

CLUTCH

1998 Mitsubishi Galant

1997-98 CLUTCHES
Mitsubishi FWD & AWD

Eclipse, Galant, Mirage, 3000GT

DESCRIPTION

All clutches are single-disc type. Pressure plate assembly uses a diaphragm spring to engage pressure plate to clutch disc and flywheel. A hydraulic clutch system is used.

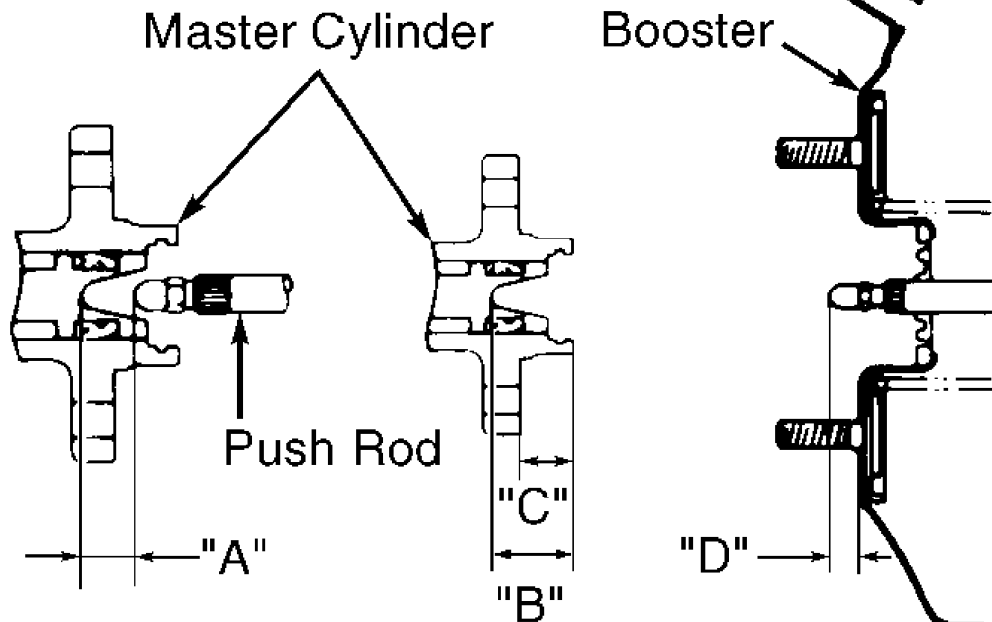
ADJUSTMENTS

CLUTCH BOOSTER PUSH ROD (3000GT AWD)

1997

Check and adjust clearance between back of clutch master cylinder and clutch booster push rod. See Fig. 1. Dimension "A" should be .0083-.0181" (.210-.460 mm). Rotate push rod to adjust clearance. Apply 19.7 in. Hg (66.7 kPa) of vacuum to booster. Dimension "A" should be .0039-.0118" (.100-.300 mm). After adjusting push rod clearance, adjust pedal height and bleed hydraulic system.

Push Rod Clearance "A"
"A" = "B" - "C" - "D"



90G00543

Fig. 1: Adjusting Clutch Booster Push Rod Clearance (3000GT AWD)
Courtesy of Mitsubishi Motor Sales of America.

1998

1) Install Push Rod Adjusting Gauge (MB991714) on clutch

master cylinder. Adjust shaft on adjusting gauge so it lightly contacts piston in master cylinder.

2) Lock shaft on adjusting gauge using wing nut. Using a hand-held vacuum gauge, apply about 19.7 in. Hg (66.7 kPa) to clutch booster. Turn adjusting gauge upside down and slowly slide gauge over booster push rod. Booster push rod should barely fit under the adjusting gauge and should slightly retract as it touches gauge, just before the protrusion on the gauge shaft.

3) Adjust clutch booster push rod if it is too short or too long. Ensure push rod extends after adjusting gauge is removed.

CLUTCH PEDAL DEPRESSED HEIGHT

Remove carpet. On 3000GT AWD, start engine. On all models, depress clutch pedal to floor. Measure depressed height between pedal face and bulkhead. See CLUTCH PEDAL SPECIFICATIONS table. If measurement is not as specified, bleed hydraulic system. If depressed height is still not correct, check master cylinder, release cylinder and clutch stop.

CLUTCH PEDAL FREE PLAY

On 3000GT AWD, ensure engine is off. Depress pedal 2-3 times to eliminate clutch booster vacuum. On all models, depress clutch pedal by hand until resistance is felt. Check clutch pedal free play. See CLUTCH PEDAL SPECIFICATIONS table. See Fig. 2. If clutch pedal free play and pedal height are okay and system fails to operate, defective system components exist.

CLUTCH PEDAL HEIGHT

1) Remove carpet. Measure clutch pedal height between pedal face and bulkhead. If equipped with a cruise control system, disconnect clutch pedal switch connector. Loosen adjusting bolt or clutch pedal switch lock nut located at upper end of clutch pedal. See Fig. 2.

2) Rotate adjusting bolt or switch until correct pedal height is obtained. See CLUTCH PEDAL SPECIFICATIONS table. After adjusting pedal height, adjust clutch pedal position switch so that switch is engaged with clutch pedal released.

CLUTCH PEDAL INTERLOCK SWITCH

Remove carpet. Depress clutch pedal, by hand, to its full-stroke position. Gradually release clutch pedal from its full-stroke position until interlock switch clicks. Measure distance of travel between pedal face and bulkhead. Travel distance should be .394-.591" (10-15 mm). If distance is not correct, disconnect interlock switch connector. Loosen lock nut. Rotate interlock switch until correct travel distance is obtained.

CLUTCH PEDAL STROKE

3000GT AWD

Remove carpet. Measure clutch pedal stroke between pedal face and bulkhead. Rotate clutch master cylinder or clutch booster (AWD) push rod until correct pedal stroke is obtained. See CLUTCH PEDAL SPECIFICATIONS table.

