hub to drive shaft.

CAUTION: Be careful not to damage oil seal lip or drive shaft boot.

8) Reverse removal procedure to complete installation. While depressing brake pedal, tighten lock nut to 137 ft. lbs. (186 N.m). Install lock nut cap and cotter pin. Check front wheel alignment.

REAR PADS R & I

NOTE: Pushing piston into caliper bore will force fluid back into master cylinder reservoir.

REMOVAL

Raise vehicle and remove wheels. Remove guide bolt. Pivot caliper up on main pin and support from frame at highest point. Remove brake pads, anti-squeal shims, anti-rattle springs, pad support plate and pad guide plate. See Fig. 4.

INSTALLATION

1) Install pad support plate, anti-rattle springs and pad guide plates on torque plate. Place new anti-squeal shims onto pads. Install pads in torque plate. Wear indicator should be on top edge of outer pad.

2) Using Piston Spanner (09719-14020), turn piston clockwise until it locks. Align pad projection with piston stopper. Swing caliper down, ensuring boot does not wedge against pad.

3) Install guide bolt. Install wheels. Ensure fluid level is correct. Set automatic parking brake adjuster by pumping brake pedal several times.

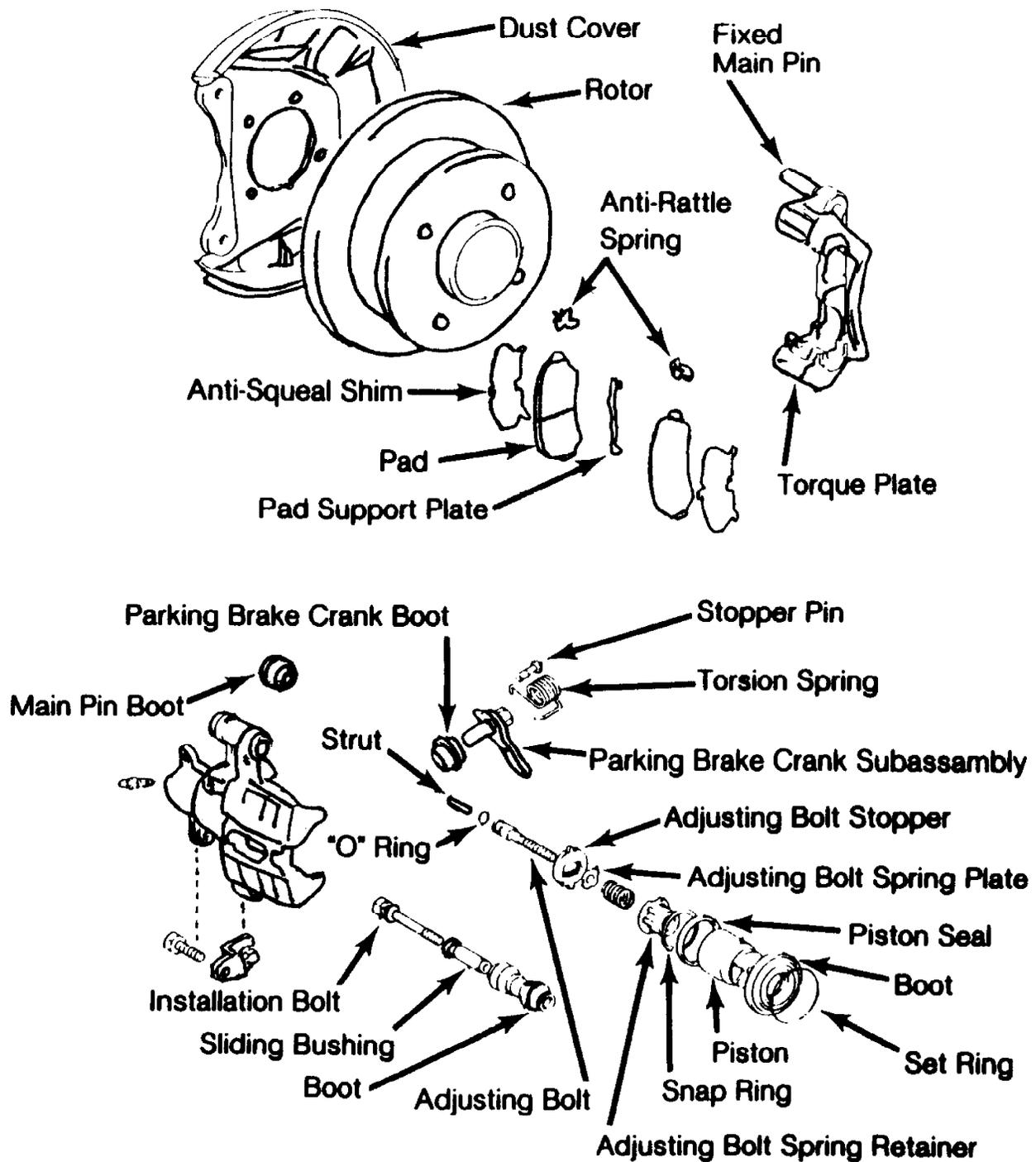


Fig. 4: Exploded View Of Rear Caliper With Integral Parking Brake
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

REAR CALIPER R & I

REMOVAL

Disconnect brake hose and mounting bolts. Disconnect parking brake cable if attached to caliper. On fixed pin type caliper, pivot caliper up to clear rotor and slide it off main pin. On all other models, remove caliper from knuckle or torque plate.

