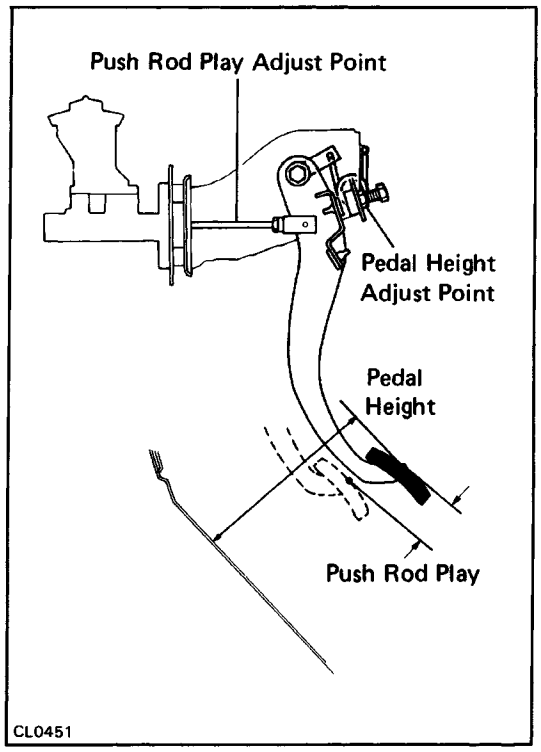
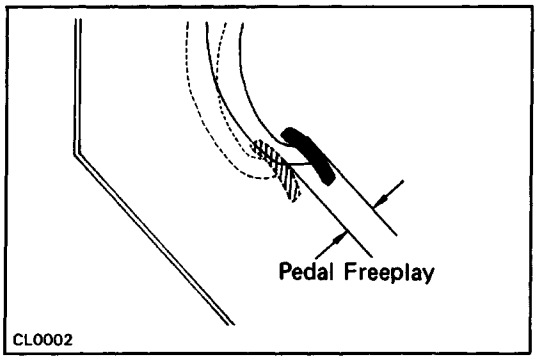
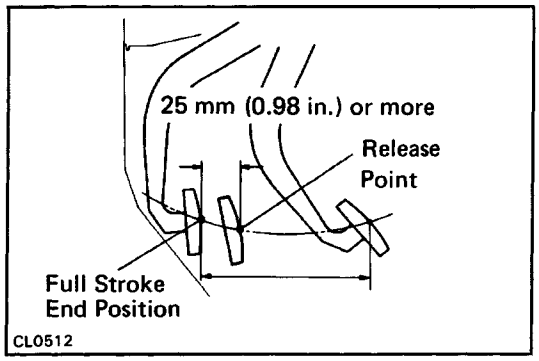
CLUTCH

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Hard to shift or will not shift	Clutch pedal freeplay excessive Air in clutch lines Clutch release cylinder faulty Clutch master cylinder faulty Clutch disc out of true, runout is excessive or lining broken Splines on input shaft or clutch disc dirty or burred Clutch pressure plate faulty	Adjust pedal freeplay Bleed clutch system Repair release cylinder Repair master cylinder Inspect clutch disc Repair as necessary Replace clutch cover	CL–3 CL–4 CL–10 CL–7 CL–13 CL–12 CL–14
Transmission jumps out of gear	Clutch pilot bearing worn	Replace pilot bearing	CL–14
Clutch slips	Clutch pedal freeplay insufficient Clutch disc lining oily or worn out Pressure plate faulty Release fork binding	Adjust pedal freeplay Inspect clutch disc Replace clutch cover Inspect release fork	CL–3 CL–13 CL–14
Clutch grabs/ chatters	Clutch disc lining oily or worn out Pressure plate faulty Clutch diaphragm spring bent Engine mounts loose	Inspect clutch disc Replace clutch cover Align clutch diaphragm Repair as necessary	CL–13 CL–14 CL–15
Clutch pedal spongy	Air in clutch lines Clutch release cylinder faulty Clutch master cylinder faulty	Bleed clutch system Repair release cylinder Repair master cylinder	CL–4 CL–10 CL–7
Clutch noisy	Loose part inside housing Release bearing worn or dirty Pilot bearing worn Release fork or linkage sticking	Repair as necessary Replace release bearing Replace pilot bearing Repair as necessary	 CL–15 CL–14







CHECK AND ADJUSTMENT OF CLUTCH PEDAL

1. CHECK THAT PEDAL HEIGHT AND PUSH ROD PLAY ARE CORRECT

Pedal height

(from asphalt sheet): 2WD 154.5 mm (6.0827 in.)
4WD 151.5 mm (5.9646 in.)
(from floor panel): 157.5 mm (6.201 in.)

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

If incorrect, adjust the pedal height and push rod play.

2. IF NECESSARY, ADJUST PEDAL HEIGHT AND PUSH ROD PLAY

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

3. CHECK THAT PEDAL FREEPLAY IS CORRECT

Push in on the pedal until the beginning of clutch resis–tance is felt.

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

4. IF NECESSARY, ADJUST PEDAL FREEPLAY

(a) Loosen the lock nut and turn the push rod until the freeplay is correct.
(b) Tighten the lock nut.
(c) After adjusting the pedal freeplay, check the pedal height.

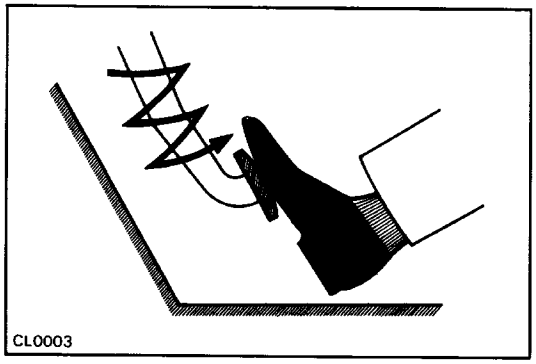
5. INSPECT CLUTCH RELEASE POINT

(a) Pull the parking brake lever and install wheel stop–per.
(b) Start the engine and idle the engine.
(e) Without depressing the clutch pedal, slowly shift the shift lever into reverse position until the gears contact.
(d) Gradually depress the clutch pedal and measure the stroke distance from the point the gear noise stops (release point) up to the full stroke end position.

