
CLUTCH

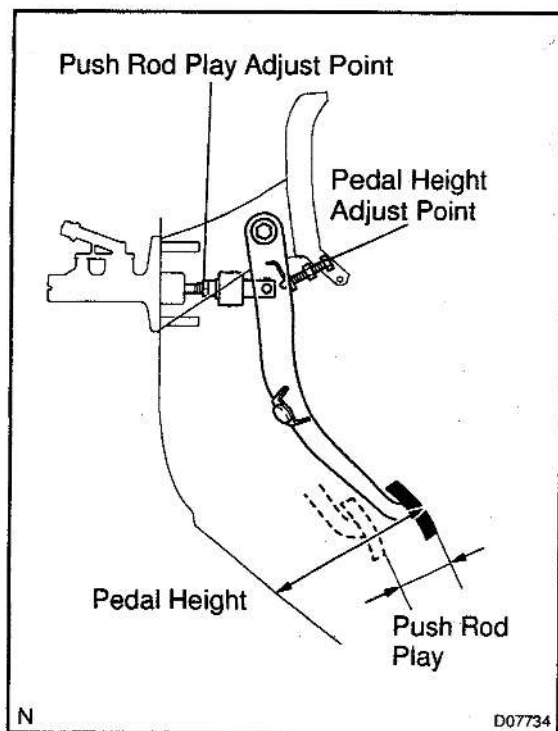
CLUTCH PEDAL (1ND-TV)	CL-1
CLUTCH RELEASE CYLINDER (1ND-TV)	CL-3
CLUTCH ACCUMULATOR (1ND-TV)	CL-8
CLUTCH UNIT (1ND-TV)	CL-11

CL

REFER TO FOLLOWING REPAIR MANUALS:

Manual Name	Pub. No.
YARIS / ECHO Chassis and Body Repair Manual	RM685E
YARIS / ECHO Chassis and Body Repair Manual Supplement (Aug., 1999)	RM737E
YARIS / ECHO Chassis and Body Repair Manual Supplement (Jan., 2001)	RM838E

NOTE: The above pages contain only the points which differ from the above listed manuals.



CLUTCH PEDAL (1ND-TV) INSPECTION

CL0ES-01

1. CHECK THAT PEDAL HEIGHT IS CORRECT

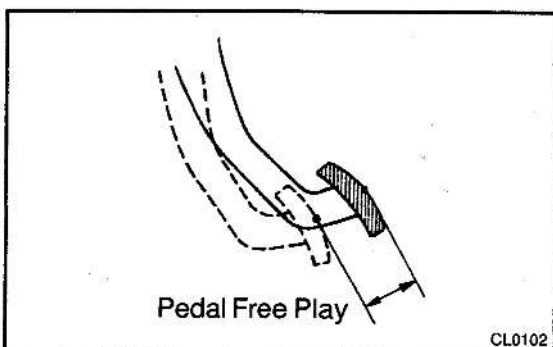
Pedal height from dash panel:

LHD: 150.7 – 160.7 mm (5.933 – 6.327 in.)

RHD: 155.5 – 165.5 mm (6.122 – 6.516 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 FREE PLAY AND PUSH ROD PLAY ARE CORRECT

- (a) Push in on the pedal until the beginning of clutch resistance is felt.

Pedal free play: 5.0 – 15.0 mm (0.197 – 0.591 in.)

- (b) Gently push on the pedal until the resistance begins to increase a little.

Push rod play at pedal top:

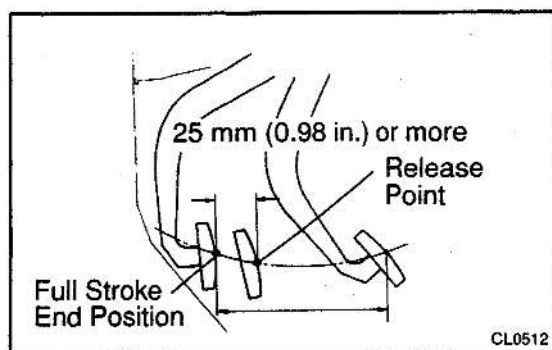
1.0 – 5.0 mm (0.039 – 0.197 in.)

