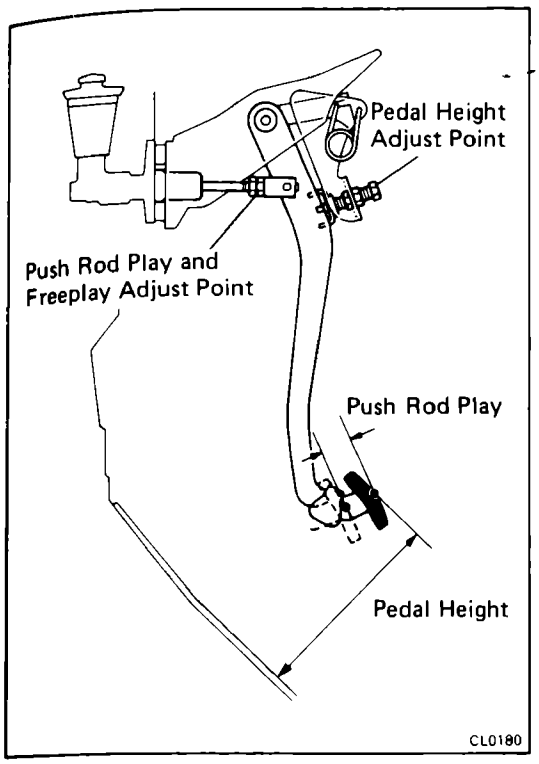
CLUTCH

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Hard to shift or will not shift	Clutch pedal freeplay excessive	Adjust pedal freeplay	CL-3
	Air in clutch lines	Bleed clutch system	CL-3
	Clutch release cylinder faulty	Repair release cylinder	CL-8
	Clutch master cylinder faulty	Repair master cylinder	CL-6
	Clutch disc out of true, runout is excessive or lining broken	Inspect clutch disc	CL-10
	Splines on input shaft or clutch disc dirty or burred	Repair as necessary	CL-10
	Clutch pressure plate faulty	Replace clutch cover	CL-10
Clutch slips	Clutch pedal freeplay insufficient	Adjust pedal freeplay	CL-3
	Clutch disc lining oily or worn out	Inspect clutch disc	CL-10
	Pressure plate faulty	Replace clutch cover	CL-10
	Release fork binding	Inspect release fork	CL-10
Clutch grabs/ chatters	Clutch disc lining oily or worn out	Inspect clutch disc	CL-10
	Pressure plate faulty	Replace clutch cover	CL-10
	Clutch diaphragm spring bent	Align clutch diaphragm	CL-12
	Engine mounts loose	Repair as necessary	
Clutch pedal spongy	Air in clutch lines	Bleed clutch system	CL-3
	Clutch release cylinder faulty	Repair release cylinder	CL-8
	Clutch master cylinder faulty	Repair master cylinder	CL-6
Clutch noisy	Loose part inside housing	Repair as necessary	
	Release bearing worn or dirty	Replace release bearing	CL-10



CHECK AND ADJUSTMENT OF CLUTCH PEDAL

1. **CHECK THAT PEDAL HEIGHT IS CORRECT**

   Pedal height from asphalt sheet: 153 — 163 mm (6.02 — 6.42 in.)

2. **IF NECESSARY, ADJUST PEDAL HEIGHT**

   (a) Remove the instrument lower finish panel and air duct.

   (b) Loosen the lock nut and turn the stopper bolt until the height is correct. Tighten the lock nut.

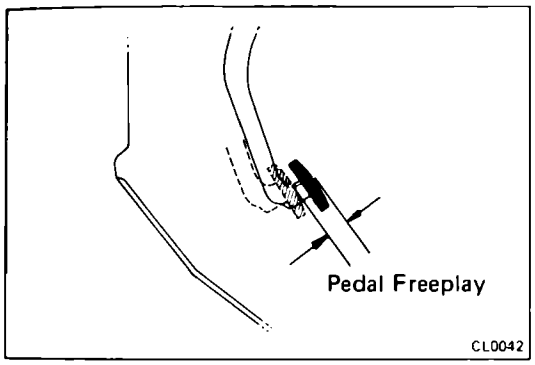
   (c) After adjusting the pedal height, check the pedal freeplay.

3. **CHECK THAT PEDAL FREEPLAY AND PUSH ROD PLAY ARE CORRECT**

   Push in on the pedal until the beginning of clutch resistance is felt.

   Pedal freeplay: 5 — 15 mm (0.20 — 0.59 in.)

   Push rod play at pedal: 1.0 — 5.0 mm (0.039 — 0.197 in.)



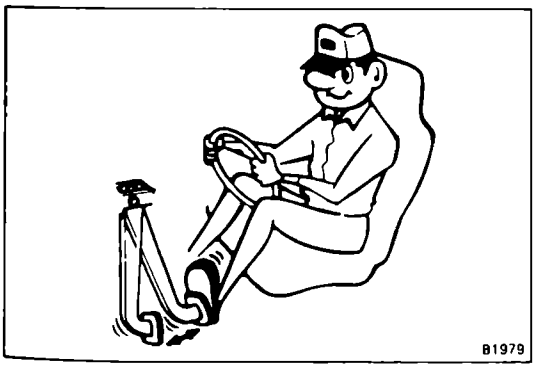
4. **IF NECESSARY, ADJUST PEDAL FREEPLAY AND PUSH ROD PLAY**

   (a) Loosen the lock nut and turn the push rod until the freeplay and push rod play are correct.

   (b) Tighten the lock nut.

   (c) After adjusting the pedal freeplay, check the pedal height.

   (d) Install the air duct and instrument lower finish panel.



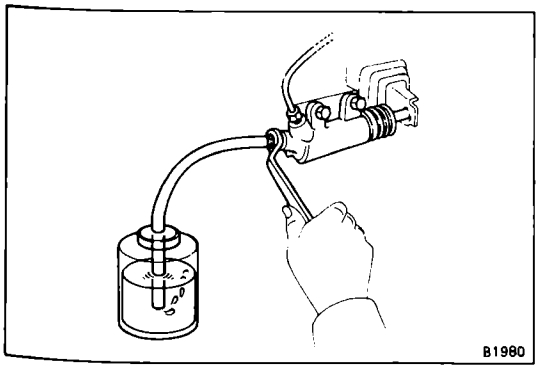
BLEEDING OF CLUTCH SYSTEM

NOTE: If any work is done on the clutch system or if air is suspected in the clutch lines, bleed the system of air.