Standard distance: 25 mm (0.98 in.) or more
(From pedal stroke end position to release point)

If the distance not as specified, perform the following op–eration.

- Inspect pedal height.
- Inspect push rod play and pedal free play.
- Bleed the clutch line.
- Inspect the clutch cover and disc.


CL0003

BLEEDING OF CLUTCH SYSTEM

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

NOTICE: 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

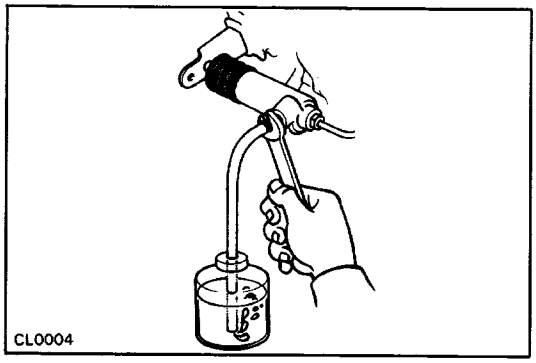
Insert the other end of the tube in a half–full container of brake fluid.

3. BLEED CLUTCH LINE

(a) Slowly pump the clutch pedal several times.

(b) While pressing on 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 more air bubbles in the fluid.


CL0004

INSPECTION OF CLUTCH START SYSTEM

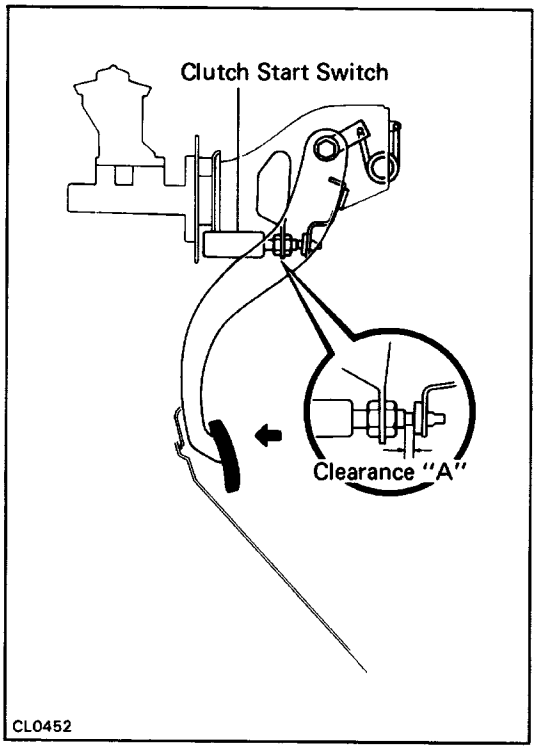
CHECK CLUTCH PEDAL

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)



CL0452

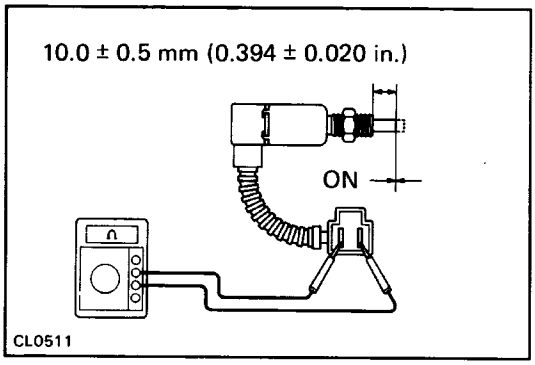
CHECK CLUTCH START SYSTEM

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 is fully depressed.
If necessary, adjust or replace the clutch start switch.



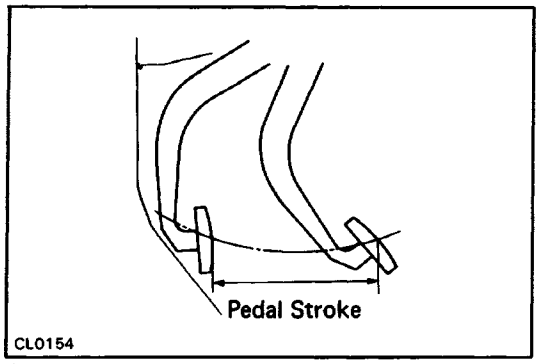
CL0511

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).

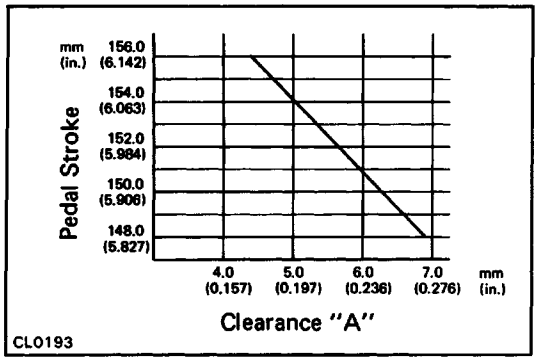
(b) Check that there is no continuity between terminals when the switch is OFF (free).
If continuity is not as specified, replace the switch.



2. ADJUST CLUTCH START SWITCH

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

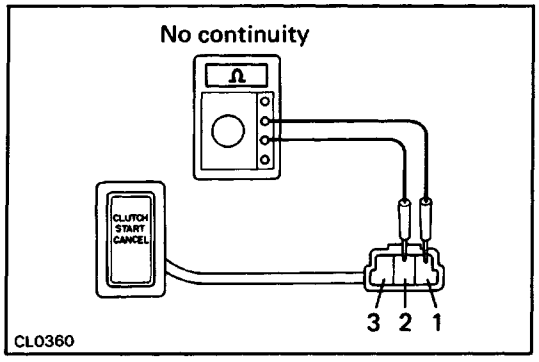
(b) Loosen and adjust the switch position.



