
CLUTCH

TROUBLESHOOTING	CL-1
CLUTCH PEDAL	CL-2
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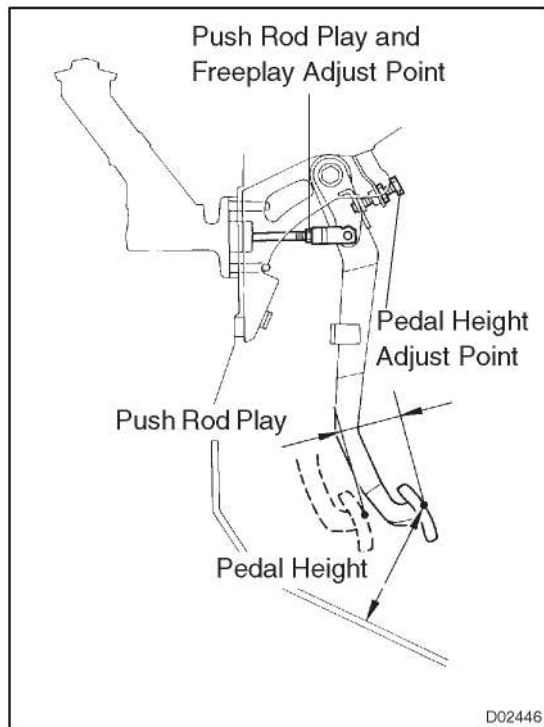
TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

CL014-02

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspect Area	See page
Clutch grabs/chatters	1. Engine mounting (Loosen)	–
	2. Clutch disc (Runout is excessive)	CL-15
	3. Clutch disc (Oily)	CL-15
	4. Clutch disc (Worn out)	CL-15
	5. Clutch disc torsion rubber (Damaged)	CL-15
	6. Clutch disc (Glazed)	CL-15
	7. Diaphragm spring (Out of tip alignment)	CL-15
Clutch pedal spongy	1. Clutch line (Air in line)	–
	2. Master cylinder cup (Damaged)	CL-4
	3. Release cylinder cup (Damaged)	CL-10
Clutch noisy	1. Release bearing (Worn, dirty, or damaged)	CL-15
	2. Clutch disc torsion rubber (Damaged)	CL-15
Clutch slips	1. Clutch pedal (Free play out of adjustment)	CL-2
	2. Clutch disc (Oily)	CL-15
	3. Clutch disc (Worn out)	CL-15
	4. Diaphragm spring (Damaged)	CL-15
	5. Pressure plate (Distortion)	CL-15
	6. Flywheel (Distortion)	–
Clutch does not disengage	1. Clutch pedal (Free play out of adjustment)	CL-2
	2. Clutch line (Air in line)	–
	3. Master cylinder cup (Damaged)	CL-4
	4. Release cylinder cup (Damaged)	CL-10
	5. Clutch disc (Out of true)	CL-15
	6. Clutch disc (Runout is excessive)	CL-15
	7. Clutch disc (Lining broken)	CL-15
	8. Clutch disc (Dirty or burned)	CL-15
	9. Clutch disc (Oily)	CL-15
	10. Clutch disc (Lack of spline grease)	CL-18
	11. Diaphragm spring (Damaged)	CL-15
	12. Diaphragm spring (Out of tip alignment)	CL-18
	13. Pressure plate (Distortion)	CL-15



CLUTCH PEDAL INSPECTION

CL015-02

1. CHECK PEDAL HEIGHT

Pedal height from asphalt sheet:

LHD:

4A-FE, 7A-FE ENGINE:

139.7 – 149.7 mm (5.499 – 5.893 in.)

3S-FE, 2C-TE, 2C-T ENGINE:

148.3 – 158.3 mm (5.838 – 6.232 in.)

RHD:

4A-FE, 7A-FE ENGINE:

148.7 – 158.7 mm (5.854 – 6.248 in.)

3S-FE, 2C-TE, 2C-T ENGINE:

157.4 – 167.4 mm (6.196 – 6.590 in.)

2. IF NECESSARY, ADJUST PEDAL HEIGHT

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

3. CHECK PEDAL FREEPLAY AND PUSH ROD PLAY

Depress pedal until clutch resistance begins to be felt.

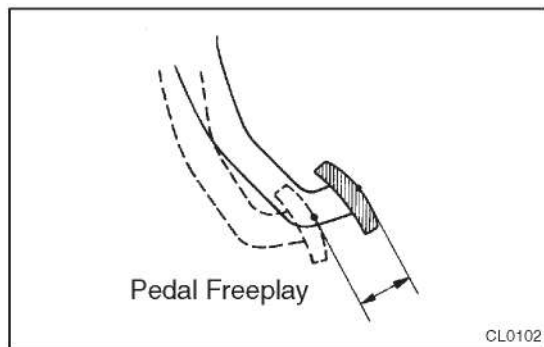
Pedal freeplay:

1.0 – 5.0 mm (0.039 – 0.197 in.)

Gently push on the pedal until the resistance begins to increase a little.

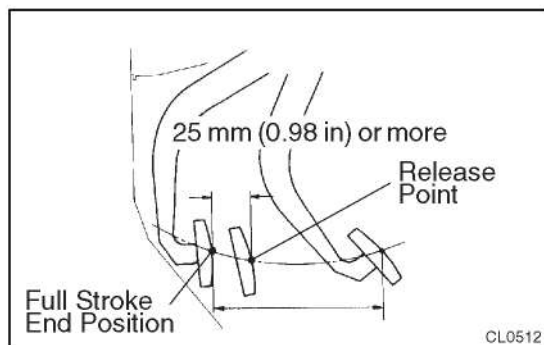
Push rod play at pedal top:

5.0 – 15.0 mm (0.197 – 0.591 in.)



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

- Remove the air duct and the lower finish panel (See page BO-113).
- Loosen the lock nut and turn the push rod until the freeplay and push rod play are correct.
- Tighten the lock nut.
- After adjusting the pedal freeplay, check the pedal height.
- Connect the air duct and install the lower finish panel.

