

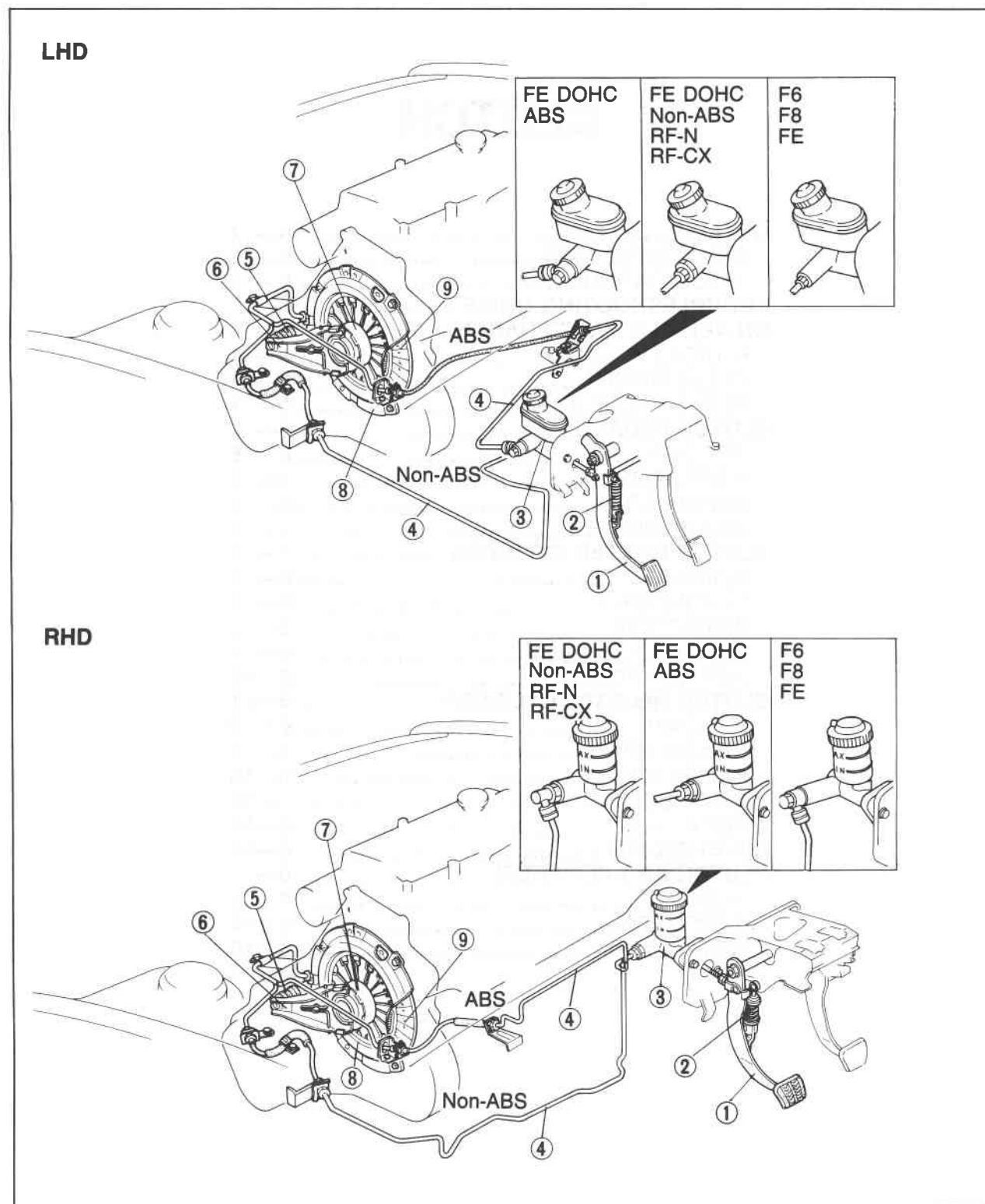
CLUTCH

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6 OUTLINE

OUTLINE

STRUCTURAL VIEW



86U06X-002

- | | | |
|---------------------------|----------------------------|---------------------------|
| 1. Clutch pedal | 4. Clutch pipe | 7. Clutch release bearing |
| 2. Assist spring | 5. Clutch release cylinder | 8. Clutch cover |
| 3. Clutch master cylinder | 6. Clutch release fork | 9. Clutch disc |

SPECIFICATIONS

Item				Engine model	F6	F8	FE	FE DOHC	RF-N	RF-CX
Clutch control type					Hydraulic					
Clutch cover type					Diaphragm spring					
Clutch disc	Set load N (kg, lb)	General			3,434 (350,770)	3,846 (392,862)	4,316 (440,968)		3,846 (392,862)	—
		ECE (Except UK)			—	4,022 (410,902)	4,611 (470, 1,034)		4,022 (410, 902)	
		UK			—	3,846 (392,862)	4,611 (470,1,034)	4,316 (440,968)	3,846 (392,862)	4,022 (410,902)
	Outer diameter			mm (in)		200 (7.874)	215 (8.465)	225 (8.858)		
	Inner diameter			mm (in)		130 (5.118)	150 (5.906)			
	Thickness mm(in)	Pressure plate side	General			4.1 (0.16)				—
			ECE (Except UK)			—	3.8 (0.15)			
			UK			—	4.1 (0.16)	3.8 (0.15)	4.1 (0.16)	3.8 (0.15)
	Flywheel side			3.5 (0.14)						
Clutch pedal	Type			Suspended						
	Pedal ratio	LHD			6.00					
		RHD			5.96					
	Full stroke			mm (in)		135 (5.31)				
	Height			mm (in)		216.5—221.5 (8.524—8.720)				
Master cylinder inner diameter			mm (in)		15.87 (0.625)					
Release cylinder inner diameter			mm (in)		19.05 (0.750)					
Clutch fluid type					DOT-3 or DOT-4, FMVSS 116, or SAE J1703					

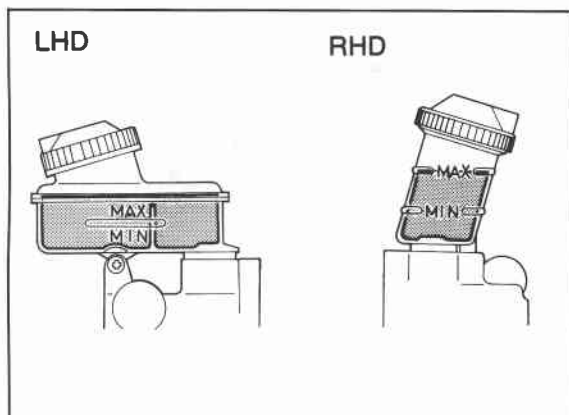
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TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Slipping	Clutch disc facing worn excessively	Replace	6—17
	Clutch disc facing surface hardened or oil on surface	Repair or replace	6—17
	Pressure plate deformed	Repair or replace	6—16
	Diaphragm spring damaged or weakened	Replace	6—16
	Insufficient clutch pedal play	Adjust	6—4
	Clutch pedal does not function smoothly	Repair or replace	6—4, 5
	Flywheel deformed	Repair or replace	6—18
Faulty disengagement	Excessive runout or deformity of clutch disc	Replace	6—17
	Clutch disc splines rusted or worn	Remove rust or replace	6—17
	Oil on clutch cover facing surface	Repair or replace	6—16
	Diaphragm spring weakened	Replace	6—16
	Excessive clutch pedal play	Adjust	6—4, 5
	Insufficient clutch fluid	Add fluid	6—4
	Leakage of clutch fluid	Repair or replace	—
Clutch vibrates when starting	Oil on clutch disc facing surface	Repair or replace	6—17
	Torsion spring weakened	Replace	6—17
	Clutch disc facing surface hardened or deformed	Repair or replace	6—17
	Clutch disc facing rivets loose	Replace	6—17
	Pressure plate deformed	Replace	6—16
	Flywheel surface hardened or deformed	Repair or replace	6—18
	Loose or worn engine mount	Tighten or replace	—
Clutch pedal does not function smoothly	Pedal shaft not properly lubricated	lubricate or replace	6—5
Abnormal noise	Clutch release bearing damaged	Replace	6—17
	Poor lubrication of clutch release bearing sleeve	Lubricate or replace	6—17
	Torsion spring weakened	Replace	6—17
	Excessive crankshaft end play	Repair	Refer to Section 1
	Pilot bearing worn or damaged by heat	Replace	6—16
	Worn pivot points of release fork	Repair or replace	6—18

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6 ON-VEHICLE MAINTENANCE



ON-VEHICLE MAINTENANCE

FLUID LEVEL

1. Clean the area around the reservoir and the reservoir cap.
2. Check the fluid level. If the level is near or below the "MIN" mark, add clutch fluid to the "MAX" mark.

Fluid specification:

DOT-3 or DOT-4

(FMVSS 116, or SAE J1703)

PEDAL HEIGHT

Inspection

Measure the distance from the upper center of the pedal pad to the firewall and ensure that the distance is within specification.

Pedal height A:

216.5—221.5 mm (8.524—8.720 in)

Adjustment

To adjust the pedal height, loosen locknut and turn stopper bolt or clutch switch.

PEDAL FREEPLAY

Inspection

Depress the pedal lightly by hand and measure the freeplay to ensure that it is within specification.

