TRIUMPH

Spitfire
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 – 1) Disconnect battery.

2) Remove gear shift lever. On models equipped with overdrive, pry off gear shift knob cap. Disconnect electrical wires. Loosen lock nut, unscrew retaining ring and remove shift knob.

3) Remove transmission tunnel cover.

4) Remove propeller shaft cover. Disconnect propeller shaft from transmission.

5) Disconnect speedometer.

6) Remove clutch slave cylinder.

7) Raise vehicle. Drain transmission.

8) Position an adjustable jack and wood block under oil pan.

9) Disconnect exhaust pipe bracket from transmission.

10) Remove rear transmission mounting nuts.

11) Remove restraint cable from clutch housing.

12) Remove lower clutch housing bolts.

13) Lower vehicle.

14) Remove starter bolts.

15) Disconnect electrical leads from transmission.

16) Remove upper clutch housing bolts. Slide transmission from vehicle.

17) Remove 6 Allen bolts mounting clutch assembly to flywheel.

Installation – Reverse removal procedure and note:

- Use clutch alignment tool to center clutch assembly.
- Tighten clutch assembly bolts evenly.

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 – 1) Disconnect hydraulic line and drain fluid. Plug open port and line.

2) Disconnect clevis mounting push rod to clutch pedal.

3) Remove 2 bolts (Spitfire) or 2 nuts (TR7) mounting master cylinder to bracket (Spitfire) or bulkhead (TR7).

Installation – Reverse removal procedure and bleed hydraulic system.

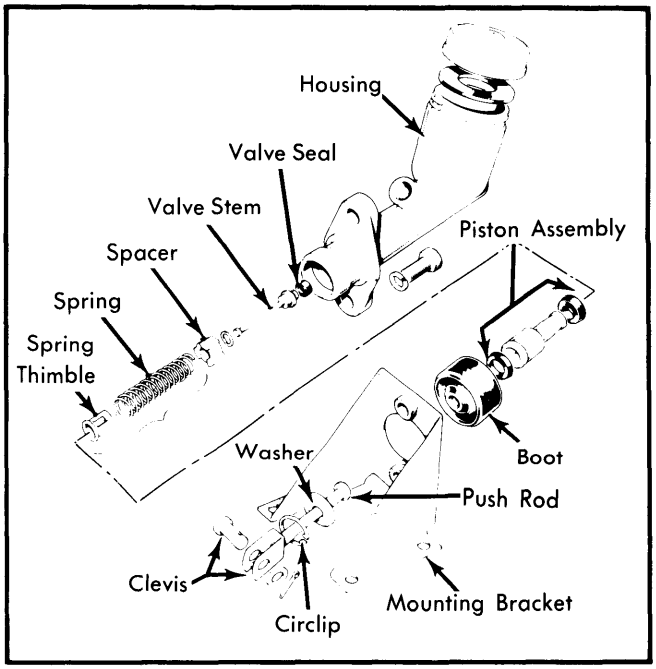

Fig. 1 Exploded View of Spitfire Clutch Master Cylinder – Note How Master Cylinder is Mounted

TRIUMPH (Cont.)

CLUTCH SLAVE CYLINDER

Removal – 1) Raise vehicle and place on safety stands.

2) Disconnect hydraulic line. Plug openings.

3) Remove bolts and nuts mounting slave cylinder.

4) Pull out slave cylinder.

NOTE – *On TR7 models, do not move operating rod in a forward direction. Forward movement may cause release lever to dislodge. Transmission removal would then become necessary for installation of release lever.*

Installation – Reverse removal procedure and note:

- On Spitfire models, centralize push rod in housing before sliding slave cylinder in position.
- On TR7 models, slave cylinder must be mounted with bleed screw ABOVE fluid pipe.
- Bleed hydraulic line.

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.

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. To install, reverse removal procedure making sure fork and collar engage evenly.

OVERHAUL

CLUTCH MASTER CYLINDER

Disassembly; Spitfire – 1) Drain fluid reservoir.

