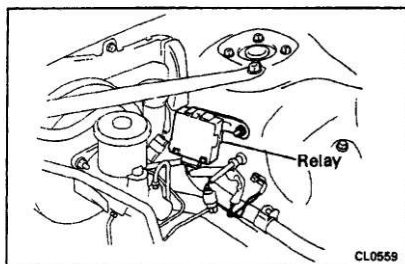
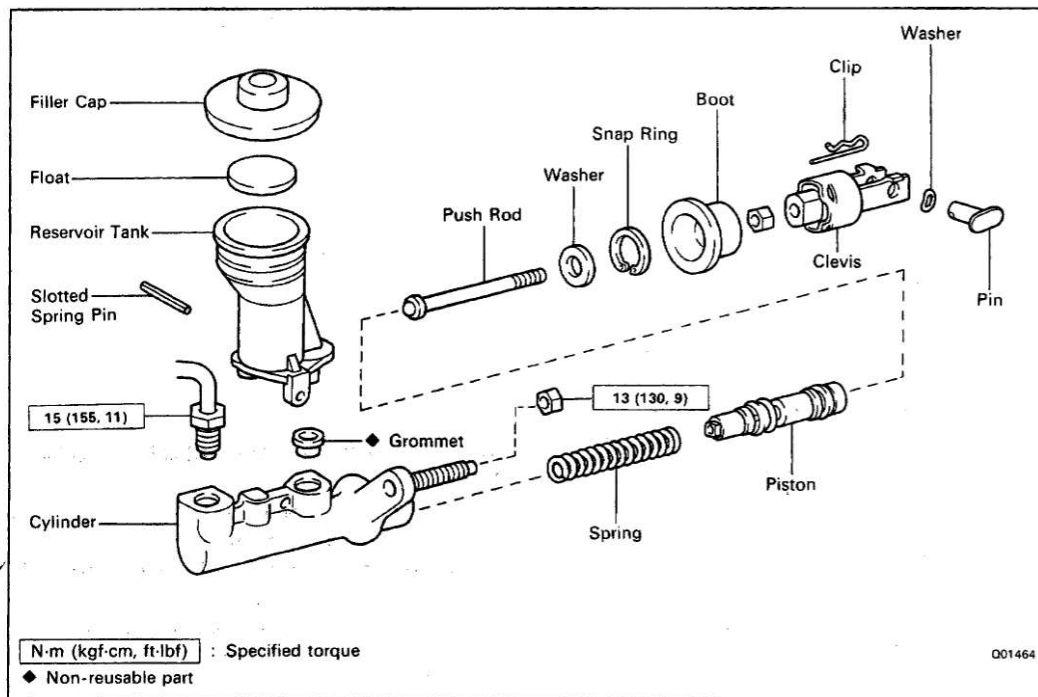
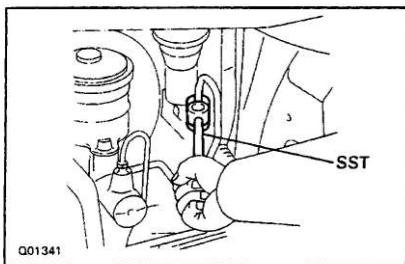


CLUTCH MASTER CYLINDER COMPONENTS



MASTER CYLINDER REMOVAL

1. REMOVE PUSH ROD PIN
2. REMOVE RETRACTOR CONTROL RELAY



3. DISCONNECT CLUTCH LINE UNION

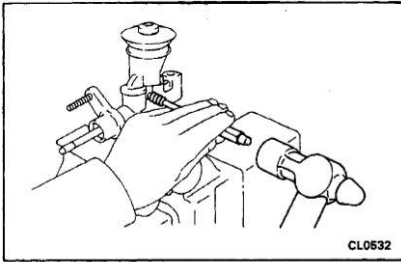
Using SST, disconnect the union nut.
SST 09023-00100

4. REMOVE MASTER CYLINDER

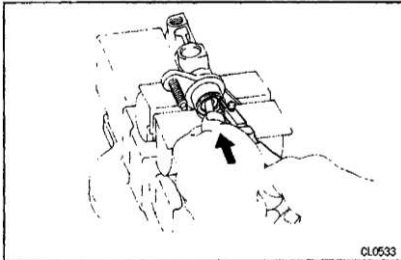
- (a) Remove the two mounting nuts.
- (b) Pull out the master cylinder.

CL-10

CLUTCH - CLUTCH MASTER CYLINDER

**MASTER CYLINDER DISASSEMBLY** CL018-01**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.

MASTER CYLINDER INSPECTION CL019-01

HINT: Clean the disassembled parts with compressed air.

1. INSPECT MASTER CYLINDER BORE FOR SCORING OR CORROSION.

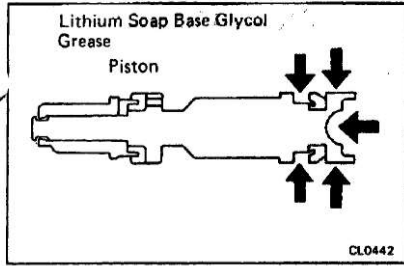
If a problem is found, clean or replace the cylinder.