Pedal freeplay: 5—13 mm (0.20—0.51 in)

Adjustment

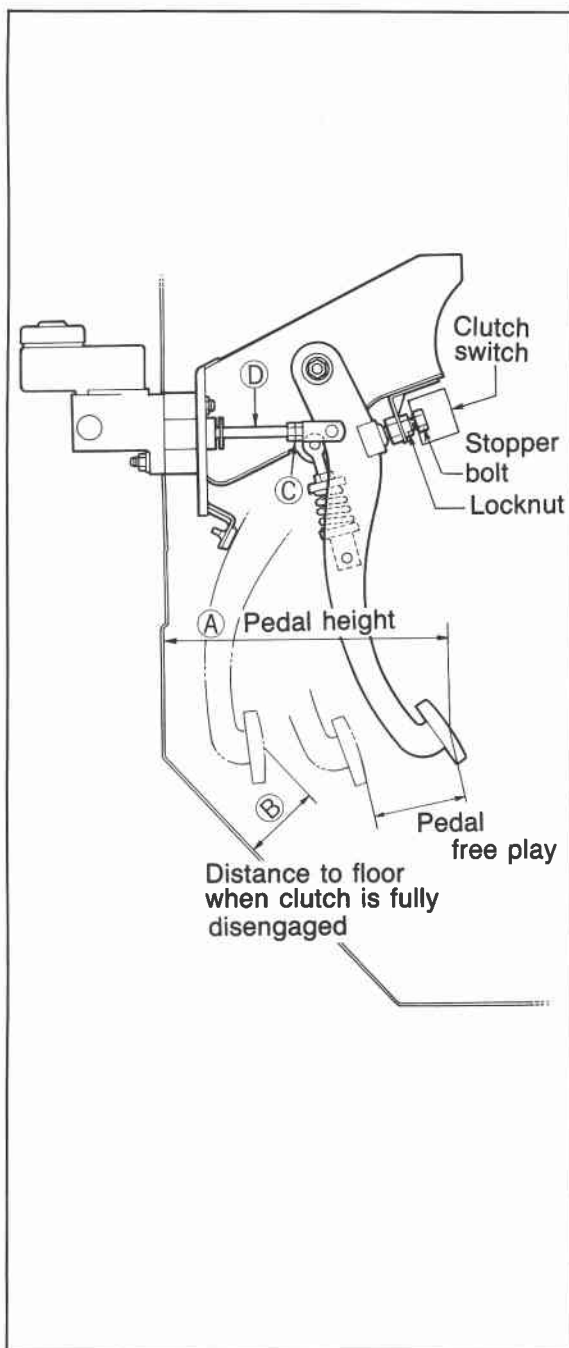
1. Adjust the free play by loosening locknut C and turning push rod D.
2. Check that the distance from the floor to the center of the upper surface of the pedal pad is as specified or more when the clutch is fully disengaged.

Disengagement height B:

LHD 68 mm (2.7 in)

RHD 85 mm (3.3 in)

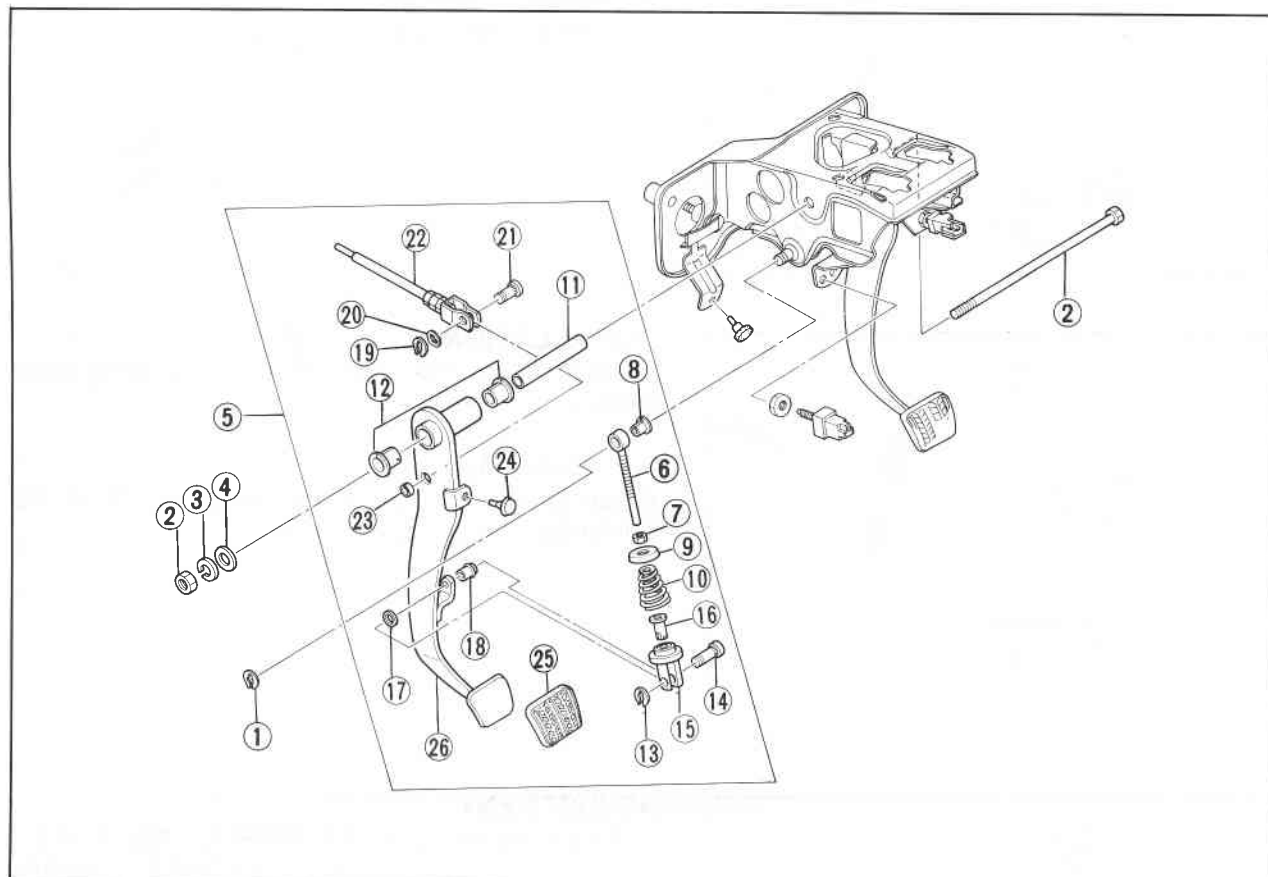
3. Tighten locknut C after adjustment.



CLUTCH PEDAL

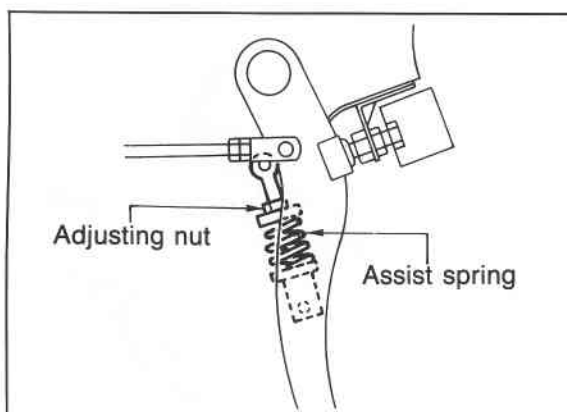
REMOVAL

Remove in the sequence shown in the figure referring to the removal note.



76G06X-006

- | | | |
|--------------------------|-------------------|--------------------|
| 1. Clip | 10. Assist spring | 19. Clip |
| 2. Bolt and nut | 11. Spacer | 20. Wave washer |
| 3. Spring washer | 12. Bushings | 21. Pin |
| 4. Flat washer | 13. Clip | 22. Push rod |
| 5. Clutch pedal Assembly | 14. Pin | 23. Bushing |
| 6. Rod | 15. Spring seat | 24. Stopper rubber |
| 7. Adjusting nut | 16. Bushing | 25. Pad |
| 8. Bushing | 17. Spacer | 26. Clutch pedal |
| 9. Spring seat | 18. Bushing | |

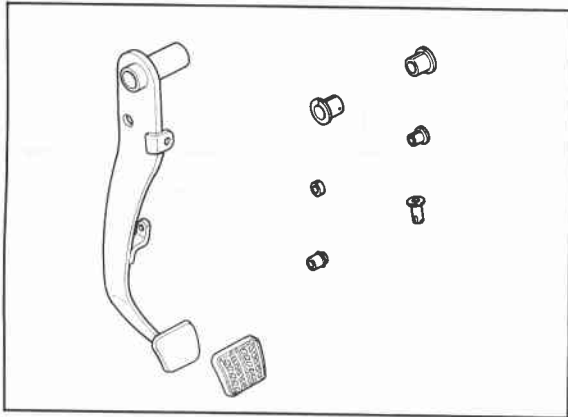


76G06X-007

Removal Note

Before removing the clutch pedal, loosen adjusting nut of the assist spring to relieve the spring tension.

6 CLUTCH PEDAL

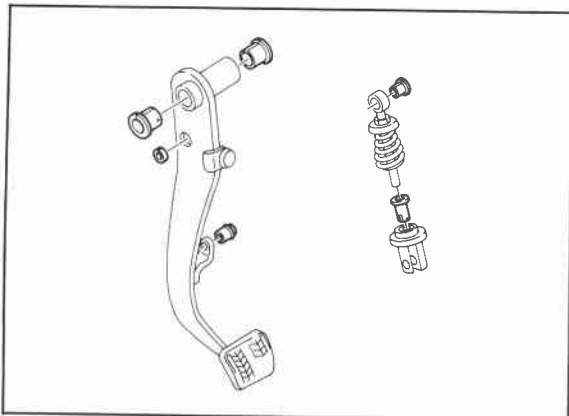


76G06X-008

INSPECTION

Check the following, and repair or replace any faulty parts.

1. Worn or damaged pedal bushing
2. Twisted or bent pedal
3. Worn or damaged pedal pad



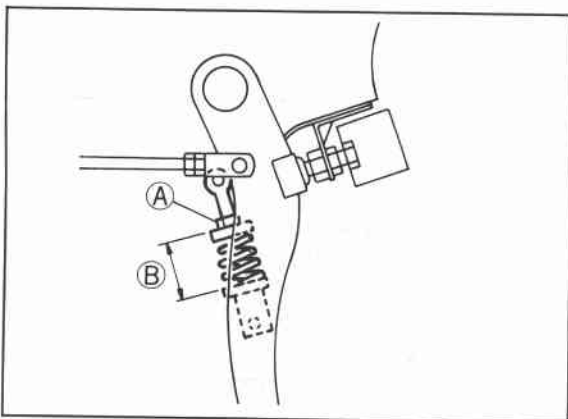
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INSTALLATION

Install in the reverse order of removal referring to the installation note.

Installation Note

Apply grease (lithium base, NLGI No.2) to the bushings.