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

- (a) Loosen the lock nut and turn the push rod until the free play and push rod play are correct.
- (b) Tighten the lock nut.
- (c) After adjusting the pedal free play, check the pedal height.

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 contact.



- (d) Gradually depress the clutch pedal and measure the stroke distance from where the gear noise stops (release point) up to the full stroke end position.

Standard distance:

25 mm (0.98 in.) or more

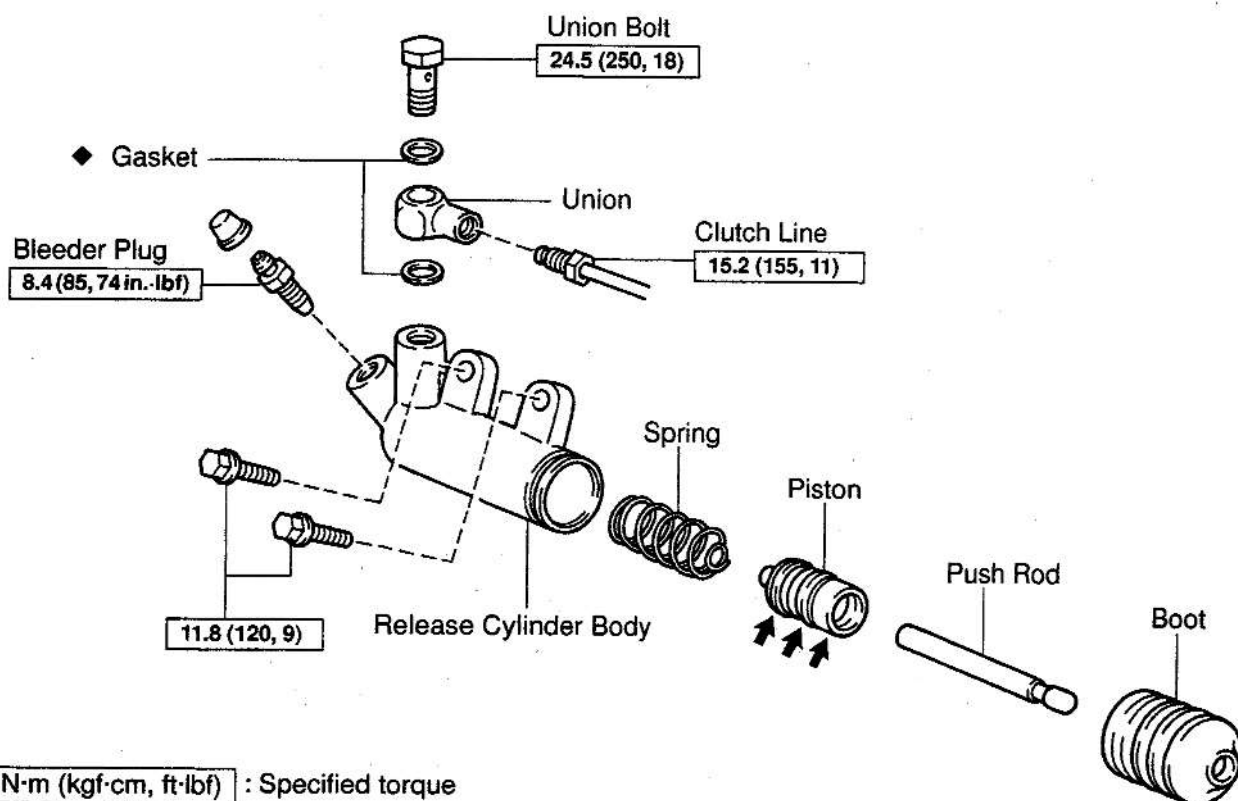
(From pedal stroke end position to release point)

