

1963-73 TRIUMPH

TR3 (1963)
 TR4 (1963-68)
 1200 (1963-67)
 Spitfire (1963-73)
 2000 Sedan (1966-67)
 TR250 (1968-69)
 TR6 (1963-73)
 GT6 (1968-73)
 Stag V8 (1971-73)

DESCRIPTION

All models utilize a dry, single plate type clutch. TR3, TR4 and early Spitfire models utilize a coil spring type clutch. All other models are equipped with a diaphragm spring type clutch. All models utilize a hydraulic system to engage or disengage clutch.

REMOVAL & INSTALLATION

CLUTCH ASSEMBLY

All Models Exc. 2000 Sedan & Stag V8 - 1) Raise vehicle and support with safety stands under both front and rear. Disconnect battery and drain transmission.

2) Remove both front seats and carpets. On Spitfire and TR4 models, remove dashboard support in front of gearshift lever after disconnecting any controls on support.

3) Remove gearshift lever knob and boot. On TR3 models, loosen lock nut and unscrew shift lever from ball end. Remove cover over transmission.

4) Disconnect drive shaft and speedometer cable at transmission. Remove slave cylinder and leave hanging by line from master cylinder.

5) Disconnect exhaust pipe at manifold. Disconnect overdrive solenoid (if equipped). Place a floor jack under oil pan with a block of wood in between.

6) Disconnect and remove starter. On all models except TR3 and TR4, remove gearshift lever extension housing and cover hole in transmission.

7) Disconnect and remove rear transmission support. Remove transmission to engine bolts and remove transmission to rear of vehicle.

8) Remove clutch assembly. To install, reverse removal procedure. Use a suitable alignment tool (20S.72) when tightening clutch assembly. Tighten all nuts and bolts to specifications.

2000 Sedan - 1) Raise vehicle and support front and rear with safety stands. Disconnect battery and drain transmission. From inside drivers compartment, remove console tray.

2) Remove gearshift lever knob, lock nut and rubber boot. Remove all console retaining bolts and remove by lifting from rear.

3) Remove cover plate and sponge seal. Remove cross bolt and lift out gearshift lever. Take care not to lose spring and plunger on striker end of shift lever.

4) From underneath vehicle, disconnect speedometer cable, back-up light switch and overdrive solenoid (if equipped). Disconnect drive shaft at transmission.

5) Disconnect exhaust pipe at manifold and at intermediate bracket. Support engine by placing a floor jack under oil pan. Insert a block of wood between oil pan and floor jack.

6) Remove rear transmission crossmember and lower engine by releasing jack. Remove exhaust pipe. Remove bolts securing transmission to engine and remove to rear of vehicle.

7) Alternately loosen clutch to flywheel bolts in a crisscross pattern. Inspect flywheel friction face for wear or damage. Inspect clutch face for wear or damage.

8) To install, reverse removal procedure. Use a suitable pilot shaft to align clutch and make sure clutch pressure plate is aligned on dowels on flywheel. Tighten all nuts and bolts.

Stag V8 - 1) Raise vehicle and support with safety stands. Disconnect battery and drain cooling system. Disconnect upper radiator hose.

2) Disconnect both heater hoses from heater. Disconnect transmission electrical harness and plug next to starter. Loosen bell housing bolts accessible from engine compartment.

3) Remove gearshift knob. If equipped with overdrive, pry cap from gearshift knob and disconnect overdrive switch and remove gearshift knob.

4) Remove front and rear section of console tray. Pull overdrive switch lead through gearshift lever (if equipped) and remove gearshift lever boot.

5) Loosen gearshift lever adjusting nut and remove attachment bolt. Depress cover cap and remove cap plate and spring. Position transmission in neutral and remove gearshift lever.

6) Remove both front exhaust pipes. Disconnect drive shaft. Position safety stands under mufflers. Insert a piece of wood between stands and mufflers to prevent damage.

7) Lower vehicle or raise stands until mufflers and drive shaft are pushed up out of way. Place a jack under transmission for support and remove rear crossmember.

8) Unclip brake line from front crossmember. Lower jack until front crossmember is supporting engine and transmission and remove jack.

9) Disconnect speedometer cable from transmission. Disconnect slave cylinder push rod from clutch fork lever. Clamp piston in slave cylinder.

10) Remove bolts, including those previously loosened, securing bell housing to engine. Pull transmission back and down to remove.

11) Mark position of clutch on flywheel. Remove bolts securing clutch assembly to flywheel and remove clutch assembly.

12) To install clutch assembly, match identification marks, align clutch disc with a suitable pilot shaft and tighten bolts to specification. To install transmission and remaining components, reverse removal procedure.

CLUTCH MASTER CYLINDER

1) Drain hydraulic system through slave cylinder bleeder plug. Pull back rubber boot (if equipped) and remove pin securing master cylinder push rod to pedal assembly.