CAUTION: DO NOT let brake fluid remain on a painted surface. Wash it off immediately.

1. **FILL CLUTCH RESERVOIR WITH BRAKE FLUID**

   Check the reservoir frequently. Add fluid if necessary.



2. **CONNECT VINYL TUBE TO BLEEDER PLUG**

   Insert the other of the tube in a half-filled container of brake fluid.

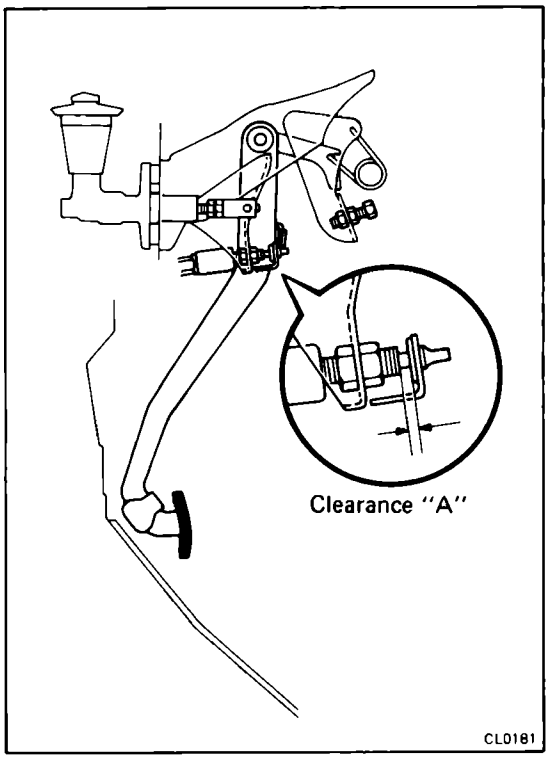
3. **BLEED CLUTCH LINE**

   (a) Slowly pump the clutch pedal several times.

   (b) While depressing the pedal, loosen the bleeder plug until the fluid starts to run out. Then close the bleeder plug.

   (c) Repeat this procedure until there are no air bubbles in the fluid.

   NOTE: Do not reuse the fluid that was bled. It contains air.



INSPECTION OF CLUTCH START SYSTEM

CHECK CLUTCH PEDAL

1. **CHECK THAT PEDAL HEIGHT IS CORRECT**
(See page CL-3)

2. **CHECK THAT PEDAL FREEPLAY AND PUSH ROD PLAY ARE CORRECT**
(See page CL-3)

CHECK CLUTCH START SYSTEM

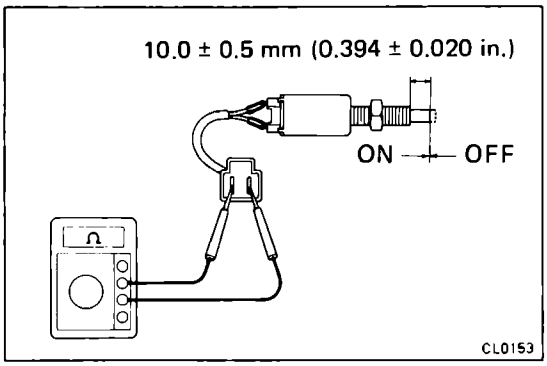
CHECK CLUTCH START SYSTEM

(a) Check that the engine does not start when the clutch pedal is released.

(b) Check that the engine starts when the clutch pedal is fully depressed.

(c) Check that clearance "A" is greater than 1 mm (0.04 in.) when the clutch pedal is fully depressed.

If necessary, adjust or replace the clutch start switch.



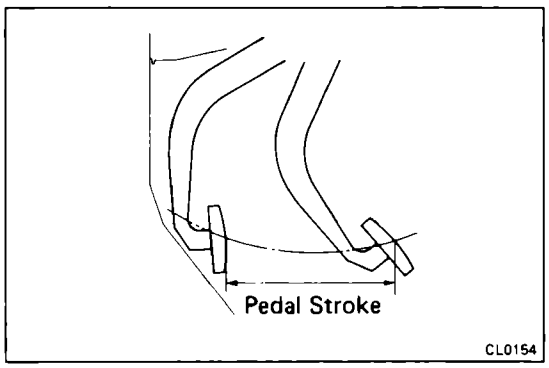
INSPECTION AND ADJUSTMENT OF CLUTCH START SWITCH

1. INSPECT CONTINUITY OF CLUTCH START SWITCH

(a) Check that there is continuity between terminals when the switch is ON (pushed).

(b) Check that there is no continuity between terminals when the switch is OFF (free).

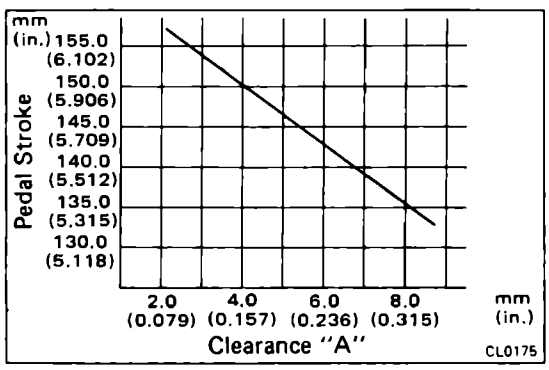
If continuity is not as specified, replace the switch.



2. ADJUST CLUTCH START SWITCH

(a) Measure the pedal stroke, and check the switch clearance "A" using the chart left.