INSTALLATION

To install, reverse removal procedure. On fixed pin type caliper, ensure that boot end is installed in groove of pin. On models with integral parking brake, align pad projection with piston stopper groove.

REAR ROTOR R & I

REMOVAL & INSTALLATION

Remove caliper and suspend from underbody with hose connected. Remove torque plate from backing plate. Slide rotor off axle flange. To install, reverse removal procedure.

REAR PARKING BRAKE R & I

REMOVAL (INTERNAL SHOE BRAKE)

Remove rotor. Remove shoe return springs and shoe strut with spring. Pull out on front shoe and remove adjusting screw set. Remove hold down spring, front shoe and tension spring. Remove rear shoe and disconnect parking brake cable from lever. See Fig. 5.

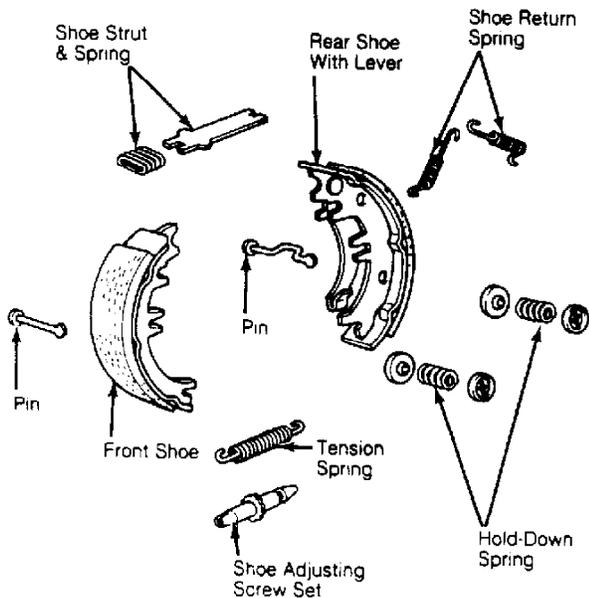


Fig. 5: Exploded View Of Internal Shoe Parking Brake Assembly
Courtesy of Toyota Motor Sales, U.S.A., Inc.

INSPECTION

Clearance between parking brake shoe and lever must be within .014" (.35 mm). If not, replace shim under parking brake lever. Shims are available in .008-.035" (.20-.90 mm) and .004" (.10 mm) increments. Use new "C" washer when installing lever.

INSTALLATION

Reverse removal procedure to complete installation. Apply non-melting grease to sliding surfaces of shoes and adjusting screw threads. Align groove of rear axle shaft flange with service hole on disc and install disc.

REAR DRUM R & I

REMOVAL (TERCEL SEDAN)

Raise and support vehicle. Remove tire and wheel. Remove grease cap, cotter pin, lock nut and bearing nut. Remove brake hub together with outer bearing and thrust washer.