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

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

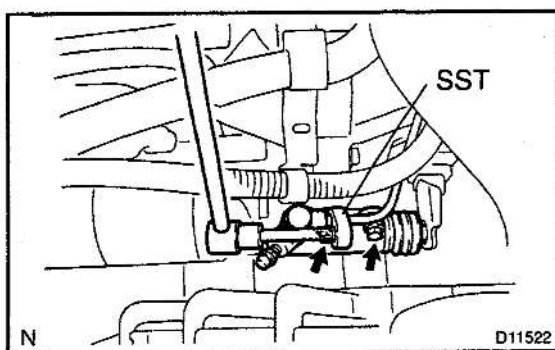
CLUTCH RELEASE CYLINDER (1ND-TV) COMPONENTS

CL0DT-01



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D11521



REMOVAL

1. DISCONNECT CLUTCH LINE

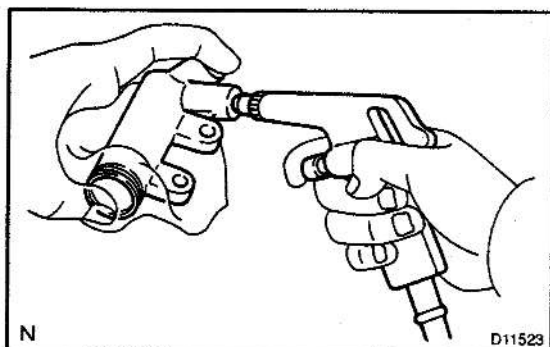
Using SST, disconnect the clutch line. Use a container to catch the fluid.

SST 09023-00100

2. REMOVE 2 BOLTS AND PULL OUT RELEASE CYLINDER

DISASSEMBLY

1. REMOVE BLEEDER PLUG
2. REMOVE UNION BOLT, 2 GASKETS AND UNION
3. PULL OUT BOOT WITH PUSH ROD

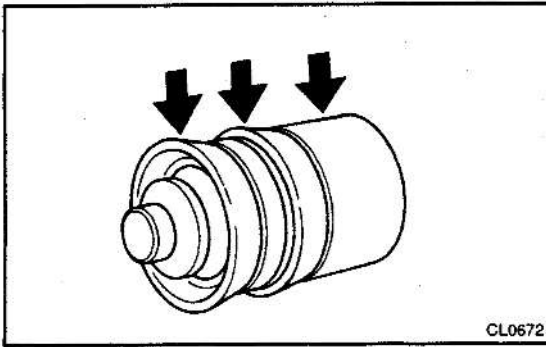


4. REMOVE PISTON WITH SPRING

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

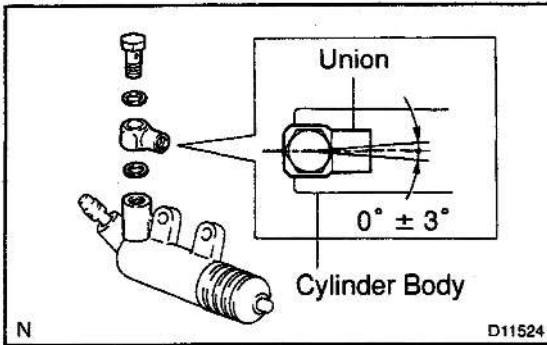
NOTICE:

- Blowing off the air may cause the piston's jump-out. When removing the piston, hold it with your hand using a waste cloth.
- Take care not to splash brake fluid when air-blowing.



REASSEMBLY

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



4. INSTALL UNION AND 2 NEW GASKETS WITH UNION BOLT

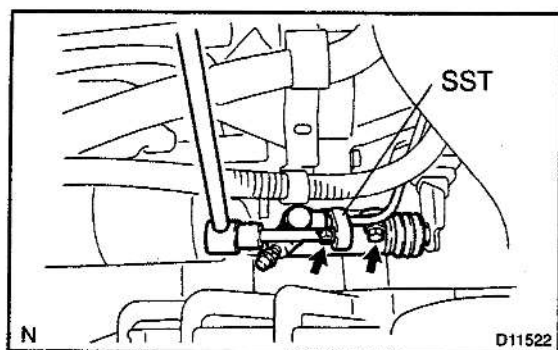
Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)

HINT:

Install the union in the direction $0 \pm 3^\circ$ to the cylinder body, as shown in the illustration.