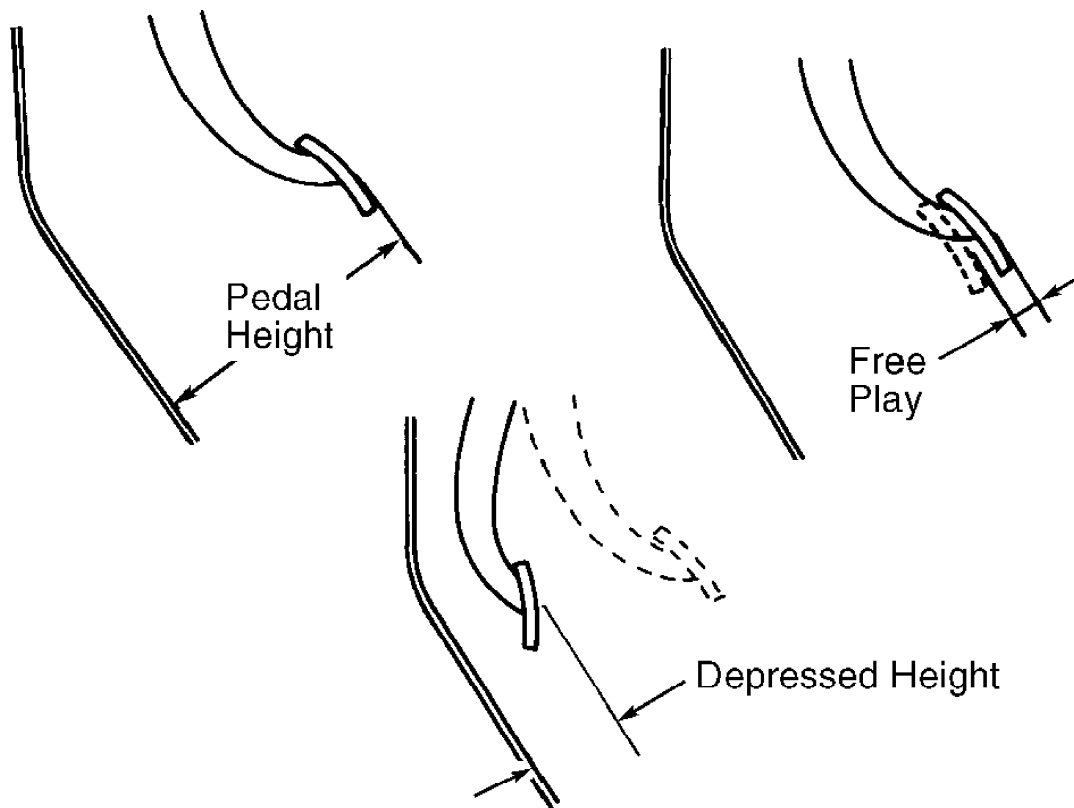
CLUTCH PEDAL SPECIFICATIONS

Application

In. (mm)

Eclipse & Galant	
Free Play	.24-.51 (6-13)
Pedal Height	
Pedal Depressed (1)	
Eclipse	2.76 (70)
Galant	1.97 (50)
Pedal Released	7.0-7.1 (177-180)
Mirage	
Free Play	.24-.51 (6-13)
Pedal Height	
Pedal Depressed (1)	
Pedal Released	6.43-6.55 (164-167)
3000GT	
Disengagement Height (1)	2.2 (56)
Free Play	
FWD	.24-.51 (6-13)
AWD	.49-.79 (12-20)
Pedal Height	
FWD	6.97-7.17 (177-182)
AWD	7.20-7.40 (183-188)
Pedal Stroke	6.29 (160)

(1) - Specification given is minimum distance.



97G04242

Fig. 2: Adjusting Clutch Pedal (Typical)
 Courtesy of Mitsubishi Motor Sales of America.

TESTING

CLUTCH BOOSTER

NOTE: Check valve is press fit into vacuum hose. DO NOT remove check valve from vacuum hose. If check valve is faulty, replace check valve and vacuum hose as an assembly.

3000GT AWD

1) Start engine and operate at idle for 1-2 minutes. Turn engine off. Depress clutch pedal several times. If depressed pedal height gradually rises with successive pedal strokes, go to next step. If clutch pedal depressed height remains the same on each stroke, inspect clutch booster check valve and vacuum hose, and go to step 4). If check valve and vacuum hose are okay, replace booster.

2) Depress clutch pedal repeatedly until depressed height no longer changes. Depress and hold clutch pedal. Start engine. If pedal moves down slightly, go to next step. If pedal does not move when engine is started, inspect booster check valve and vacuum hose, and go to step 4). If check valve and vacuum hose are okay, replace booster.

3) With engine running, depress and hold clutch pedal. Turn engine off. Hold pedal depressed for 30 seconds. If pedal height does not change, booster is okay. If pedal height rises, inspect booster check valve and vacuum hose, and go to next step. If check valve and vacuum hose are okay, replace booster.

4) Remove booster vacuum hose from manifold and air line. Ensure air flows in manifold direction only. Ensure vacuum hose has no cracks or splits. Replace if necessary.

CLUTCH PEDAL INTERLOCK SWITCH

1) Place transmission in Neutral and apply parking brake. Turn ignition switch to START position. Engine should not crank. If engine cranks, adjust or replace interlock switch.

2) Disconnect interlock switch connector. Interlock switch connector is located at clutch pedal. Depress and release interlock switch. Using ohmmeter, check continuity between interlock switch terminals. If continuity does not exist with interlock switch depressed and exists with switch released, switch is okay. Replace if necessary.

CLUTCH PEDAL POSITION SWITCH

Disconnect clutch pedal position switch. Clutch pedal position switch connector is located at clutch pedal. Depress and release clutch pedal position switch. Using ohmmeter, check continuity between clutch pedal position switch terminals. If continuity exists with clutch pedal position switch depressed and does not exist with switch released, switch is okay. Replace if necessary.