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

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

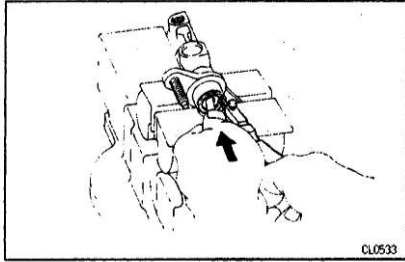
3. INSPECT PUSH ROD FOR WEAR OR DAMAGE

If necessary, replace the push rod.

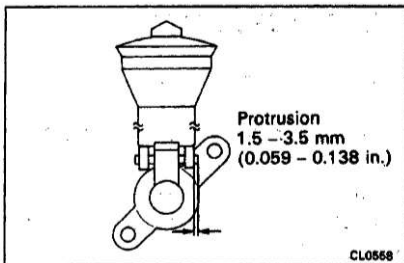


MASTER CYLINDER ASSEMBLY

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

MASTER CYLINDER INSTALLATION

1. INSTALL MASTER CYLINDER

Install the two mounting nuts, and torque them.

Torque: 13 N-m (130 kgf-cm. 9 ft-lbf)

2. CONNECT CLUTCH LINE UNION

Using SST, connect the union.

SST 09023-04100

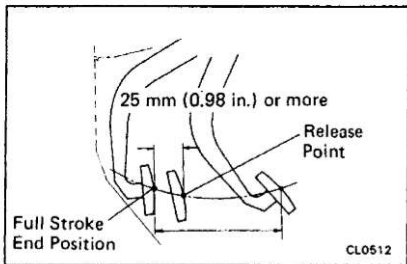
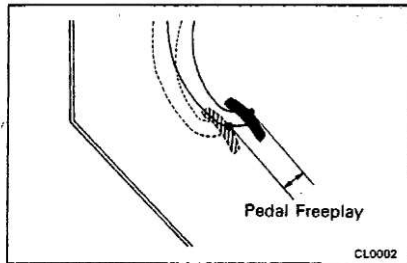
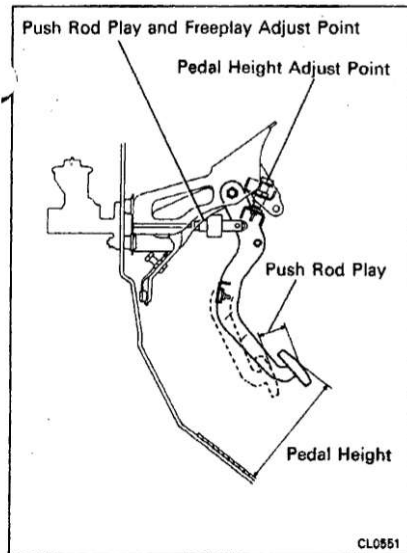
Torque: 15 N-m (155 kgf-cm. 11 ft-lbf)

3. INSTALL RETRACTOR CONTROL RELAY

4. CONNECT PUSH ROD AND INSTALL PIN

Install the clip in the push rod pin.

6. BLEED SYSTEM AND ADJUST CLUTCH PEDAL



CLUTCH PEDAL

CLUTCH PEDAL CHECK AND ADJUSTMENT

CL01K-01

1. CHECK THAT PEDAL HEIGHT IS CORRECT

Pedal height from asphalt sheet:
172–182 mm (6.8–7.2 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 THAT PEDAL FREEPLAY AND PUSH ROD PLAY ARE CORRECT

(Pedal Freeplay)

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

Pedal freeplay:

5.0–15.0 mm (0.197–0.591 in.)

(Push rod play)

Push in on the pedal with a finger softly until the resistance begins to increase a little.

Push rod play at pedal top:

1.0–5.0 mm (0.039–0.197 in.)

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

- 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.

5. INSPECT CLUTCH RELEASE POINT

- Pull the parking brake lever and install wheel stopper.
- Start the engine and idle the engine.
- Without depressing the clutch pedal, slowly shift the shift lever into reverse position until the gears contact.
- 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

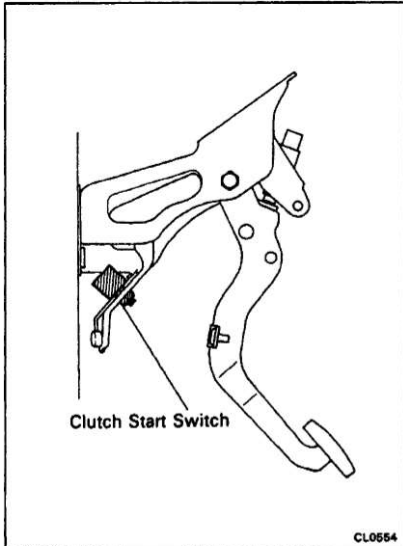
(From pedal stroke end position to release point)

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

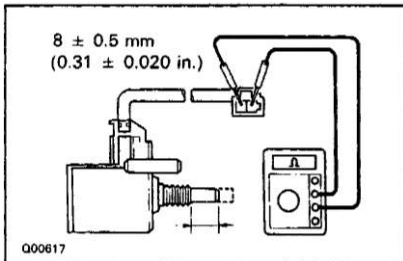
- Inspect pedal height.
- Inspect push rod play and pedal free play.
- Bleed the clutch line.
- Inspect the clutch cover and disc.