5. INSTALL BLEEDER PLUG

Torque: 8.4 N·m (85 kgf·cm, 74 in·lbf)

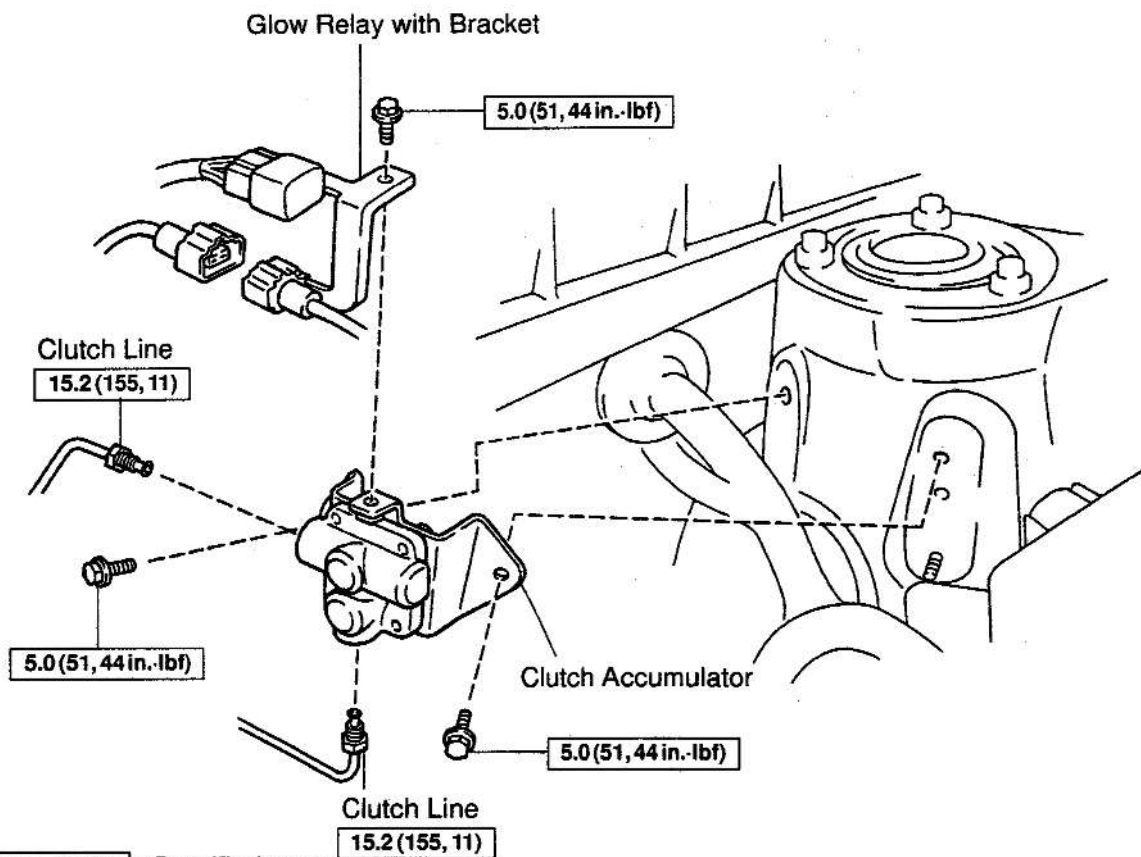


INSTALLATION

1. **INSTALL RELEASE CYLINDER WITH 2 BOLTS**
Torque: 11.8 N·m (120 kgf·cm, 9 ft·lbf)
2. **CONNECT CLUTCH LINE**
Using SST, connect the clutch line.
SST 09023-00100
Torque: 15.2 N·m (155 kgf·cm, 11 ft·lbf)
3. **FILL CLUTCH RESERVOIR WITH BRAKE FLUID AND BLEED CLUTCH SYSTEM**
4. **CHECK FOR LEAKS**