76G06X-010

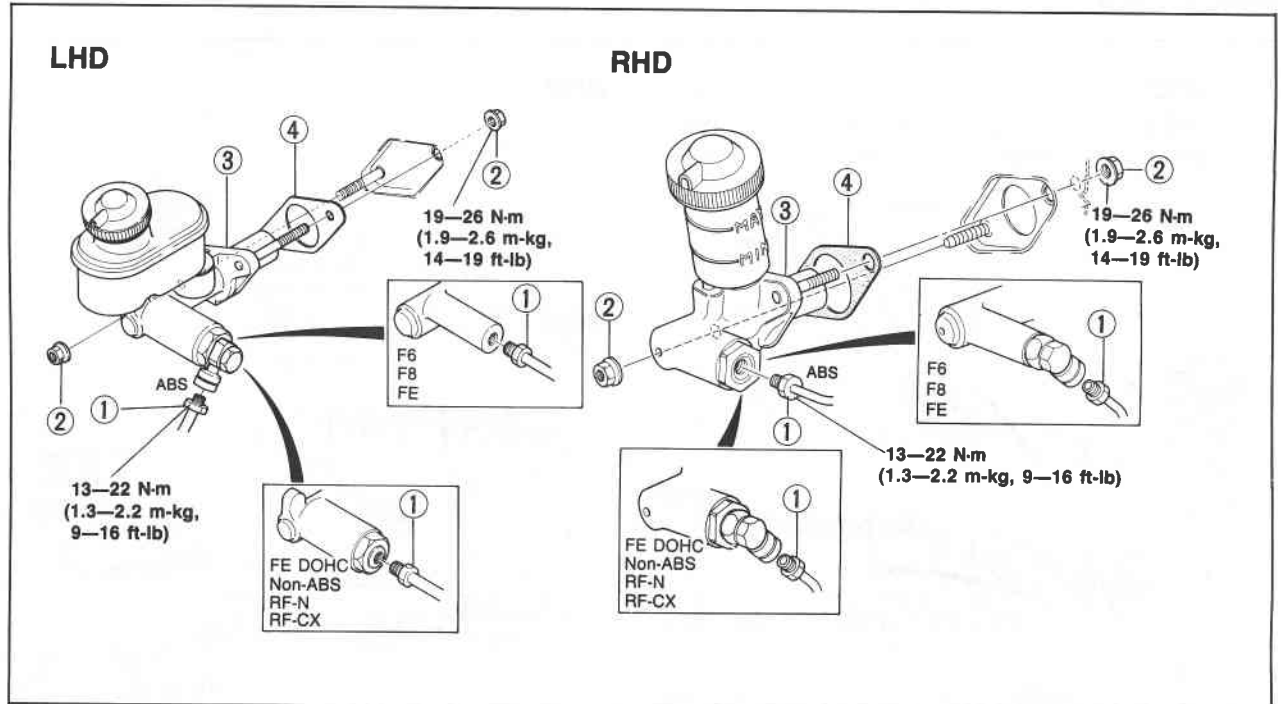
ADJUSTMENT

1. Adjust the pedal height. (Refer to page 6—4.)
2. Check the pedal free play, and adjust if necessary. (Refer to page 6—4.)
3. Adjust the installation length of the assist spring. The installation length is adjusted by turning nut A shown in the figure and adjusting dimension B.

Standard dimension:

38.6—39.6 (1.520—1.559 in)

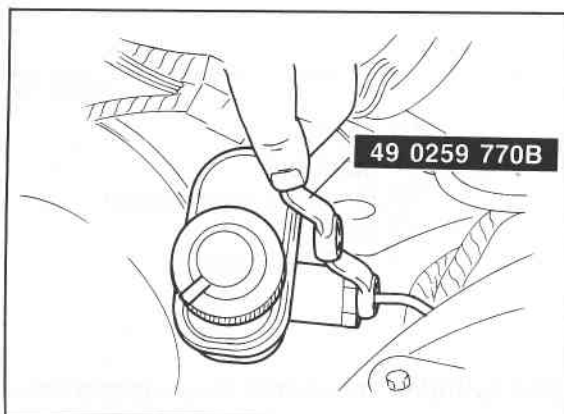
CLUTCH MASTER CYLINDER



76G06X-011

1. Clutch pipe
2. Nuts

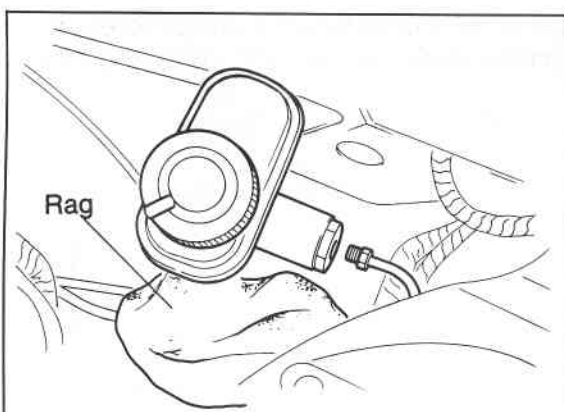
3. Clutch master cylinder
4. Gasket



76G06X-012

REMOVAL

1. Remove the ABS relay box. (LHD)
2. Disconnect the clutch pipe with the **SST**.
3. Remove the mounting nuts.
4. Remove the clutch master cylinder.



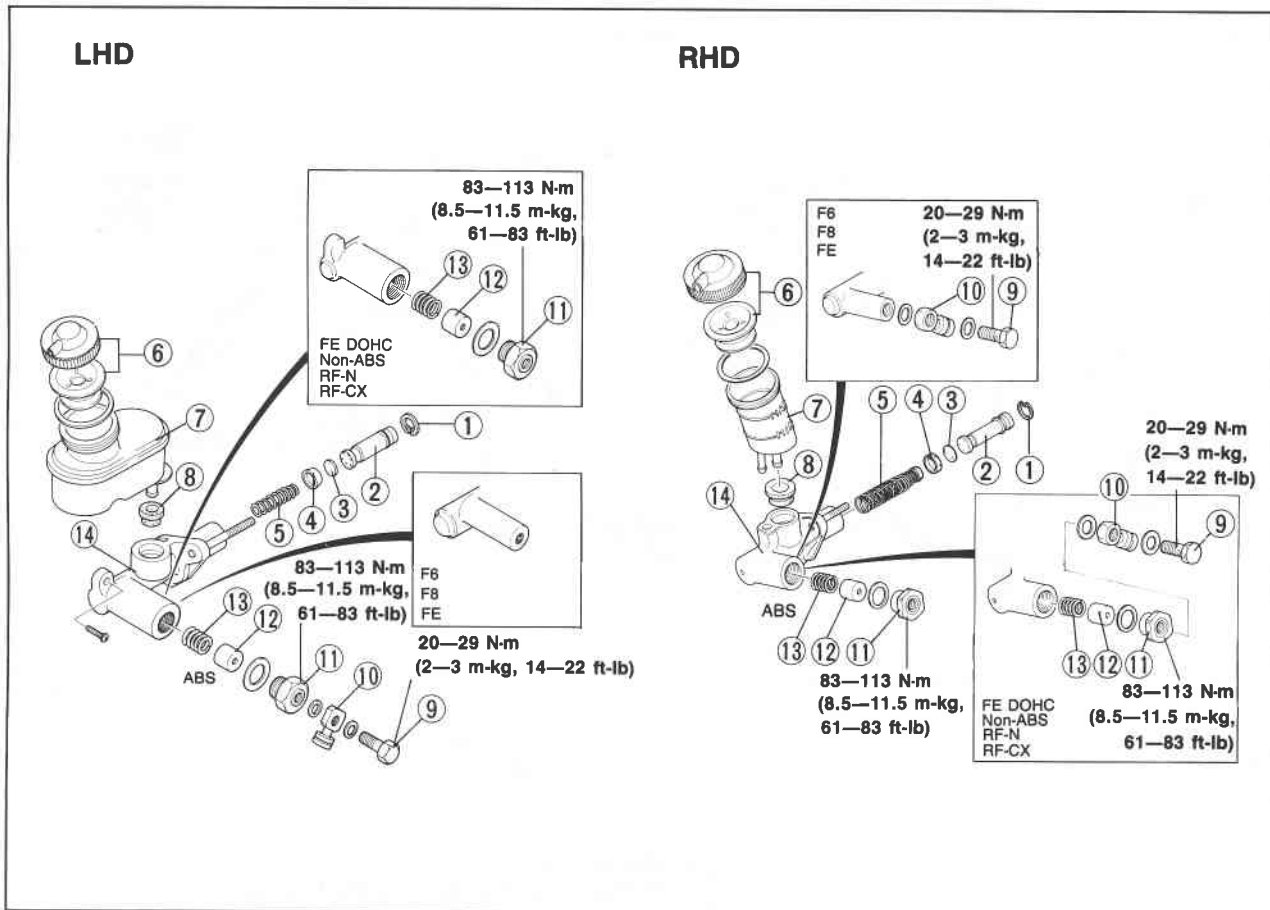
86U06X-010

Caution

Clutch fluid will damage painted surfaces. Be sure to use a container or rags to collect it. If fluid does get on a painted surface, wipe it off immediately with a rag.