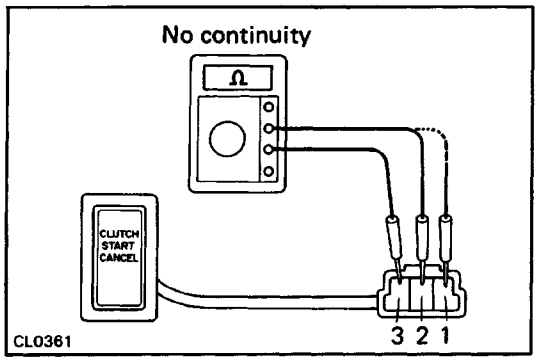
(c) Recheck that the engine does not start when the clutch pedal is released.

INSPECTION OF CLUTCH START CANCEL SWITCH

1. INSPECT CONTINUITY OF CLUTCH START CANCEL SWITCH



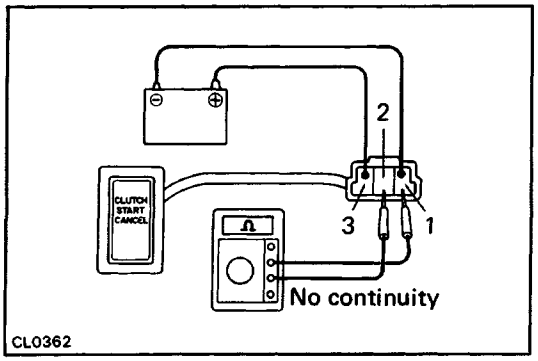
(a) Check that there is no continuity when connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (–) lead to terminal 1.



(b) Check that there is no continuity when connect the positive (+) lead from the ohmmeter to terminal 3 and the negative (–) lead to terminal 1.

(c) Check that there is no continuity between terminals 2 and 3.

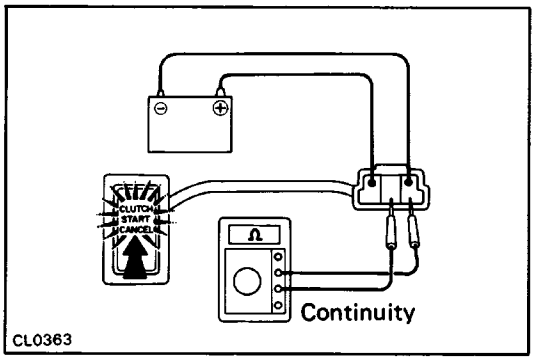
If continuity is not as specified, replace the clutch start cancel switch.



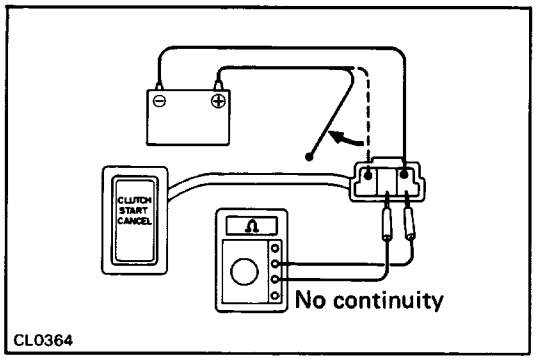
2. INSPECT OPERATION OF CLUTCH START CANCEL SWITCH

(a) Connect positive (+) lead from the battery to terminal 3 and connect negative (–) lead to terminal 1.

(b) Check that there is no continuity when connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (–) lead to terminal 1.



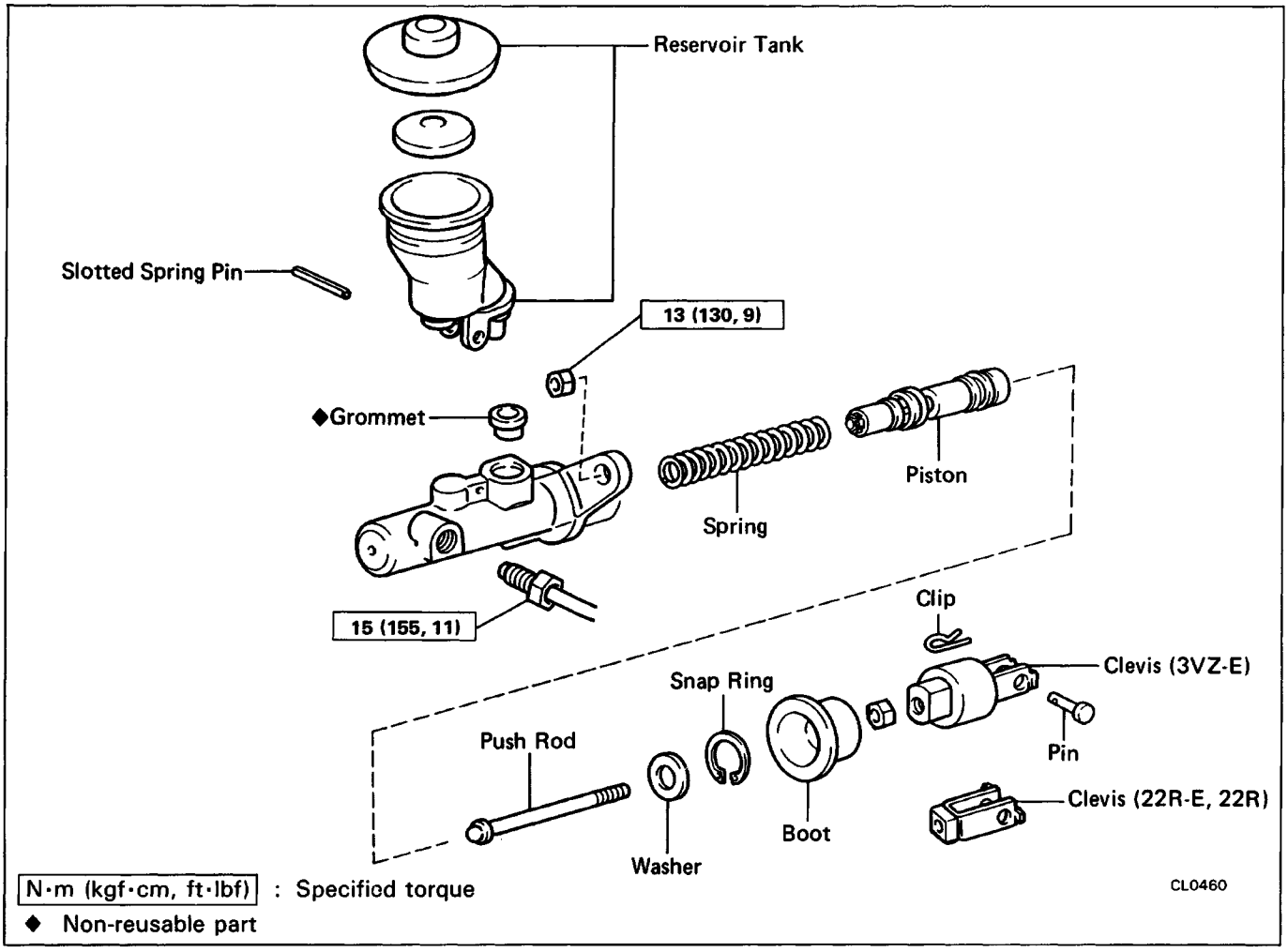
(c) When pushing the switch, check that the indicator light comes on and there is continuity between terminals 1 and 2.