REMOVAL (ALL OTHERS)

Raise and support vehicle. Remove tire and wheel. Remove set screws from brake drum (if equipped). Pull drum from axle flange. It may be necessary to loosen brake adjustment before removing drum.

INSTALLATION

1) Measure inside diameter of brake drum and diameter of brake shoes. Turn brake adjuster until difference between diameters is .02" (.6 mm). On all models except Tercel Sedan, install brake drum and adjust brakes, if required.

2) On Tercel Sedan, pack wheel bearings with MP grease. Tighten wheel bearings to 22 ft. lbs. (30 N.m) while turning drum. Loosen nut until it can be turned by hand. Install cotter pin. If pin will not go into hole in spindle, loosen nut to obtain alignment.

REAR BRAKE SHOES R & I

REMOVAL (TERCEL SEDAN)

1) With brake drum removed, disconnect return spring. Remove hold-down springs and pins. Disconnect front shoe from parking brake strut and disconnect lower spring. Remove front shoe. Disconnect parking brake lever return spring.

2) Remove rear shoe from backing plate. Disconnect parking brake cable from lever. Remove "C" washer, adjusting lever and parking brake lever from rear shoe. Remove "C" washer retaining parking brake lever on adjusting lever and separate levers. See Fig. 6.

INSTALLATION

Install parking brake lever onto adjusting lever with new "C" washer. Ensure that lever moves. Complete installation by reversing removal procedure. Install drum and bleed hydraulic system.