REMOVAL & INSTALLATION

CLUTCH ASSEMBLY

CAUTION: DO NOT pull on axle shafts during removal, or damage to shaft assembly will result.

CAUTION: Ensure a pad is inserted between engine support and front deck. Ensure hood weatherstrip is not caught between front deck and pad.

Removal (Eclipse & Galant)

1) Drain transaxle. Remove battery and tray. On Eclipse,

remove battery tray bracket, evaporative canister and bracket. On all models, remove air cleaner and air intake hoses. Remove cruise control actuator and bracket (if equipped). Disconnect speedometer connector, control cables and electrical connections at transaxle.

2) Without disconnecting fluid line, remove clutch release cylinder with fluid line support bracket, and wire aside. Disconnect back-up light harness and starter motor wiring. Remove starter motor. Remove upper transaxle-to-engine bolts. Support engine with Engine Support (MZ203827-01). See Fig. 3.

3) Remove transaxle mount bracket. Raise and support vehicle. Remove front wheels and engine undercover. On models with anti-lock brakes, remove wheel speed sensor. Remove stabilizer bar. Remove strut forks and both lower control arm ball joints from knuckles. Disconnect tie rod ends, and disengage axle shafts and support aside. See AXLE SHAFTS - FRONT article in DRIVE AXLES.

4) Remove bellhousing cover. Support transaxle with jack. Remove remaining transaxle-to-engine bolts. Remove transaxle mount insulator bolt. Slide transaxle assembly to right, and lower unit from vehicle.

5) Insert a clutch alining tool to prevent pressure plate and clutch disc from dropping. Loosen pressure plate bolts gradually in a crisscross pattern to avoid warping pressure plate flange during removal. Remove pressure plate and clutch disc. See Fig. 4.

Inspection

1) Check release bearing and release fork for damage or wear. DO NOT clean release bearing assembly in solvent. Inspect hydraulic system components for fluid leakage. Inspect cylinder dust boot for cracks or deterioration.

2) Inspect pressure plate surface for wear, cracks, and/or discoloration. Measure diaphragm spring ends for wear and uneven height. Replace assembly if height difference between fingers exceeds .02" (.5 mm).

3) Check facing of clutch disc for loose rivets, uneven contact, deterioration, seizure or oil saturation. Measure distance from clutch disc surface to head of rivet. Replace clutch disc if distance is less than .012" (.30 mm). Replace worn or defective components as necessary.

CAUTION: Install clutch disc with manufacturer's stamp mark (located near hub of clutch disc) toward pressure plate.

Installation

1) Using a clutch alining tool, install pressure plate and clutch disc. Tighten bolts evenly in a crisscross pattern to specification. See TORQUE SPECIFICATIONS.

2) Clean release bearing sliding surface. Apply multipurpose grease to release bearing sliding surface. Apply a light amount of grease to input shaft splines. DO NOT allow grease or dirt on clutch disc or pressure plate surface.

3) To install remaining components, reverse removal procedure. Refill all fluids to proper levels. Adjust all control cables, clutch pedal height and free play. See CLUTCH PEDAL HEIGHT and CLUTCH PEDAL FREE PLAY under ADJUSTMENTS.

Removal (Mirage)

1) Remove battery, battery tray and air cleaner assembly. Drain transaxle oil. Disconnect tension rod located above transaxle mounting bracket.

2) Disconnect control cables, speedometer cable and electrical connections at transaxle. Remove clutch release cylinder with line connected and wire aside.

3) Remove starter motor, with harness connected, and wire

aside. Support engine with Engine Support (MZ203827). See Fig. 3. Remove upper transaxle-to-engine bolts and transaxle mounting bracket bolt. Raise and support vehicle. Loosen, but do not remove, nuts on ball joints and tie rod ends. Using Remover (MB991113), separate ball joints and tie rod ends from steering knuckles. Remove nuts and remove ball joints and tie rod ends. Remove stabilizer bar.

4) Disengage axle shafts and wire aside. See AXLE SHAFTS - FRONT article in DRIVE AXLES. DO NOT damage oil seal. Plug shaft openings in transaxle. Remove lower transaxle brackets.

5) Remove bellhousing cover. Support transaxle with jack. Remove remaining transaxle-to-engine bolts. Remove transaxle assembly. Insert a clutch alining tool to prevent pressure plate and clutch disc from dropping during removal.

6) Loosen pressure plate bolts gradually in a crisscross pattern to avoid warping pressure plate flange during removal. Remove pressure plate and clutch disc. See Fig. 4.

Inspection

1) Check release bearing and release fork for damage or wear. DO NOT clean release bearing assembly in solvent. Inspect hydraulic system components for fluid leakage, and cylinder dust boot for cracks or deterioration.

2) Inspect pressure plate surface for wear, cracks, and/or discoloration. Measure diaphragm spring ends for wear and uneven height. Replace assembly if height difference between fingers exceeds .02" (.5 mm).

3) Check facing of clutch disc for loose rivets, uneven contact, deterioration, seizure or oil saturation. Measure distance from clutch disc surface to head of rivet. Replace clutch disc if distance is less than .012" (.30 mm). Replace worn or defective components as necessary.

CAUTION: Install clutch disc with manufacturer's stamp mark (located near hub of clutch disc) toward pressure plate.

Installation

1) Using a clutch alining tool, install pressure plate and clutch disc. Tighten bolts evenly in a crisscross pattern to specification. See TORQUE SPECIFICATIONS.

2) Clean release bearing sliding surface. Apply multipurpose grease to release bearing sliding surface. Apply a light amount of grease to input shaft splines. DO NOT allow grease or dirt on clutch disc or pressure plate surface.

3) To install remaining components, reverse removal procedure. Refill all fluids to proper levels. Adjust all control cables, clutch pedal height and free play. See CLUTCH PEDAL HEIGHT and CLUTCH PEDAL FREE PLAY under ADJUSTMENTS.