6 CLUTCH MASTER CYLINDER

DISASSEMBLY Components

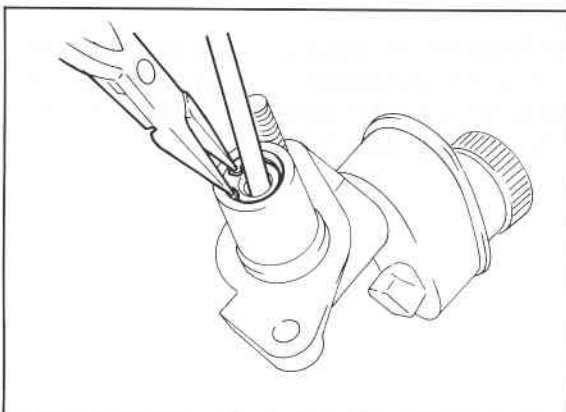


76G06X-013

- | | | |
|--------------------------------------|------------------------|--------------------------|
| 1. Snap ring | 5. Return spring | 10. Connector |
| 2. Piston and secondary cup assembly | 6. Tank cap and baffle | 11. Joint bolt |
| 3. Spacer | 7. Reserve tank | 12. One-way valve piston |
| 4. Primary cup | 8. Bushing | 13. Spring |
| | 9. Connector bolt | 14. Cylinder body |

Caution

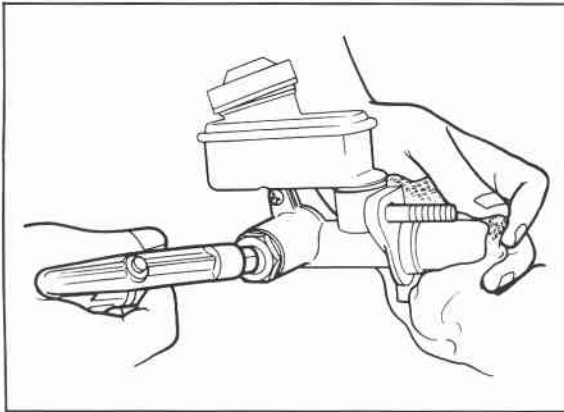
When disassembling or assembling the clutch master cylinder, do so in a clean space free from dirt and dust.



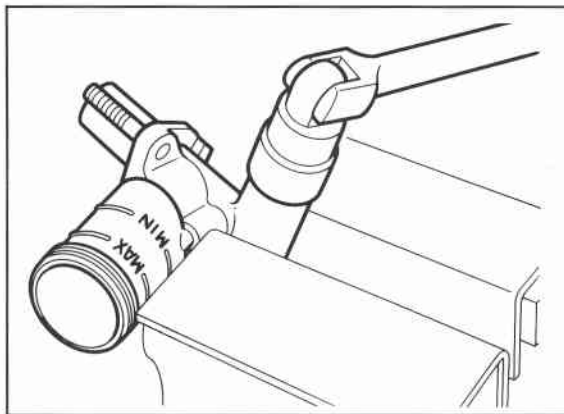
76G06X-014

1. Press down on the piston with a phillips screwdriver and remove the snap ring with snap ring pliers.

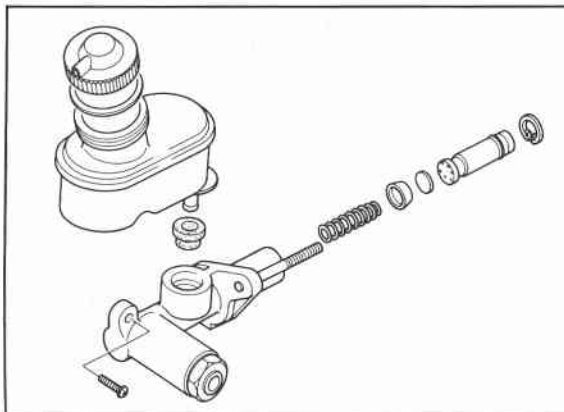
CLUTCH MASTER CYLINDER 6



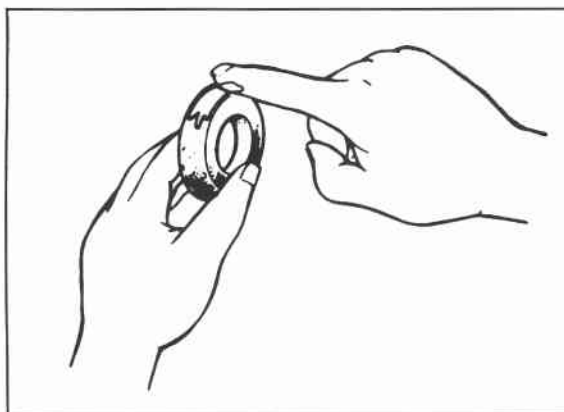
76G06X-015



76G06X-016



86U06X-014



86U06X-015

2. Remove the piston and secondary cup assembly by blowing compressed air through the clutch pipe installation hole.

Caution

When doing so, use a rag to prevent the piston and secondary cup assembly from projecting out.

3. Remove the spacer, primary cup, and return spring.
4. Remove the tank cap and baffle.

5. Remove the tank set screw. (LHD)
6. Remove the reserve tank.
7. Remove the bushing, if necessary.
8. Remove the connector. (LHD ABS, RHD without ABS)
9. Remove the joint bolt, then remove the one-way valve piston and spring. (FE DOHC, RF-N, RF-CX)

INSPECTION

After cleaning all parts, check the following points. Replace any parts with new parts, if necessary. Note that rubber parts should be cleaned with clutch fluid.

1. Wear or damage of cylinder wall and/or piston.
2. Weakness of return spring.
3. Wear or damage of piston cup.
4. Damaged or bent reserve tank and/or reserve tank installation part.

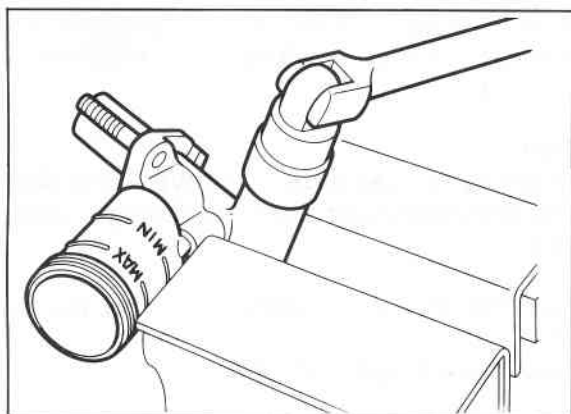
ASSEMBLY

Apply clean clutch fluid to the piston cup and the cylinder bore before assembly.

Caution

After applying clutch fluid, check that no foreign material is on the cup.

6 CLUTCH MASTER CYLINDER

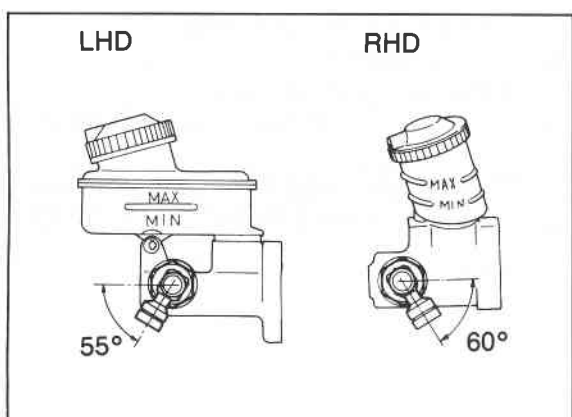


76G06X-017

1. Install the one-way valve spring and piston. (FE DOHC, RF-N, RF-CX)
2. Tighten the joint bolt with new gasket. (FE DOHC, RF-N, RF-CX)

Tightening torque:

83—113 N·m (8.5—11.5 m·kg, 61—83 ft·lb)



76G06X-018

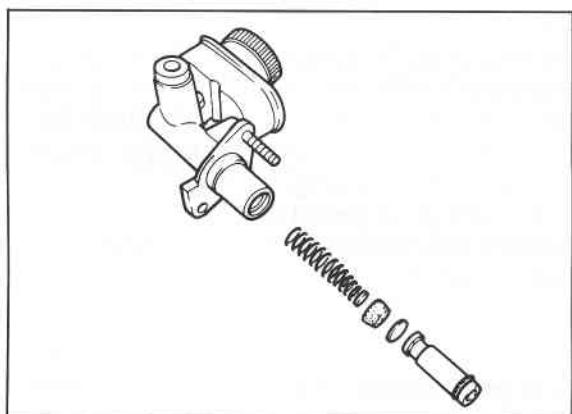
3. Install the connector and new gaskets. (LHD ABS, RHD without ABS)

Caution

Install the connector at the angle shown in the figure.

Tightening torque:

20—29 N·m (2—3 m·kg, 14—22 ft·lb)

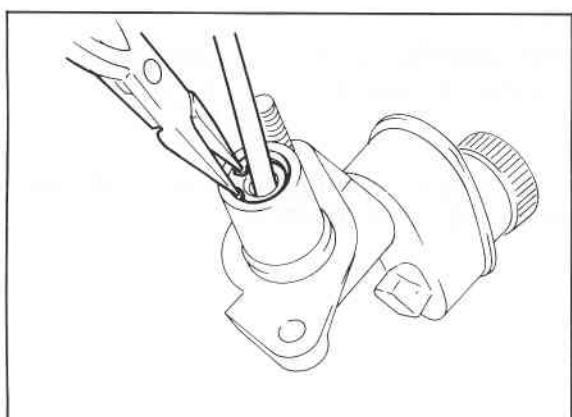


76G06X-019

4. Install the new bushing.
5. Install the reserve tank, baffle and tank cap.
6. Install the following parts:
 - (1) Return spring
 - (2) Primary cup
 - (3) Spacer
 - (4) New piston and secondary cup assembly

Caution

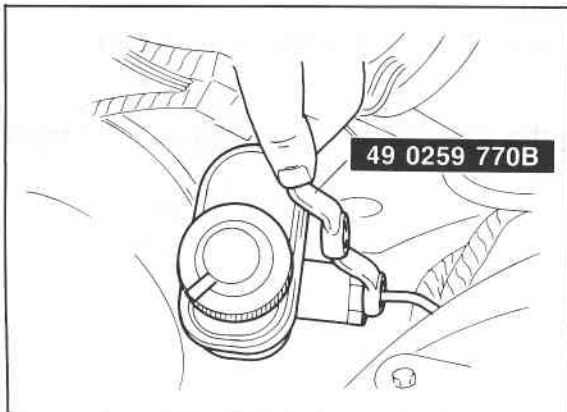
A new primary cup, piston, and secondary cup assembly must be used.



