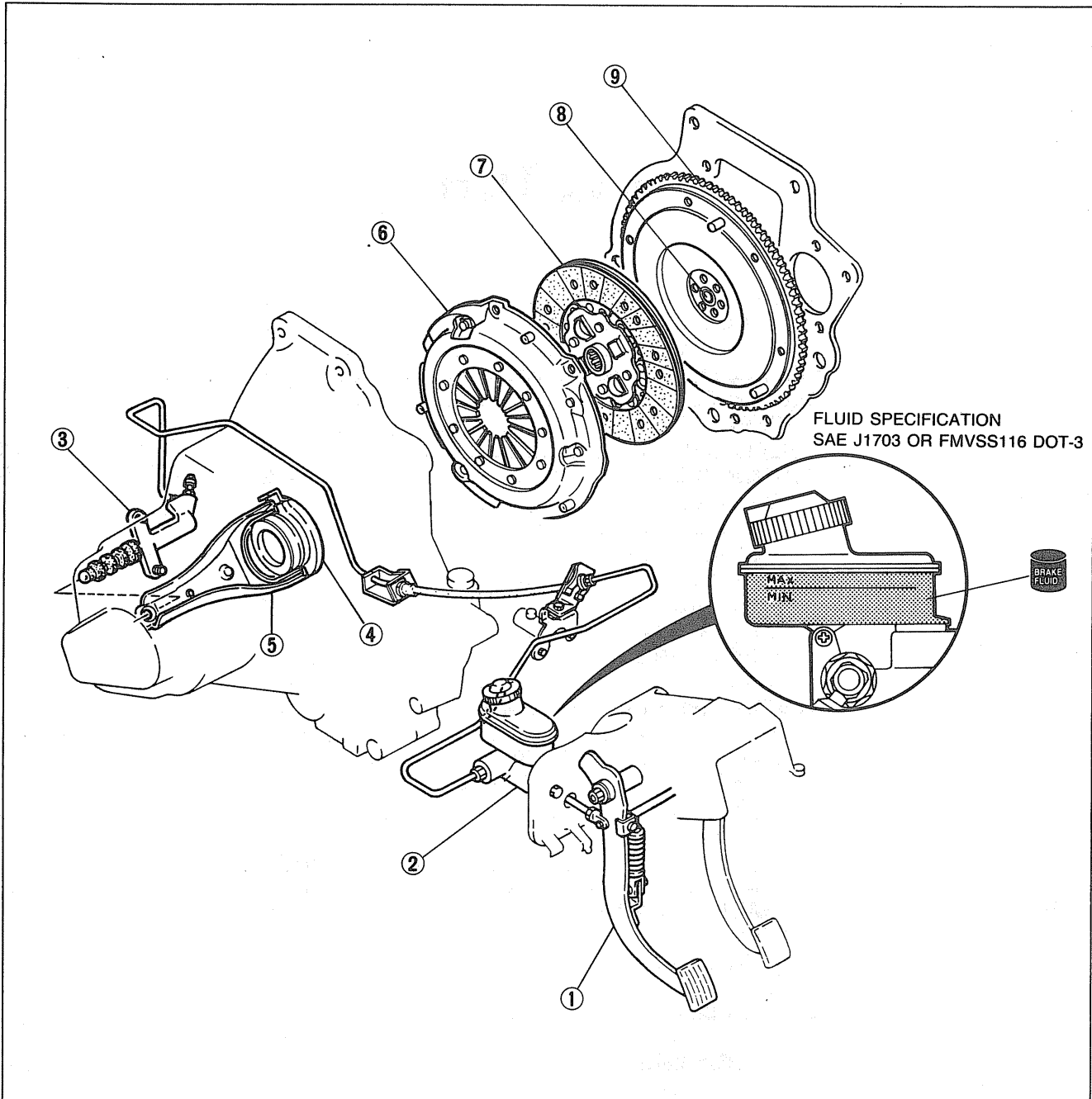


# CLUTCH

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|---|---|---|

OUTLINE

SPECIFICATIONS

Item		Model	Turbo	Non-Turbo	
Clutch control			Hydraulic		
Clutch cover	Type		Diaphragm spring		
	Set load	N (kg, lb)	5,495 (560, 1,232)	4,316 (440, 968)	
Clutch disc	Outer diameter	mm (in)	240 (9.45)	225 (8.86)	
	Inner diameter	mm (in)	160 (6.30)	150 (5.91)	
	Thickness	Pressure plate side	mm (in)	3.5 (0.14)	4.1 (0.16)
		Flywheel side	mm (in)	3.5 (0.14)	
Clutch pedal	Type		Suspended		
	Pedal ratio		6.00		
	Full stroke	mm (in)	135 (5.31)		
	Height (with carpet)	mm (in)	171—181 (6.73—7.13)		
Master cylinder inner diameter		mm (in)	15.87 (0.625)		
Release cylinder inner diameter		mm (in)	19.05 (0.750)		
Clutch fluid			SAE J1703 or FMVSS116 DOT-3		

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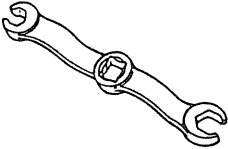
TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
<b>Slipping</b>	Clutch disc facing worn excessively	Replace	H-14
	Clutch disc facing surface hardened or oil on surface	Repair or replace	H-14
	Pressure plate damaged	Repair or replace	H-14
	Diaphragm spring damaged or weak	Replace	H-14
	Insufficient clutch pedal play	Adjust	H- 5
	Clutch pedal sticking	Repair or replace	H- 6
	Flywheel damaged	Repair or replace	H-14
<b>Faulty disengagement</b>	Excessive runout or damaged clutch disc	Replace	H-14
	Clutch disc splines rusted or worn	Remove rust or replace	H-14