Removal (3000GT AWD)

1) Remove air cleaner cover, air hoses and vacuum pipe. Remove air cleaner, intake hose, battery, battery tray and washer tank.

2) Disconnect transaxle control cables and speedometer cable. Raise and support vehicle.

3) Remove both inner fender splash shields. Remove clutch tube bracket and disconnect clutch release cylinder (including clutch damper assembly on FWD models) and wire aside. Support transaxle assembly with jack and disconnect upper transaxle mount. Remove mount, bracket, plug and stoppers.

4) Remove transaxle assembly upper coupling bolts. Disconnect tie rod ends and lower arm ball joints. Remove right support member, starter cover (if equipped) and starter.

5) Remove left side bearing bracket mounting bolts and pry

left axle shaft from transaxle. Wire left axle shaft and inner shaft assembly aside. Pry right axle shaft from transaxle and wire aside.

6) Remove front bank side and rear bank side transaxle stays. Support transaxle assembly with a transmission jack. Remove transaxle assembly lower coupling bolts and lower transaxle from vehicle.

7) Insert a clutch alining tool to prevent pressure plate and clutch disc from falling. Loosen pressure plate bolts gradually in a crisscross pattern to avoid warping pressure plate flange. Remove pressure plate and clutch disc. See Fig. 4.

Inspection

1) Check release bearing and release fork for damage or wear. DO NOT clean release bearing assembly in solvent. Inspect hydraulic system components for fluid leakage. Inspect cylinder dust boot for cracks or deterioration.

2) Inspect pressure plate surface for wear, cracks, and/or discoloration. Measure diaphragm spring ends for wear and uneven height. Replace assembly if height difference between fingers exceeds .02" (.5 mm).

3) Check facing of clutch disc for loose rivets, uneven contact, deterioration, seizure or oil saturation. Measure distance from clutch disc surface to head of rivet. Replace clutch disc if distance is less than .012" (.30 mm). Check clutch damper bracket for scratches or cracks. Replace worn or defective components as necessary.

CAUTION: Install clutch disc with manufacturer's stamp mark (located near hub of clutch disc) toward pressure plate.

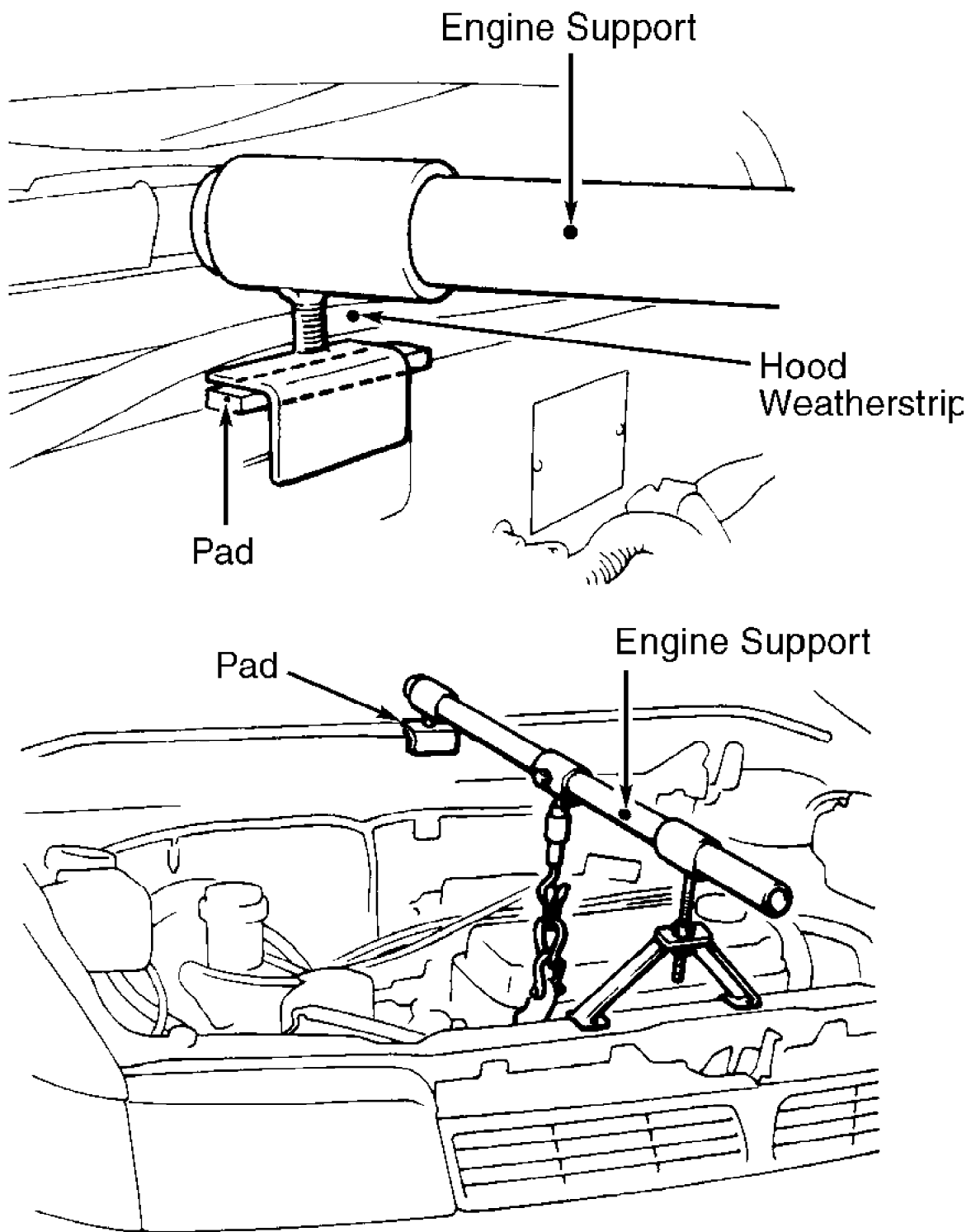
Installation

1) Using a clutch alignment tool, install pressure plate and clutch disc. Tighten bolts evenly in a crisscross pattern to specification. See TORQUE SPECIFICATIONS.