76G06X-020

7. While pressing the piston with a screwdriver, install the snap ring.

CLUTCH RELEASE CYLINDER 6



76G06X-021

INSTALLATION

1. Install the clutch master cylinder.
2. Tighten the mounting nuts.

Tightening torque:

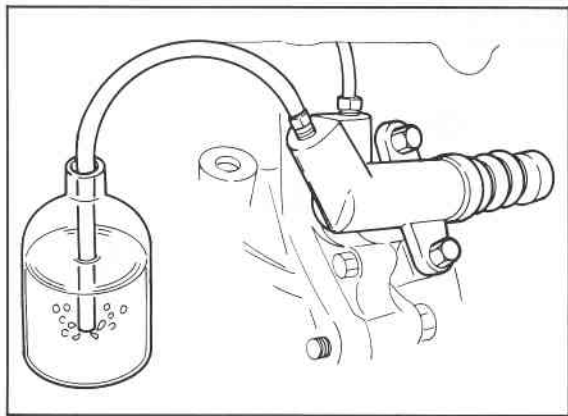
19—26 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

3. Tighten the clutch pipe flare nut securely with the SST.

Tightening torque:

13—22 N·m (1.3—2.2 m·kg, 9—16 ft·lb)

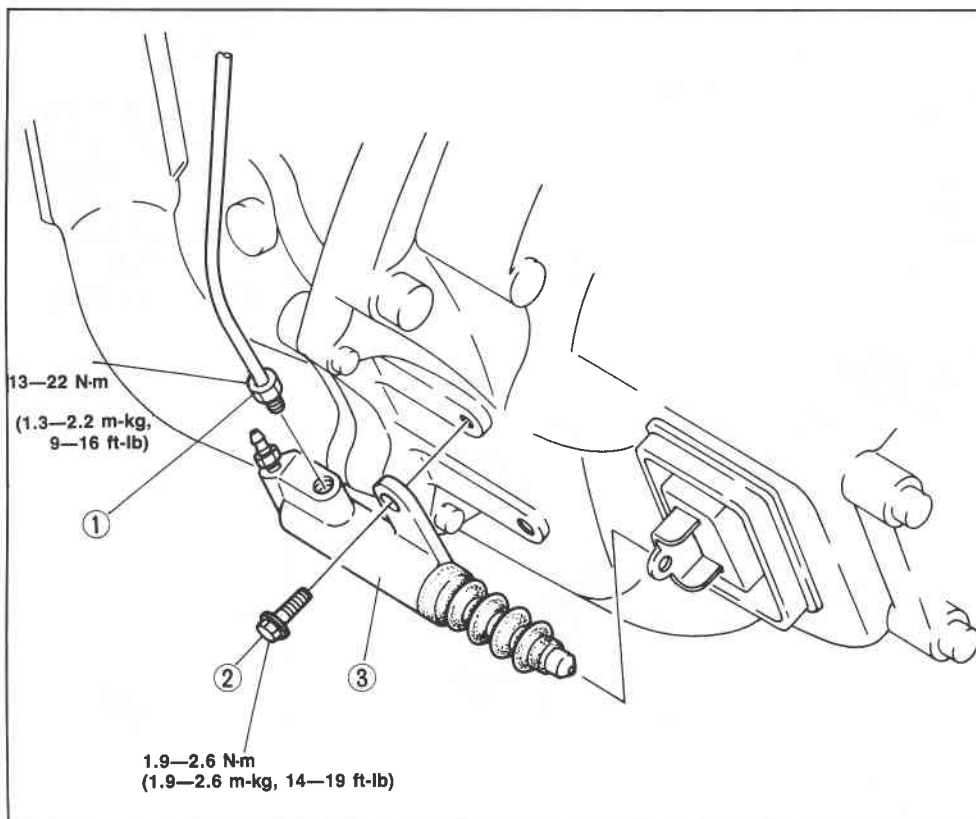
4. Install the ABS relay box. (LHD)



After installation

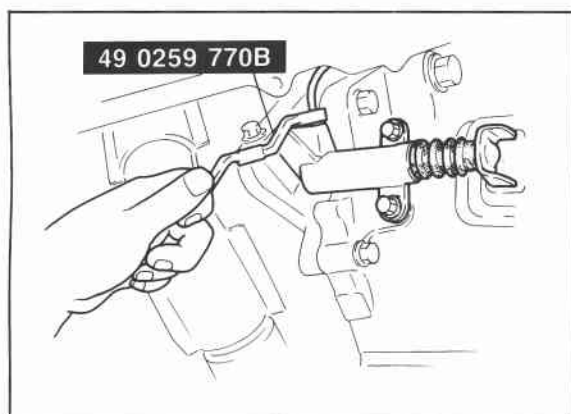
1. Perform air bleeding. (Refer to page 6—14.)
2. Verify that there is no leakage.
3. Perform a road test.

CLUTCH RELEASE CYLINDER



86U06X-019

6 CLUTCH RELEASE CYLINDER



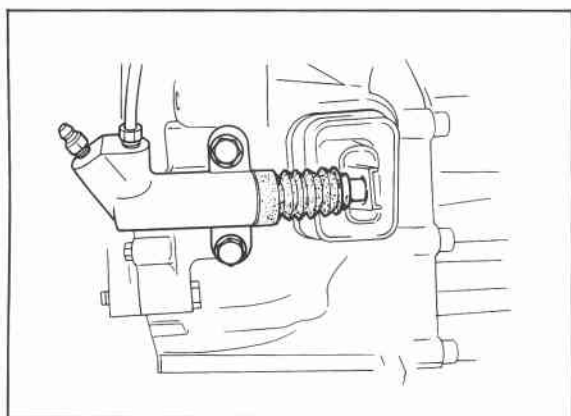
86U06X-020

REMOVAL

1. Disconnect the clutch pipe, with the **SST**.

Note

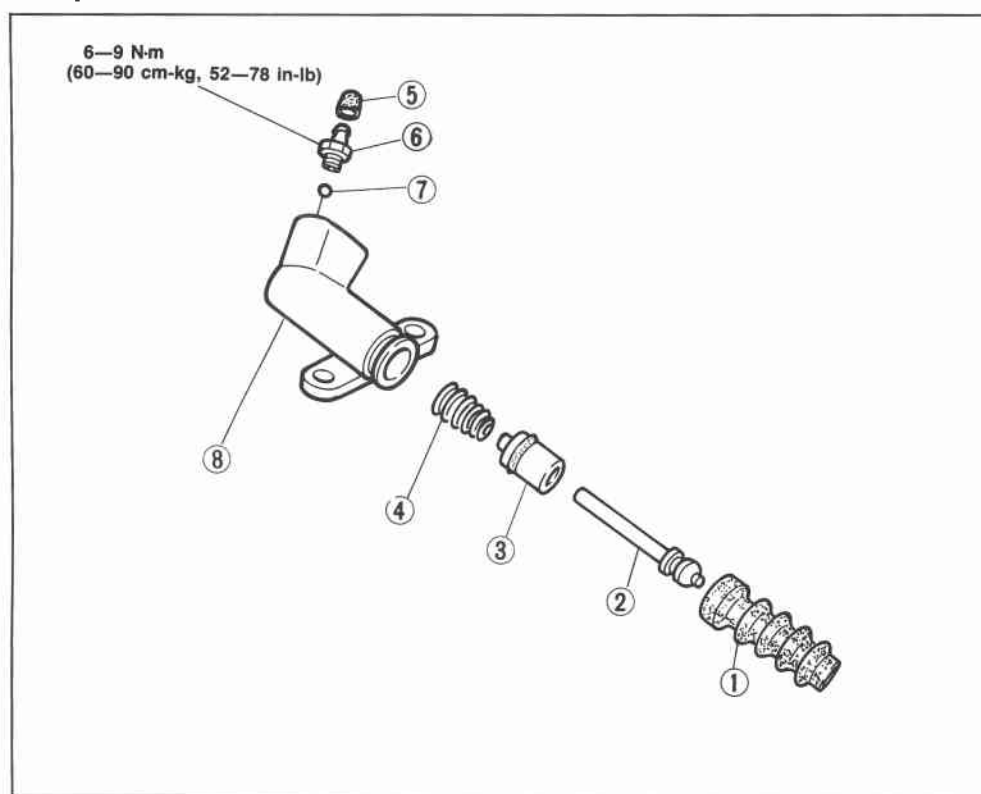
Plug the pipe in order to prevent fluid from leaking.



86U06X-021

2. Remove the installation bolts.
3. Remove the release cylinder.

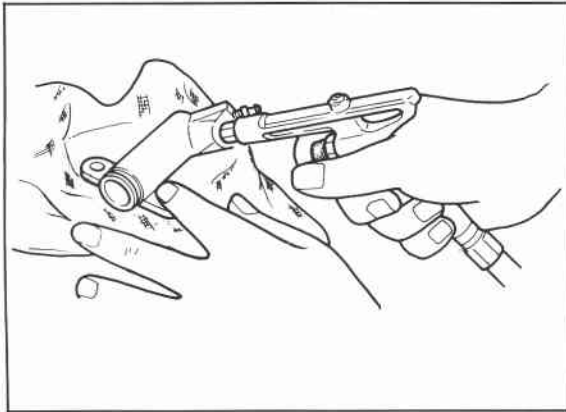
DISASSEMBLY Components



1. Boot
2. Push rod
3. Piston and piston cup
4. Return spring
5. Bleeder cap
6. Bleeder screw
7. Steel ball
8. Cylinder body

76G06X-022

CLUTCH RELEASE CYLINDER 6

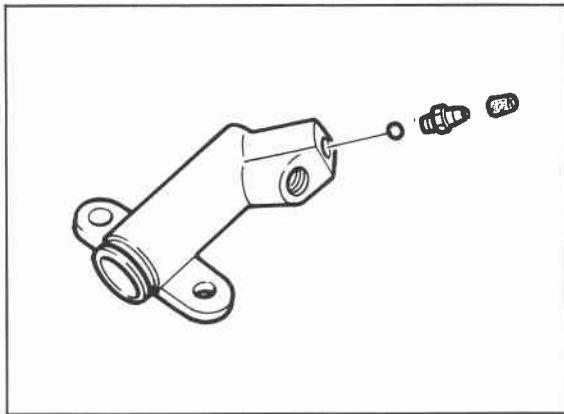


86U06X-023

1. Pull out the push rod and boot.
2. Remove the piston and piston cup by blowing compressed air through the clutch pipe installation hole.