2) Disconnect line from master cylinder to slave cylinder. Remove bolts securing master cylinder to mount and remove cylinder.

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3) To install master cylinder, reverse removal procedure. Bleed hydraulic system. See *Hydraulic System Bleeding*.

CLUTCH SLAVE CYLINDER

1) Drain hydraulic system through slave cylinder bleeder plug. Disconnect line from master cylinder. Disconnect push rod from clutch fork and remove slave cylinder.

2) To install slave cylinder, reverse removal procedure. Bleed hydraulic system. See *Hydraulic System Bleeding*. Adjust clutch fork freeplay if required. See *Clutch Fork Freeplay Adjustment*.

CLUTCH RELEASE BEARING

1200 & Spitfire - 1) With transmission removed as previously outlined. Remove pivot pin from clutch fork and remove clutch fork with release bearing.

2) Drive pins from fork and remove bearing with sleeve. Remove bearing from sleeve. Rotate bearing and check for noise or roughness.

3) Replace bearing as necessary. To install clutch release bearing, reverse removal procedure. Grease bearing contact points.

GT6 Models - 1) With transmission removed as previously outlined, pull clutch fork off of ball stud and remove fork with release bearing.

2) Withdraw bearing from clutch fork. Press bearing from sleeve. Rotate bearing and check for noise or roughness. To install, reverse removal procedure. Grease bearing contact points.

TR3, TR4, TR6, TR250, 2500 Sedan & Stag V8 - 1) With transmission removed as previously outlined, remove lock bolt securing fork to clutch fork shaft and withdraw shaft.

2) Remove release bearing and press bearing off of sleeve. Rotate bearing and check for noise or roughness. To install, reverse removal procedure. Safety wire taper bolt.

CLUTCH PILOT BUSHING

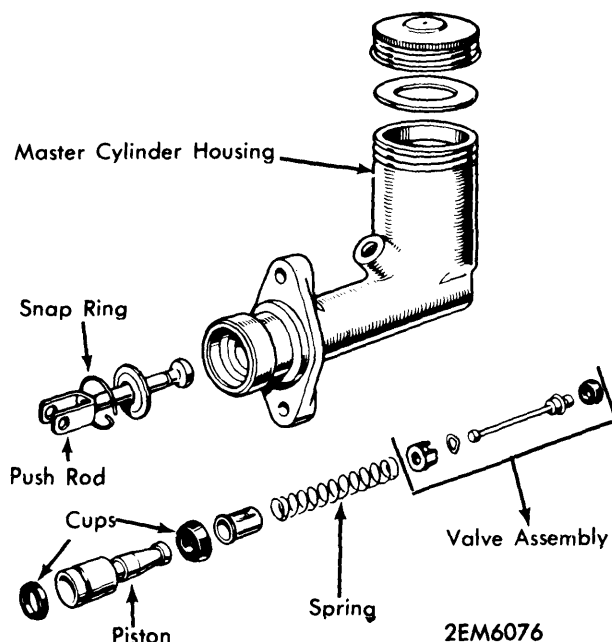
Bushing to support transmission input shaft is located in flywheel end of crankshaft. If bushing is worn or damaged, pull out with a suitable puller and install new bushing. Lubricate bushing before installing transmission.

OVERHAUL

CLUTCH MASTER CYLINDER

Disassembly (All Models Except Stag V8) - 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.



**MASTER CYLINDER ASSEMBLY
(TYPICAL, EXCEPT STAG V8)**

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.

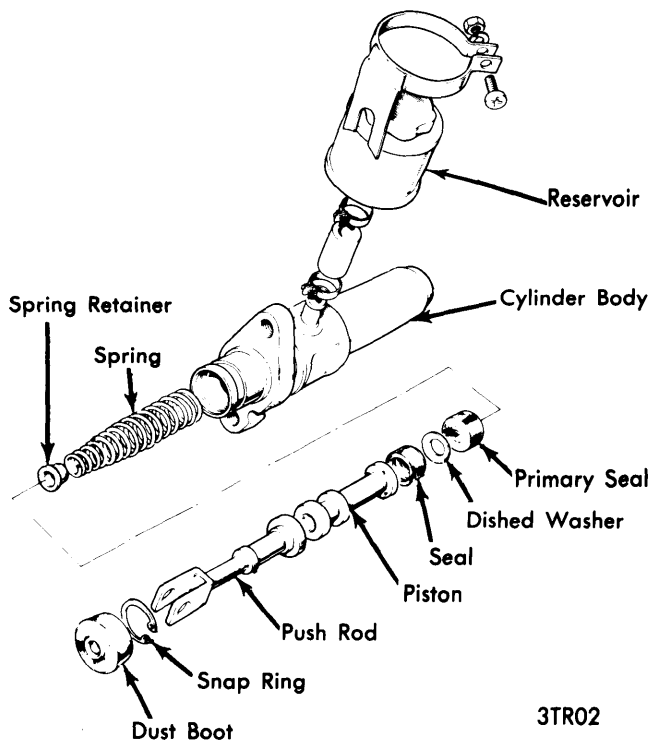
Disassembly (Stag V8) - 1) Loosen hose clamp and remove reservoir from master cylinder body. Pull back rubber dust boot, depress push rod, and remove snap ring. Remove push rod and dust cover, piston and seal, dished washer, primary seal, spring retainer and spring.

