

# CLUTCH

## Article Text

1988 Toyota MR2

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### ARTICLE BEGINNING

#### 1988 CLUTCHES

Toyota

Camry, Celica, Corolla, Land Cruiser, MR2, Pickup, Supra,  
Van, 4Runner

### DESCRIPTION

Clutch is a single, dry disc type using a hydraulically operated master cylinder and clutch housing mounted slave cylinder. On Land Cruiser, slave cylinder is adjustable. On all others, slave cylinder is nonadjustable. Clearance is automatically compensated by internal design of cylinder.

### ADJUSTMENTS

#### PEDAL HEIGHT & FREE PLAY

Rotate pedal stop bolt at top of pedal assembly to adjust pedal height. To adjust free play, loosen lock nut on master cylinder push rod and turn push rod in or out to specified free play. See CLUTCH PEDAL SPECIFICATIONS table. Tighten lock nut.

#### CLUTCH PEDAL SPECIFICATIONS TABLE

AA			
Application	Free Play		Pedal Height
	In. (mm)		In. (mm)
Camry .....	.2-.6 (5-15)	.....	7.7 (196)
Celica .....	.2-.6 (5-15)	.....	6.2 (157)
Corolla			
FX .....	.2-.6 (5-15)	.....	6.1 (155)
All Others .....	.2-.6 (5-15)	.....	5.9 (150)
Land Cruiser			
With Booster .....	.59-1.2 (15-30)	.....	7.1 (180)
Without Booster .....	.51-.91 (13-23)	.....	7.5 (190)
MR2 .....	.2-.6 (5-15)	.....	6.2 (157)
Pickup & 4Runner .....	.2-.6 (5-15)	.....	5.7 (145)
Supra .....	.2-.6 (5-15)	.....	6.3 (160)
Van .....	.2-.6 (5-15)	.....	6.9 (175)
AA			

#### CLUTCH FORK FREE PLAY

Land Cruiser

Clutch fork free play is distance slave cylinder push rod moves before moving clutch fork. To adjust free play, loosen lock nut at slave cylinder. Turn push rod tip while holding push rod nut with wrench. Free play should be .16-.20" (4.0-5.0 mm). Tighten lock nut and recheck.

## REMOVAL & INSTALLATION

### CLUTCH ASSEMBLY

#### Removal (RWD Except MR2)

1) Disconnect battery cable. Remove air cleaner. Drain cooling system. Remove upper radiator hose. On Land Cruiser, remove cowl side trim, heater duct on transmission hump and front carpet or mat. Remove transfer case levers.

2) On all models, remove shift lever boot, shifter assembly and starter. Raise and support vehicle. Remove protective cover from under engine (if equipped). Remove clutch slave cylinder with hydraulic line connected.

3) Disconnect front exhaust pipe from manifold and converter. Remove exhaust pipe from vehicle. Disconnect speedometer cable and electrical leads from transmission. Remove drive shaft(s). Insert plug into extension housing to prevent oil spillage.

4) Support engine. Support transmission with transmission jack. Remove rear support crossmember. Remove transmission-to-engine bolts. Pull transmission (including transfer case on Land Cruiser) to rear. Lower and remove transmission from vehicle.

5) Mark pressure plate and flywheel for reassembly reference. Alternately loosen pressure plate attaching bolts until pressure plate is released. Remove clutch disc and pressure plate.

#### Removal (FWD)

1) Remove negative battery cable. Remove air cleaner. Disconnect back-up light switch connector. Remove speedometer cable. Disconnect shift control cables. Remove water inlet. Remove clutch slave cylinder. Remove engine undercover.

2) Remove exhaust pipe assembly. Disconnect front and rear engine/transaxle mount. Remove engine/transaxle crossmember. Disconnect drive shafts from transaxle. Disconnect left steering knuckle from lower control arm. Remove left drive shaft. See FWD AXLE SHAFTS & CV JOINTS in DRIVE AXLES section.

3) Remove starter. Disconnect ground strap. Remove engine rear plate. Raise engine and transaxle slightly. Remove left engine mount. Remove bolts attaching engine to transaxle. Lower engine and remove transaxle.

4) Mark pressure plate and flywheel for reassembly reference. Loosen pressure plate attaching bolts alternately until pressure plate

is released. Remove clutch disc and pressure plate.

#### Removal (MR2)

1) Remove negative battery cable. Drain gear oil. Disconnect back-up light switch connector. Remove speedometer cable. Remove water inlet. Remove engine undercover. Remove fuel tank protector.