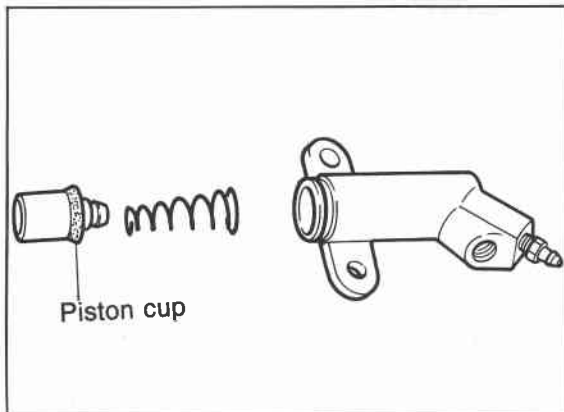
Caution

When doing so, use a rag to prevent the piston and piston cup assembly from projecting out.



86U06X-024

3. Remove the return spring.
4. Remove the following parts if necessary:
 - (1) Bleeder cap
 - (2) Bleeder screw
 - (3) Steel ball



76U06X-029

INSPECTION

After cleaning all parts, check the following points. Replace any parts with new parts if necessary. Note that rubber parts should be cleaned with clutch fluid.

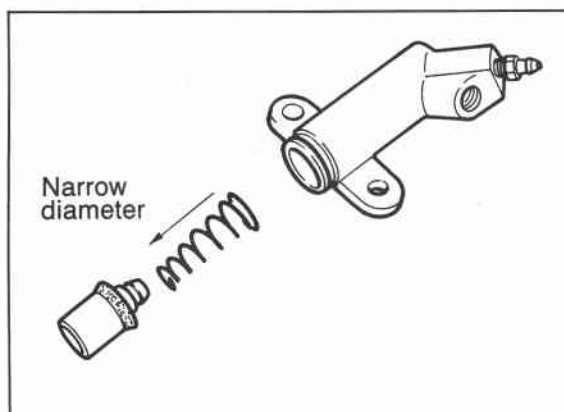
1. Wear or damage of cylinder wall and piston.
2. Weakness of return spring.
3. Wear or damage of piston cup.

ASSEMBLY

1. Install the following parts:
 - (1) Steel ball
 - (2) Bleeder screw
 - (3) Bleeder cap
2. Install the return spring.
3. Install the new piston and piston cup assembly.

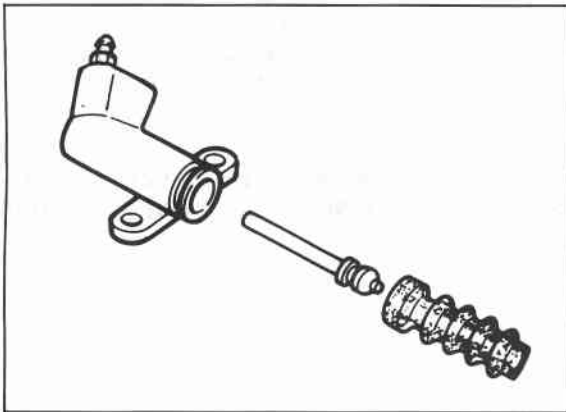
Caution

- a) A new piston and piston cup assembly must be used.
- b) Make sure the return spring and piston cup assembly are as illustrated.



86U06X-025

6 AIR BLEEDING



76U06X-031

4. Install the following parts:

- (1) Push rod
- (2) Boot

INSTALLATION

1. Install the release cylinder.
2. Tighten the installation bolts.

Tightening torque:

19—26 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

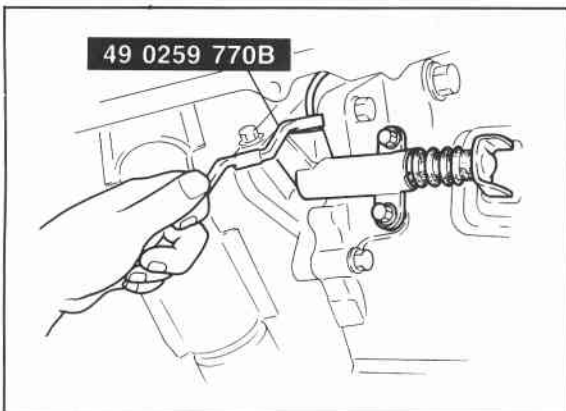
3. Tighten the clutch pipe flare nut securely with the **SST**.

Tightening torque:

13—22 N·m (1.3—2.2 m·kg, 9—16 ft·lb)

After installation

1. Perform air bleeding.
2. Verify that there is no leakage from the hydraulic circuit.
3. Perform a road test.



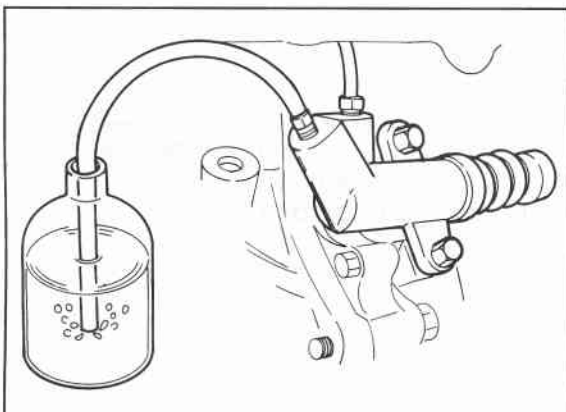
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AIR BLEEDING

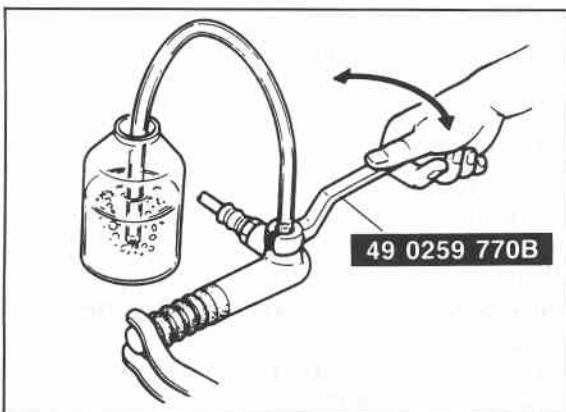
The clutch hydraulic system must be bled to remove air that entered when the pipes were disconnected. This bleeding is done as described below.

Note

- a) The fluid in the reserve tank must be maintained at the 3/4 level or higher during air bleeding.
- b) Use only the specified fluid type. (Refer to page 6—3)
- c) Be careful not to spill clutch fluid onto a painted surface.



86U06X-027

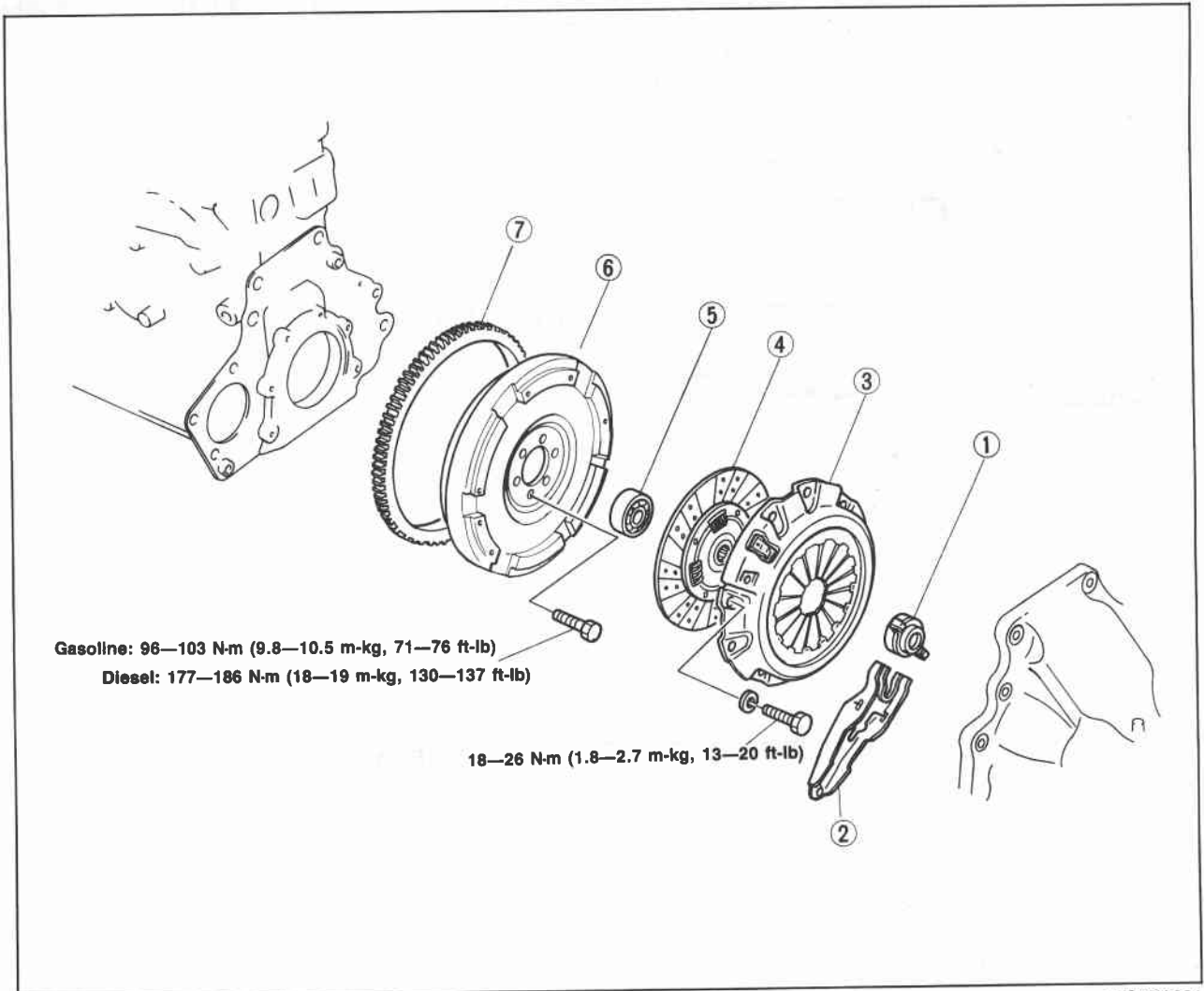


86U06X-028

1. Remove the bleeder cap, and attach a vinyl hose to the bleeder screw.
2. Place the other end of the vinyl tube in a glass container of the appropriate capacity.
3. Slowly pump the clutch pedal several times by hand.
4. While the clutch pedal is depressed, loosen the bleeder screw to let fluid and air escape. Then close the bleeder screw.
5. Repeat step 3 and 4 until no more air bubbles are in the fluid.
6. Check for correct clutch operation.