(d) Check that there is no continuity between terminals 1 and 2 when disconnect the battery lead.
If operation is not as specified, replace the clutch start cancel switch.

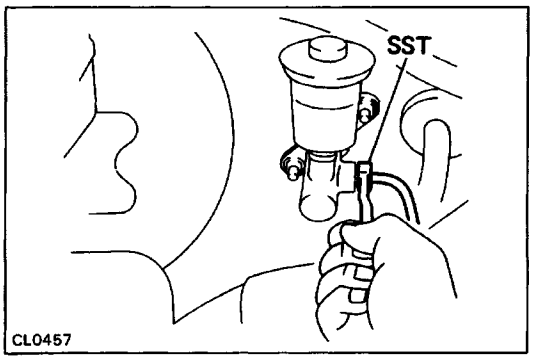
CLUTCH MASTER CYLINDER

COMPONENTS



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part



REMOVAL OF MASTER CYLINDER

1. REMOVE PUSH ROD PIN

2. DISCONNECT CLUTCH LINE UNION

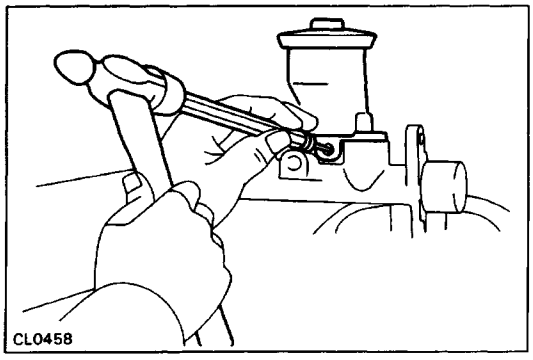
Using SST, disconnect the union nut.

SST 09751–36011

3. REMOVE MASTER CYLINDER

(a) Remove the mounting nut.

(b) Pull out the master cylinder.

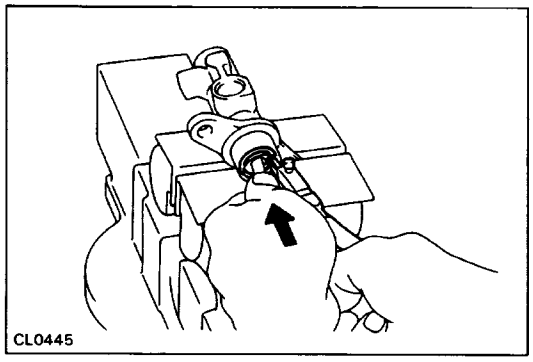


DISASSEMBLY OF MASTER CYLINDER

1. REMOVE RESERVOIR TANK

(a) Using a pin punch and a hammer, drive out the slotted spring pin.

(b) Remove reservoir tank and grommet.



2. REMOVE PUSH ROD

(a) Pull back the boot and, using snap ring pliers, remove the snap ring.
(b) Pull out the push rod and washer.
(c) Remove the piston from the cylinder.

INSPECTION OF MASTER CYLINDER

HINT: Clean the disassembled parts with compressed air.

1. INSPECT MASTER CYLINDER BORE FOR SCORING OR CORROSION.

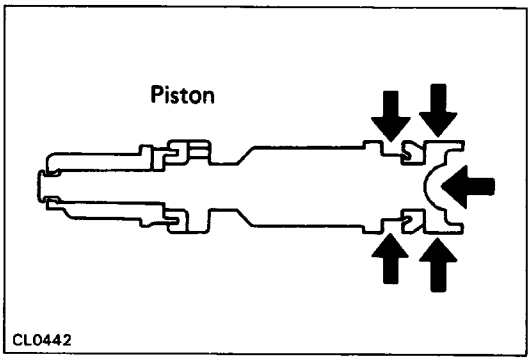
If a problem is found, clean or replace the cylinder.

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

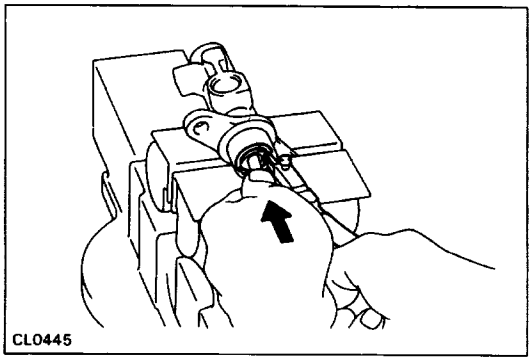
If necessary, replace the push rod.



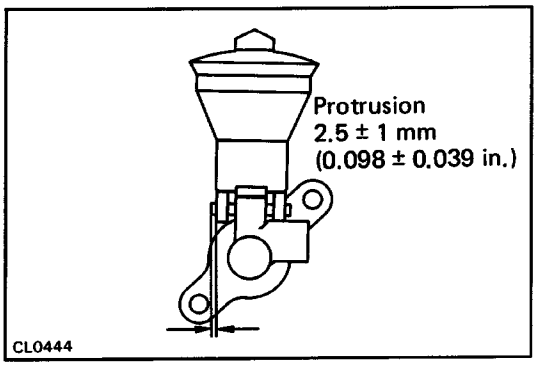
ASSEMBLY OF MASTER CYLINDER

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

(a) Install reservoir tank and new grommet.