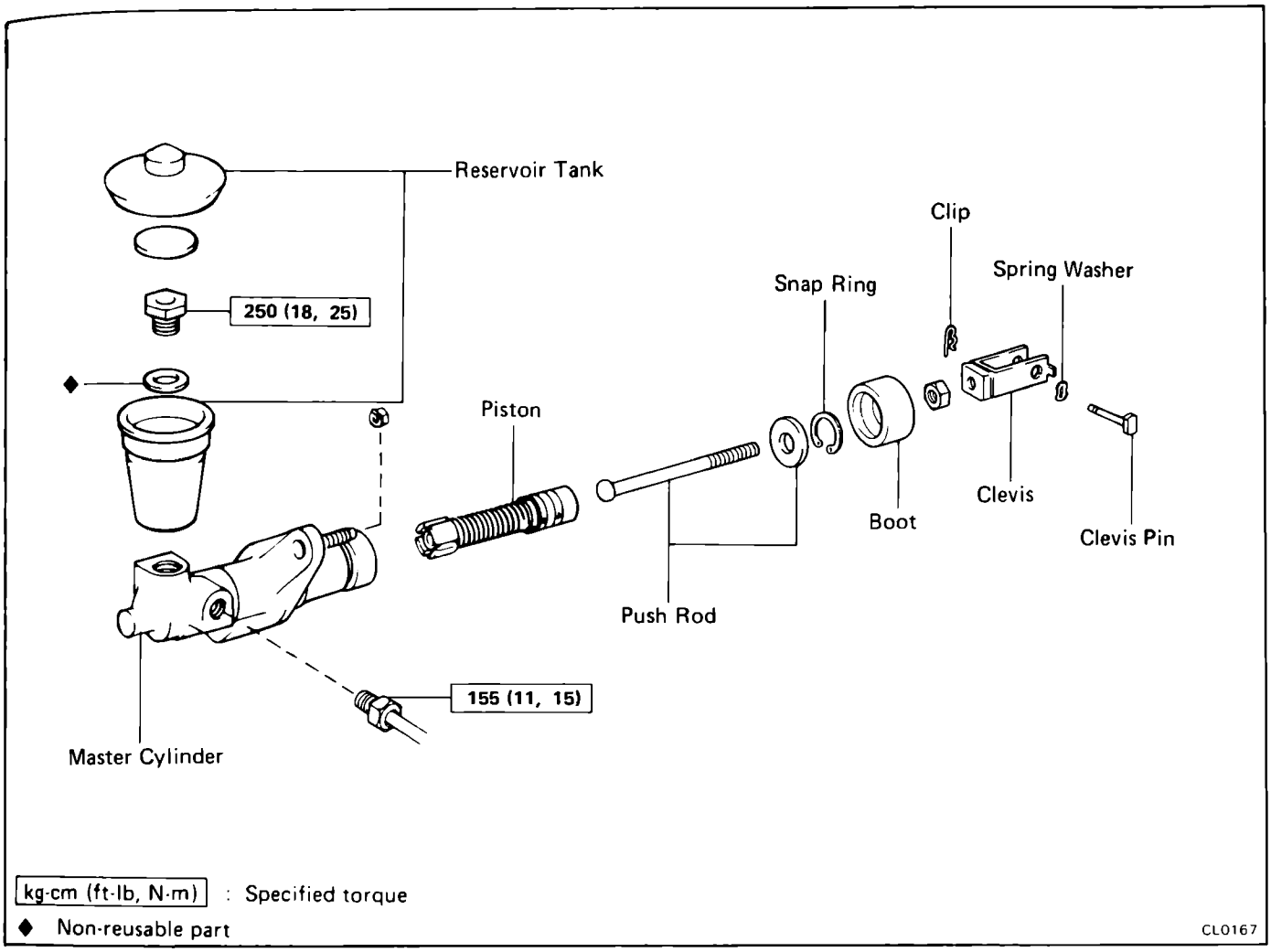
(b) Loosen and adjust the switch position.

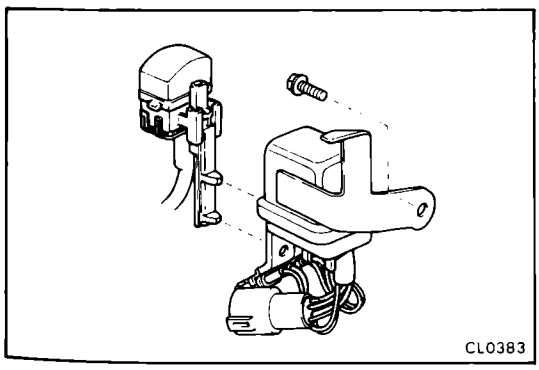


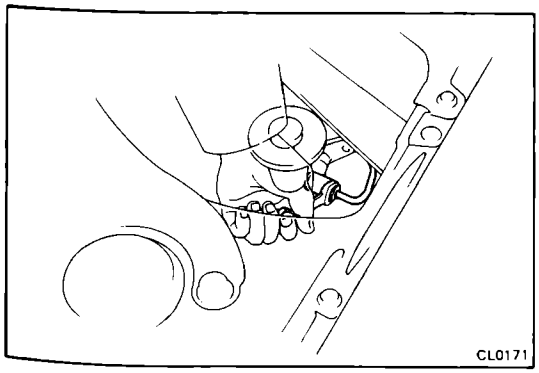
(c) Recheck that the engine does not start when the clutch pedal is released.

CLUTCH MASTER CYLINDER

COMPONENTS







REMOVAL OF MASTER CYLINDER

1. **(w/A.B.S.)**
   REMOVE A.B.S. CONTROL RELAY
   Remove the bolt, then disconnect the check connector and remove the control relay.

2. **DRAW OUT FLUID WITH SYRINGE**

3. **DISCONNECT CLUTCH LINE TUBE**

4. **REMOVE INSTRUMENT LOWER FINISH PANEL AND AIR DUCT**

5. **REMOVE CLIP, CLEVIS PIN AND SPRING WASHER**

6. **REMOVE MOUNTING NUTS AND PULL OUT MASTER CYLINDER**

DISASSEMBLY OF MASTER CYLINDER

(See page CL-5)

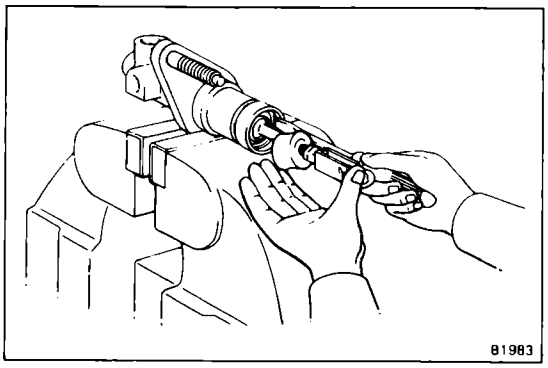
1. **REMOVE RESERVOIR TANK**

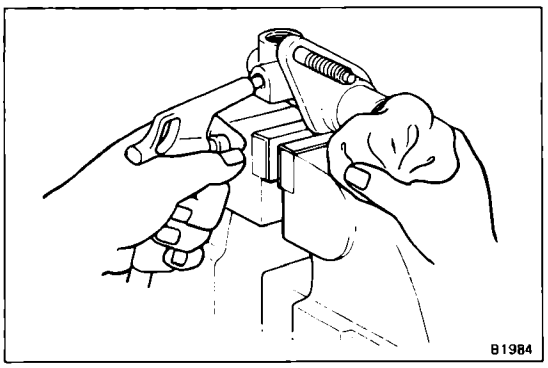
   Remove the hold-down bolt and pull off the reservoir tank.