**5. CHECK CLUTCH RELEASE POINT**

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

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

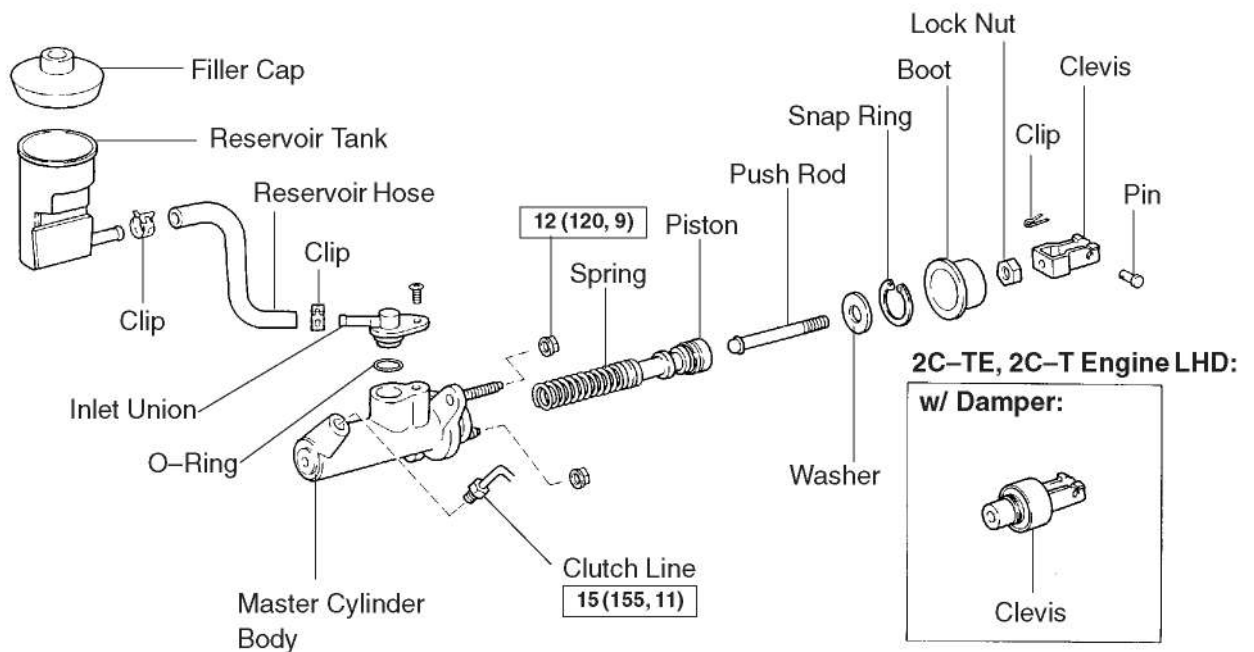
If the distance is not as specified, perform the following operations.

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

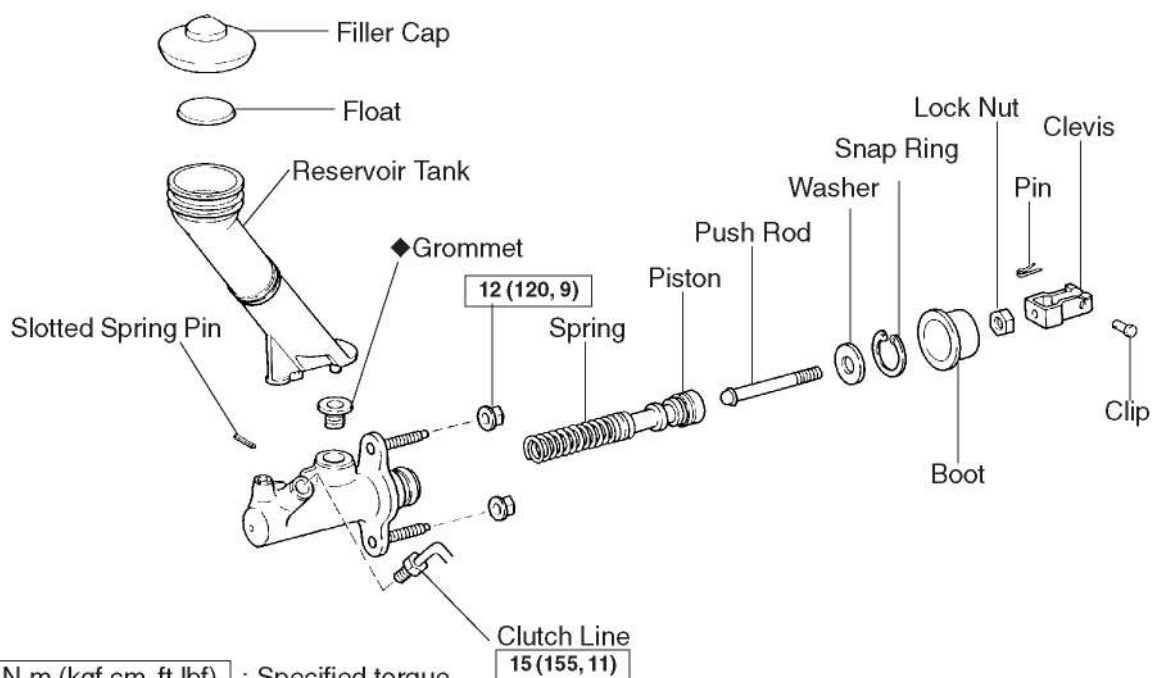
CLUTCH MASTER CYLINDER COMPONENTS

CL016-02

LHD:



4A-FE, 7A-FE, 3S-FE Engine RHD:

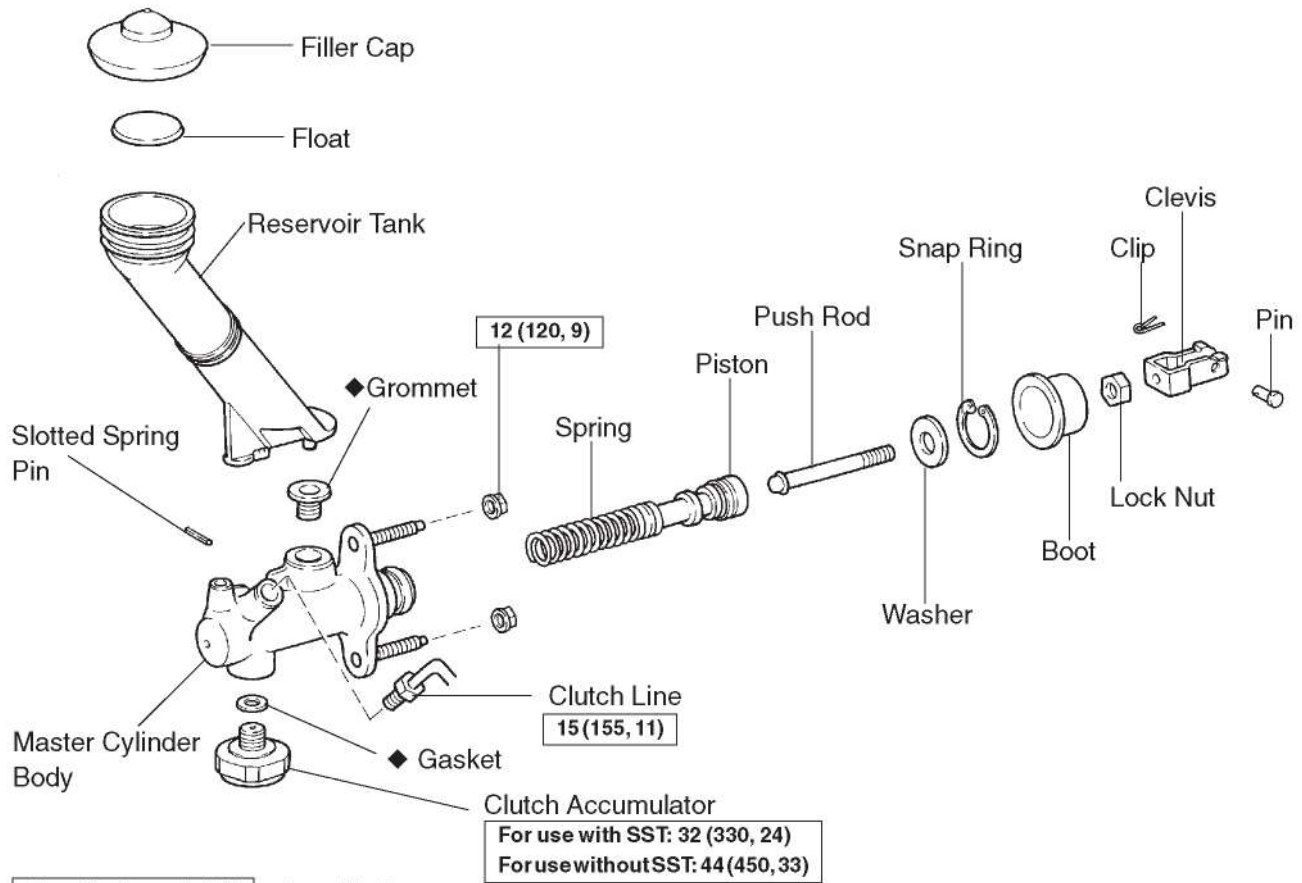


N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

D02178

2C-TE Engine RHD:



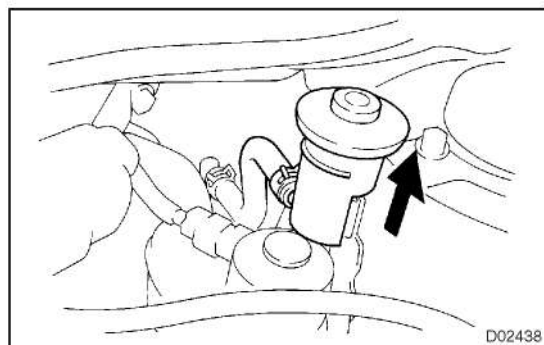
N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

D02437

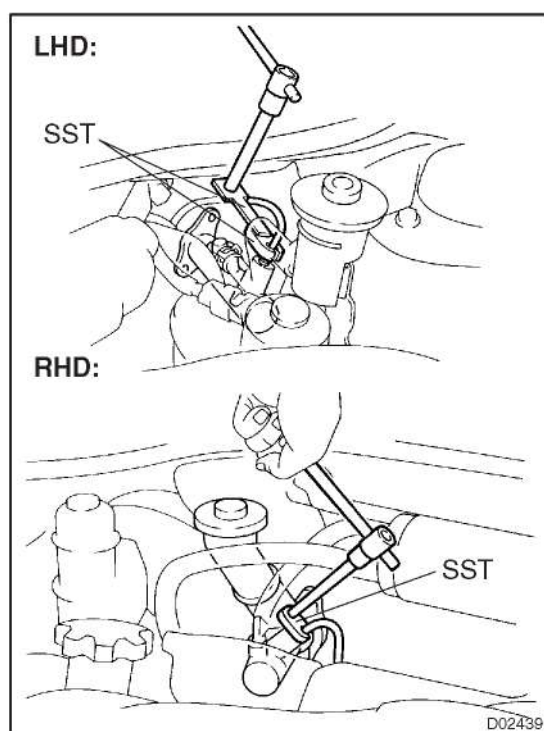
REMOVAL

1. DRAW OUT FLUID WITH SYRINGE



2. LHD: DISCONNECT RESERVOIR TANK

Disconnect reservoir tank from reservoir tank bracket.



3. LHD: DISCONNECT CLUTCH LINE

Using SST, disconnect the clutch line. Use a container to catch the fluid.

SST 09023-00100, 09249-63010

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

4. RHD: DISCONNECT CLUTCH LINE

Using SST, disconnect the clutch line. Use a container to catch the fluid.