2) Disconnect control cable. Remove control cable bracket and clutch release cylinder. Remove exhaust pipe assembly. Disconnect drive shaft from side gear shaft. Remove starter. Remove engine rear plate.

3) Remove front and rear engine mount. Remove left engine mount. Disconnect transaxle bolts from engine. Lower engine left side and remove transaxle. Remove side gear shaft from transaxle.

4) Mark pressure plate and flywheel for reassembly reference. Loosen pressure plate attaching bolts alternately and evenly until pressure plate is released. Remove clutch disc and pressure plate.

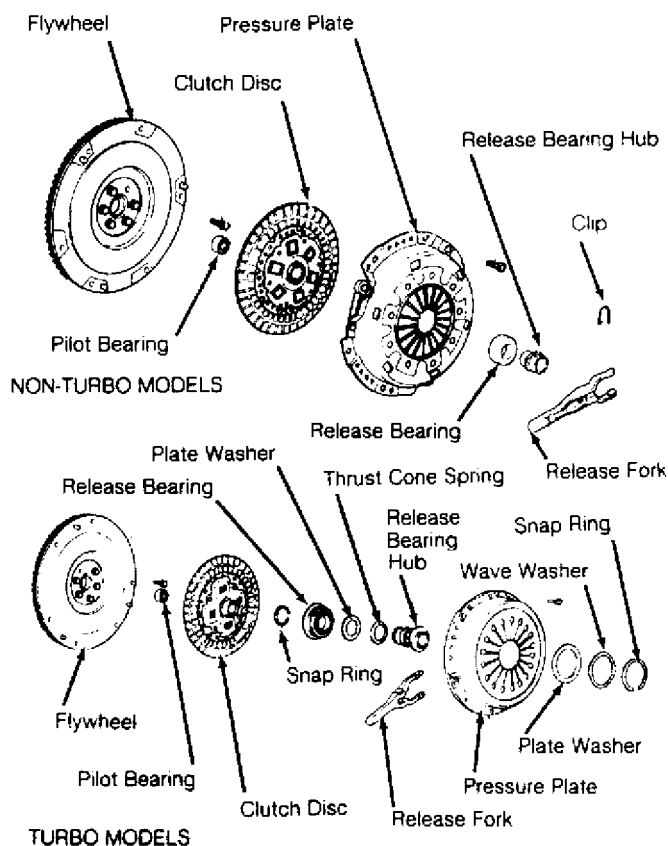


Fig. 1: Exploded View of Clutch Assemblies  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

#### Inspection (All Models)

1) Check wear on facings of clutch disc by measuring depth of each rivet head. Minimum depth at any rivet is .012" (.30 mm). Maximum **CLUTCH**

runout of clutch disc facing is .031" (.79 mm). Replace clutch disc if not within specification.

2) Check diaphragm spring and pressure plate for wear or damage. If the assembly is excessively worn or damaged, replace pressure plate. Check pilot bearing rotation. If roughness is felt, replace bearing. Inspect flywheel runout.

3) Maximum runout is .004" (.1 mm). If runout is excessive, replace flywheel. Clean flywheel and pressure plate of all oil, grease, and metal deposits. Inspect for damage, cracks or warpage. Slight surface scoring can be removed with sandpaper. Replace or repair as necessary.

#### Installation (All Models)

1) Use aligning tool to center clutch disc on flywheel. Tighten pressure plate bolts alternately and evenly in a diagonal pattern to specification. Tighten bolt near 3 upper dowel pins first.

2) Use feeler gauge and Diaphragm Aligner (09302-20021) to measure gap between spring tips and tool. If gap exceeds .020" (.50 mm), use Adjuster (09301-00012) to align springs. See Fig. 2.

3) Apply molybdenum disulphide grease to release fork contact surfaces, release bearing and hub, and clutch disc splines. Reverse removal procedure to complete installation.

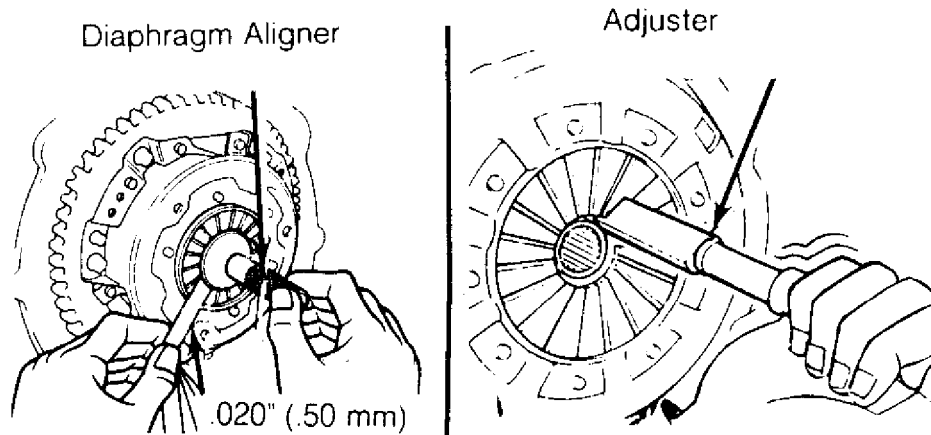


Fig. 2: Diaphragm Spring Tip Alignment Check  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