CL-8

CLUTCH - CLUTCH PEDAL

**8. CHECK CLUTCH START SYSTEM**

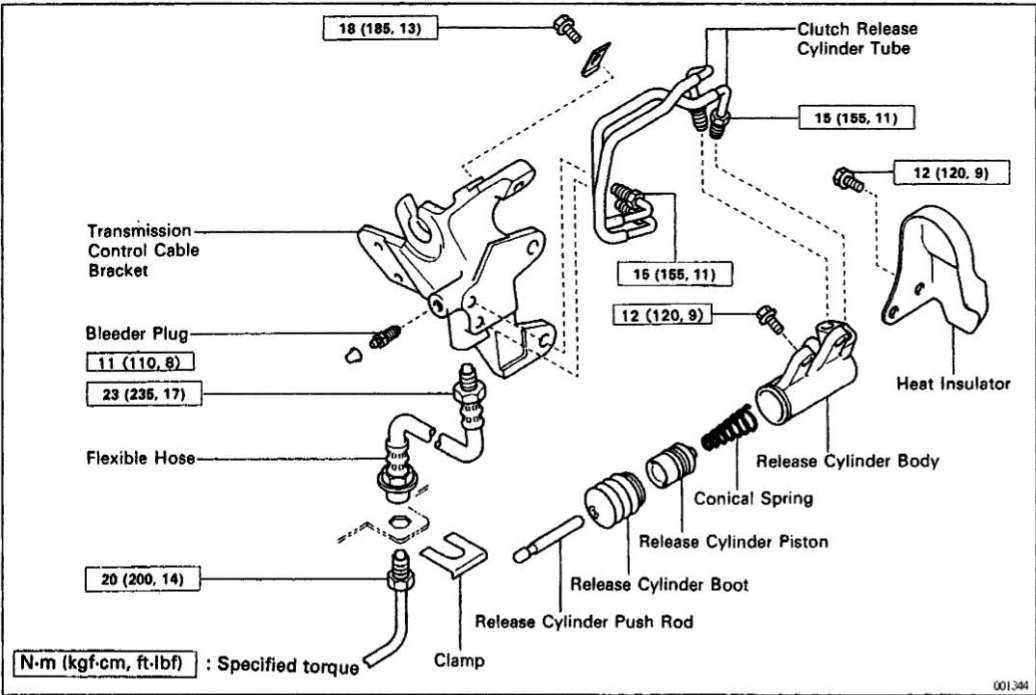
- (a) Check that the engine does not start when the clutch pedal is released.
 - (b) Check that the engine starts when the clutch pedal is fully depressed.
- If necessary, adjust or replace the clutch start switch.

**7. 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.

CLUTCH RELEASE CYLINDER COMPONENTS

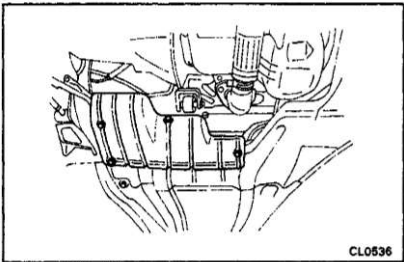
CL018-01



CL017-01

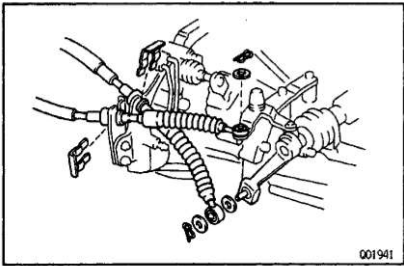
RELEASE CYLINDER REMOVAL

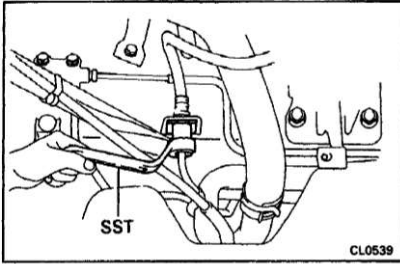
1. REMOVE NO.1 ENGINE UNDER COVER



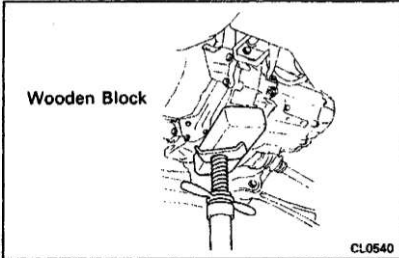
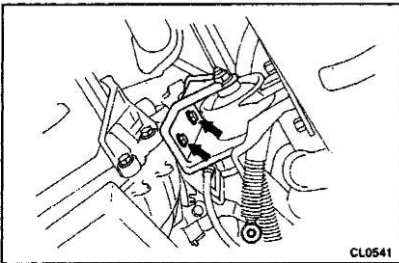
2. DISCONNECT CONTROL CABLE

- (a) Remove the clip and washers.
- (b) Remove the retainer from the cable.

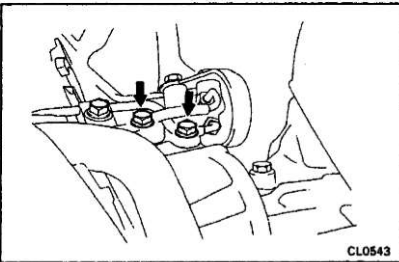


**3. DISCONNECT CLUTCH LINE UNION**

- (a) Using SST, disconnect the union. Use a container to catch the brake fluid.
SST 09751 -3601 1
- (b) Remove the retainer.