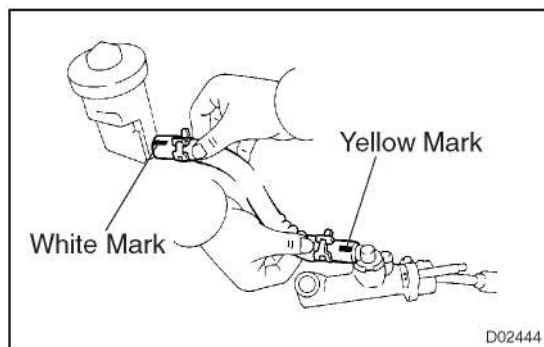
SST 09023-00100

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

5. REMOVE CLIP AND PIN

6. REMOVE 2 MOUNTING NUTS AND PULL OUT MASTER CYLINDER AND GASKET

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)

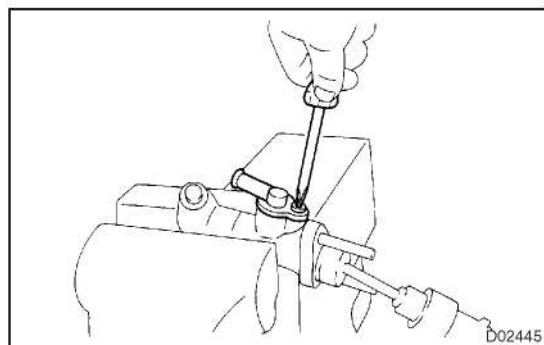


DISASSEMBLY

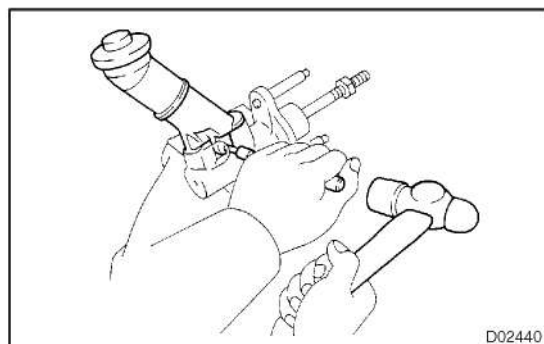
1. LHD:

REMOVE RESERVOIR TANK

- Using a pliers, disconnect the 2 clips.
- Remove the reservoir tank from reservoir hose.
- Remove the reservoir hose from inlet union.



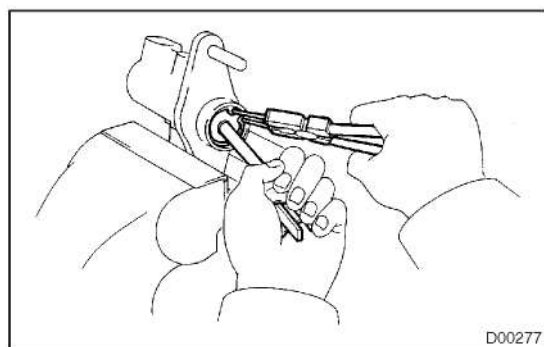
- Remove the inlet union.



2. RHD:

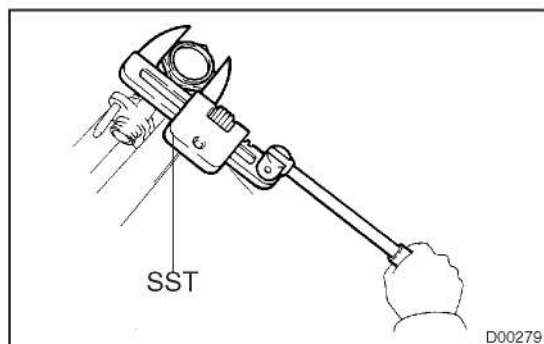
REMOVE RESERVOIR TANK

- Using a pin punch and hammer, drive out the slotted spring pin.
- Remove the reservoir tank and grommet.



3. REMOVE PUSH ROD

- Pull back the boot and remove the snap ring with snap ring pliers.
- Pull out the push rod and washer.
- Remove the piston from the cylinder.

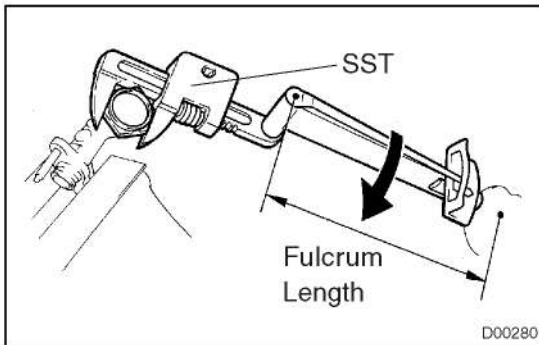


4. 2C-TE ENGINE RHD:

REMOVE CLUTCH ACCUMULATOR

Using SST, remove the accumulator and gasket.

SST 09922-10010



REASSEMBLY

1. 2C-TE ENGINE RHD:

INSTALL CLUTCH ACCUMULATOR

Using SST, install the accumulator with a new gasket.

SST 09922-10010

Torque:

For use with SST:

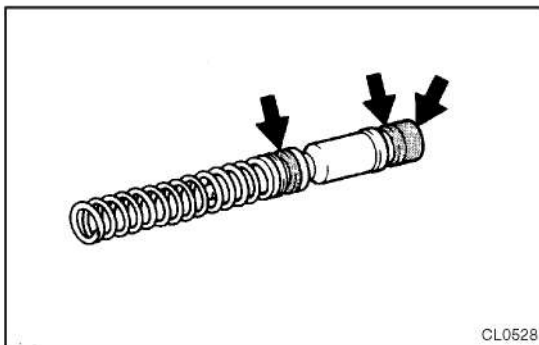
32 N·m (330 kgf·cm, 24 ft·lbf)

For use without SST

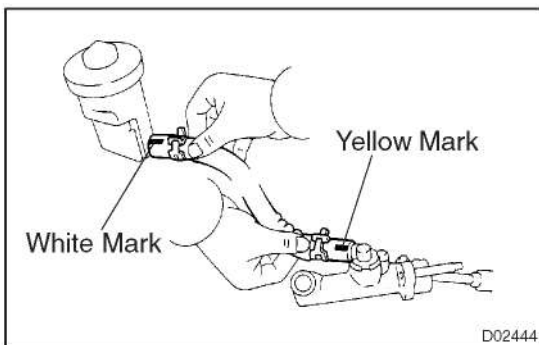
44 N·m (450 kgf·cm, 33 ft·lbf)

HINT:

Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).