2. **REMOVE PUSH ROD**

   (a) Pull back the boot, and using a screwdriver, remove the snap ring.

   (b) Pull out the push rod assembly.





3. **REMOVE PISTON**

   Using compressed air, remove the piston from the cylinder.

INSPECTION OF MASTER CYLINDER

NOTE: Clean the disassembled parts with compressed air.

1. **INSPECT MASTER CYLINDER BORE FOR SCORING OR CORROSION**

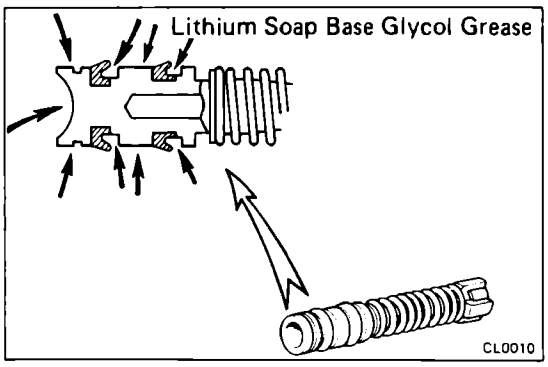
   If a problem is found, clean or replace the cylinder.

2. **INSPECT PISTON AND CUPS FOR WEAR, SCORING, CRACKS OR SWELLING**

   If either one requires replacement, use the parts from the cylinder kit.

3. **INSPECT PUSH ROD FOR WEAR OR DAMAGE**

   If necessary, replace the push rod.



ASSEMBLY OF MASTER CYLINDER

(See page CL-5)

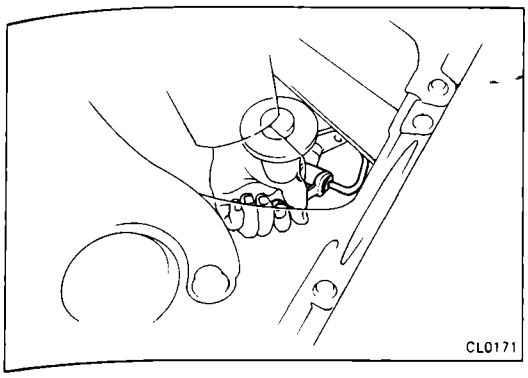
1. **COAT PARTS WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN**

2. **INSERT PISTON INTO CYLINDER**

3. **INSTALL PUSH ROD ASSEMBLY WITH SNAP RING**

4. **INSTALL RESERVOIR TANK**

   Torque: 250 kg-cm (18 ft-lb, 25 N·m)



INSTALLATION OF MASTER CYLINDER

(See page CL-5)

1. **POSITION MASTER CYLINDER AND CONNECT CLUTCH LINE UNION**

   First finger-tighten the union nut and then tighten it to specified torque.

   Torque: 155 kg-cm (11 ft-lb, 15 N·m)

2. **INSTALL AND TIGHTEN MOUNTING NUTS**

3. **INSTALL PUSH ROD ASSEMBLY TO CLUTCH PEDAL**

   Secure the clevis pin with the spring washer and clip.