2) Clean release bearing sliding surface. Apply multipurpose grease to release bearing sliding surface. Apply a light amount of grease to input shaft splines. DO NOT allow grease or dirt on clutch disc or pressure plate surface.

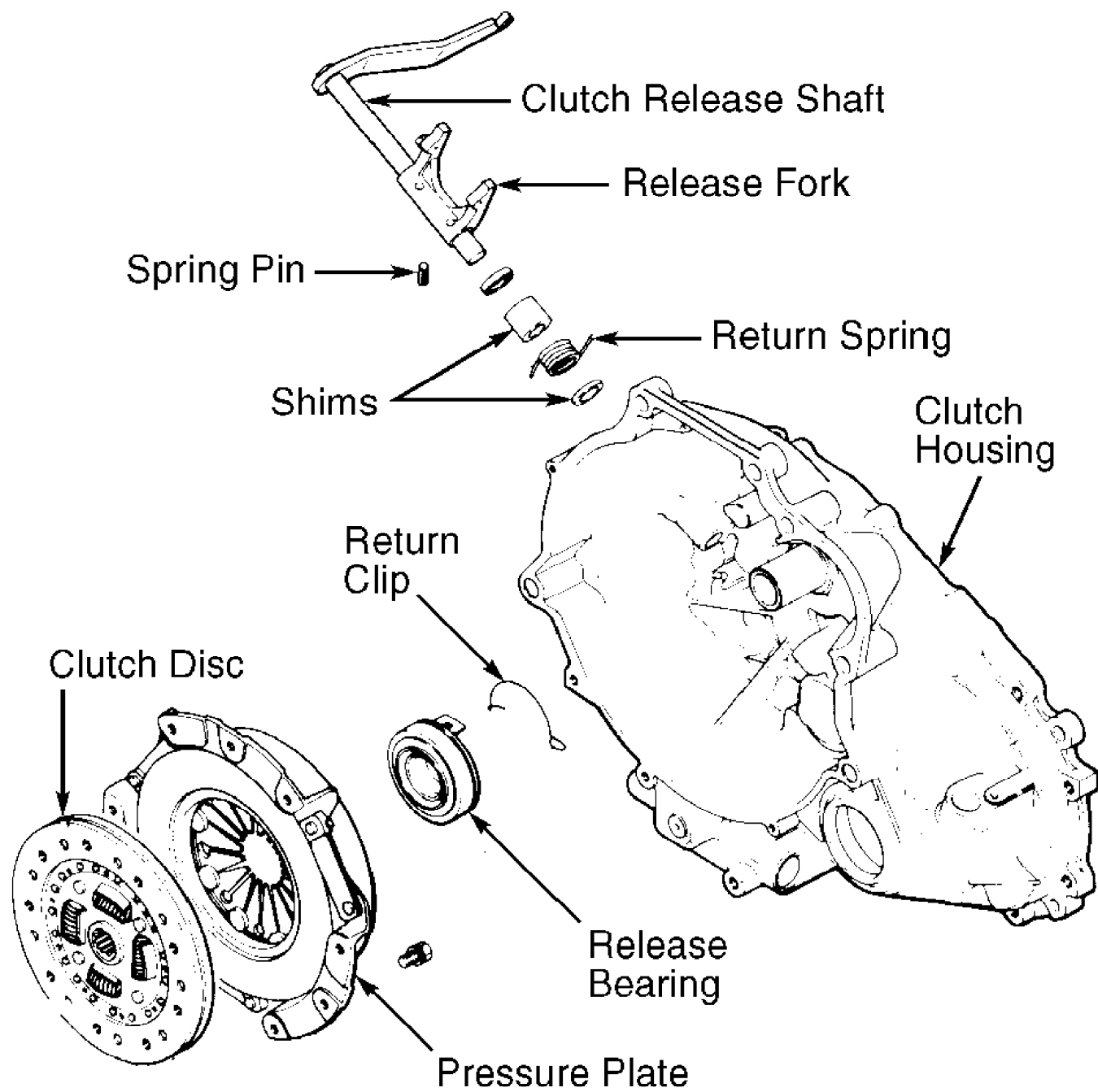
3) To install remaining components, reverse removal procedure. Install mounting stoppers as shown in illustration. See Fig. 5.

4) Reverse removal procedure for remaining components. Refill all fluids to proper levels. Adjust all control cables, clutch pedal height and free play. See CLUTCH PEDAL HEIGHT and CLUTCH PEDAL FREE PLAY under ADJUSTMENTS.