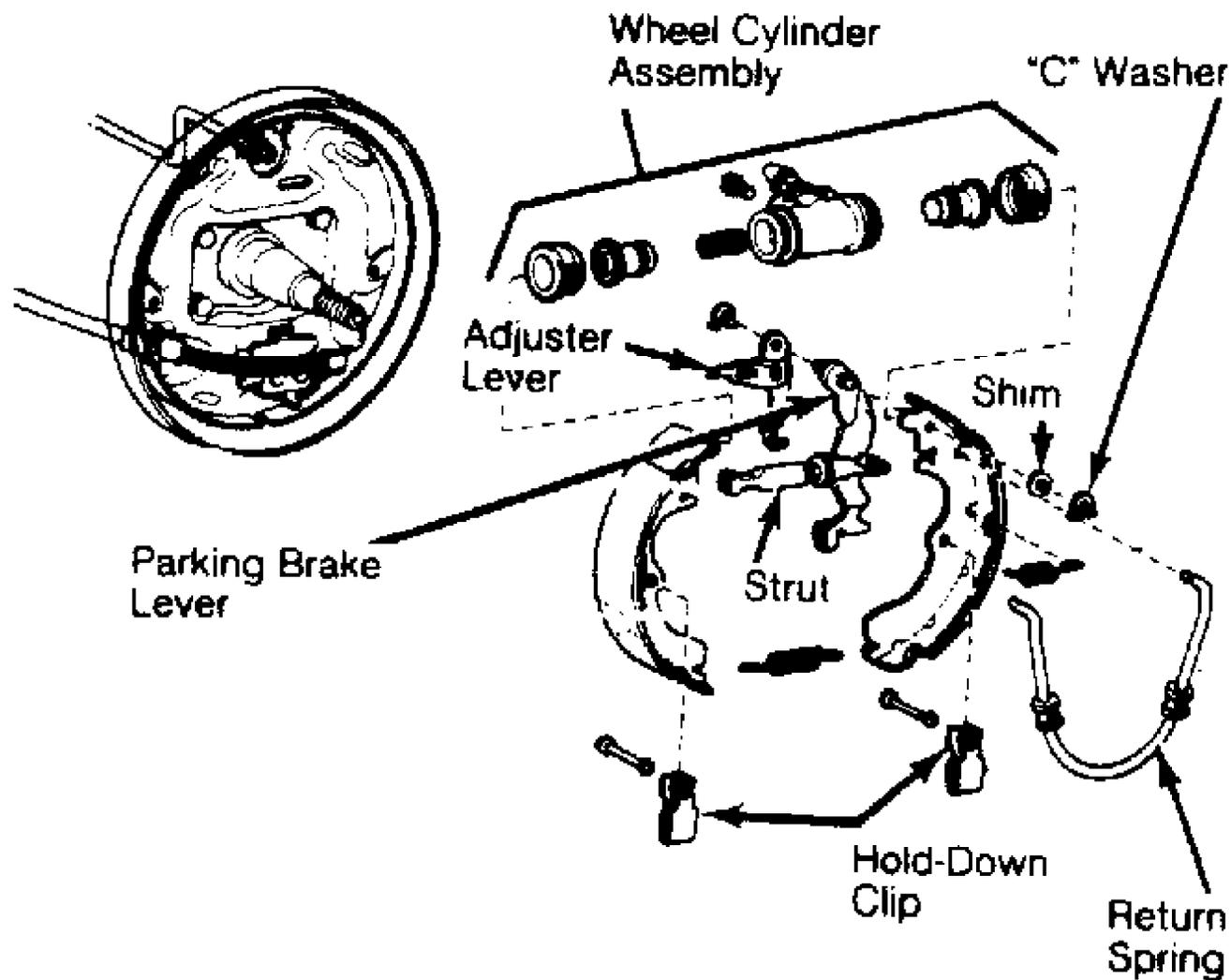


Fig. 6: Exploded View Of Tercel Sedan Rear Brake
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

REMOVAL (ALL OTHERS)

- 1) Remove wheel and brake drum. Remove tension spring, hold-down springs, pins, brake shoes, adjuster assembly, spring and strut.
- 2) Disconnect parking brake cable from adjuster lever. Remove "C" washer, adjusting lever and parking brake lever from rear shoe. See Fig. 7.

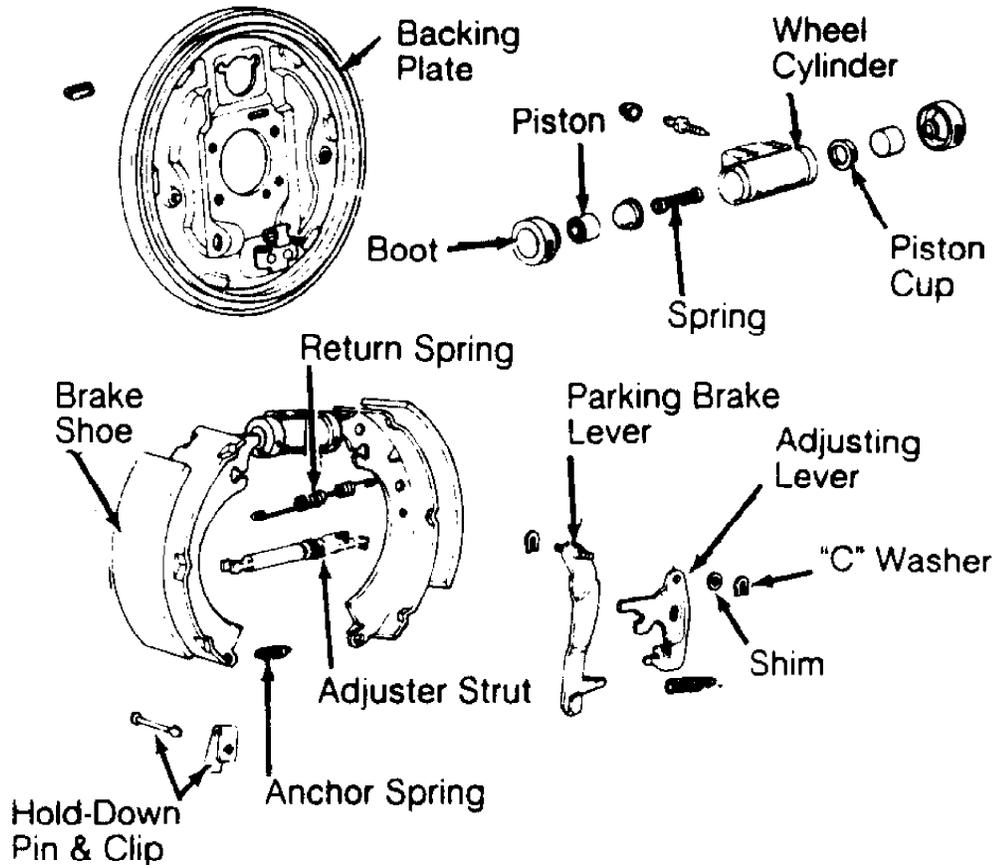


Fig. 7: Exploded View of Typical Duo-Servo Rear Drum Brake
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

INSTALLATION

1) Install adjusting lever and parking brake lever to rear shoe with new "C" washer. Measure clearance between lever and shoe. Remove "C" washer and install shim(s) to provide clearance of 0-.014" (0-.35 mm).

