TRIUMPH

Spitfire
TR6
TR7

DESCRIPTION

Clutch is dry, single plate, diaphragm spring type. Clutch actuation is hydraulic, using a firewall mounted master cylinder and a clutch housing-mounted slave cylinder. Due to self-adjusting feature of clutch assembly, no adjustment, with the exception of bleeding hydraulic system, is necessary.

REMOVAL & INSTALLATION

CLUTCH ASSEMBLY

Removal, TR6 & Spitfire – 1) Raise vehicle and support with jack stands. Disconnect battery. On TR6 models only, remove front seats and mounting hardware. Remove gear shift lever and transmission tunnel cover.

2) Disconnect drive shaft from transmission flange, and speedometer cable from extension housing. Disconnect exhaust pipe from support bracket. Remove slave cylinder but do not disconnect hydraulic line.

3) Remove gearshift lever extension housing and cover hole in transmission. Remove bolts attaching transmission to support, raise engine and transmission assembly, and remove support crossmember. Disconnect and remove starter.

4) Remove bolts mounting clutch housing and remove as an assembly. Mark pressure plate and flywheel for reassembly reference, then alternately and evenly loosen bolts mounting clutch assembly to flywheel. Remove clutch assembly.

Installation – Center clutch disc on flywheel using a suitable alignment tool, then install pressure plate and tighten attaching bolts evenly. To complete installation, reverse removal procedure.

Removal, TR7 – 1) Raise and support vehicle, then disconnect battery. Remove gear shift lever assembly. Remove transmission tunnel cover, if equipped. Index mark and separate drive shaft from transmission. Disconnect entire exhaust system and remove those brackets that may interfer with removal process.

2) Disconnect speedometer cable and all electrical wires that are attached to transmission. Remove support tie-bar that attaches to rear mounting member and in front to support. Disconnect and remove restraint cable from bracket on transmission. Place a jack under oil pan to support engine.

3) Remove, in order, the following: engine rear stabilizer, transmission rear mount, starter, and upper clutch housing bolts. Remove wiring harness and slave cylinder, only disconnect slave cylinder if necessary. Take out remaining clutch housing mounting bolts and remove clutch housing and transmission as an assembly.

4) Separate clutch housing and index mark pressure plate and flywheel. Remove pressure plate bolts evenly and alternately until all pressure is off clutch disc.

Installation – To install, reverse removal procedure and note the following: Ensure index marks on clutch assembly match with those on flywheel. Make sure engine rear stabilizer is properly adjusted. Adjust restraint cable as follows: Loosen front nut at rear of cable, then tighten rear nut to 5-8 ft. lbs. (.69-1.1 mkg) to settle cable into position. Loosen rear nut and holding cable with fingers, position rear nut so a clearance of .031-.063" (.79-1.6 mm) clearance exists between cable and bracket, tighten front nut.

CLUTCH MASTER CYLINDER

Removal – Drain hydraulic system through slave cylinder bleeder screw. Pull back rubber boot (if equipped) and remove clevis pin securing master cylinder push rod to clutch pedal. Disconnect hydraulic line at cylinder. Remove bolts securing master cylinder to mounting bracket and remove cylinder.

Installation – To install, reverse removal procedure and bleed hydraulic system.

CLUTCH SLAVE CYLINDER

Removal – Drain hydraulic system through slave cylinder bleeder screw. Disconnect hydraulic line from cylinder, disconnect push rod from clutch fork, and remove slave cylinder.

Installation – To install, reverse removal procedure and bleed hydraulic system.

CLUTCH RELEASE BEARING

Spitfire – With transmission assembly removed, remove clutch fork pivot pin and remove fork and bearing assembly. Drive pins from fork and remove bearing and sleeve. Using a suitable press, remove bearing from sleeve. To install, reverse removal procedure. Lubricate all bearing contact points with multi-purpose grease.

TR6 – With transmission removed, remove lock bolt securing clutch fork to clutch fork shaft and withdraw shaft. Remove fork and bearing and sleeve assembly. Using a suitable press, remove bearing from sleeve. To install, reverse removal procedure. Safety wire clutch fork shaft lock bolt.

TR7 – With transmission removed, use suitable tool (ST 1136) and unscrew clutch release lever pivot bolt from clutch housing. Pull release lever, complete with pivot bolt and release bearing, out of clutch housing. Separate release lever from bearing.

PILOT BUSHING

Bushing to support transmission input shaft is located in flywheel end of crankshaft. If bushing is worn or damaged, remove using a suitable puller. Lubricate new bushing with multi-purpose grease and install using a suitable driver.

OVERHAUL

CLUTCH MASTER CYLINDER

Disassembly, TR6 & Spitfire – 1) Slide rubber boot up push rod sufficiently and remove snap ring, push rod, and washer. Remove piston, spring and seal assembly. *NOTE – Removal is made easier if compressed air is applied to fluid outlet port of cylinder.*

2) Straighten prong of spring retainer and remove retainer and spring from piston. Remove valve stem from keyhole slot in retainer. Remove valve seal and spacer from valve stem. Remove seal from piston.

TRIUMPH (Cont.)