(b) Using a pin punch and a hammer, drive in the slotted spring pin.

INSTALLATION OF MASTER CYLINDER

(See page CL–7)

1. INSTALL MASTER CYLINDER

Install the mounting nut, and torque them.

Torque: 13 N–m (130 kgf–cm, 9 ft–lbf)

2. CONNECT CLUTCH LINE UNION

Using SST, connect the union.

SST 09751–36011

3. CONNECT PUSH ROD AND INSTALL PIN

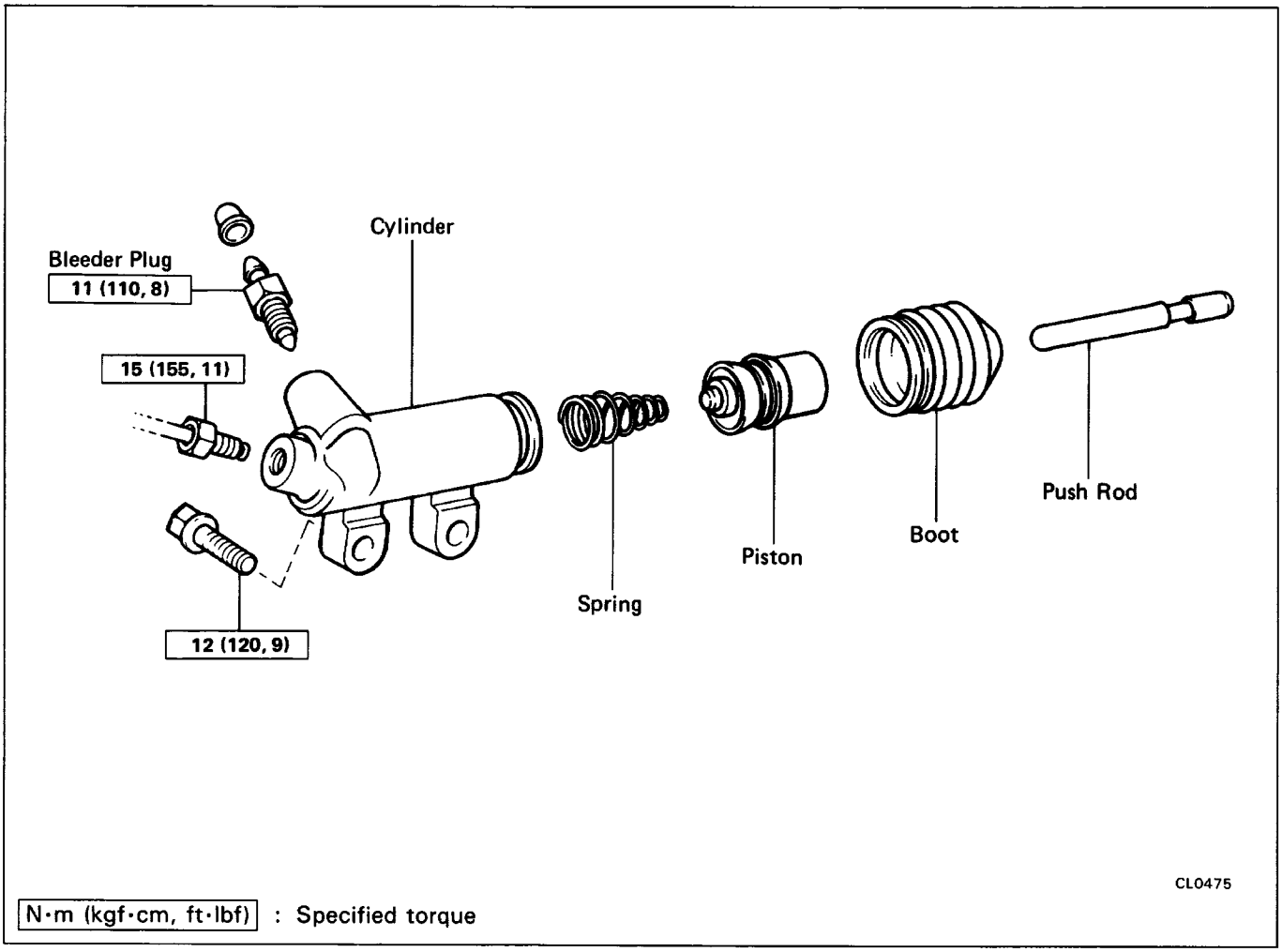
Install the clip in the push rod pin.

4. BLEED SYSTEM AND ADJUST CLUTCH PEDAL

(See page CL–4)

CLUTCH RELEASE CYLINDER

COMPONENTS



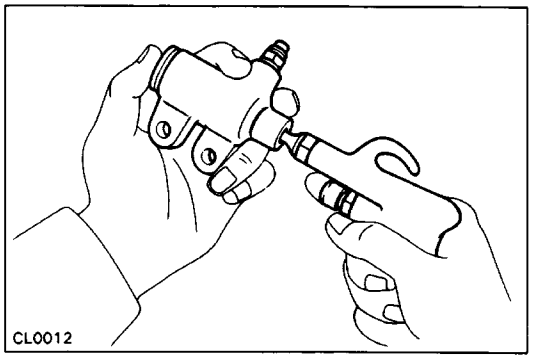
REMOVAL OF RELEASE CYLINDER

1. DISCONNECT CLUTCH LINE UNION

Using SST, disconnect the union.

SST 09751–36011

2. REMOVE TWO BOLTS AND PULL OFF RELEASE CYLINDER



DISASSEMBLY OF RELEASE CYLINDER

1. PULL OUT PUSH ROD

2. REMOVE BOOT

3. REMOVE PISTON

INSPECTION OF RELEASE CYLINDER

HINT: Clean the disassembled parts with compressed air.