2) Remove rubber dust seal from push rod and secondary seal from piston. Discard dust cover, seals, and dished washer. Clean all components in clean brake fluid and inspect for wear or damage; replace parts as necessary.

Reassembly - 1) Lubricate internal components with clean brake fluid. Install rubber dust seal on push rod and secondary seal to piston. Install all parts into master cylinder bore in reverse order of removal, making sure that small side of dished washer is toward the piston.

Clutches

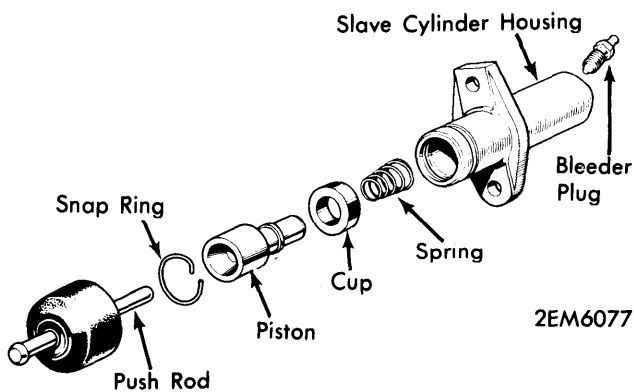
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MASTER CYLINDER ASSEMBLY - STAG V8

CLUTCH SLAVE CYLINDER

- 1) Remove slave cylinder as previously outlined. Remove snap ring. Using low air pressure applied to cylinder, remove piston and spring.
- 2) Clean all components in alcohol or brake fluid. Do not use gasoline or any type of solvent. Coat all component with brake fluid before assembly. To assemble, reverse disassembly procedure.



**SLAVE CYLINDER COMPONENTS
(TYPICAL)**

ADJUSTMENT

CLUTCH ADJUSTMENT

With the exception of TR3 and TR4 models, no adjustment is required. Clutch is self adjusting.

CLUTCH FORK FREEPLAY

TR3 & TR4 - 1) To obtain correct freeplay between clutch release bearing and clutch, the correct amount of clutch fork freeplay must be obtained.

2) Loosen lock nut on slave cylinder push rod and turn push rod until there is no clearance between push rod and piston in slave cylinder.

3) Turn lock nut until a .10" (2.54 mm) on TR4 or a .08" (2.03 mm) on TR3 feeler gauge can be inserted between lock nut and clevis at end of push rod.

4) Without moving lock nut, turn push rod until lock nut contacts clevis, and tighten lock nut.

MASTER CYLINDER PUSH ROD FREEPLAY

TR3 - 1) The correct amount of freeplay between push rod and piston in master cylinder is required to make sure piston returns to stop when pedal is released.

2) Loosen lock nut of pedal stop bolt at forward portion of pedal assembly. Turn stop bolt until all master cylinder push rod freeplay is eliminated.

3) Loosen stop bolt and lock nut until a .030" (.76 mm) feeler gauge can be inserted between lock nut and pedal bracket. Secure stop bolt and tighten lock nut.

HYDRAULIC SYSTEM BLEEDING

1) Remove filler cap from master cylinder and fill to top. Attach a rubber hose to bleeder plug on slave cylinder. Insert opposite end in a container half full of brake fluid.

2) Loosen bleeder plug approximately one-half turn. Push pedal to bottom of stroke and allow pedal to return unassisted. Continue pumping until air bubbles are no longer seen in container.

3) Push pedal to bottom of stroke and close bleeder plug. Check master cylinder fluid level and refill as necessary.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Clutch-to-Flywheel	
Spitfire	16-22 (2.21-3.04)
Stag V8 & TR6	16-20 (2.21-2.76)
All Others	20 (2.76)
Transmission-to-Engine	
TR3 & 1200	14-16 (1.93-2.21)
TR4	8-10 (1.10-1.38)
TR250 & 2000 Sedan	18-20 (2.48-2.76)
Spitfire	24-32 (3.31-4.42)
Stag V8	
5/16" Bolts	16-20 (2.21-2.96)
3/8" Bolts	26-32 (3.59-4.42)
TR6	15-20 (2.07-2.76)
GT6	24-26 (3.31-3.59)