2) Remove master cylinder.

3) Pull rubber boot back along push rod.

4) Disengage circlip from push rod end of master cylinder. Remove push rod and washer.

5) Force air pressure through fluid outlet union to remove piston, spring and seal assembly.

6) Straighten edge of prong on spring thimble. Separate thimble and spring from piston.

7) Dislodge valve stem from key hole slot in thimble.

8) Slide seal spacer off valve stem.

9) Remove seal from piston.

Reassembly – 1) Fit new valve seal.

2) Refit components to valve.

3) Fit new seal, lip first, toward spring.

4) Engage spring thimble on piston and carefully depress thimble prong.

5) Lubricate master cylinder bore. Insert seal assembly, spring, and piston.

6) Refit push rod boot.

7) Fit push rod and washer; secure with circlip. Slide boot into place.

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.

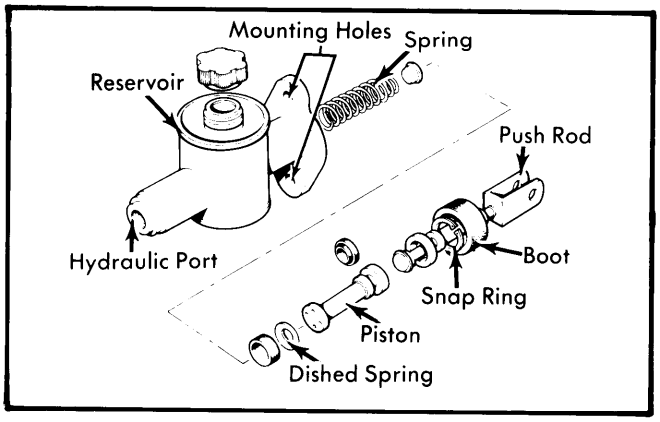

Fig. 2 Exploded View of TR7 Master Cylinder

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 – 1) Remove slave cylinder.

2) Remove dust cover.

3) On Spitfire models, remove circlip.

4) Remove piston, seal, and spring.

Inspection – Look at cylinder bore and piston for signs of damage. Replace either or both parts if wear is excessive.

Reassembly – 1) Fit new seal to piston.

2) Lube cylinder bore with brake fluid.

3) Fit small end of spring to piston.

4) Fit spring, piston, and seal into cylinder.

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5) On Spitfire models, install circlip.

6) Install dust cover.

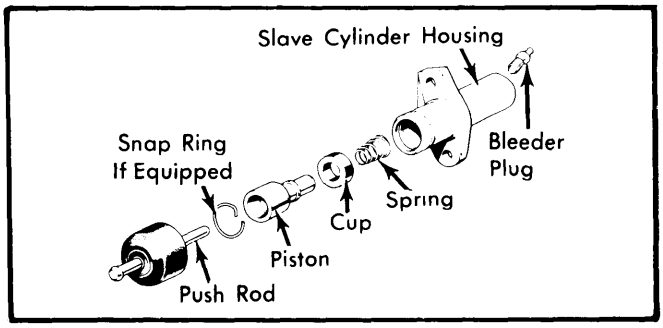

Fig. 3 Exploded View of Clutch Slave Cylinder (TR7 Shown, Spitfire Similar)

ADJUSTMENT

HYDRAULIC SYSTEM BLEEDING

1) Fill master cylinder.

2) Attach a bleeder hose to slave cylinder bleed screw. Insert free end of hose into a container part full with brake fluid.

3) Loosen bleed screw about 1 turn.

4) Push clutch pedal down 1 full stroke.

5) Allow pedal to return unassisted.

6) Pause.

7) Repeat procedure until all air is bled from system.

8) Hold pedal down on last stroke and tighten bleed screw.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Clutch Assembly-to-Flywheel	22 (3.0)
Clutch Housing-to-Transmission	32 (4.4)
Slave Cylinder-to-Clutch Housing	21 (2.9)