1. INSPECT RELEASE CYLINDER BORE FOR SCORING OR CORROSION

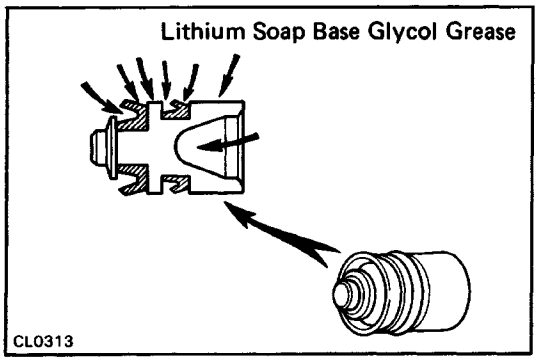
If a problem is found, clean or replace the cylinder.

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–10)

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

2. INSTALL PISTON

3. INSTALL BOOT AND INSERT PUSH ROD

INSTALLATION OF RELEASE CYLINDER

(See page CL–10)

1. INSTALL RELEASE CYLINDER WITH TWO BOLTS

Torque: 12 N–m (120 kgf–cm, 9 ft–lbf)

2. CONNECT CLUTCH LINE UNION

Using SST, connect the union.

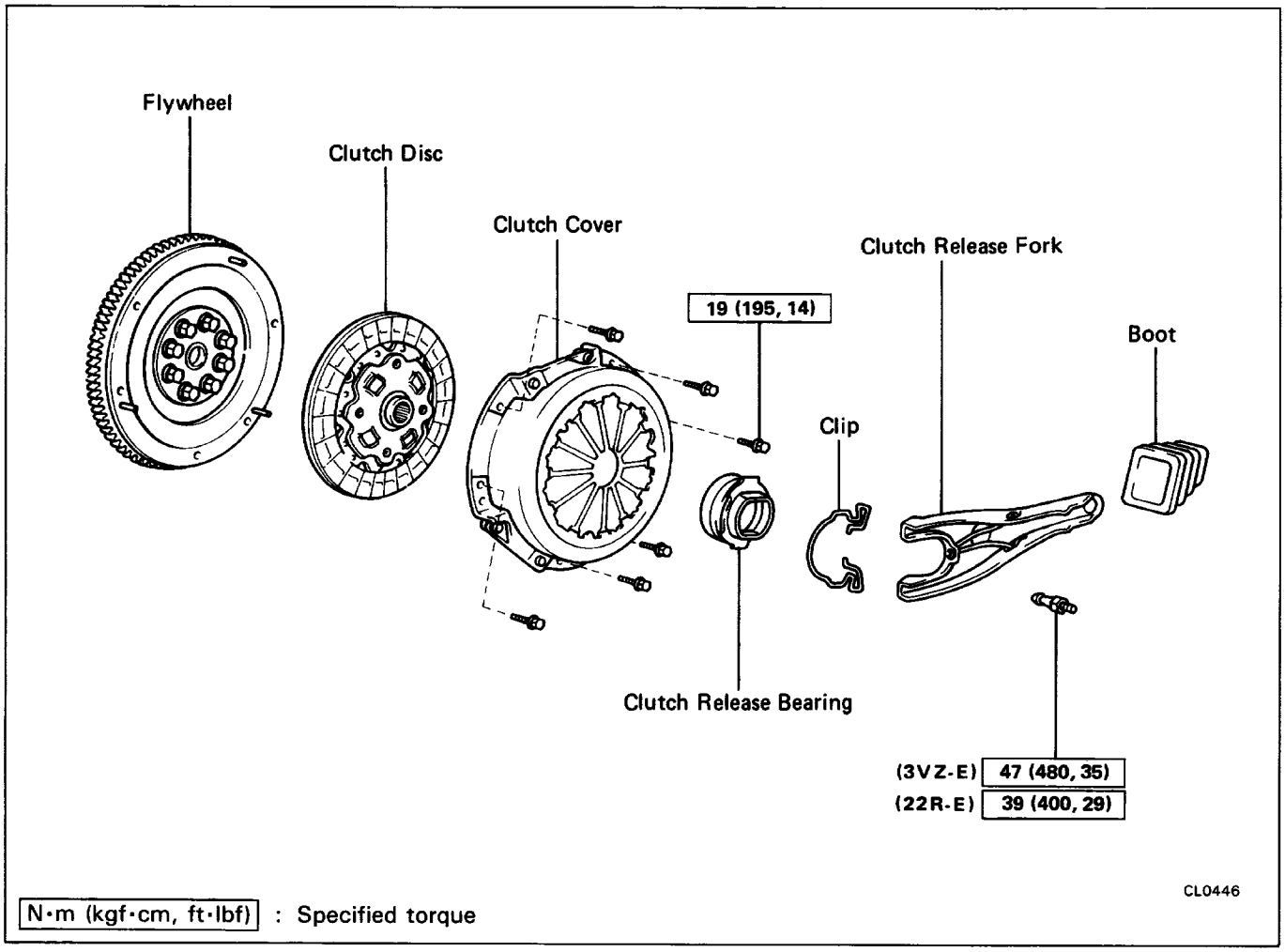
SST 09751–36011

3. BLEED CLUTCH SYSTEM

(See page CL–4)

CLUTCH UNIT

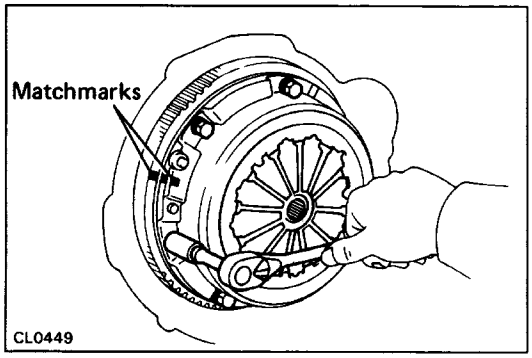
COMPONENTS



REMOVAL OF CLUTCH UNIT

1. REMOVE TRANSMISSION (See pages MT–4, TF–5)

HINT: Do not drain the transmission oil.