CLUTCH ACCUMULATOR (1ND-TV) COMPONENTS

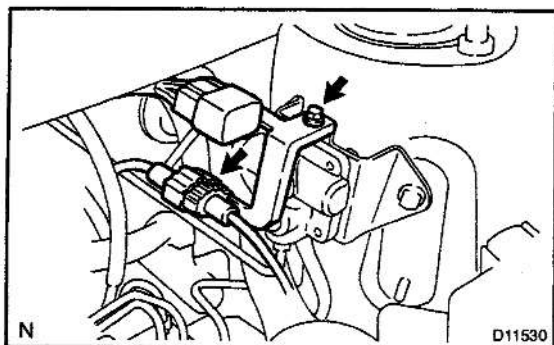
CL8DY-01



N

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

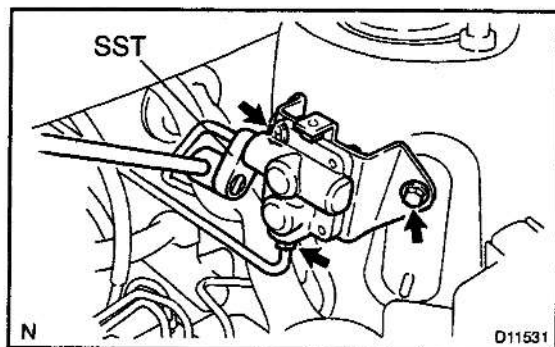
D11529



REMOVAL

1. REMOVE GLOW RELAY WITH BRACKET

- (a) Disconnect the connector.
- (b) Remove the bolt and glow relay with the bracket.



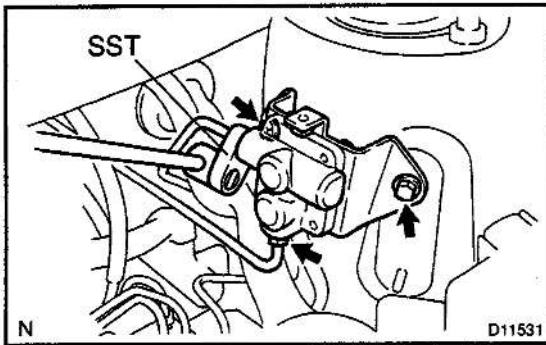
2. DISCONNECT CLUTCH LINE

Using SST, disconnect the 2 clutch lines. Use a container to catch the fluid.

SST 09023-00100

3. REMOVE 2 BOLTS AND CLUTCH ACCUMULATOR

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INSTALLATION

1. INSTALL CLUTCH ACCUMULATOR WITH 2 BOLTS

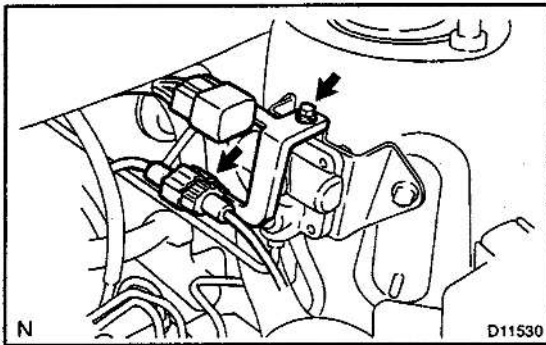
Torque: 5.0 N·m (51 kgf·cm, 44 in·lbf)

2. CONNECT CLUTCH LINE

Using SST, connect the 2 clutch lines to the clutch accumulator.

SST 09023-00100

Torque: 15.2 N·m (155 kgf·cm, 11 ft·lbf)



3. INSTALL GLOW RELAY WITH BRACKET

(a) Install the glow relay with the bracket and bolt.