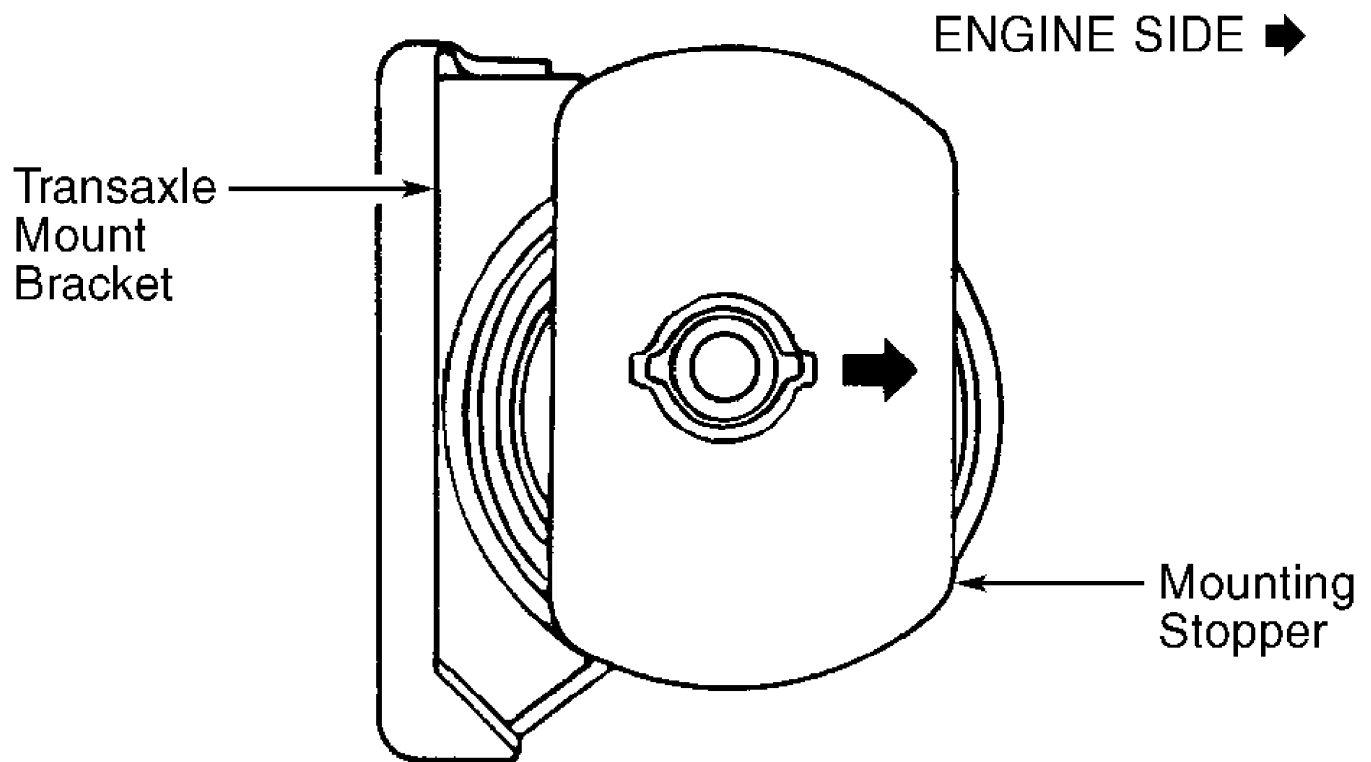
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Fig. 3: Supporting Engine For Clutch Removal (Typical)
Courtesy of Mitsubishi Motor Sales of America.



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Fig. 4: Exploded View Of Clutch Assembly (Typical)
Courtesy of Mitsubishi Motor Sales of America.



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Fig. 5: Installing Transaxle Assembly Mounting Stopper (3000GT)
 Courtesy of Mitsubishi Motor Sales of America.

CLUTCH BOOSTER

CAUTION: Wait at least 60 seconds after disconnecting negative battery cable before removing air bag module mounting nuts. Supplemental Restraint System (SRS) retains enough voltage for a short period after power disruption to deploy air bag.

Removal (3000GT AWD)

1) After setting steering wheel and front wheels to straight-ahead position, remove ignition key. Disconnect negative battery cable. Wait at least 60 seconds and then remove air bag module mounting nut from back of steering wheel. Pull air bag module forward.

CAUTION: When disconnecting air bag module-clock spring connector, take care not to apply excessive force.

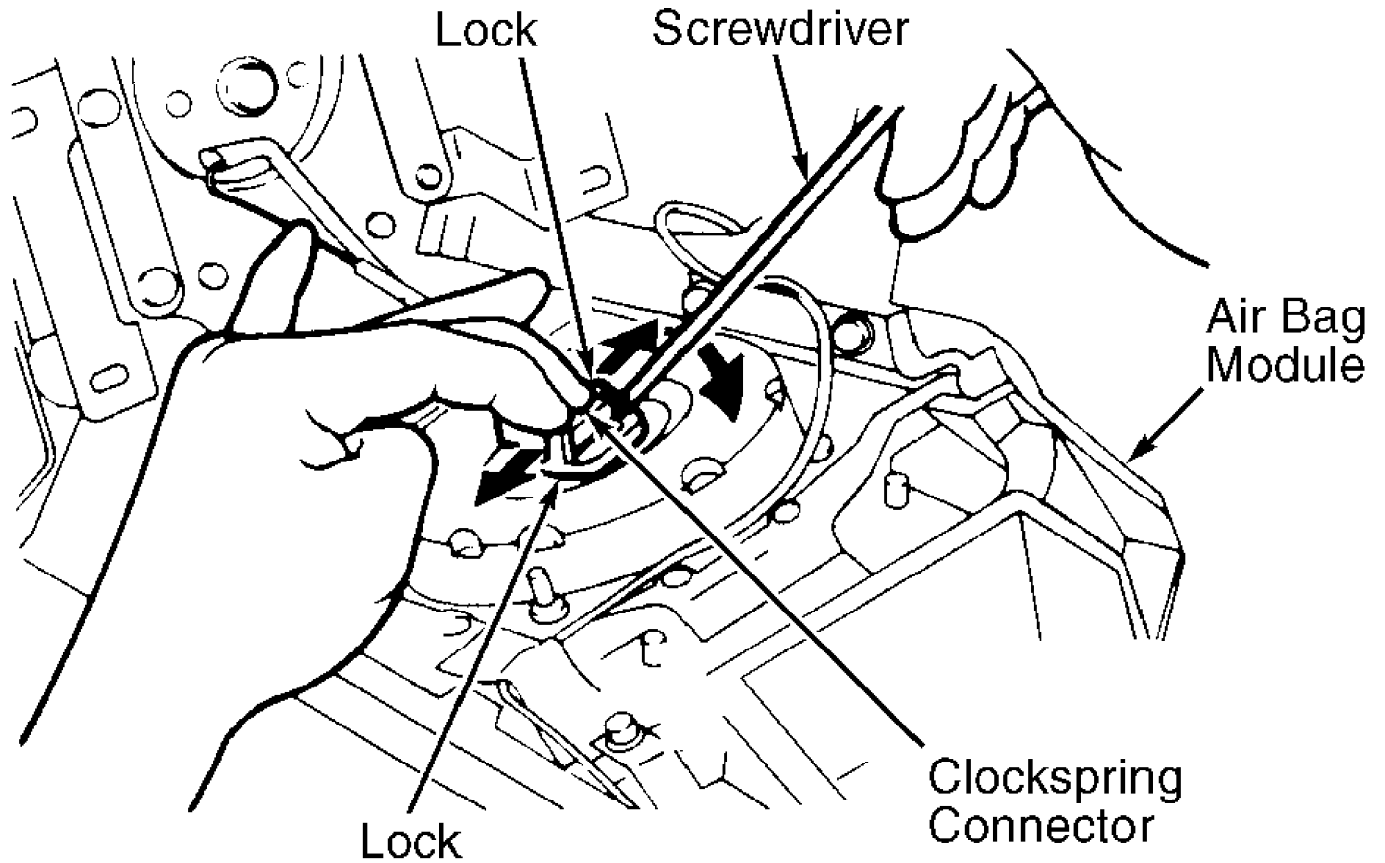
2) When disconnecting clock spring connector from air bag module, press air bag's lock toward outer side to spread it open. Using a screwdriver, pry gently to remove connector. See Fig. 6. Remove air bag module. Store air bag module, with pad cover face up, in a clean, dry place.