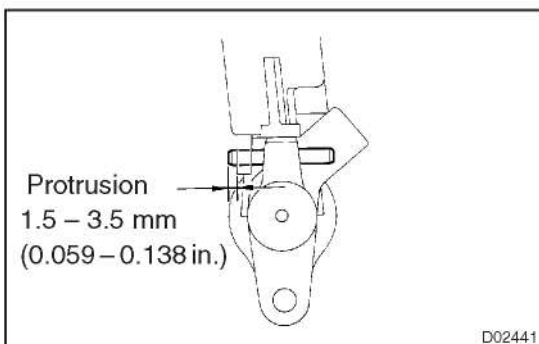
2. COAT PARTS WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN IN ILLUSTRATION
3. INSERT PISTON INTO CYLINDER
4. INSTALL PUSH ROD ASSEMBLY WITH NEW GASKET AND NEW PISTON STOP PLATE



5. LHD:

INSTALL RESERVOIR TANK

- (a) Install the O-ring and inlet union.
- (b) Facing the white mark upwards, install the reservoir hose to the reservoir tank.
- (c) Facing the yellow mark upwards, install the reservoir hose to the cylinder.
- (d) Using a pliers, connect the 2 clips.



6. RHD:

INSTALL RESERVOIR TANK

- (a) Install the reservoir tank and a new grommet.
- (b) Using a pin punch and hammer, drive in the slotted spring pin.

INSTALLATION

Installation is in the reverse order of removal (See page CL-6).

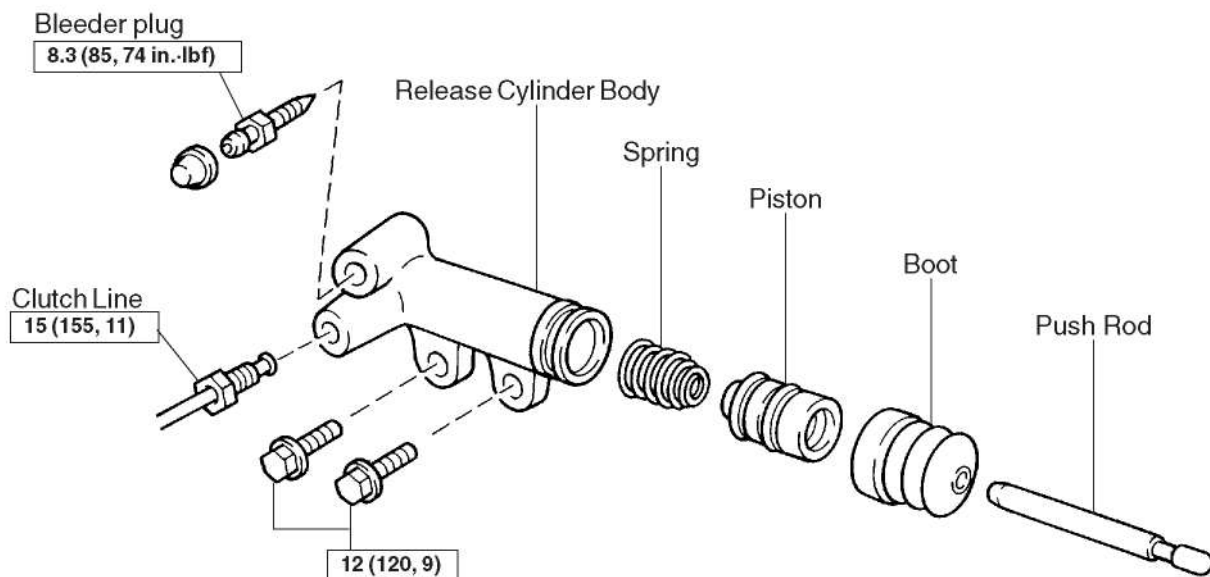
HINT:

After installation, bleed the clutch system and adjust the clutch pedal.

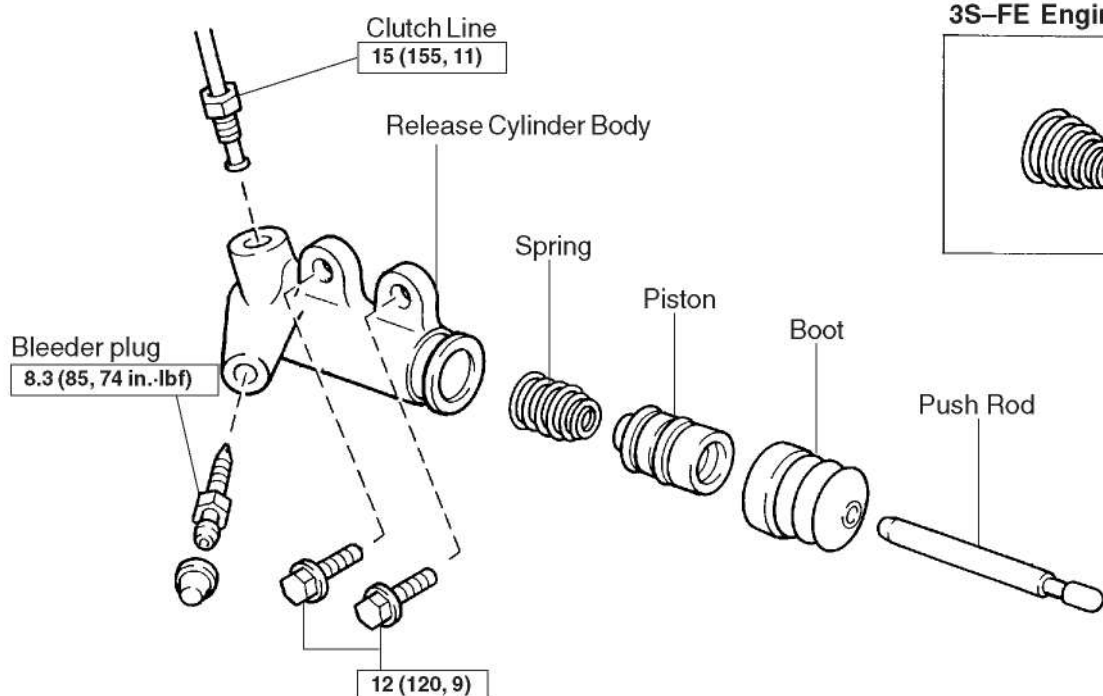
CLUTCH RELEASE CYLINDER COMPONENTS

CL01B-02

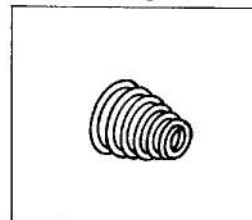
4E-FE, 7A-FE Engine:



3S-FE, 2C-TE, 2C-T Engine:



3S-FE Engine:



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

◆ Non-reusable part

D02447

REMOVAL

1. 2C-TE, 2C-T ENGINE:

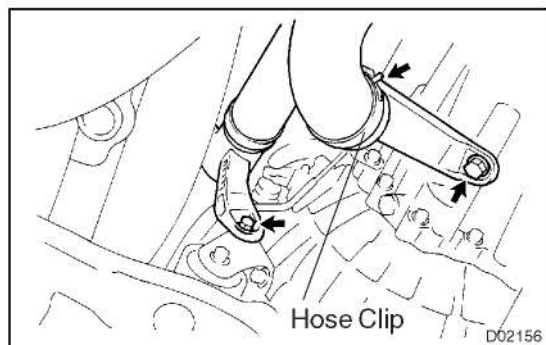
REMOVE NO.1 AND NO.2 AIR TUBE ASSEMBLY

- (a) Raise the vehicle.

NOTICE:

Make sure that the vehicle is securely supported.

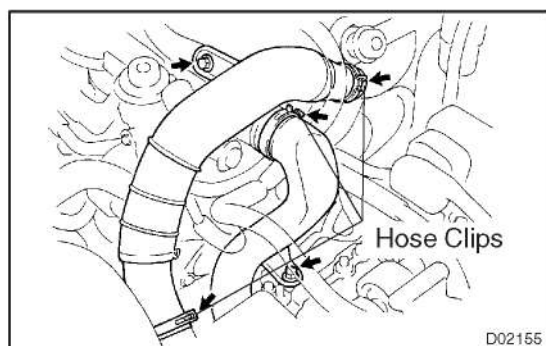
- (b) Remove LH and RH under covers.



- (c) Remove 2 lower side bolts of the No.1 and No.2 air tube assembly and disconnect the hose clip.

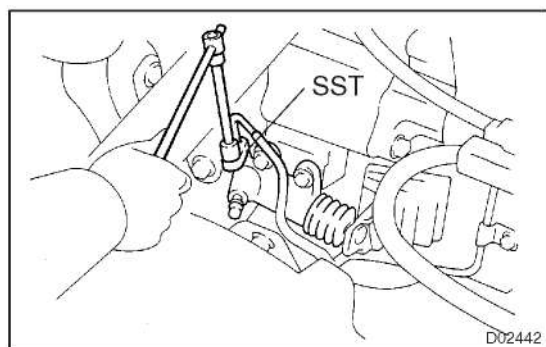
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

- (d) Lower the vehicle.



- (e) Remove the 2 upper side bolts of the No.1 and No.2 air tube assembly and disconnect 3 hose clips.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)



2. DISCONNECT CLUTCH LINE

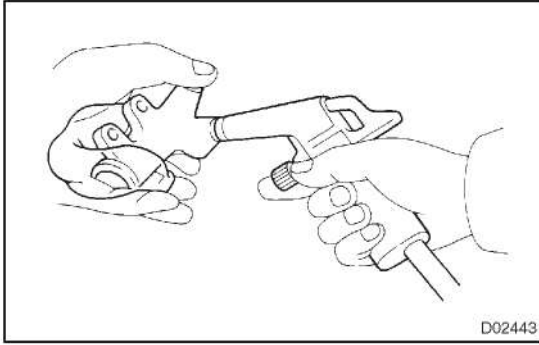
Using SST, disconnect the clutch line. Use a container to catch the fluid.

SST 09023-00100

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

3. REMOVE 2 BOLTS AND PULL OUT RELEASE CYLINDER

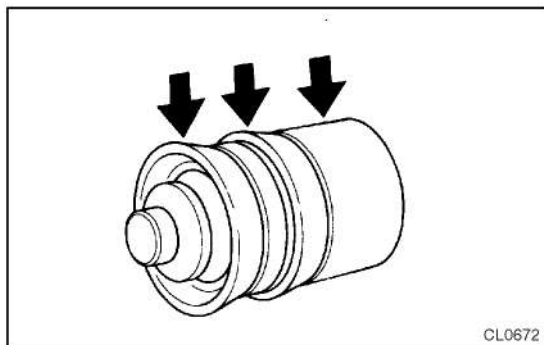
Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



DISASSEMBLY

1. REMOVE BLEEDER PLUG
2. PULL OUT BOOT WITH PUSH ROD
3. REMOVE PISTON

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



REASSEMBLY

1. COAT PISTON WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN IN ILLUSTRATION
2. INSTALL PISTON WITH SPRING INTO CYLINDER
3. INSTALL BOOT WITH PUSH ROD TO CYLINDER
4. INSTALL BLEEDER PLUG

Torque: 8.3 N·m (85 kgf·cm, 74 in.·lbf)