	Oil on facing	Repair or replace	—
	Diaphragm spring weak	Replace	H-14
	Excessive clutch pedal play	Adjust	H- 5
	Insufficient clutch fluid	Add fluid	H- 2
	Leakage of clutch fluid	Locate and repair or replace	—
<b>Clutch vibrates when accelerating</b>	Oil on facing	Repair or replace	H-14
	Torsion spring weak	Replace	H-14
	Clutch disc facing hardened or damaged	Repair or replace	H-14
	Clutch disc facing rivets loose	Replace	H-14
	Pressure plate damaged or excessive runout	Replace	H-14
	Flywheel surface hardened or damaged	Repair or replace	H-14
	Loose or worn engine mount	Tighten or replace	—
<b>Clutch pedal sticking</b>	Pedal shaft not properly lubricated	Lubricate or replace	H- 6
<b>Abnormal noise</b>	Clutch release bearing damaged	Replace	H-14
	Poor lubrication of release bearing sleeve	Lubricate or replace	H-14
	Torsion spring weak	Replace	H-14
	Excessive crankshaft end play	Repair	Refer to Section B
	Pilot bearing worn or damaged	Replace	H-14
	Worn pivot points of release fork	Repair or replace	H-14

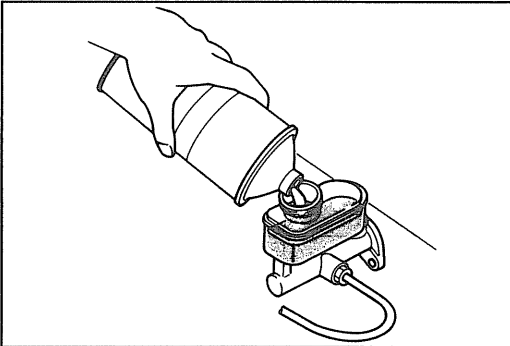
06U0HX-004

## CLUTCH FLUID

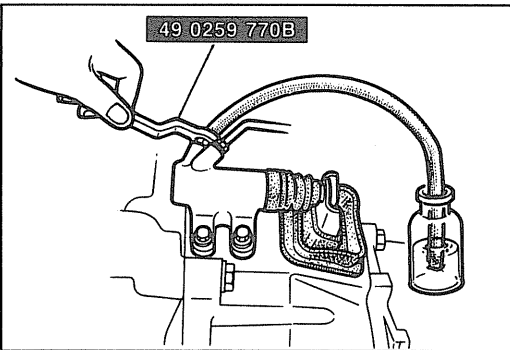
PREPARATION  
SST

<p>49 0259 770B</p> <p>Wrench, flare nut</p> 	<p>For loosening and tightening bleeder screw</p>
--	---

06U0HX-005



97U0HX-025



97U0HX-005

## REPLACEMENT

## Note

- The fluid in the reserve tank must be maintained at the 3/4 level or higher during replacement.