**4. SUPPORT ENGINE AND TRANSAXLE****5. REMOVE ENGINE FRONT MOUNTING BRACKET****SET BOLTS**

Remove the two bolts from engine side.

**6. REMOVE BOLT AND PULL OUT RELEASE CYLINDER ASSEMBLY****RELEASE CYLINDER DISASSEMBLY**

CL01U-01

1. PULL OUT PUSH ROD
2. REMOVE BOOT
3. REMOVE PISTON

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

CL-14

CLUTCH - CLUTCH RELEASE CYLINDER

RELEASE CYLINDER INSPECTION

HINT: Clean the disassembled parts with compressed air.

1. INSPECT RELEASE CYLINDER BORE FOR SCORING OR CORROSION

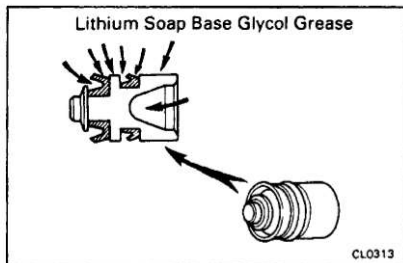
If a problem is found, clean or replace the cylinder.

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

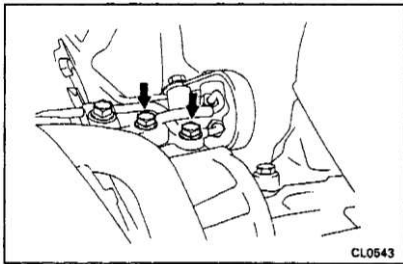
If either one requires replacement, use the parts from the cylinder kit.

3. INSPECT PUSH ROD FOR WEAR OR DAMAGE

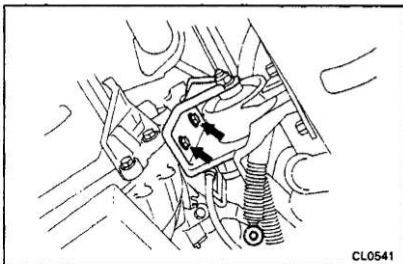
If necessary, replace the push rod.

**RELEASE CYLINDER ASSEMBLY**

1. COAT PISTON WITH LITHIUM SOAP BASE GLYCOL GREASE, AS SHOWN
2. INSTALL PISTON
3. INSTALL BOOT AND INSERT PUSH ROD

**RELEASE CYLINDER INSTALLATION****1. INSTALL RELEASE CYLINDER**

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

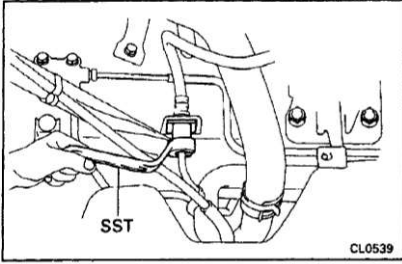
**2. INSTALL ENGINE FRONT MOUNTING BRACKET SET BOLTS**

Torque: 77 N-m (790 kgf-cm, 57 ft-lbf)

3. REMOVE SUPPORTS FOR ENGINE AND TRANSAXLE

CL-15

CLUTCH - CLUTCH RELEASE CYLINDER

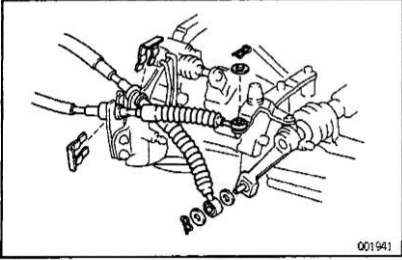
**4. CONNECT CLUTCH LINE UNION**

(a) Using SST, connect the union.

SST 09751-3601 1

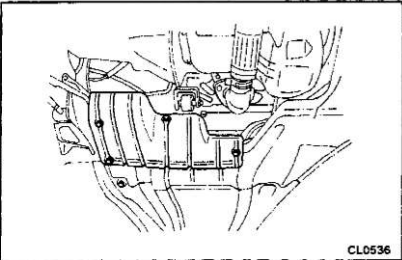
Torque: 20 N-m (200 kgf-cm. 14 ft-lbf)

(b) Install the retainer.

**5. CONNECT CONTROL CABLE**

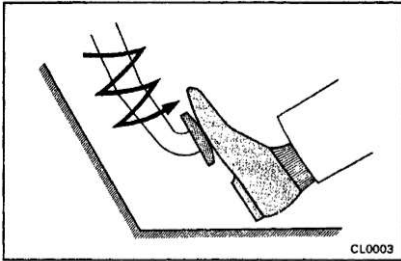
(a) Install the cable and retainer.

(b) Install the washers and clip.

**6. INSTALL NO.1 ENGINE UNDER COVER****7. BLEED CLUTCH SYSTEM**

CL-6

CLUTCH - CLUTCH SYSTEM BLEEDING



CLUTCH SYSTEM BLEEDING

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

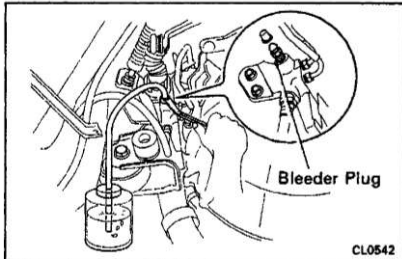
Check the reservoir frequently. Add fluid if necessary.