INSTALLATION

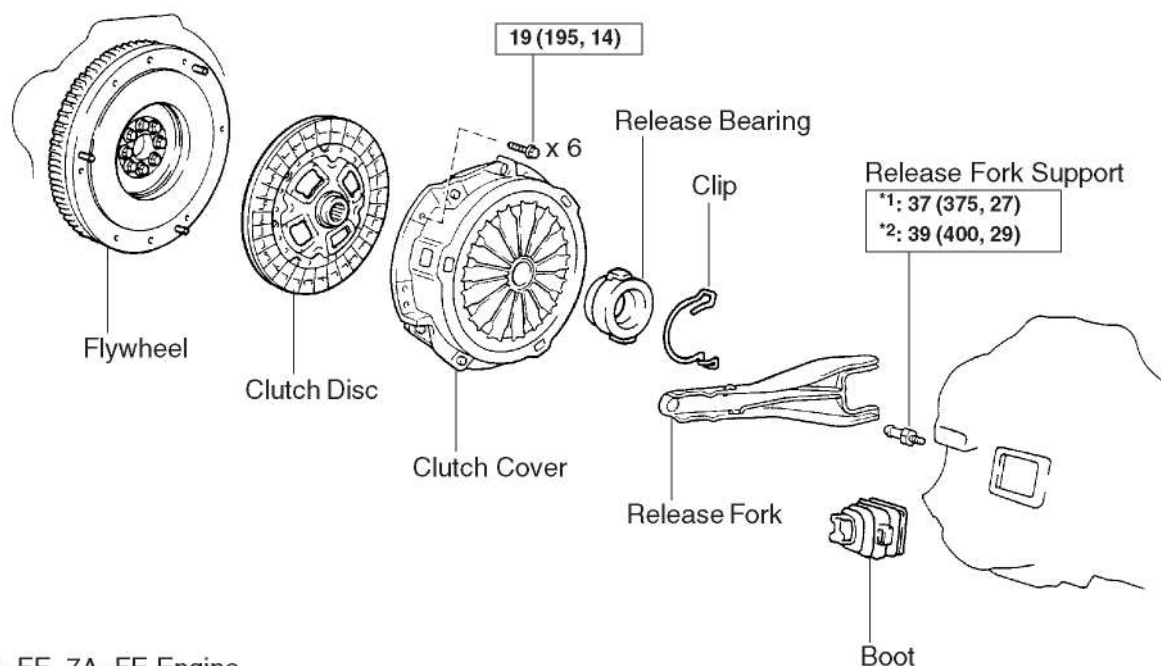
Installation is in the reverse order of removal (See page CL-11).

HINT:

After installation, bleed the clutch system.

CLUTCH UNIT COMPONENTS

CL01J-02



*1: 4A-FE, 7A-FE Engine

*2: 3S-FE, 2C-TE, 2C-T Engine

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

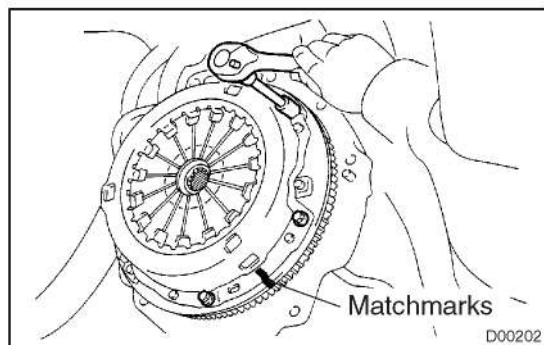
D00201

REMOVAL

1. REMOVE TRANSAXLE FROM ENGINE

C50, C250 M/T: See page MX-2

S50, S54 M/T: See page MX-2, MX-8

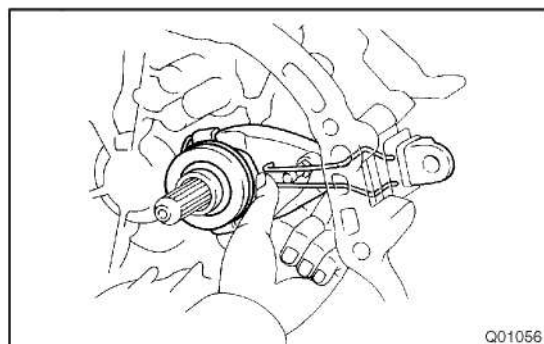


2. REMOVE CLUTCH COVER AND DISC

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

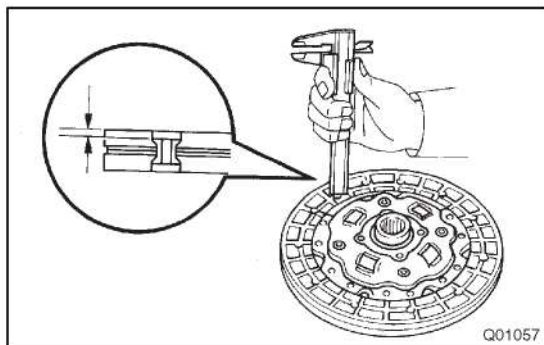
NOTICE:

Do not drop the clutch disc.



3. REMOVE RELEASE BEARING AND FORK FROM TRANSAXLE

Remove the release bearing with the fork together and then separate them.



INSPECTION

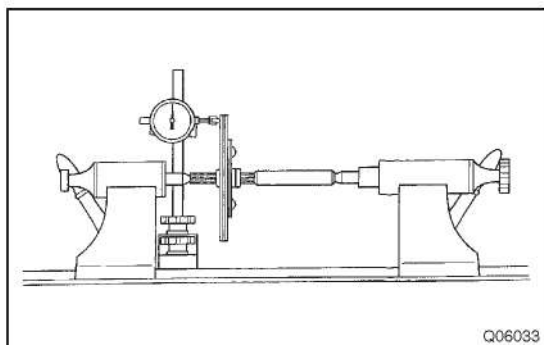
1. INSPECT CLUTCH DISC FOR WEAR OR DAMAGE

Using calipers, measure the rivet head depth.

Minimum rivet depth:

0.3 mm (0.012 in.)

If necessary, replace the clutch disc.



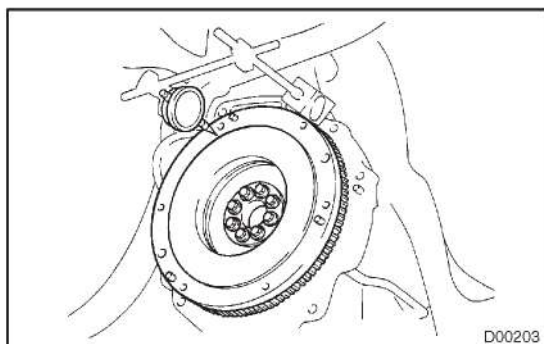
2. INSPECT CLUTCH DISC RUNOUT

Using a dial indicator, check the disc.