2) Install and stake "C" washer. Complete installation by reversing removal procedure. Adjuster assemblies are not interchangeable. Left-hand thread is for right wheel and right-hand thread is for left wheel. Install drum and bleed hydraulic system.

REAR WHEEL CYLINDER R & I

REMOVAL & INSTALLATION

With brake drum and shoes removed, disconnect hydraulic line from wheel cylinder. Remove mounting bolts and remove wheel cylinder. To install, reverse removal procedure.

REAR AXLE BEARING & OIL SEAL R & I

REMOVAL (COROLLA, 4WD TERCEL)

1) With wheel and brake drum removed, remove 4 backing plate mounting nuts. Using Axle Shaft Puller (09520-00031), remove axle shaft. Maximum shaft runout is .059" (1.5 mm).

2) Maximum flange runout is .004" (.1 mm). Using grinder, grind down inner bearing retainer of axle shaft and cut off with chisel and hammer.

3) Using Adapter (09527-30010 for Corolla with disc brake or 09527-20011 for all others) and press, remove bearing from axle shaft. Use seal puller to remove oil seal from housing. Clean all parts.

INSTALLATION

1) Position outer bearing retainer and new bearing on axle shaft. Using press and Adapter (09515-21010) for Corolla, or Adapter (09515-20010) for Tercel, press bearing onto axle shaft.

2) Heat new inner bearing retainer to 302°F (150°C) in oil bath. While still hot, face non-beveled side toward bearing and press onto axle shaft, using Adapter (09515-21010) for Corolla, or Adapter (09515-20010) for Tercel.

NOTE: When installing hot inner bearing retainer, make sure there is no oil or grease on axle shaft.

3) Use seal driver to install new oil seal in rear axle housing. Set oil seal depth .079" (2.0 mm) for Corolla with disc brakes, .232" (5.9 mm) for Corolla with drum brakes, and .220" (5.6 mm) for Tercel below outer edge of housing.

4) With bearing retainer and gasket assembly on axle shaft, align and position with notches facing down. Install axle shaft into housing and tighten mounting nuts to 44-53 ft. lbs. (60-72 N.m). Complete installation by reversing removal procedures.

MASTER CYLINDER R & I

REMOVAL

On MR2, remove luggage compartment trim cover. On all models, unplug sensor lead (if equipped). Remove brake fluid from reservoir. Disconnect and plug hydraulic lines. Remove nuts holding master cylinder to power assist servo. Remove master cylinder.

INSTALLATION

1) Check and adjust clearance between power assist servo push rod and master cylinder piston if either unit is replaced or overhauled. See Fig. 8. Clearance between push rod of power assist servo and pin head of depth gauge must be zero.

2) If not, adjust male portion of push rod with open end wrench while holding female portion of rod with pliers to obtain operating clearance of .004-.020" (.1-.5 mm) with idle vacuum applied to servo. To install, reverse removal procedures and bleed brake system.

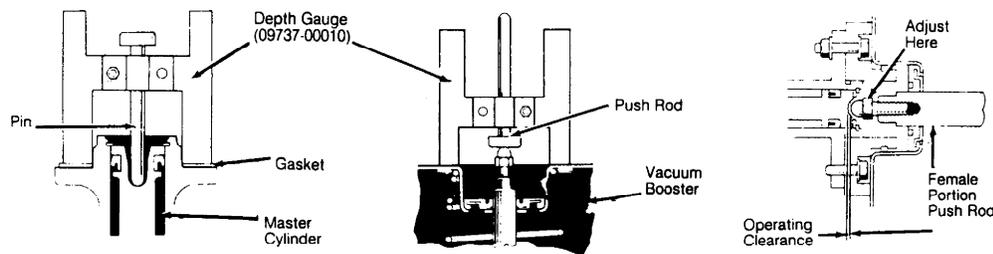


Fig. 8: Measuring Clearance Between Master Cylinder & Power Assist Servo
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

POWER ASSIST SERVO R & I

REMOVAL & INSTALLATION

Remove master cylinder assembly from vehicle. On MR2, remove instrument panel lower trim panel. On all models, disconnect push rod clevis at brake pedal. Remove power booster attaching hardware and booster assembly from vehicle. To install, reverse removal procedure.