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

- Slowly pump the clutch pedal several times.
- While pressing on the pedal, loosen the bleeder plug until the fluid starts to run out. Then close the bleeder plug.
- Repeat this procedure until there are no more air bubbles in the fluid.

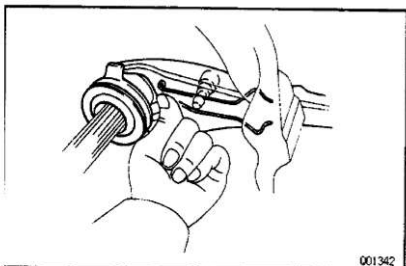
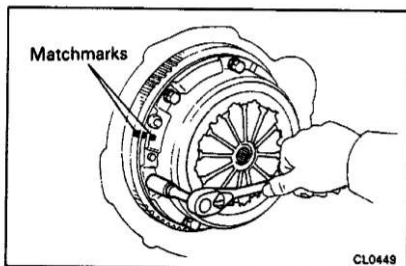
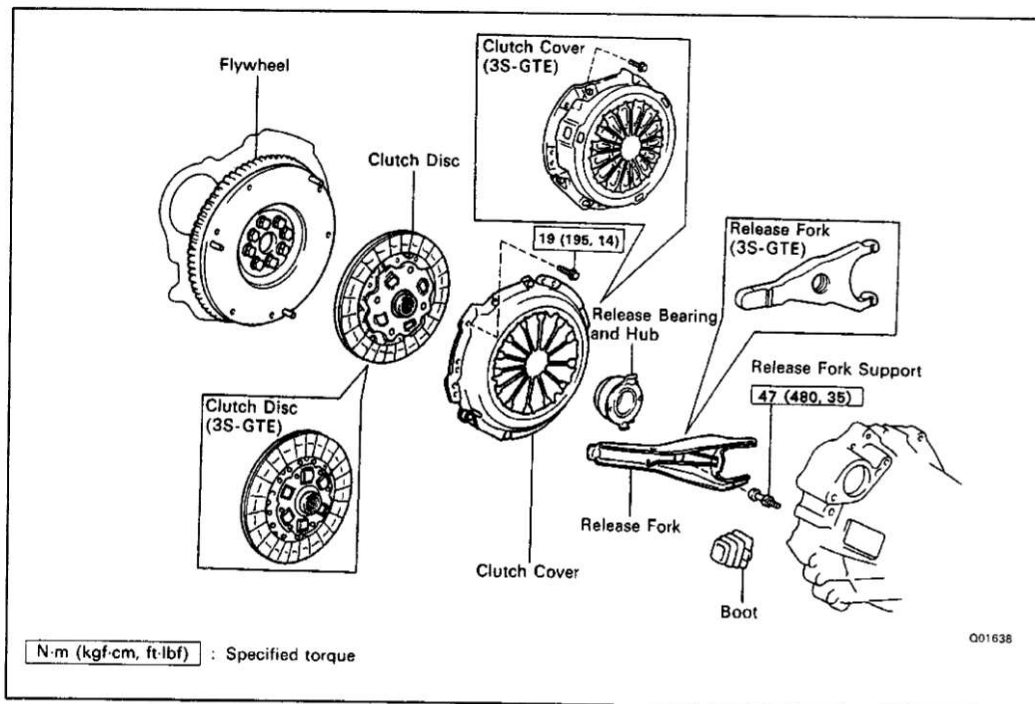


CL-16

CLUTCH - CLUTCH UNIT

CLUTCH UNIT COMPONENTS

CL01Y-01



CLUTCH UNIT REMOVAL

CL01Z-01

1. REMOVE TRANSAXLE

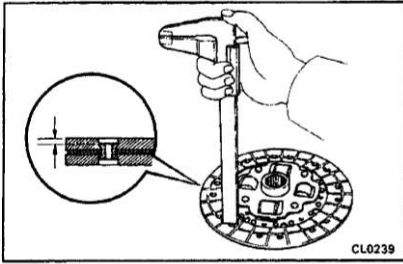
(See page S54 [MX-8](#) and E153 [MX-9](#))

2. REMOVE CLUTCH COVER AND DISC

- Put matchmarks on the clutch cover and flywheel.
- Loosen the set bolts one turn at a time until spring tension is released.
- Remove the set bolts and pull off the clutch cover and disc.

3. REMOVE BEARING, HUB AND FORK FROM TRANSAXLE

- Remove the retaining clip, pull off the bearing.
- Remove the fork and boot.



CL0239

CLUTCH PARTS INSPECTION

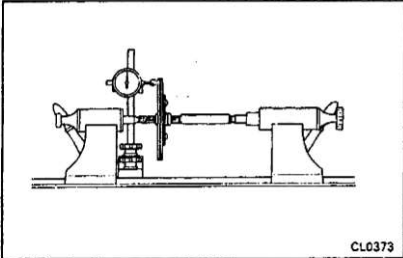
1. INSPECT CLUTCH DISC FOR WEAR OR DAMAGE

Using calipers, measure the rivet head depth.

Minimum rivet depth:

0.3 mm (0.012 in.)

If a problem is found, repair or replace the clutch disc.