Torque: 5.0 N·m (51 kgf·cm, 44 in·lbf)

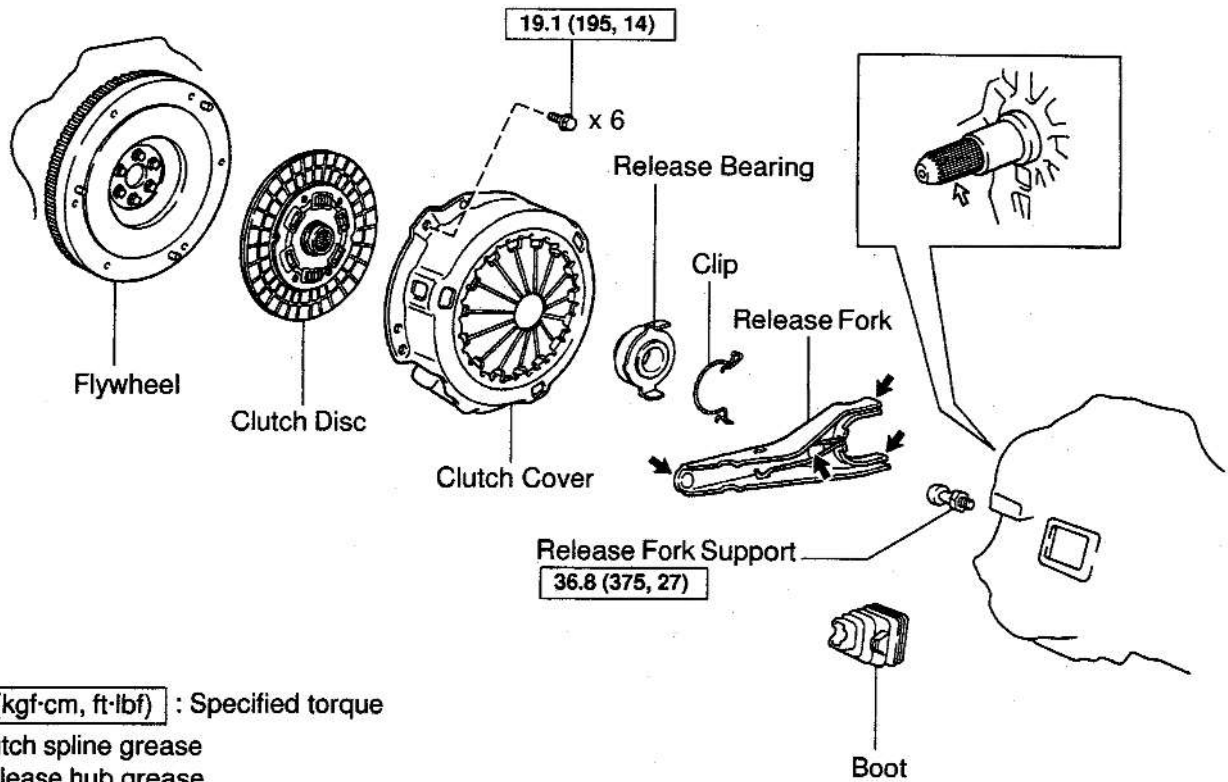
(b) Connect the connector.

4. FILL CLUTCH RESERVOIR WITH BRAKE FLUID AND BLEED CLUTCH SYSTEM

5. CHECK FOR LEAKS

CLUTCH UNIT (1ND-TV) COMPONENTS

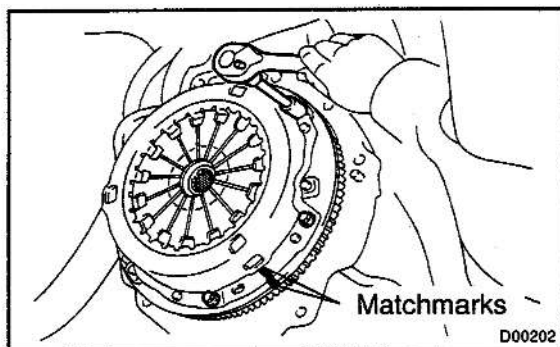
CL0E1-01



D11525

REMOVAL

1. **REMOVE TRANSAXLE FROM ENGINE**
(See page MX-4)

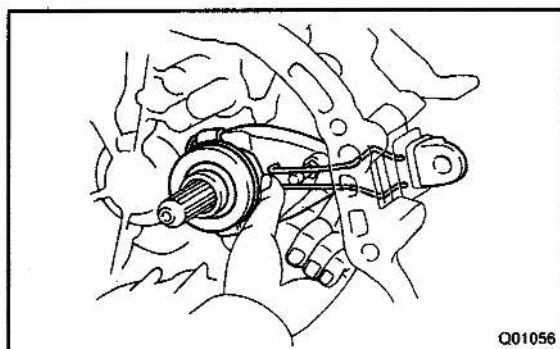


2. **REMOVE CLUTCH COVER AND DISC**

- (a) Align the matchmark on the clutch cover with the one on the 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 with the clutch disc.