LOAD SENSING PROPORTIONING VALVE (LSPV) R & I

REMOVAL

Raise and support vehicle. Disconnect No. 2 shackle from bracket. Disconnect and plug hydraulic lines from LSPV. Remove clip from brake hose. Remove mounting bolts from valve bracket and remove LSPV assembly. Separate valve body from bracket.

INSTALLATION

To install, reverse removal procedure. Apply rubber grease to all rubbing areas. Install new rubber plate on valve body side of spring. Adjust length of upper and lower shackle to original height. Bleed hydraulic system and check brake pressures.

FRONT CALIPER OVERHAUL

NOTE: When overhauling caliper, if cylinder bores are pitted or scored more than light honing will repair, replace entire assembly.

DISASSEMBLY

Remove retainer ring (if equipped) and dust boot. Insert small wooden block between pistons. Apply light air pressure to fluid inlet port to remove piston from cylinder. Remove seal from cylinder without damaging bore.

CLEANING & INSPECTION

Clean all parts in clean brake fluid or alcohol. Inspect bore

and piston for excessive wear or damage. Replace defective parts.

REASSEMBLY

Coat piston, seal and cylinder bore with clean brake fluid or assembly lube. To reassemble, reverse disassembly procedure.

REAR CALIPER OVERHAUL

DISASSEMBLY (CELICA)

Remove sliding bushing and boot. Remove piston from caliper using compressed air in fluid hole to force piston. DO NOT place fingers in front of piston while blowing into caliper with compressed air. Remove caliper boot and retaining ring from cylinder. Remove piston seal from caliper.

CLEANING & INSPECTION

Wash all parts in clean brake fluid or alcohol. Inspect all parts for excessive wear, damage and corrosion. Replace defective parts.

REASSEMBLY

Coat main pin boot, sliding pin and boot, piston seal, piston and dust boot with lithium soap base glycol. Install piston seal and piston into caliper. Install dust boot and retaining ring in caliper. Install sliding bushing and boot. Bushing flange must face toward inside of caliper.

DISASSEMBLY (COROLLA & MR2)

1) Remove sliding bushing and boot. On MR2 model, remove main pin boot. On all models use screwdriver to remove retaining ring and dust boot. Using Piston Spanner (09719-14020), remove piston from bore by turning it clockwise. Remove piston seal from bore of cylinder.

2) Using Spring Compressor (09756-00010) over adjusting bolt, gently tighten spring with 14 mm socket. Remove snap ring from bore of caliper. Remove Spring Compressor.

CAUTION: Always use Spring Compressor (09756-00010) when removing snap ring to prevent involuntary spring disengagement. DO NOT overtighten spring compressor as spring retainer could be damaged.

3) Pull spring retainer, spring, spring plate and stopper out with adjusting bolt connected. DO NOT use excessive force to pry out adjusting bolt. Be very careful of "O" ring on adjusting bolt. Disassemble adjusting bolt by removing retainer, spring, spring plate and stopper. Remove "O" ring from bolt.

4) Remove strut. Remove spring from parking brake lever. Remove parking brake lever from caliper. On Corolla models, turn lever so it will not catch on stop pin. Do not disassemble lever any further. If lever boot is to be replaced, remove it. On MR2, remove cable support bracket and stopper pin.

REASSEMBLY

1) Put lithium soap base glycol grease on main pin, sliding bushing, strut pin, adjusting bolt, piston and all rubber parts. On

MR2 models, install stopper pin. Pin should be .098" (2.5 mm) from caliper to underside of head.