CL0373

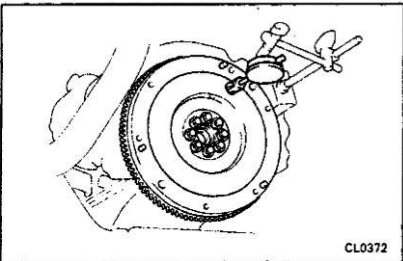
2. INSPECT CLUTCH DISC RUNOUT

Using a dial indicator, check the disc runout.

Maximum runout:

0.8 mm (0.031 in.)

If runout is excessive, replace the disc.



CL0372

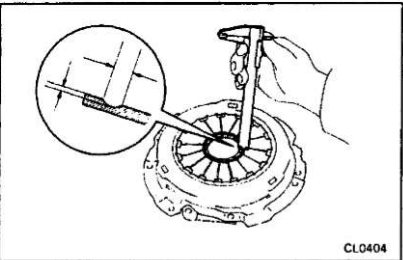
3. INSPECT FLYWHEEL RUNOUT

Using a dial indicator, check the flywheel runout.

Maximum runout:

0.1 mm (0.004 in.)

If runout excessive, repair or replace flywheel.



CL0404

4. INSPECT DIAPHRAGM SPRING FOR WEAR

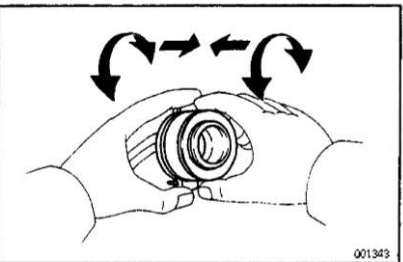
Using calipers, measure the diaphragm spring for depth and width of wear.

Maximum:

Depth 0.6 mm (0.024 in.)

Width 5.0 mm (0.197 in.)

If necessary, replace the clutch cover.



001343

5. INSPECT RELEASE BEARING

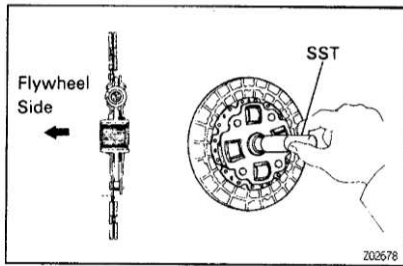
Turn the bearing by hand while applying force in the rotation direction.

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

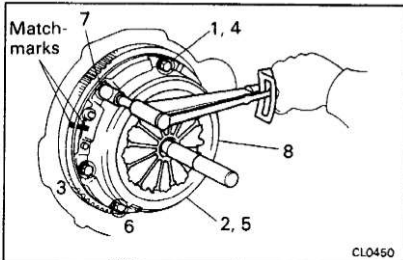
HINT: The bearing is permanently lubricated and requires no cleaning or lubrication.

CL-18

CLUTCH - CLUTCH UNIT

**CLUTCH UNIT INSTALLATION****1. INSTALL DISC ON FLYWHEEL**

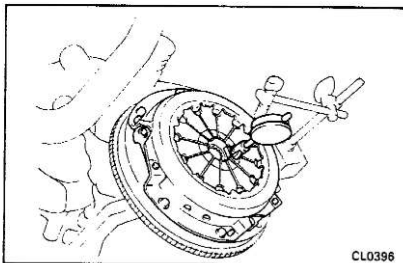
Using SST, install the disc on the flywheel.
 SST 09301 -00220 (3S- GTE)
 09301 -00210 (5S-FE)

**2. INSTALL CLUTCH COVER**

- (a) Align the matchmarks on the clutch cover and flywheel.
 (b) Torque the bolts on the clutch cover in order shown.

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

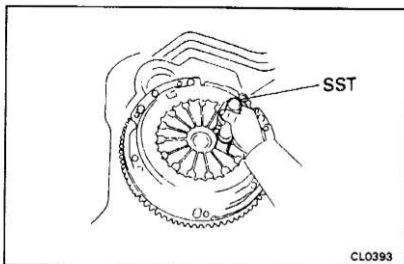
HINT: Temporarily tighten the No.1 and No.2 bolts.

**3. CHECK DIAPHRAGM SPRING TIP ALIGNMENT**

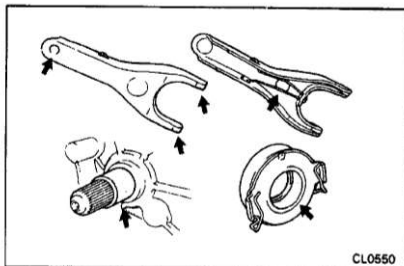
Using a dial indicator with roller instrument, check the diaphragm spring tip alignment.

Maximum non-alignment:

0.5 mm (0.020 in.)