NOTICE:

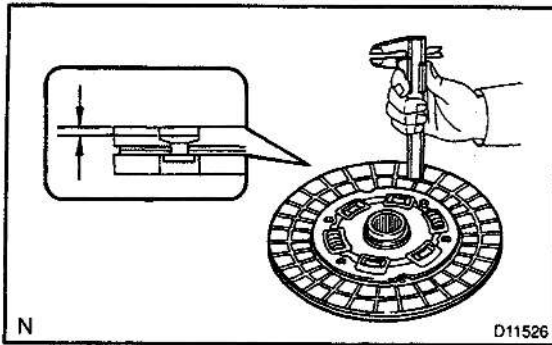
Do not drop the clutch disc.



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

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

4. **REMOVE RELEASE FORK SUPPORT AND BOOT**



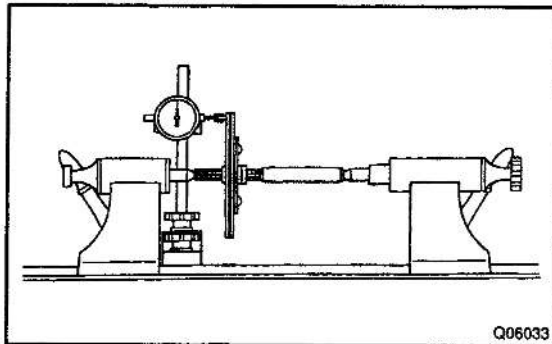
INSPECTION

1. INSPECT CLUTCH DISC FOR WEAR OR DAMAGE

Using vernier calipers, measure the rivet head depth.

Minimum rivet depth: 0.3 mm (0.012 in.)

If necessary, replace the clutch disc.

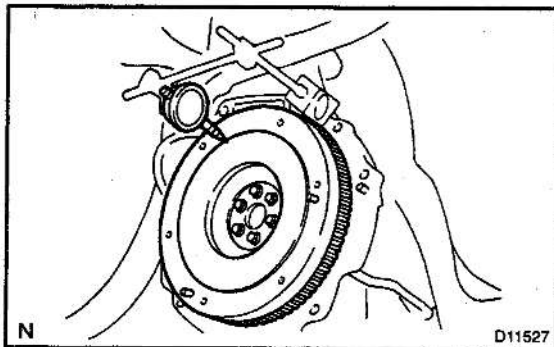


2. INSPECT CLUTCH DISC RUNOUT

Using a dial indicator, check the disc runout.

Maximum runout: 0.8 mm (0.031 in.)

If necessary, replace the clutch disc runout.

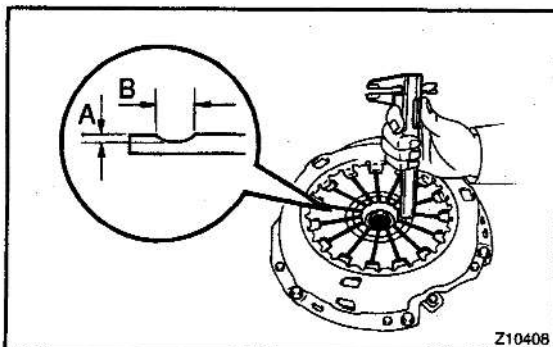


3. INSPECT FLYWHEEL RUNOUT

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

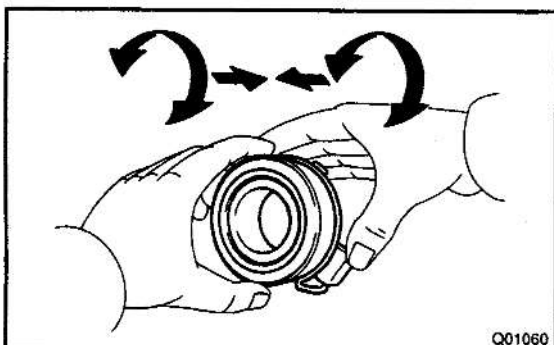
Using vernier calipers, measure the diaphragm spring for depth and width of wear.