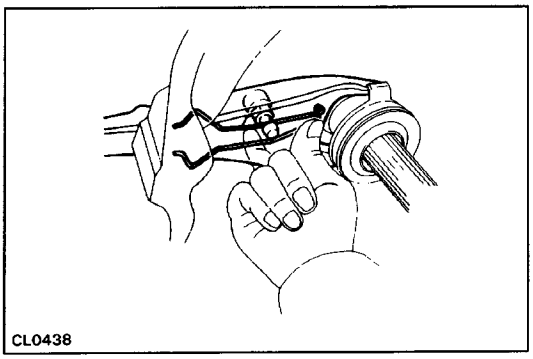


2. REMOVE CLUTCH COVER AND DISC

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

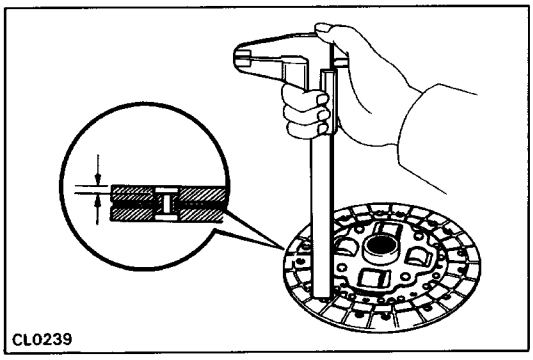
(b) Loosen the set bolts one turn at a time until spring tension is released.

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



3. REMOVE BEARING,HUB AND FORK FROM TRANSMISSION

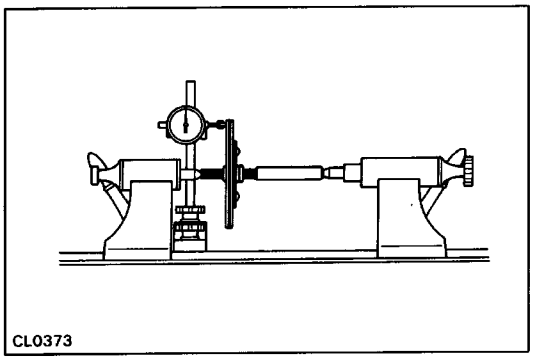
(a) Remove the retaining clip pull off the bearing.
(b) Remove the fork and boot.



INSPECTION OF CLUTCH PARTS

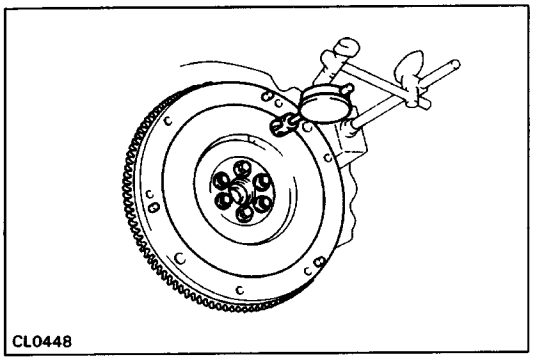
1. INSPECT CLUTCH DISC FOR WEAR OR DAMAGE

Using calipers, measure the rivet head depth.
Minimum rivet depth: 0.3 mm (0.012 in.)
If a problem is found, repair or replace the clutch disc.



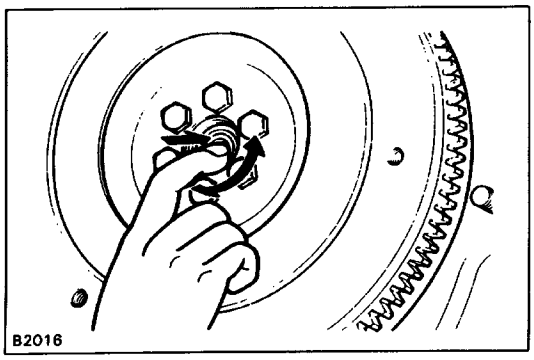
2. INSPECT CLUTCH DISC RUNOUT

Using a dial indicator, check the disc runout.
Maximum runout: 0.8 mm (0.031 in.)
If runout is excessive, replace the disc.



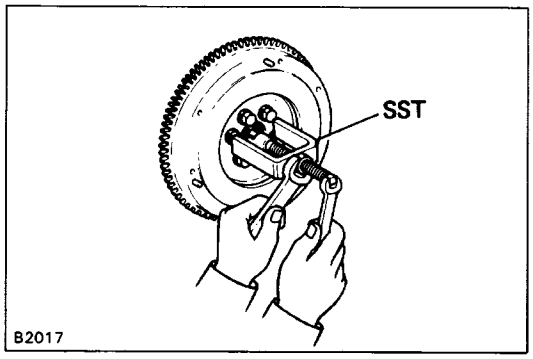
3. INSPECT FLYWHEEL RUNOUT

Using a dial indicator, check the flywheel runout.
Maximum runout: 0.1 mm (0.004 in.)
If runout is excessive, repair or replace flywheel.



4. INSPECT PILOT BEARING

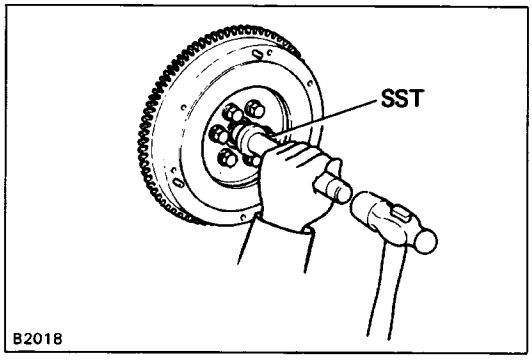
Turn the bearing by hand while applying force in the rotation direction.
If the bearing sticks or has much resistance, replace the pilot bearing.
HINT: The bearing is permanently lubricated and requires no cleaning or lubrication.



5. IF NECESSARY, REPLACE PILOT BEARING

(a) Using SST, remove the pilot bearing.