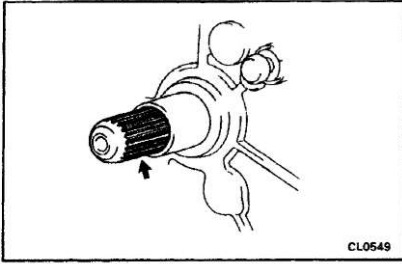
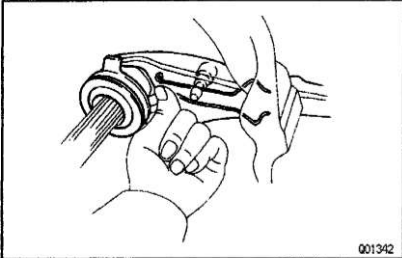


If alignment is not as specified, using SST, adjust the diaphragm spring tip alignment.
 SST 09333-00013

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

Apply molybdenum disulphide lithium base grease the following parts:

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

**5. APPLY SPLINE GREASE TO INPUT SHAFT SPLINE****6. INSTALL BOOT, FORK, HUB AND BEARING ON TRANSAXLE****7. INSTALL TRANSAXLE**

(See page S54 [MX-8](#) and E153 [MX-9](#))

CLUTCH

CL-1

CLUTCH

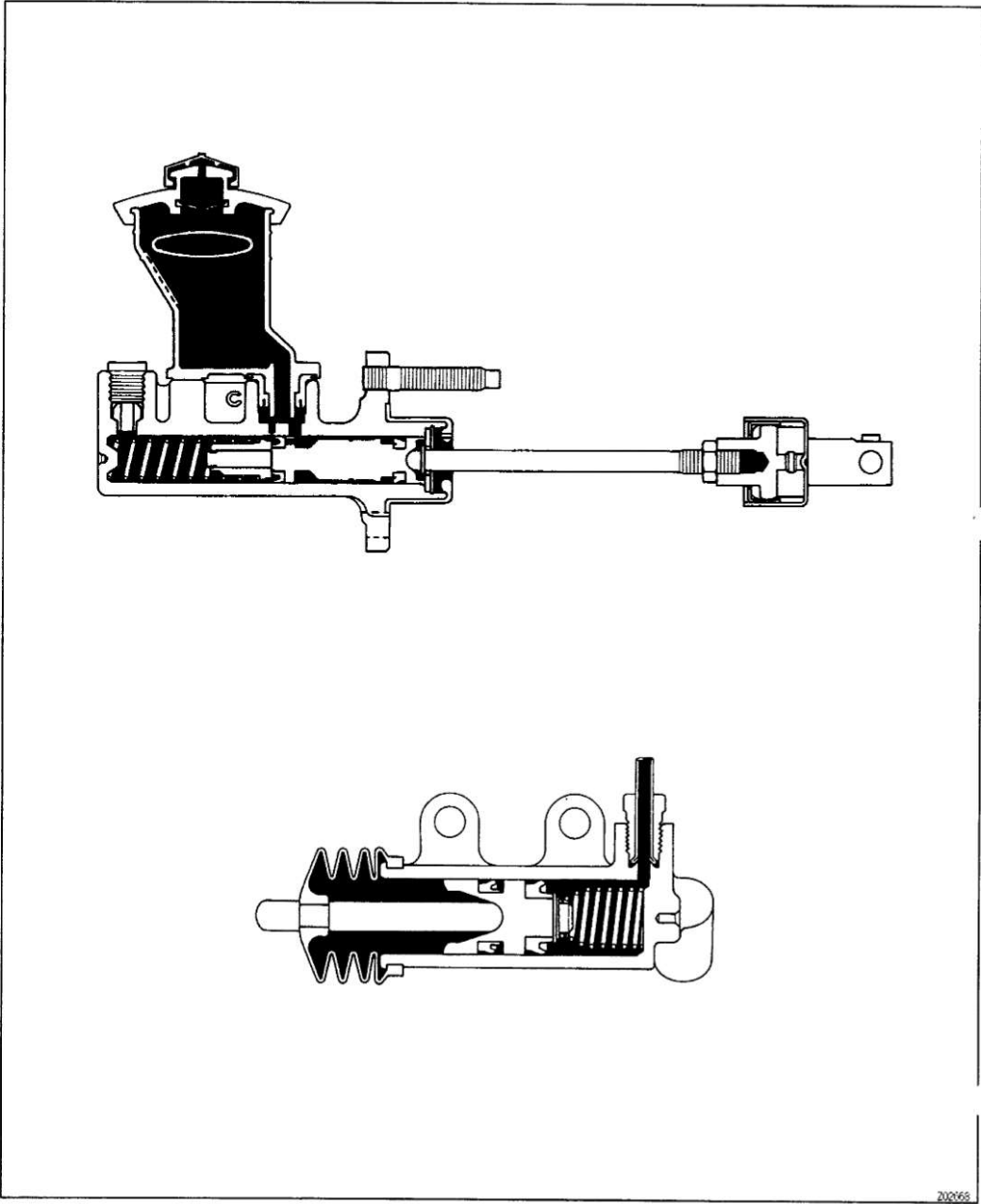
CL-2

CLUTCH - DESCRIPTION

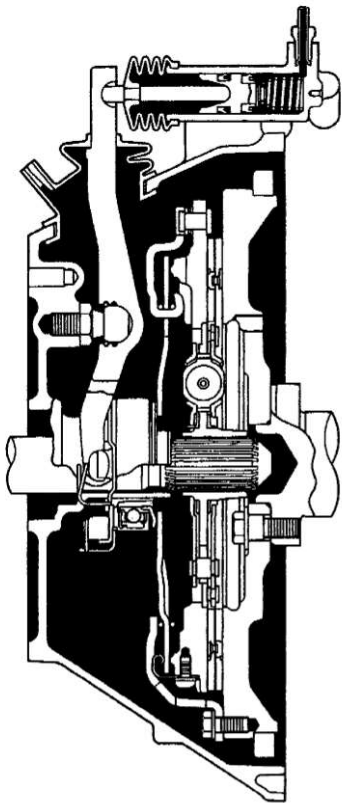
DESCRIPTION

The diaphragm spring turnover type clutch providing lighter release performance.