4. **BLEED CLUTCH SYSTEM (See page CL-3)**

5. **CHECK FOR LEAKS**

6. **CHECK AND ADJUST CLUTCH PEDAL (See page CL-3)**

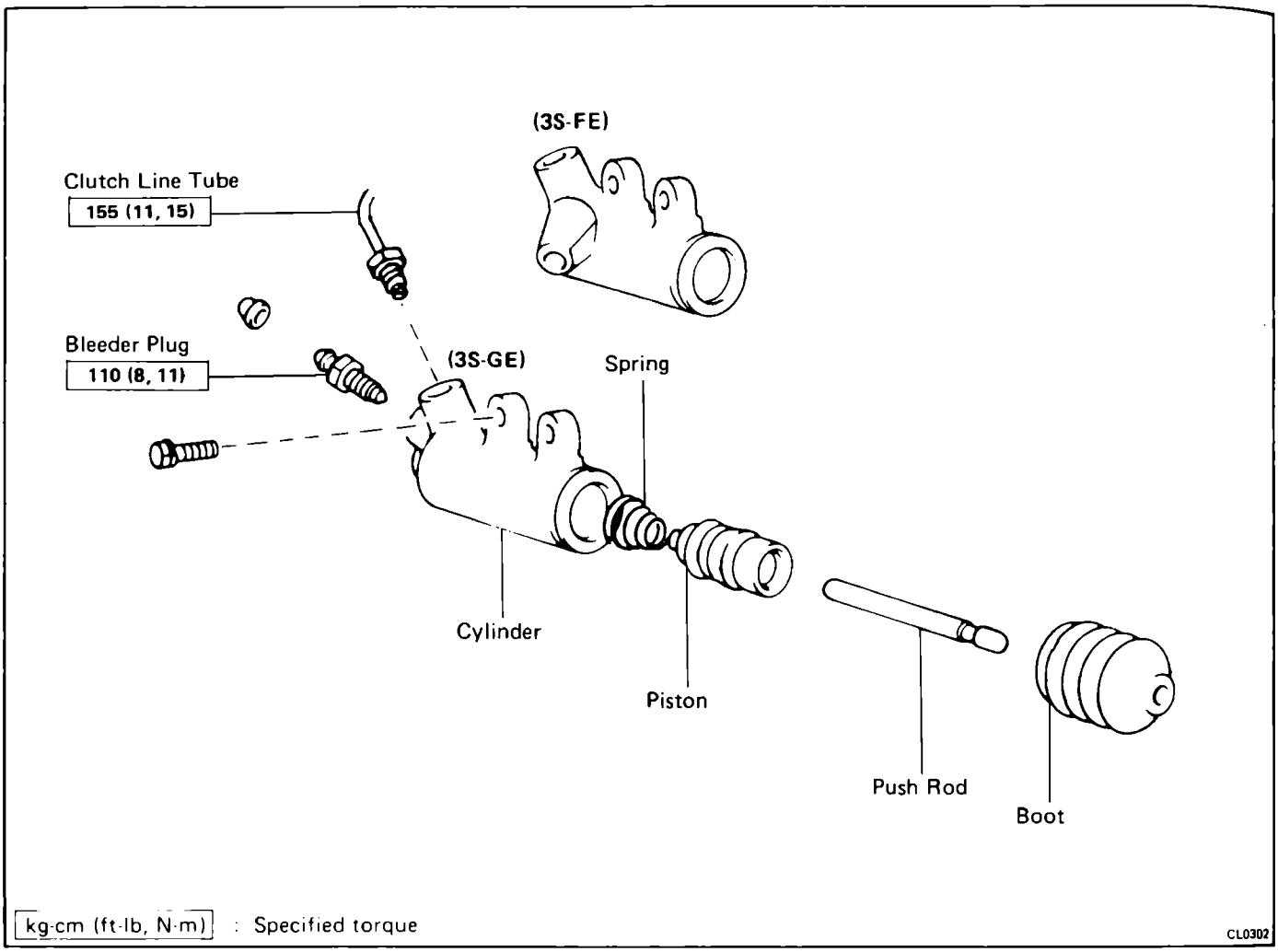
7. **INSTALL INSTRUMENT LOWER FINISH PANEL AND AIR DUCT**

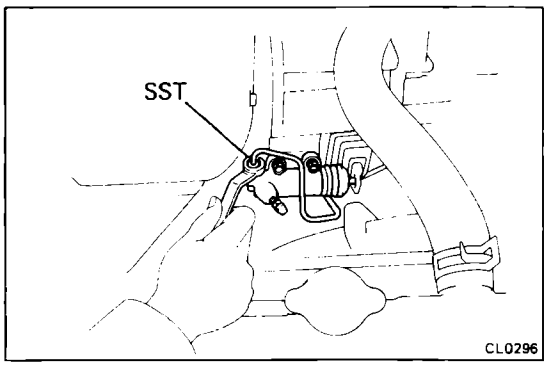
8. **(w/ A.B.S.)**
   INSTALL A.B.S. CONTROL RELAY

   Install the control relay and check connector in place.

CLUTCH RELEASE CYLINDER

COMPONENTS





REMOVAL OF RELEASE CYLINDER

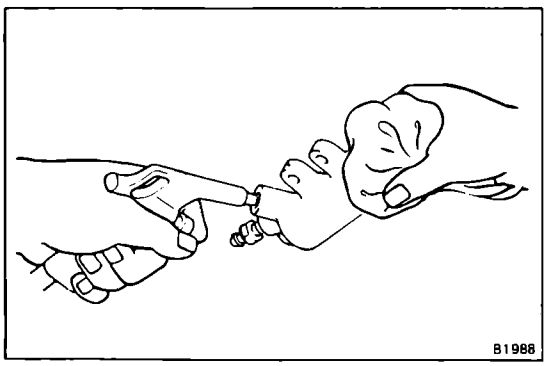
1. **DISCONNECT CLUTCH LINE TUBE**

   Using SST, disconnect the tube. Use a container to catch the brake fluid.

   SST 09751-36011

2. **REMOVE CLUTCH TUBE CLAMP BOLT**

3. **REMOVE BOLTS AND PULL OUT RELEASE CYLINDER**



DISASSEMBLY OF RELEASE CYLINDER

1. **PULL OUT PUSH ROD WITH BOOT**

2. **REMOVE PISTON AND SPRING**

   Using compressed air, remove the piston and spring from the cylinder.

INSPECTION OF RELEASE CYLINDER

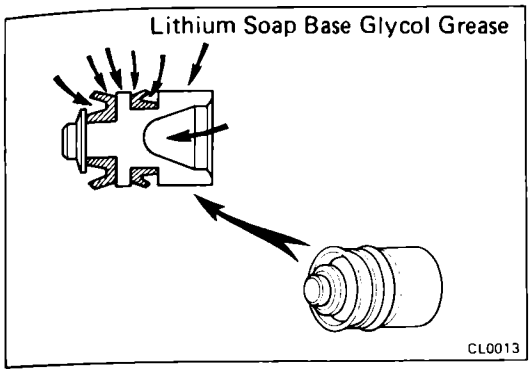
NOTE: Clean the disassembled parts with compressed air.

1. **INSPECT RELEASE CYLINDER BORE FOR SCORING OR CORROSION**

   If a problem is found, clean or replace the cylinder.

2. **INSPECT PISTON AND CUPS FOR WEAR, SCORING, CRACKS OR SWELLING**

   If either one requires replacement, use the parts from the cylinder kit.



3. **INSPECT PUSH ROD FOR WEAR OR DAMAGE**

   If necessary, replace the push rod.

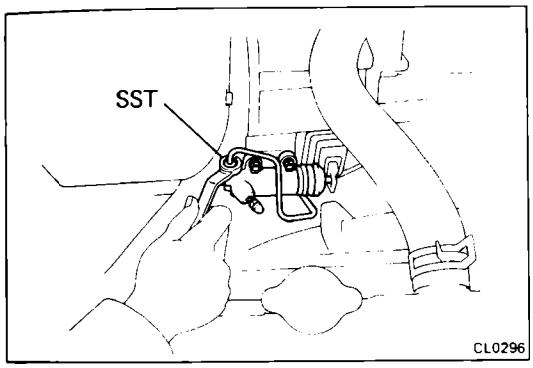
ASSEMBLY OF RELEASE CYLINDER

(See page CL-8)

1. **COAT PISTON WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN**

2. **INSERT SPRING AND PISTON INTO CYLINDER**

3. **INSTALL PUSH ROD WITH BOOT**



INSTALLATION OF RELEASE CYLINDER

(See page CL-8)

1. **INSTALL RELEASE CYLINDER WITH BOLTS**

2. **CONNECT CLUTCH LINE TUBE**

   First finger-tighten the union nut and then tighten it to specified torque with SST.