2) Install cable support bracket. On all models, install lever boot. Install lever, ensuring boot aligns with groove in lever seal. On MR2 models, ensure lever clears overlap on caliper. On all models, install spring and ensure that lever touches stopper pin.

3) On Corolla, make sure that clearance between cable support bracket and upper side of lever is .0197-.0275" (.5-.7 mm). Use cable support bracket mount bolt to adjust clearance.

4) On all models, install strut. Ensure needle rollers do not catch on caliper hole. Install new "O" ring on adjusting bolt. Reassemble adjuster bolt with stopper, plate, spring and spring retainer.

5) Use threaded compressor to tighten component parts of adjusting bolt assembly. Ensure that inscribed surface of stopper faces UP and notches of spring case line up with notches on stopper.

6) Install adjusting bolt assembly. Install snap ring with opening toward bleeder side. Remove threaded compressor. Move parking brake lever by hand. Ensure adjusting bolt moves smoothly. Install piston seal in bore of cylinder.

7) Using piston spanner, slowly turn piston clockwise into caliper until it bottoms. Center of piston stopper groove must align with projection on caliper. Place dust boot and retaining ring into caliper. Install sliding bushing and boot. Ensure seal does not fold under piston.

MASTER CYLINDER OVERHAUL

DISASSEMBLY

1) Remove reservoir, hose and switch. Mount cylinder in soft-jawed vise. Push pistons into cylinder bore and remove stop bolt. Remove snap ring and withdraw piston assemblies. Disassemble piston assemblies by removing springs, retainers and cups. See Fig. 9.

CLEANING & INSPECTION

Wash all parts in clean brake fluid or alcohol. Inspect for wear, damage and corrosion. Replace defective parts as necessary.

REASSEMBLY

To reassemble, reverse disassembly procedure using new rubber parts. Ensure "UP" on boot is facing upward. Lubricate all components with clean brake fluid.

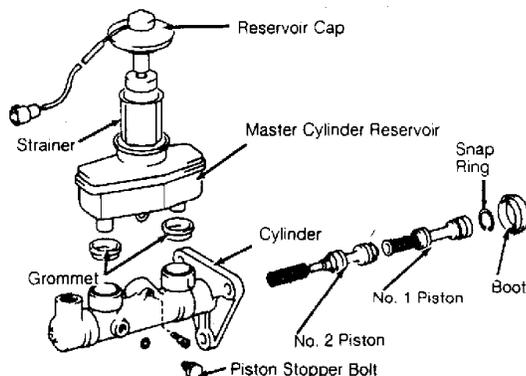


Fig. 9: Exploded View of Typical Master Cylinder Assembly
Courtesy of Toyota Motor Sales, U.S.A., Inc.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Celica	
Cable Support Bracket Bolts	34 (46)
Caliper Guide Bolts (Front & Rear) .	12-17 (16-23)
Caliper Support Bracket Bolts	58-75 (77-102)
Hub-to-Rotor Bolts	40-54 (54-73)
Lower Arm-to-Crossmember	51-65 (69-88)
Lower Arm-to Steering Knuckle	
Master Cylinder Outlet Plugs	33 (44)
Parking Brake Adjusting Nuts	12 (16)
Reservoir Mounting Bolt	18 (25)
Reservoir Union Bolt	40 (54)
Stabilizer Bar	66-90 (89-122)
Steering Knuckle-to-Shock	
Strut Bar	64 (87)
Tie Rod End	36 (49)
Corolla	
Cable Support Bracket Bolts	34 (46)
Caliper Guide Bolts	14 (20)
Caliper Support Bracket Bolts	
Front	47 (64)
Rear	34 (46)
Hub-to-Rotor Bolts	47 (64)
Lower Arm-to-Crossmember	51-65 (69-88)
Lower Arm-to Steering Knuckle	59 (80)
Master Cylinder Outlet Plugs	33 (44)
Parking Brake Adjusting Nuts	12 (16)
Reservoir Mounting Bolt	18 (25)
Reservoir Union Bolt	40 (54)
Stabilizer Bar	66-90 (89-122)
Steering Knuckle-to-Shock	105 (142)
Strut Bar	64 (87)
Tie Rod End	36 (49)
MR2	
Cable Support Bracket Bolts	34 (46)
Caliper Support Bracket Bolts	
Front	65 (88)
Rear	43 (58)
Caliper Guide Bolts	
Front	18 (25)
Rear	14 (20)
Hub-to-Rotor Bolts	
Front	65 (88)
Rear	43 (58)
Lower Arm-to-Crossmember	51-65 (69-88)
Lower Arm-to Steering Knuckle	
Master Cylinder Outlet Plugs	33 (44)
Parking Brake Adjusting Nuts	12 (16)
Reservoir Mounting Bolt	18 (25)
Reservoir Union Bolt	40 (54)
Stabilizer Bar	66-90 (89-122)
Steering Knuckle-to-Shock	
Strut Bar	64 (87)
Tie Rod End	36 (49)
Tercel	
Cable Support Bracket Bolts	34 (46)