Maximum runout:

0.8 mm (0.031 in.)

If necessary, replace the clutch disc runout.



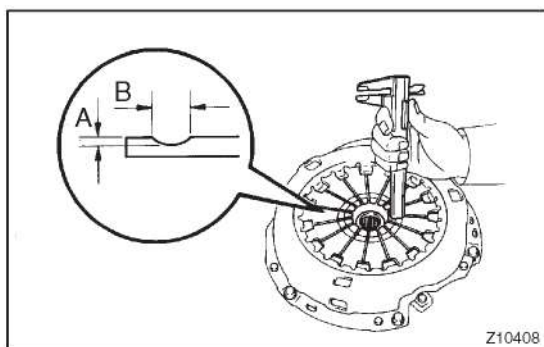
3. INSPECT FLYWHEEL RUNOUT

Using a dial indicator, check the flywheel runout.

Maximum runout:

0.1 mm (0.004 in.)

If necessary, replace the flywheel.



4. INSPECT DIAPHRAGM SPRING FOR WEAR

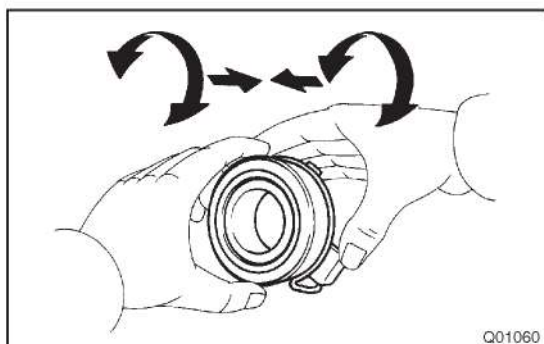
Using calipers, measure the diaphragm spring for depth and width of wear.

Maximum runout:

A (Depth): 0.5 mm (0.020 in.)

B (Width): 6.0 mm (0.236 in.)

If necessary, replace the clutch cover.



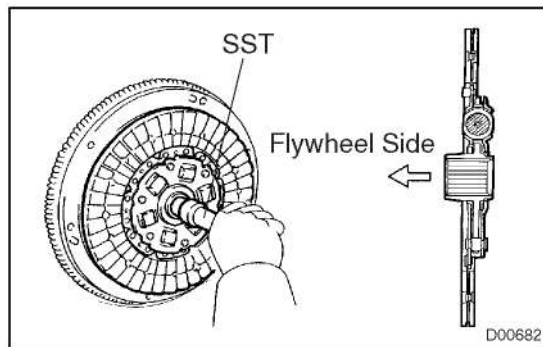
5. INSPECT RELEASE BEARING

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

HINT:

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

If necessary, replace the release bearing.



INSTALLATION

1. INSTALL CLUTCH DISC AND CLUTCH COVER ON FLYWHEEL

(a) 2C-TE, 2C-T Engine:

Insert SST in the clutch disc, and then insert them in the flywheel.

SST 09301-00210

HINT:

Take care not to insert clutch disc in the wrong direction.

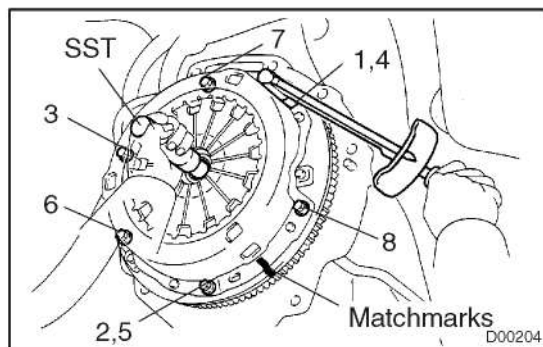
(b) Others:

Insert SST in the clutch disc, and then insert them in the flywheel.

SST 09301-00120

HINT:

Take care not to insert clutch disc in the wrong direction.



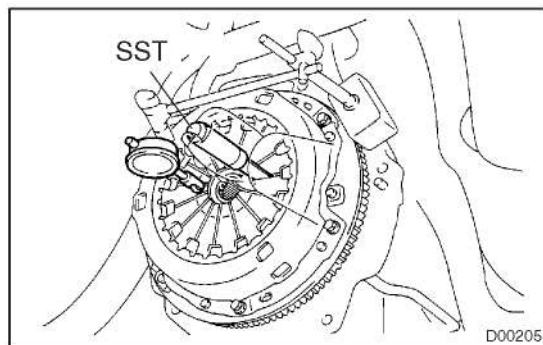
(c) Align the matchmark on the clutch cover with the one on the flywheel.

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

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

HINT:

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



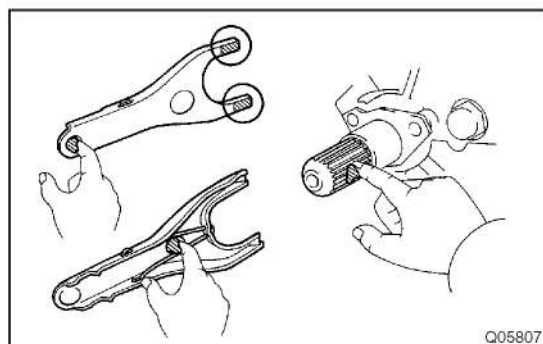
2. CHECK DIAPHRAGM SPRING TIP ALIGNMENT

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

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

If alignment is not as specified, using SST, adjust the diaphragm spring tip alignment.

SST 09333-00013



3. APPLY MOLYBDENUM DISULPHIDE LITHIUM BASE GREASE (NLGI NO.2)

(a) Apply release hub grease to the following parts.

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

(b) Apply clutch spline grease.

- Clutch disc spline

HINT:

Recommended grease part number 08887-01706 (100g).

4. INSTALL RELEASE BEARING AND FORK TO TRANS-AXLE

Install the bearing to the release fork, and then install them to the transaxle.

5. INSTALL TRANSAXLE TO ENGINE

C50, C250 M/T: See page MX-2

S50, S54 M/T: See page MX-2, MX-8