   SST 09751-36011

   Torque: 155 kg-cm (11 ft-lb, 15 N·m)

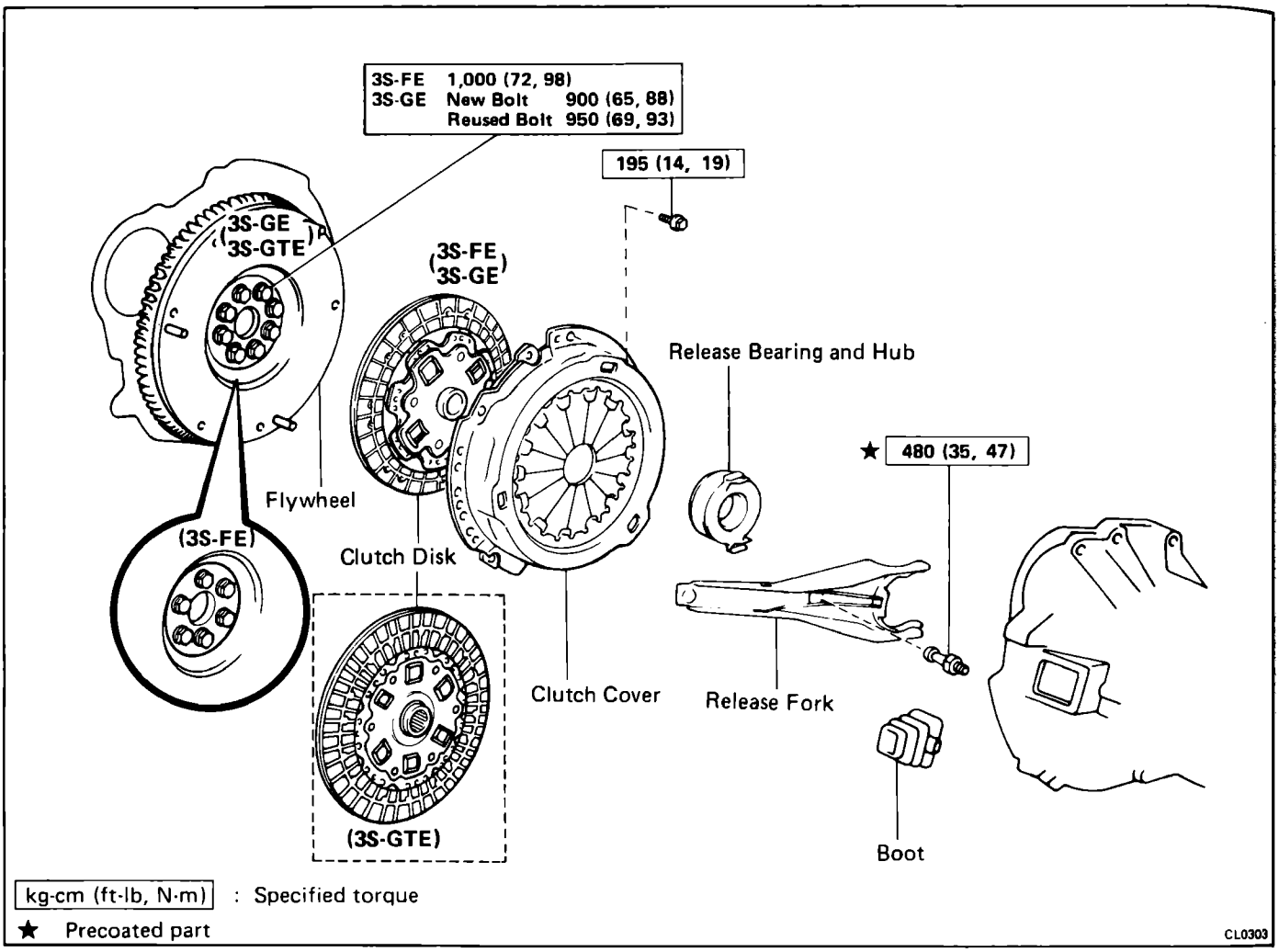
3. **INSTALL CLUTCH TUBE CLAMP BOLT**

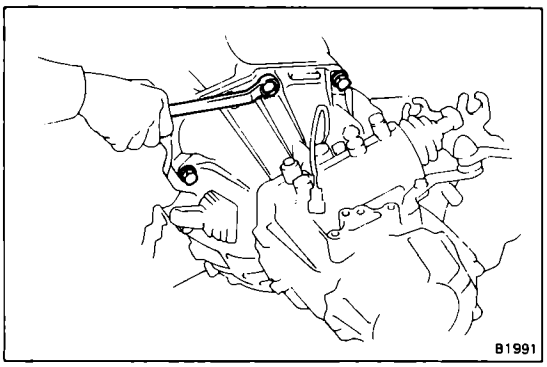
4. **BLEED CLUTCH SYSTEM**
   (See page CL-3)

5. **CHECK FOR LEAKS**

CLUTCH UNIT

COMPONENTS

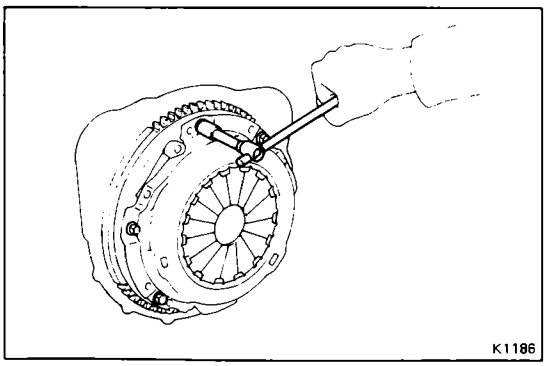




REMOVAL OF CLUTCH UNIT

1. **REMOVE TRANSAXLE FROM ENGINE**
   (See pages MT-4 to 6)

   NOTE: Do not drain the transaxle fluid.