CLUTCH AND FLYWHEEL

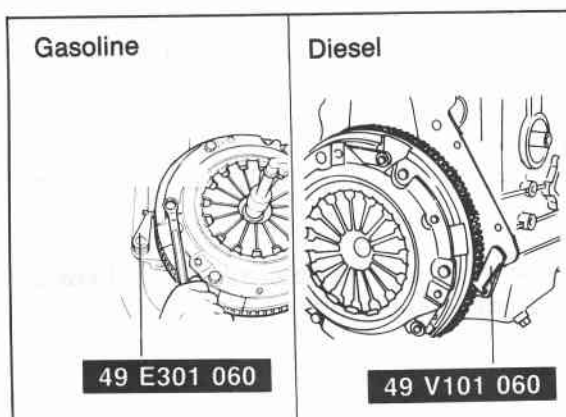
REMOVAL Components



76G06X-024

1. Clutch release bearing
2. Clutch release fork
3. Clutch cover

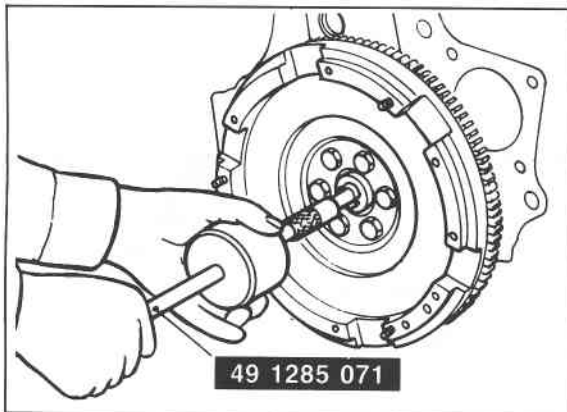
4. Clutch disc
5. Pilot bearing
6. Flywheel
7. Ring gear



86U06X-030

1. Remove the transaxle. (Refer to Section 7).
2. Attach the **SST** to the engine, and remove the clutch cover and clutch disc.

6 CLUTCH AND FLYWHEEL

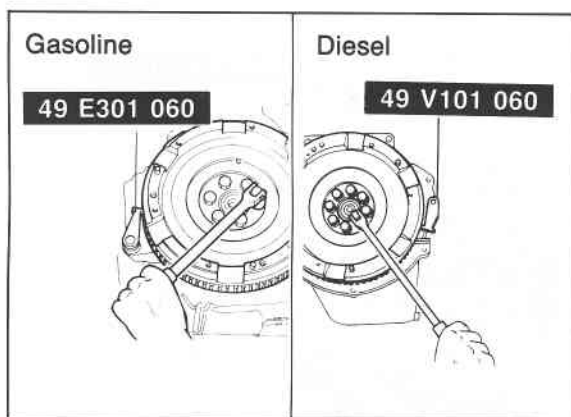


86U06X-031

3. Remove the pilot bearing from the crankshaft with the **SST**.

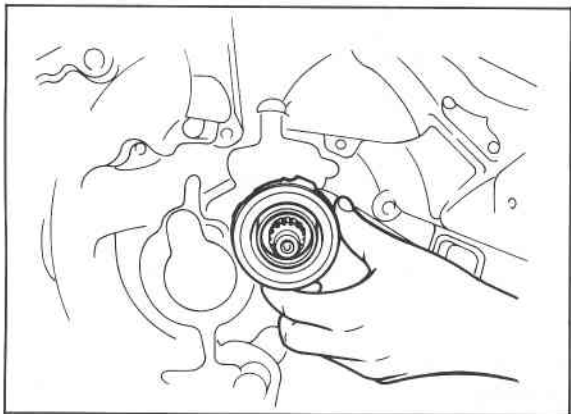
Note

Do not remove the bearing if it is not necessary.

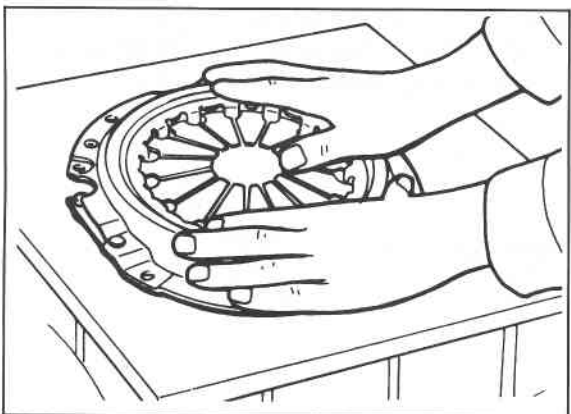


86U06X-032

4. Remove the flywheel.



5. Remove the release bearing.
6. Remove the release fork.



INSPECTION

Check the following and repair or replace any faulty parts.

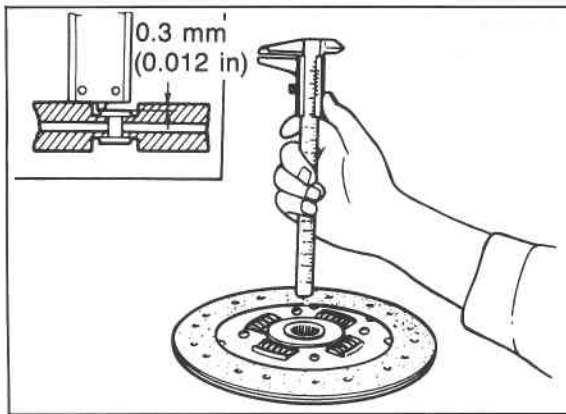
Clutch Cover

1. Clutch disc for scoring, cracks, or discoloration.

Note

Minor scratches or discoloration should be removed with sandpaper.

2. Diaphragm spring and cover for damage.



86U06X-035

Clutch Disc

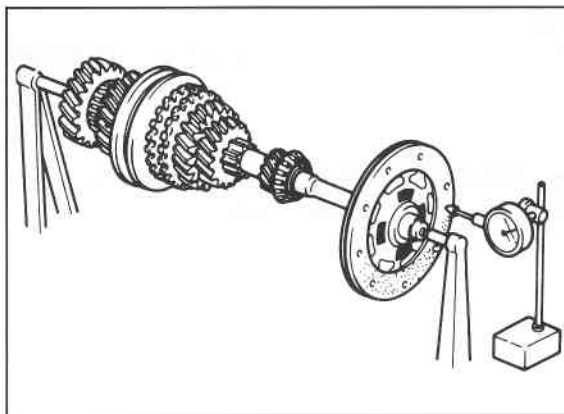
1. Facing surface for hardening or presence of oil.

Note

Use sandpaper if the trouble is minor.

2. Loose facing rivets.
3. Worn clutch disc.
Measure the depth to the rivet heads with a slide caliper.

Depth: 0.3 mm (0.012 in) min.

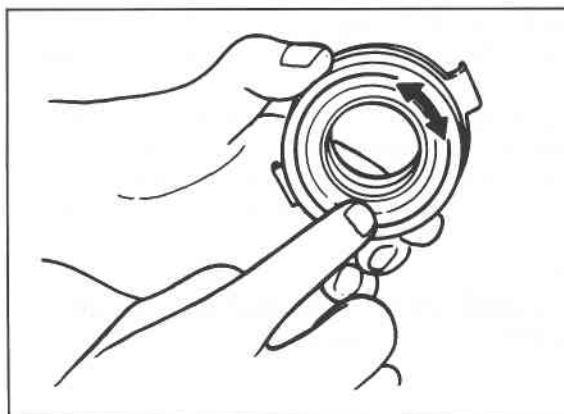


86U06X-036

4. Runout of clutch disc.

Runout: 1.0 mm (0.039 in) max.

5. Wear or rust on the splines.
Remove any minor rust.



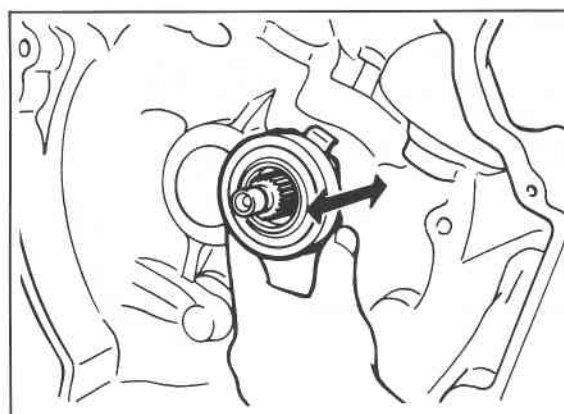
76G06X-025

Clutch Release Bearing

1. Turn the bearing both directions and check for any binding or abnormal noise.
2. Worn or damaged diaphragm spring or release fork contact surface.

Caution

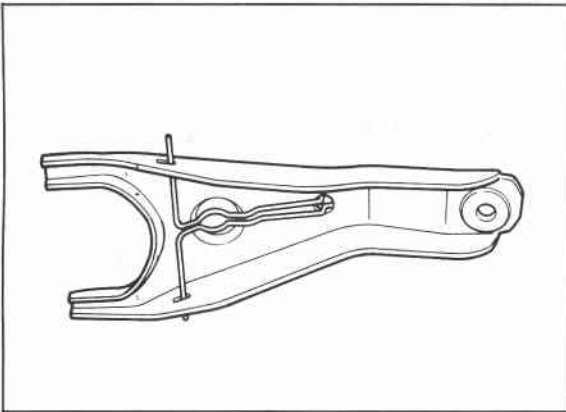
The clutch release bearing is a sealed bearing and must not be washed.