Caliper Support Bracket Bolts	65 (88)
Caliper Guide Bolts	18 (25)
Hub-to-Rotor Bolts	29-39 (39-53)
Lower Arm-to-Crossmember	51-65 (69-88)
Lower Arm-to Steering Knuckle	
Master Cylinder Outlet Plugs	33 (44)
Parking Brake Adjusting Nuts	12 (16)
Reservoir Mounting Bolt	18 (25)
Reservoir Union Bolt	40 (54)
Stabilizer Bar	66-90 (89-122)
Steering Knuckle-to-Shock	
Strut Bar	64 (87)
Tie Rod End	36 (49)

INCH Lbs. (N.m)

Bleeder Plug	72 (8)
Brake Booster Mounting Nuts	108 (13)
Line-to-Wheel Cylinder	132 (15)
Master Cylinder Brake Hoses	132 (15)

DISC BRAKE ROTOR SPECIFICATIONS

DISC BRAKE ROTOR SPECIFICATIONS TABLE

Application	In. (mm)
Disc Diameter .....	...
Lateral Runout	
Celica	
Front	
w/o ABS .....	.006 (.15)
w/ABS .....	.006 (.15)
Rear .....	.006 (.15)
Corolla	
Front .....	.006 (.15)
Rear .....	.006 (.15)
Corolla FX	
Front	
w/4 A-GE Engine .....	.006 (.15)
w/4 A-C Engine .....	.006 (.15)
Rear .....	.006 (.15)
MR2	
Front .....	.005 (.13)
Rear .....	.006 (.15)
Tercel .....	.006 (.15)
Parallelism .....	...
Original Thickness	
Celica	
Front	
w/o ABS .....	.866 (25)
w/ABS .....	.984 (25)
Rear .....	.394 (10)
Corolla	
Front .....	.709 (18)
Rear .....	.394 (10)
Corolla FX	
Front	
w/4 A-GE Engine .....	.709 (18)
w/4 A-C Engine .....	.531 (13.5)
Rear .....	.354 (9)

MR2		
Front	.....	.866 (22)
Rear	.....	.394 (10)
Tercel	.....	.433 (11)
Min. Refinish Thickness	.....	...
Discard Thickness		
Celica		
Front		
w/o ABS	.....	.827 (21)
w/ABS	.....	.945 (24)
Rear	.....	.354 (9)
Corolla		
Front	.....	.669 (17)
Rear	.....	.354 (9)
Corolla FX		
Front		
w/4 A-GE Engine	.....	.669 (17)
w/4 A-C Engine	.....	.492 (12.5)
Rear	.....	.315 (8)
MR2		
Front	.....	.827 (21)
Rear	.....	.354 (9)
Tercel	.....	.394 (10)

DRUM BRAKE SPECIFICATIONS

DRUM BRAKE SPECIFICATIONS TABLE

Application	In. (mm)
Drum Diameter	
Celica, Corolla & Tercel Wagon	..... 7.87 (200)
Tercel Sedan	..... 7.09 (180)
MR2	..... 9 (228.6)
Drum Width	.....
Max. Drum Refinish Thickness	
Celica, Corolla & Tercel Wagon	..... 7.91 (201)
Tercel Sedan	..... 7.13 (181)
MR2	..... 9.079 (230.6)
Wheel Cyl. Diameter	.....
Master Cyl. Diameter	.....