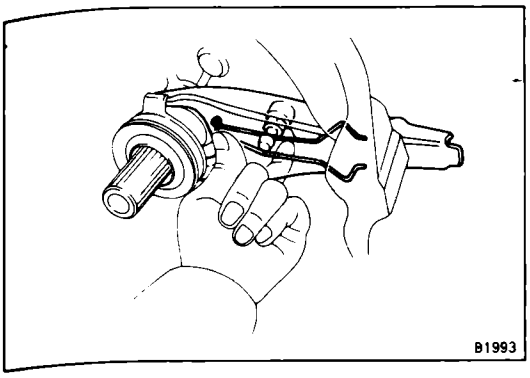


2. **REMOVE CLUTCH COVER AND DISC**

   (a) Place the matchmarks on the clutch cover and flywheel.

   (b) Loosen each set bolt one turn at a time until spring tension is released.

   (c) Remove the set bolts, and pull off the clutch cover and disc.

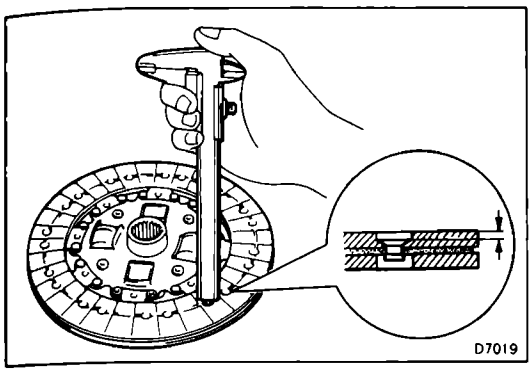


3. **REMOVE RELEASE BEARING, FORK AND BOOT FROM TRANSAXLE**

(a) Remove the bearing assembly together with the fork, and then separate them.

(b) Remove the boot.

INSPECTION OF CLUTCH PARTS

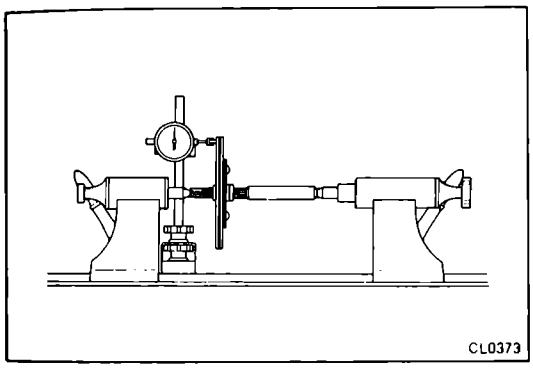


1. **INSPECT CLUTCH DISC FOR WEAR OR DAMAGE**

Using calipers, measure the rivet head depth.

Minimum rivet depth: 0.3 mm (0.012 in.)

If a problem is found, replace the clutch disc.

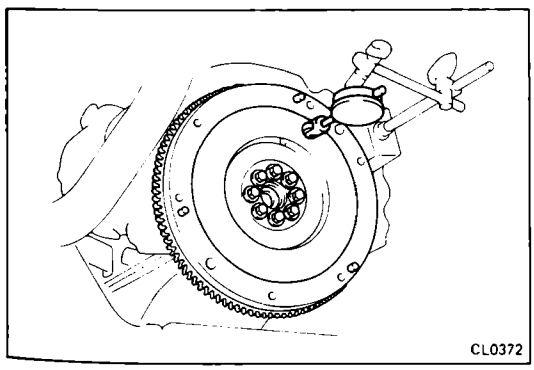


2. **INSPECT CLUTCH DISC RUNOUT**

Using a dial indicator, check the disc runout.

Maximum runout: 0.8 mm (0.031 in.)

If runout is excessive, replace the clutch disc.

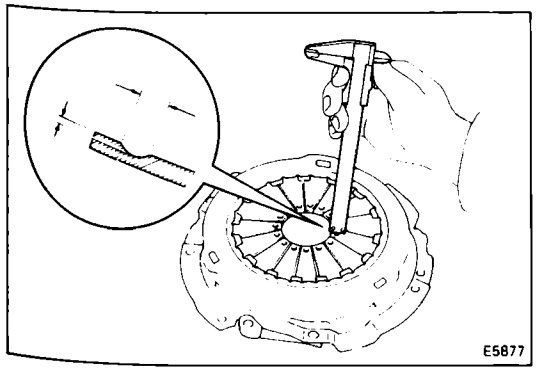


3. **INSPECT FLYWHEEL RUNOUT**

Using a dial indicator, check the flywheel runout.

Maximum runout: 0.1 mm (0.004 in.)

If runout is excessive, replace the flywheel.

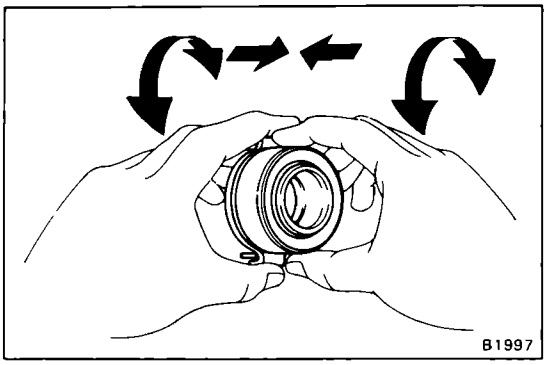


4. **INSPECT DIAPHRAGM SPRING FOR WEAR**

Using calipers, measure the diaphragm spring for depth and width of wear.

Limit: Depth 0.6 mm (0.024 in.)
Width 5.0 mm (0.197 in.)

If necessary, replace the clutch cover.

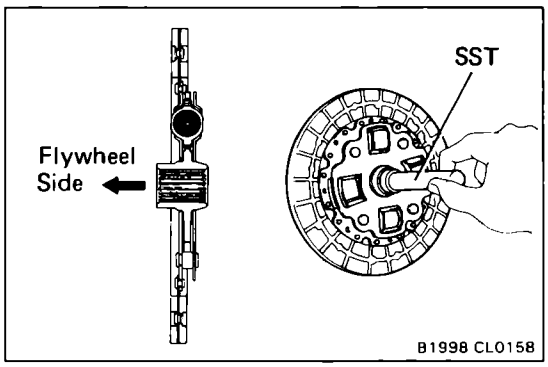


5. **INSPECT RELEASE BEARING**

Turn the bearing by hand while applying force in the axial direction.