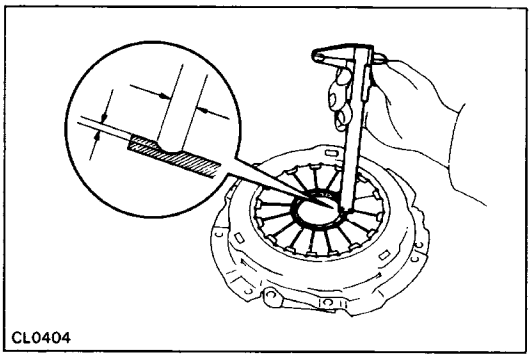
SST 09303–35011



(b) Using SST, install the pilot bearing.

SST 09304–30012

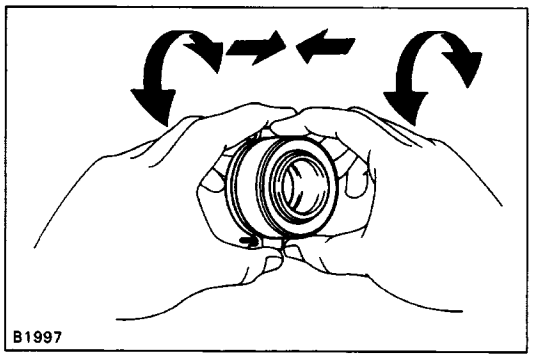
HINT: After assembling the pilot bearing to the hud, in–sure that it rotates smoothly.



6. INSPECT DIAPHRAGM SPRING FOR WEAR

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

Maximum: Depth 0.6 mm (0.024 in.)
Width 5.0 mm l0.197 in.)

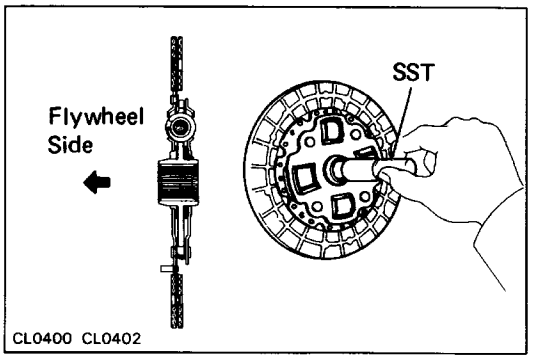


7. INSPECT RELEASE BEARING

Turn the bearing by hand while applying force in the rota–tion direction.

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

HINT: The bearing is permanently lubricated and re–quires no cleaning or lubrication.



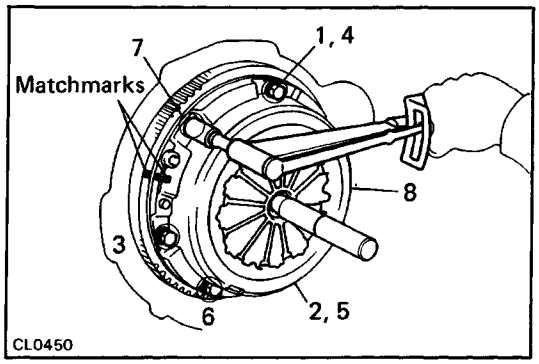
INSTALLATION OF CLUTCH UNIT

(See page CL–12)

1. INSTALL DISC ON FLYWHEEL

Using SST, install the disc on the flywheel.

SST 09301–20020



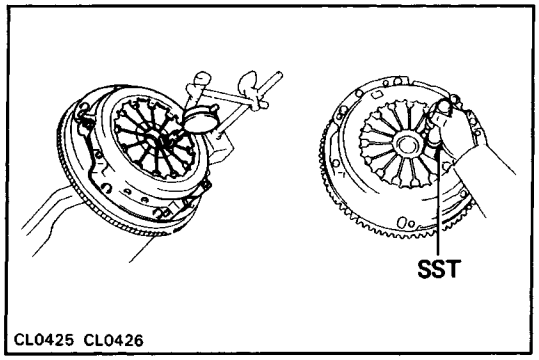
2. INSTALL CLUTCH COVER

(a) Align the matchmarks on the clutch cover and fly–wheel.

(b) Torque the bolts on the clutch cover in the order shown.

Torque: 19 N–m (195 kgf–cm, 14 ft–lbf)

HINT: Temporarily tighten the No. 1 and No. 2 bolts.



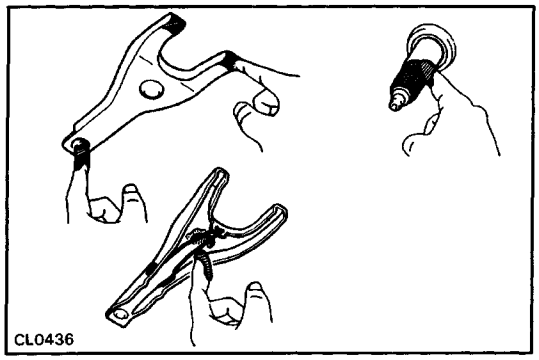
3. CHECK DIAPHRAGM SPRING TIP ALIGNMENT

Using a dial indicator with roller instrument, check the di–aphragm spring tip alignment.

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

If alignment is not as specified, using SST, adjust the di–aphragm spring tip alignment.

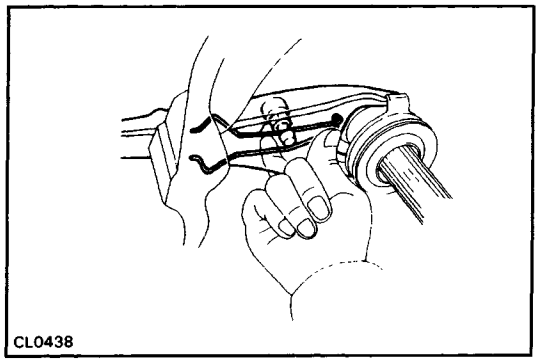
SST 09333–00013



4. APPLY MOLYBDENUM DISULPHIDE LITHIUM BASE GREASE (NLGI NO.2) OR MP GREASE

Apply molybdenum disulphide lithium base grease to the following parts:

- Release fork and hub contact point
- Release fork and push rod contact point
- Release fork pivot point
- Clutch disc spline



5. INSTALL BOOT, FORK, HUB AND BEARING ON TRANSMISSION

6. INSTALL TRANSMISSION

(See pages MT–5, TF–4)