3) Using puller, remove steering wheel. DO NOT hammer on steering wheel to remove it. Remove column covers and knee protector. Remove lap cooler duct and foot outlet duct.

4) Remove column switch assembly, key interlock cable and slide lever. Remove steering column assembly. Remove brake master cylinder and brake booster.

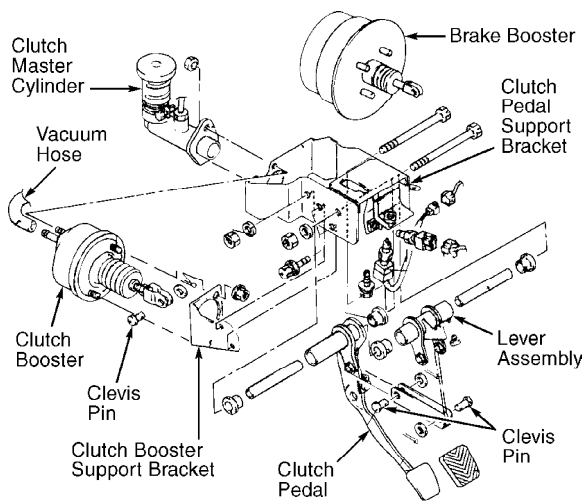
5) Disconnect clutch master cylinder from clutch pedal support bracket. See Fig. 7. Remove all clevis pins and yoke. Remove clutch pedal shaft and clutch pedal. Remove bushing, spacer and lever

assembly. Remove clutch booster support bracket and clutch booster.



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Fig. 6: Disconnecting Clockspring Connector (3000GT)
 Courtesy of Mitsubishi Motor Sales of America.



92C00770

Fig. 7: Exploded View Of Clutch Pedal & Booster (3000GT AWD)
 Courtesy of Mitsubishi Motor Sales of America.

Installation

- 1) To install, reverse removal procedure. Before installing

clutch booster, adjust clutch booster push rod. See CLUTCH BOOSTER PUSH ROD under ADJUSTMENTS.

2) Before installing brake booster, adjust brake booster push rod in similar fashion as clutch booster push rod. See Fig. 1. Dimension "A" for brake booster push rod is .026-.033" (.66-.84 mm). Bleed brake system.

3) Reverse removal procedure for remaining components. Before installing steering wheel, line up NEUTRAL mark on clockspring with mating mark on outer housing. Adjust clutch pedal height and free play. See CLUTCH PEDAL HEIGHT and CLUTCH PEDAL FREE PLAY under ADJUSTMENTS.

4) Turn ignition on from passenger's seat. SRS warning light in instrument cluster should illuminate for approximately 7 seconds and then go out. If SRS warning light fails to come on, remains on, or flashes, a problem exists in SRS. SRS should be serviced as soon as possible.

CLUTCH MASTER CYLINDER

Removal & Installation

1) Drain master cylinder. Disconnect external reservoir (if equipped). Remove lower instrument trim panel (if equipped). Remove cotter pin, washer and clevis pin. Disconnect clutch master cylinder push rod from clutch pedal. Remove hydraulic line at clutch master cylinder and plug openings.

2) Remove retaining nuts and clutch master cylinder. To install, reverse removal procedure. Apply grease to clevis pin before installation. Bleed clutch system. See BLEEDING CLUTCH HYDRAULIC SYSTEM.

CLUTCH RELEASE CYLINDER

Removal & Installation

1) Remove and plug hydraulic line at release cylinder. Remove clip and clevis pin attaching clutch release cylinder push rod to clutch release arm (if equipped). Remove cylinder-to-transaxle bolts and remove clutch release cylinder.

2) To install, reverse removal procedure. Apply grease to clevis pin or push rod-to-release shaft contact area. Bleed clutch system. See BLEEDING CLUTCH HYDRAULIC SYSTEM.