Maximum:

A (Depth): 0.6 mm (0.024 in.)

B (Width): 5.0 mm (0.297 in.)

If necessary, replace the clutch cover.



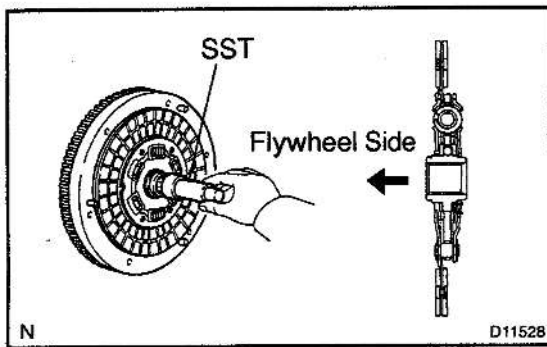
5. INSPECT RELEASE BEARING

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

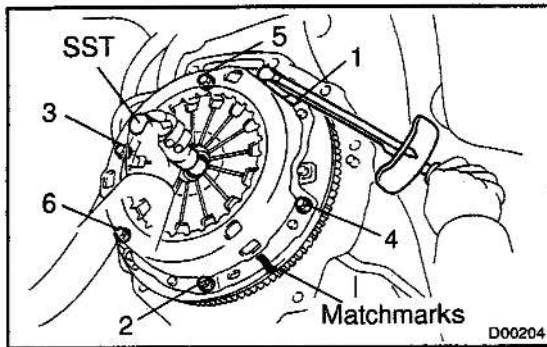
1. INSTALL CLUTCH DISC AND CLUTCH COVER ON FLYWHEEL

- (a) Insert SST in the clutch disc, then insert them in the flywheel.

SST 09301-00210

HINT:

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



- (b) Align the matchmarks on the clutch cover and flywheel.
(c) Following the procedures shown in the illustration, tighten the 6 bolts in the order starting the bolt locating near the knock pin on the top.

Torque: 19.1 N·m (195 kgf·cm, 14 ft·lbf)

HINT:

- Following the order in the illustration, tighten the bolts at a time evenly.
- Move SST up and down, right and left lightly, after checking that the disc is in the center, tighten the bolts.

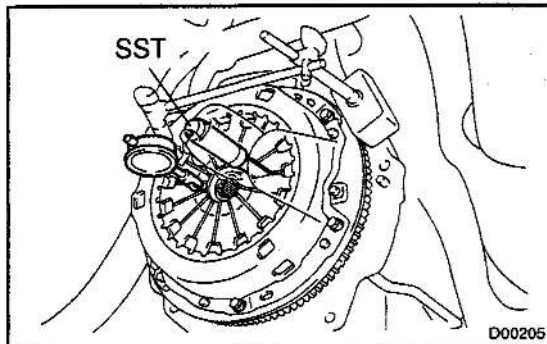
2. CHECK DIAPHRAGM SPRING TIP ALIGNMENT

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. INSTALL BOOT AND RELEASE FORK SUPPORT TO TRANSAXLE

Torque: 36.8 N·m (375 kgf·cm, 27 ft·lbf)

4. APPLY RELEASE HUB GREASE

Apply release hub grease to the release fork and hub contact, release fork and push rod contact and release fork pivot points.

Sealant:

Part No. 08887-01806, RELEASE HUB GREASE or equivalent

5. APPLY CLUTCH SPRING GREASE

Apply clutch spline grease to the input shaft spline.

Sealant:

Part No. 08887-01706, CLUTCH SPLINE GREASE or equivalent

6. INSTALL RELEASE BEARING AND FORK TO TRANSAXLE

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

7. INSTALL TRANSAXLE TO ENGINE

(See page MX-8)