## CLUTCH MASTER CYLINDER

### Removal & Installation

1) On Van models, disconnect negative battery cable. Remove the 5 instrument cluster finish panel retaining screws and remove panel. Remove the 4 combination meter retaining screws.

2) Disconnect speedometer cable and wiring connectors. Remove combination meter. Remove air duct. On Camry, remove lower instrument panel. On all models, disconnect master cylinder push rod at clutch pedal. Disconnect hydraulic line at cylinder.

3) Remove cylinder from firewall. To install, reverse removal procedure. Adjust pedal height and free play. See ADJUSTMENTS in this article. Bleed hydraulic system.

## CLUTCH RELEASE BEARING

### Removal & Installation

1) Remove transmission or transaxle. Check release bearing for freedom of rotation. To remove bearing, disconnect retaining clips from bearing collar and remove.

2) Replace bearing if necessary. Press new bearing on sleeve. Lightly grease all contact surfaces. To install, reverse removal procedure.

## PILOT BEARING

### Removal & Installation

Remove pilot bearing from crankshaft with Bearing Puller (09303-3011). Coat new bearing with multipurpose grease and drive into crankshaft with Bearing Driver (09304-30012).

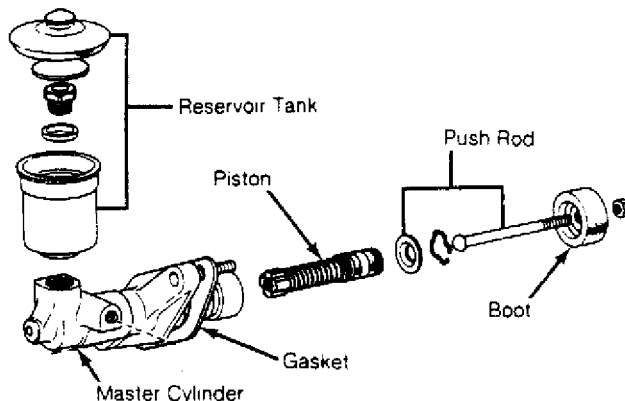


Fig. 3: Exploded View of Typical Clutch Master Cylinder  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

## OVERHAUL

CLUTCH MASTER CYLINDER

Disassembly

Remove master cylinder. Remove hold-down bolt and reservoir. Pull back boot and remove snap ring on push rod. Remove piston, push rod, cup and remaining internal components. See Fig. 3.

Reassembly

Clean all parts that are to be reused. Inspect for wear or damage. Coat cylinder cups with lithium soap base glycol grease. Reassemble components in reverse order of disassembly.

CLUTCH SLAVE CYLINDER

Disassembly & Reassembly

- 1) Remove slave cylinder. Remove rubber boot and push rod. Remove piston assembly and spring. Remove bleeder screw.
- 2) Clean all parts that are to be reused. Inspect for wear or damage. Coat piston with lithium soap base glycol grease. Reassemble components in reverse order of disassembly.

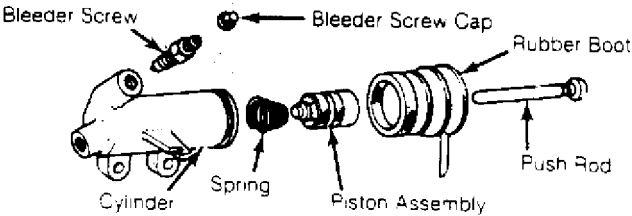


Fig. 4: Exploded View of Slave Cylinder  
Courtesy of Toyota Motor Sales, U.S.A., Inc.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE	
AA	
Application	Ft. Lbs. (N.m)
Pressure Plate Bolts .....	14 (19)
Transmission-to-Engine Bolts	
Land Cruiser	
17 mm Bolts .....	53 (72)
14 mm Bolts .....	47 (64)
Pickup, Van & 4Runner .....	53 (72)
All Other Models	
12 mm Bolts .....	47 (64)
10 mm Bolts .....	34 (46)
AA	

**END OF ARTICLE**