BLEEDING CLUTCH HYDRAULIC SYSTEM

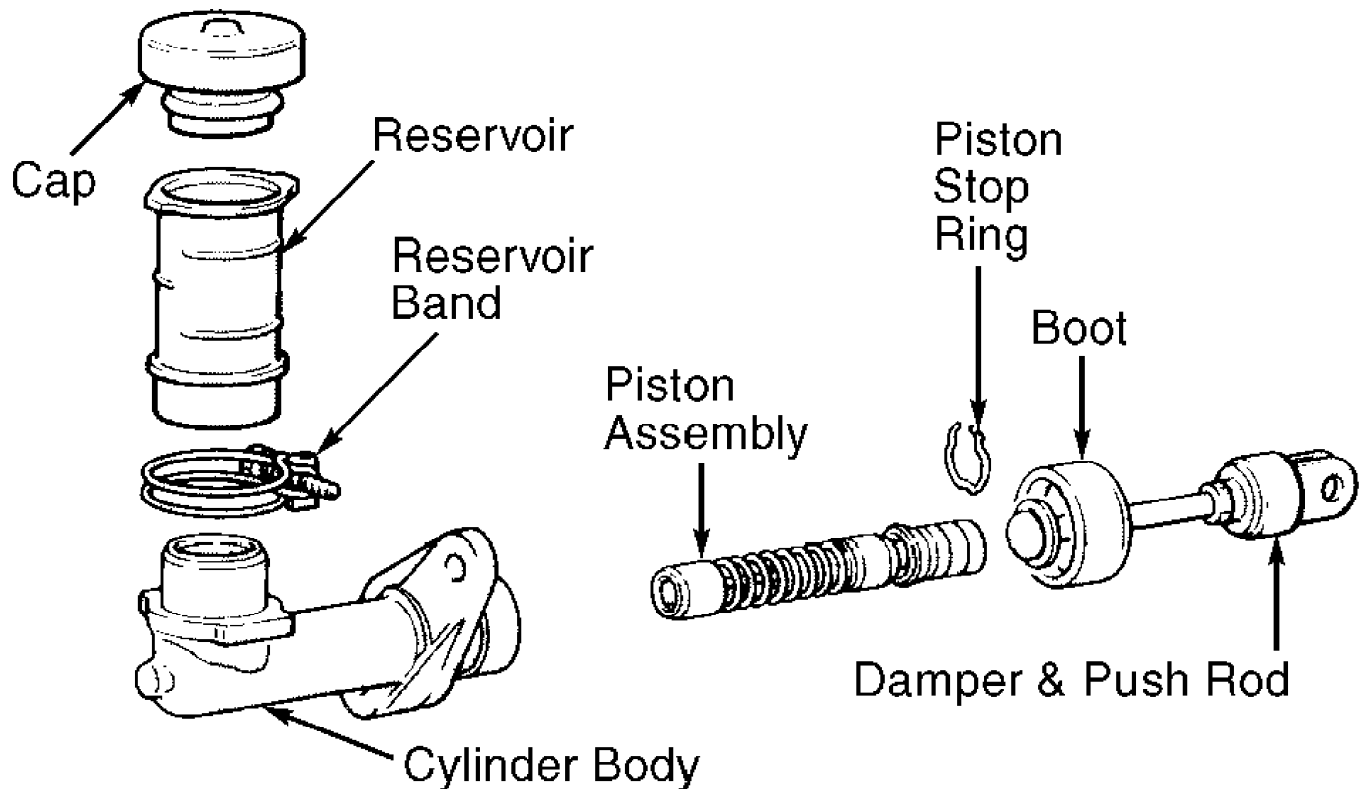
Attach hose to bleeder fitting located on clutch release cylinder, next to hydraulic line. Submerge other end of hose in container half full of clean brake fluid. Fill reservoir with DOT 3 or DOT 4 brake fluid. Open bleeder fitting. Have assistant press clutch pedal to full release position. Close bleeder fitting. Release clutch pedal. Repeat until air bubbles no longer emerge from hose. Refill reservoir.

OVERHAUL

CLUTCH MASTER CYLINDER

Disassembly

Remove piston stop ring, damper and clutch master cylinder push rod assembly. Remove piston assembly. Note position of reservoir band for reassembly reference and remove reservoir. See Fig. 8.



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Fig. 8: Exploded View Of Clutch Master Cylinder (Typical)
 Courtesy of Mitsubishi Motor Sales of America.

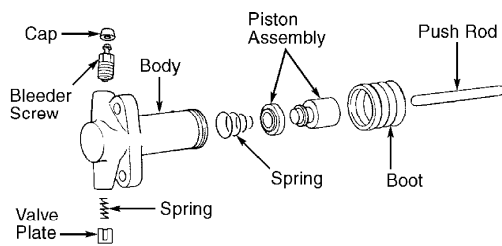
Inspection & Reassembly

Inspect components for rust, scoring or damage. Replace damaged component(s). Apply DOT 3 brake fluid to components during reassembly. Adjust push rod length to 4.80" (122 mm). To reassemble, reverse disassembly procedure. Ensure piston moves freely in bore.

CLUTCH RELEASE CYLINDER

Disassembly

Remove valve plate and spring. See Fig. 9. Remove clutch release cylinder push rod and boot. Cover piston assembly opening with a rag. Slowly apply air pressure to hydraulic line opening to force piston from body.



90D02449
 Fig. 9: Exploded View Of Clutch Release Cylinder (Typical)
 Courtesy of Mitsubishi Motor Sales of America.

Inspection & Reassembly

Inspect components for rust, scoring or damage. Replace

damaged component(s). Apply brake fluid to components during reassembly. To reassemble, reverse disassembly procedure. Ensure piston moves freely in bore.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Clutch Damper Bolts	14 (19)
Engine Mount-To-Transaxle Bolts	
Eclipse, Galant & Mirage	
8-mm	(1)
10-mm	22-25 (30-34)
12-mm	32-39 (43-53)
3000GT	
Upper Mounting Bolt	54 (73)
Lower Mounting Bolt	65 (88)
Flywheel-To-Crankshaft Bolt	
Eclipse & 3000GT	55 (75)
All Others	94-101 (127-137)
Fulcrum Bolt	27 (36)
Pressure Plate-To-Flywheel Bolt	14 (19)
Release Cylinder Bolts	13 (18)
Transfer Case-To-Transaxle Bolt	
3000GT	64 (87)
All Others	40-43 (54-58)
Wheel Lug Nuts	
Eclipse & 3000GT	89-103 (120-140)
All Others	65-80 (88-109)

INCH Lbs. (N.m)

Clutch Booster Mounting Nuts	
3000GT AWD	84-108 (9.5-12.2)
Master Cylinder Mounting Nuts	115 (13)

(1) - Tighten to 84-108 INCH lbs. (9.5-12.2 N.m).