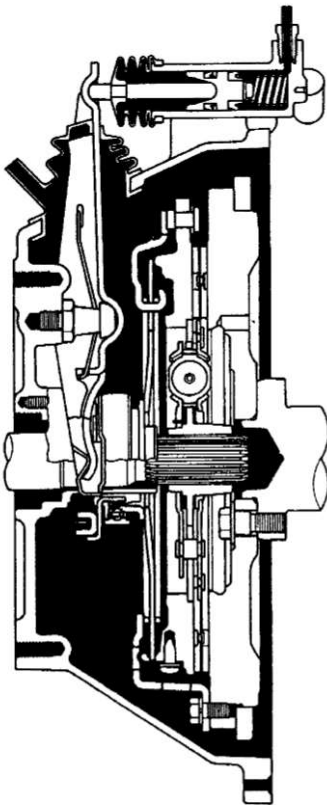
CLB1D-01



3S-GTE-Engine



5S-FE-Engine



Q01450
Q01461

700669

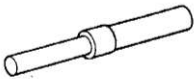
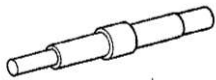
CL-4

CLUTCH - PREPARATION

PREPARATION

SST (SPECIAL SERVICE TOOLS)

CL01E-01

	09023-00100 Union Nut Wrench 10 mm	Clutch line tube.
	09751-36011 Brake Tube Union Nut 10 x 12 mm Wrench	Clutch line tube.
	09301-00210 Clutch Guide Tool	5S-FE Engine
	09301-00220 Clutch Guide Tool	3S-GTE Engine
	09333-00013 Clutch Diaphragm Spring Aligner	

RECOMMENDED TOOLS

CL01F-01

	09082-0001 5 TOYOTA Electrical Tester	
	09905-00013 Snap Ring Pliers	

EQUIPMENT

CL01B-01

Calipers	
Dial indicator	
Torque wrench	

CL-20

CLUTCH - SERVICE SPECIFICATIONS

SERVICE SPECIFICATIONS

CLASP - 99

SERVICE DATA

Pedal height from asphalt sheet	172–182mm (6.8–7.2in.)
Push rod play at pedal top	1.0–5.0mm (0.039–0.197in.)
Pedal freeplay	5.0–15.0mm (0.197–0.591 in.)
Clutch start switch ON–OFF Stroke	5.0±0.5mm (0.197–0.020in.)
Reservoir tank slotted spring pin protrusion	1.5–3.5mm (0.059–0.138in.)
Clutch release point from pedal full stroke end position	25 mm (0.98in.) or more
Disc rivet head depth (Minimum)	0.3mm (0.012in.)
Disc runout (Maximum)	0.8mm (0.031 in.)
Diaphragm spring tip non –alignment (Maximum)	0.5mm (0.020in.)
Diaphragm spring finger wear (Maximum depth)	0.6mm (0.024in.)
Diaphragm spring finger wear (Maximum width)	5.0mm (0.197in.)
Flywheel runout (Maximum)	0.1 mm (0.004in.)

TORQUE SPECIFICATIONS

CLASP - 91

Pert tightened	N–m	kgf–cm	ft–lbf
Clutch master cylinder x Body	13	130	9
Clutch line union x Clutch master cylinder	15	155	11
Clutch release cylinder x Transaxle case	12	120	9
Flexible hose x Transmission control cable bracket	23	235	17
Clutch line union x Flexible hose	20	200	14
Bleeder plug	11	110	8
Transaxle control cable bracket x Clutch release cylinder tube	15	115	11
Clutch release cylinder tube x Release cylinder body	15	115	11
Heat insulator x Release cylinder body	12	120	9
Engine front mounting bracket x Transaxle case	77	790	57
Release fork support x Transaxle case	47	480	35
Clutch cover x Flywheel	19	195	14

TRUBLESHOOTING

You will find the cause of trouble more easily properly using the table shown below. In this table, the numbers indicate the priority of the probable cause of trouble. Check each part in the order shown. If necessary, repair or replace the part.

See Page	Parts Name	Trouble
CL-7	Clutch pedal (Freeplay out of adjustment)	1
CL-6	Clutch line (Air in line)	2
CL-9	Master cylinder cup (Damaged)	3
CL-12	Release cylinder cup (Damaged)	4
-	Engine mounting (Loosen)	1
CL-16	Release bearing (Worn, dirty or damaged)	1
-	Input shaft bearing (Worn or damaged)	2
CL-16	Clutch disc (Out of true)	5
CL-16	Clutch disc (Runout is excessive)	6
CL-16	Clutch disc (Lining broken)	6
CL-16	Clutch disc (Dirty or burred)	6
CL-16	Clutch disc (Oily)	6
CL-16	Clutch disc (Worn out)	2
CL-16	Clutch disc torsion rubber (Damaged)	3
CL-16	Clutch disc (Harden)	2
CL-18	Clutch disc (Lack of spline grease)	6
CL-16	Diaphragm spring (Damaged)	7
CL-18	Diaphragm spring (Out of tip alignment)	7
CL-16	Pressure plate (Distortion)	8
-	Flywheel (Distortion)	5

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