If the bearing sticks or has much resistance, replace the release bearing together with the hub.

NOTE: The bearing is permanently lubricated and requires no cleaning or lubrication.



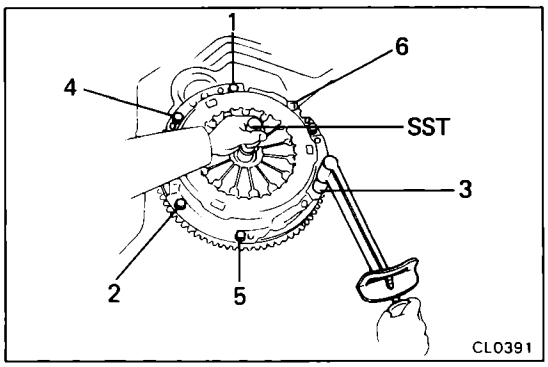
INSTALLATION OF CLUTCH UNIT

(See page CL-10)

1. **INSTALL CLUTCH DISC ON FLYWHEEL**

Using SST, install the disc on the flywheel.

SST (3S-FE, 3S-GE)
09301-32010
(3S-GTE)
09301-17010



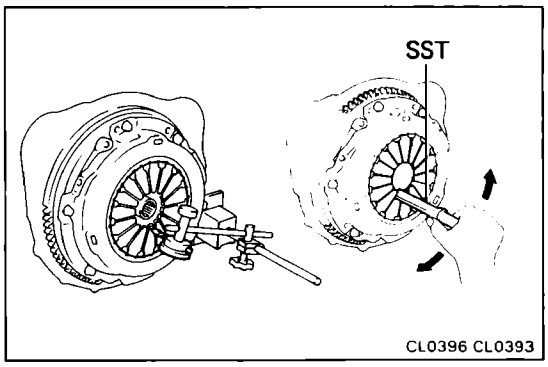
2. **INSTALL CLUTCH COVER**

(a) Align the matchmarks on the clutch cover and flywheel.

(b) Tighten the bolts evenly and gradually. Make several passes around the cover until the cover is snug. Torque the bolts.

Torque: 195 kg-cm (14 ft-lb, 19 N·m)

NOTE: Tighten the topmost bolt from the three near the knock pins first.



3. **CHECK DIAPHRAGM SPRING TIP ALIGNMENT**

Using a dial indicator with roller instrument, check the diaphragm spring tip alignment.

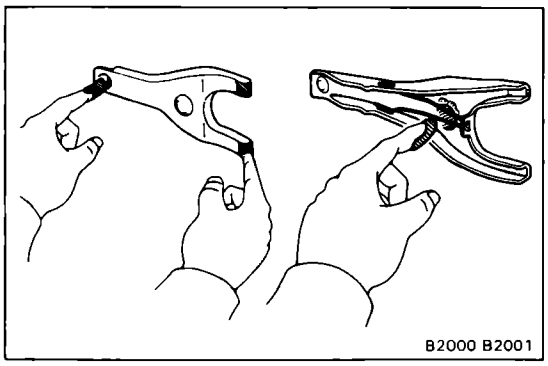
Maximum non-alignment: 0.5 mm (0.020 in.)

If non-alignment is excessive, adjust as follows.

4. **IF NECESSARY, ADJUST SPRINGS**

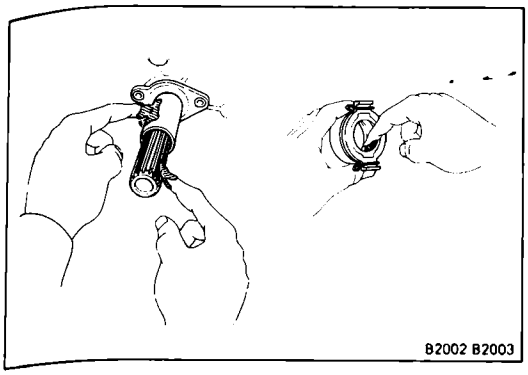
Using SST, bend the springs until alignment is correct.

SST 09333-00013

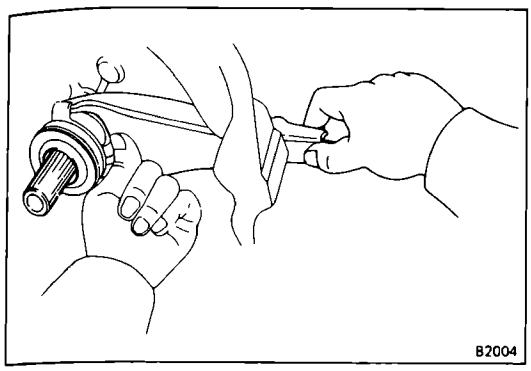


5. **APPLY MOLYBDENUM DISULPHIDE LITHIUM BASE GREASE (NLGI NO.2) TO FOLLOWING PARTS:**

- Release fork and hub contact point
- Release fork and push rod contact point
- Release fork pivot point



- Clutch disc spline
- Release bearing hub inside groove

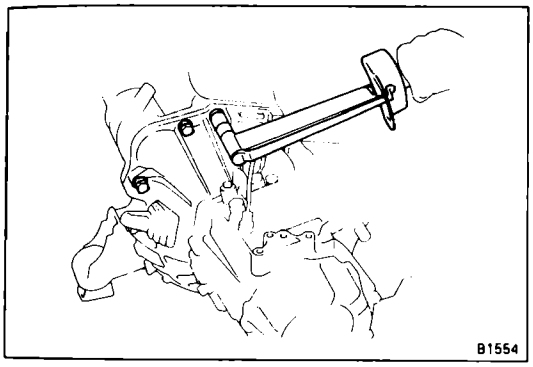


6. INSTALL RELEASE BEARING, FORK AND BOOT TO TRANSAXLE

(a) Install the bearing assembly to the fork, and then install them to the transaxle.

(b) Install the boot.

(c) Apply MP grease to the front surface of the release bearing.



7. INSTALL TRANSAXLE TO ENGINE
(See pages MT-38 to 40)