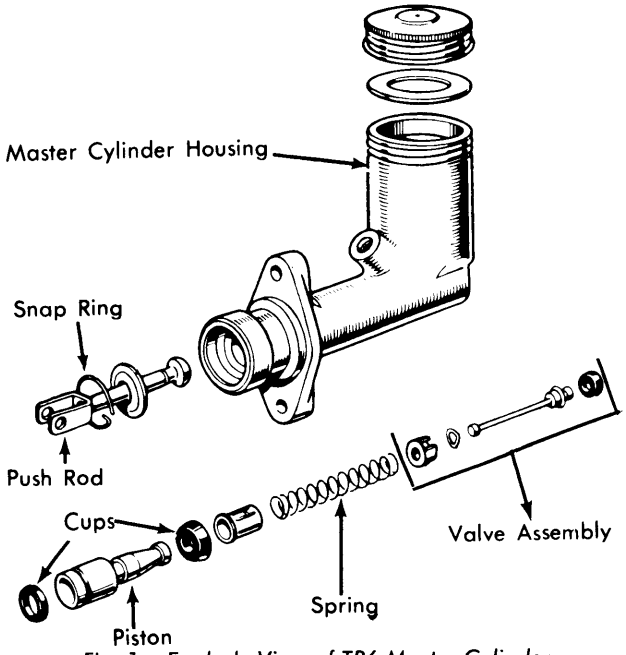

Fig. 1 Explode View of TR6 Master Cylinder

Reassembly – 1) Install a new seal on valve stem, and install spacer, spring, and spring retainer. Install a new seal on piston with seal lip facing spring. Install spring retainer on piston and carefully depress retainer prong.

2) Lubricate bore of cylinder with clean brake fluid and install seal assembly, spring and piston. Install a new rubber boot on push rod, and install push rod, washer, and snap ring into cylinder. Slide rubber boot into position on cylinder.

Disassembly, TR7 – Slide dust boot free of mounting flange and with push rod exposed, disengage snap ring. Remove boot and push rod. Withdraw piston and rear cup seal, front cup, seal and washer, spring and spring retainer.

Inspection – Discard dust boot, front and rear cups, then clean remaining components in clean beake fluid. Inspect cylinder bore and piston for scoring or damage, replace components as necessary.

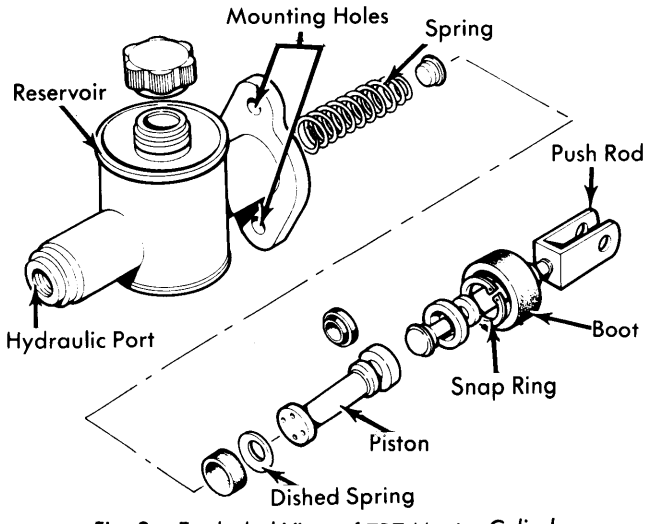

Fig. 2 Exploded View of TR7 Master Cylinder

Reassembly – Fit a new rear cup to piston. Lubricate cylinder bore with clean brake fluid. Insert large end of spring, with spring retainer, into cylinder bore. Fit dished spring and piston, complete with rear cup, into bore. Install new dust boot and push rod, then fit snap ring.

CLUTCH SLAVE CYLINDER

Disassembly – Remove rubber dust seal and push rod. Remove snap ring (if equipped), and withdraw piston, seal, cup filler (if equipped), and spring. Thoroughly clean all parts in brake fluid and inspect for wear or damage; replace parts as necessary.

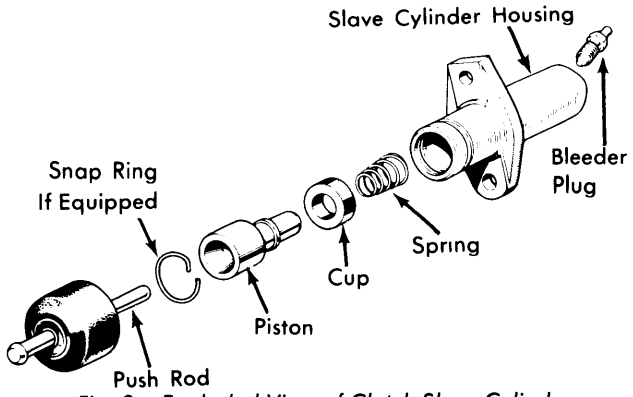

Fig. 3 Exploded View of Clutch Slave Cylinder (TR7 Shown, Others Similar)

Reassembly – Fit a new cup to piston. Lubricate cylinder bore with brake fluid. Insert smaller diameter of spring to piston and install spring (large end first), piston and cup into cylinder. Refit rubber dust boot.

ADJUSTMENT

HYDRAULIC SYSTEM BLEEDING

1) Remove filler cap from master cylinder reservoir and fill with hydraulic fluid. Attach a rubber hose to slave cylinder bleeder screw, and insert opposite end of hose into a container partially filled with hydraulic fluid.

2) Loosen bleeder screw approximately one-half turn. Push clutch pedal to bottom of stroke and allow to return unassisted. Continue operation until fluid being discharged into container is free of air bubbles. Tighten bleeder screw on down stroke of pedal. Check fluid level in reservoir and refill as necessary.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Clutch-to-Flywheel	
Spitfire	16-22 (2.2-3.0)
TR6 & TR7	16-20 (2.2-2.7)
Clutch Housing-to-Engine	
Spitfire	10-14 (1.4-1.9)
TR6 & TR7	15-20 (2.0-2.7)
Transmission-to-Clutch Housing	
TR6 & TR7	24-32 (3.3-4.4)
Slave Cylinder-to-Clutch Housing	
TR7	16-21 (2.2-2.9)