63U06X-025

3. Sliding condition of bearing.
Install the bearing on the clutch housing extension and check for smooth movement.

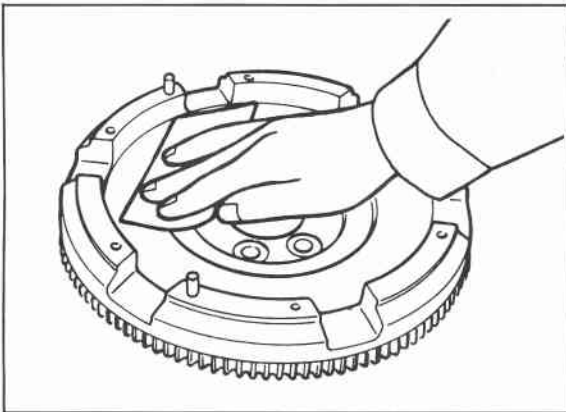
6 CLUTCH AND FLYWHEEL



67U06X-035

Clutch Release Fork

Cracked or bent clutch release fork.



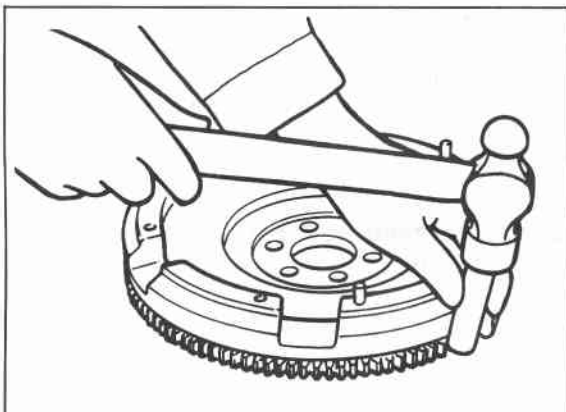
4BG06X-028

Flywheel

1. Surface marks, scoring or discoloration of clutch contact surface.

Note

If the problem is minor, repairs can be made by cleaning with sandpaper.



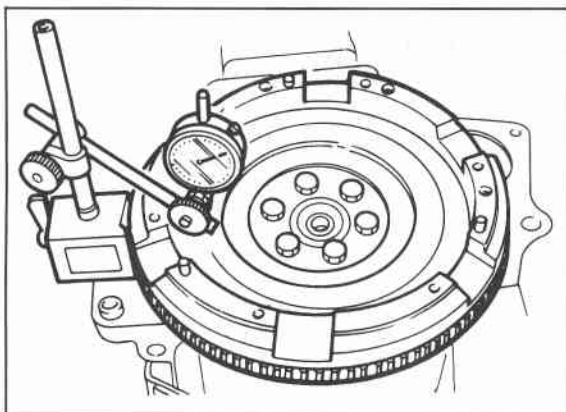
4BG06X-029

2. Damaged or worn ring gear teeth.
If necessary, replace the ring gear as follows:

- (1) Heat the ring gear with a blowtorch, then tap around the gear to remove it from the flywheel.
- (2) Heat the new ring gear to 250—300°C (480—570°F), then fit it onto the flywheel.

Caution

The bevelled side of the ring gear must face toward the engine side.



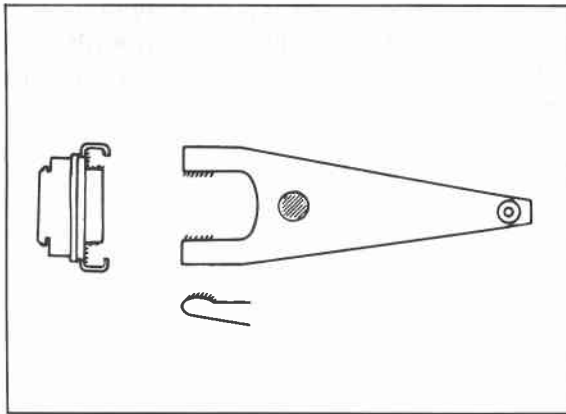
86U06X-037

3. Runout of flywheel
 - (1) To measure, set a dial indicator on the clutch disc contact surface, and turn the flywheel.

Runout: 0.2 mm (0.008 in) max.

- (2) If the runout exceeds specification repair by grinding.

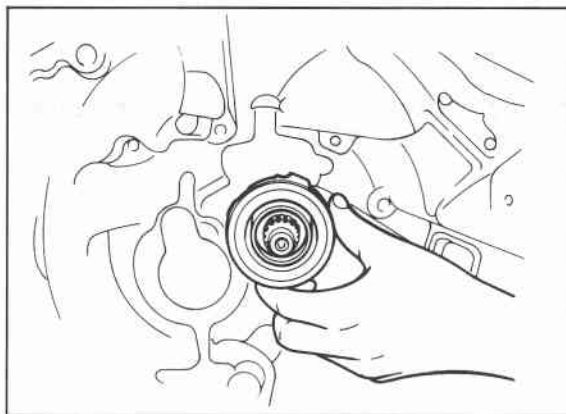
Grinding limit: 0.5 mm (0.020 in) max.



86U06X-038

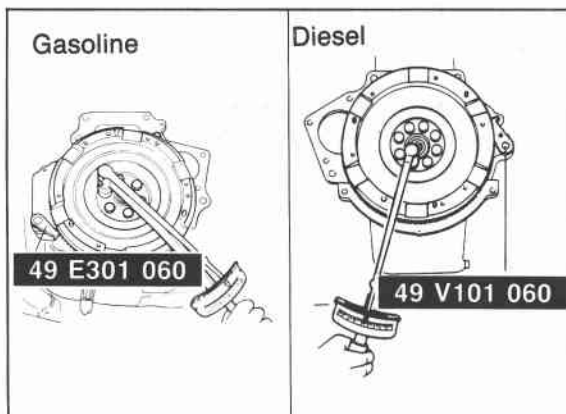
INSTALLATION

1. Apply clutch grease (**Mori White TA No.2** or equivalent organic molybdenum grease) to the clutch release bearing and fork, indicated by the shaded lines in the figure.



86U06X-039

2. Install the clutch release fork and release bearing.



76G06X-026

3. Install the flywheel, then attach the **SST** and tighten the flywheel installation bolts.

Tightening torque:

Gasoline	96—103 N·m (9.8—10.5 m·kg, 71—76 ft·lb)
Diesel	177—186 N·m (18—19 m·kg, 130—137 ft·lb)

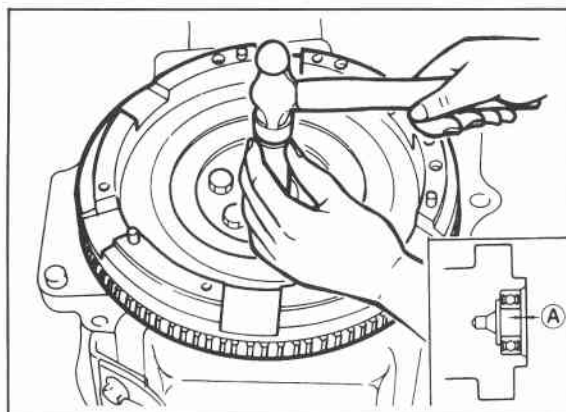
Caution

If reusing the flywheel bolts, clean the threads to remove old sealant, and apply new sealant. If old sealant cannot be removed, replace the bolts.

4. Install the pilot bearing in the flywheel using a suitable bar and a hammer.

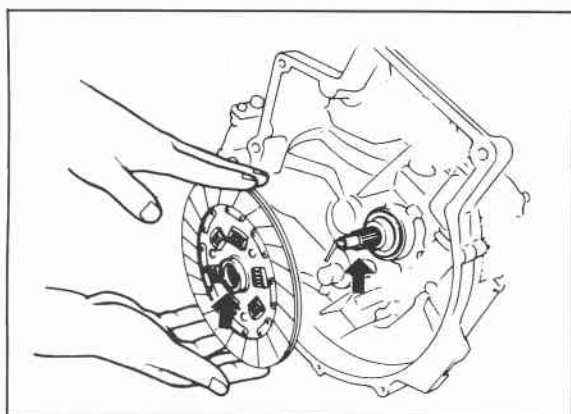
Caution

- a) Tap it in until distance A in the figure is 3.8—4.2 mm (0.150—0.165 in).
- b) Put a small amount of clutch grease (**Mori White TA No.2** or equivalent organic molybdenum grease).



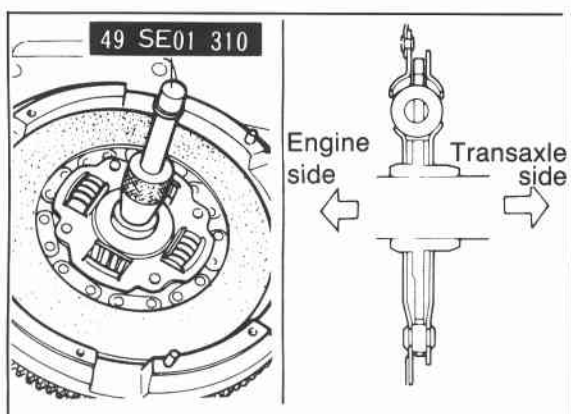
86U06X-041

6 CLUTCH AND FLYWHEEL



86U06X-042

5. Clean the clutch disc splines and primary shaft splines, then apply clutch grease (**Mori White TA No. 2** or equivalent organic molybdenum grease).

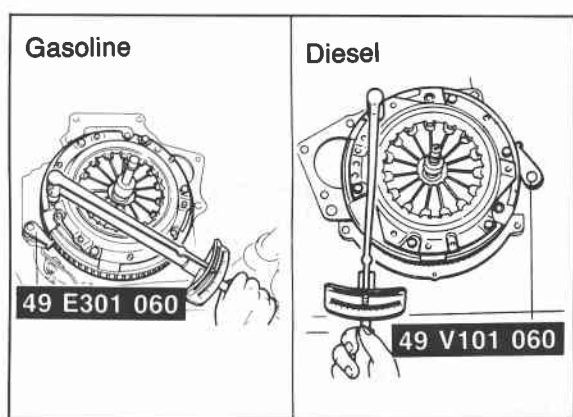


86U06X-043

6. Install the clutch disc with the **SST**.

Note

Install the clutch so that it faces in the direction shown in the figure.



76G06X-027

7. Install the **SST**, and tighten the clutch cover diagonally and evenly.

**Tightening torque: 18—26 N·m
(1.8—2.7 m·kg, 13—20 ft·lb)**

8. Install the transaxle. (Refer to Section 7A.)