## Caution

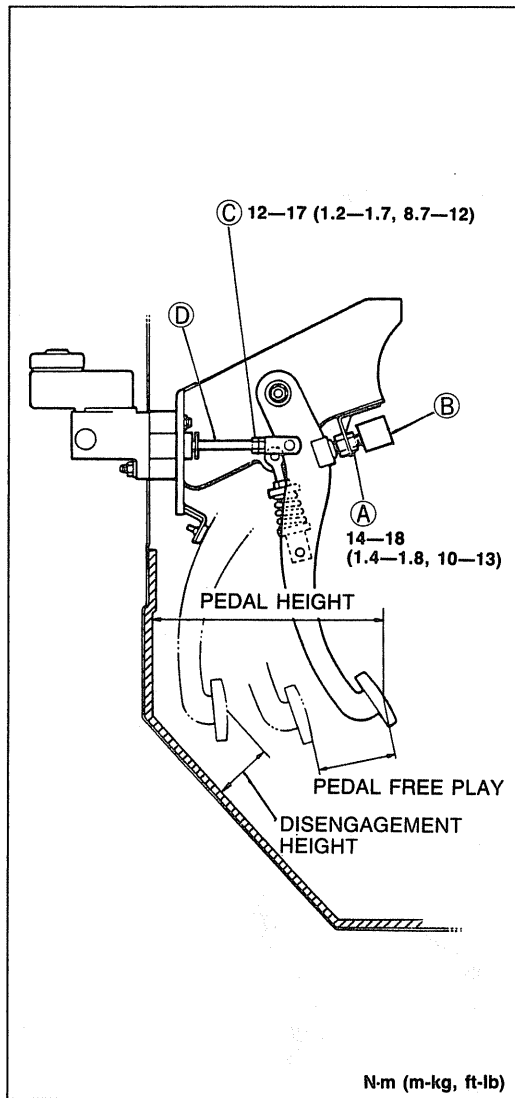
- Be careful not to spill clutch fluid on a painted surface. If this should happen, wash it off immediately.
- Do not mix different brands of clutch fluid.
- Do not reuse the clutch fluid which was drained out.

1. Draw the fluid from the reserve tank with a suction pump, and refill with clean, new fluid.
2. Remove the bleeder cap from the clutch release cylinder and attach a vinyl hose to the bleeder plug.
3. Place the other end of the vinyl hose into a clear container.
4. Slowly pump the clutch pedal several times.
5. With the clutch pedal depressed, loosen the bleeder screw with the **SST** to let fluid escape. Close the bleeder screw with the **SST**.
6. Repeat Steps 4 and 5 until only clean fluid is seen.
7. Tighten the bleeder screw.

## Tightening torque:

5.9—8.8 N·m (60—90 cm·kg, 52—78 in·lb)

8. Add fluid to the MAX mark.
9. Check for correct clutch operation.



## CLUTCH PEDAL

### ADJUSTMENT

#### Clutch Pedal Height

##### Inspection

1. Measure the distance from the upper surface of the pedal pad to the carpet.

**Pedal height: 171—181mm (6.73—7.13 in)**  
(With carpet)

2. If necessary, adjust the pedal height.

##### Adjustment

1. Loosen locknut (A) and turn clutch switch (B) until the height is correct.
2. Tighten locknut (A).

##### Tightening torque:

**14—18 N·m (1.4—1.8 m·kg, 10—13 ft·lb)**

3. After the adjustment, inspect the pedal free play.

#### Clutch Pedal Free Play

##### Inspection

1. Depress the clutch pedal by hand until clutch resistance is felt.

**Pedal free play: 0.6—3.0mm (0.02—0.12 in)**  
**Total pedal free play: 5—13mm (0.20—0.51 in)**

2. If necessary, adjust the pedal free play.

##### Adjustment

1. Loosen locknut (C) and turn push rod (D) until pedal free play is correct.
2. Check that the disengagement height from the upper surface of the pedal height to the carpet is correct when the pedal is fully depressed.

**Minimum disengagement height: 39mm (1.54 in)**  
(With carpet)

3. Tighten locknut (C).

##### Tightening torque:

**12—17 N·m (1.2—1.7 m·kg, 8.7—12 ft·lb)**

4. After adjustment, inspect the pedal height.

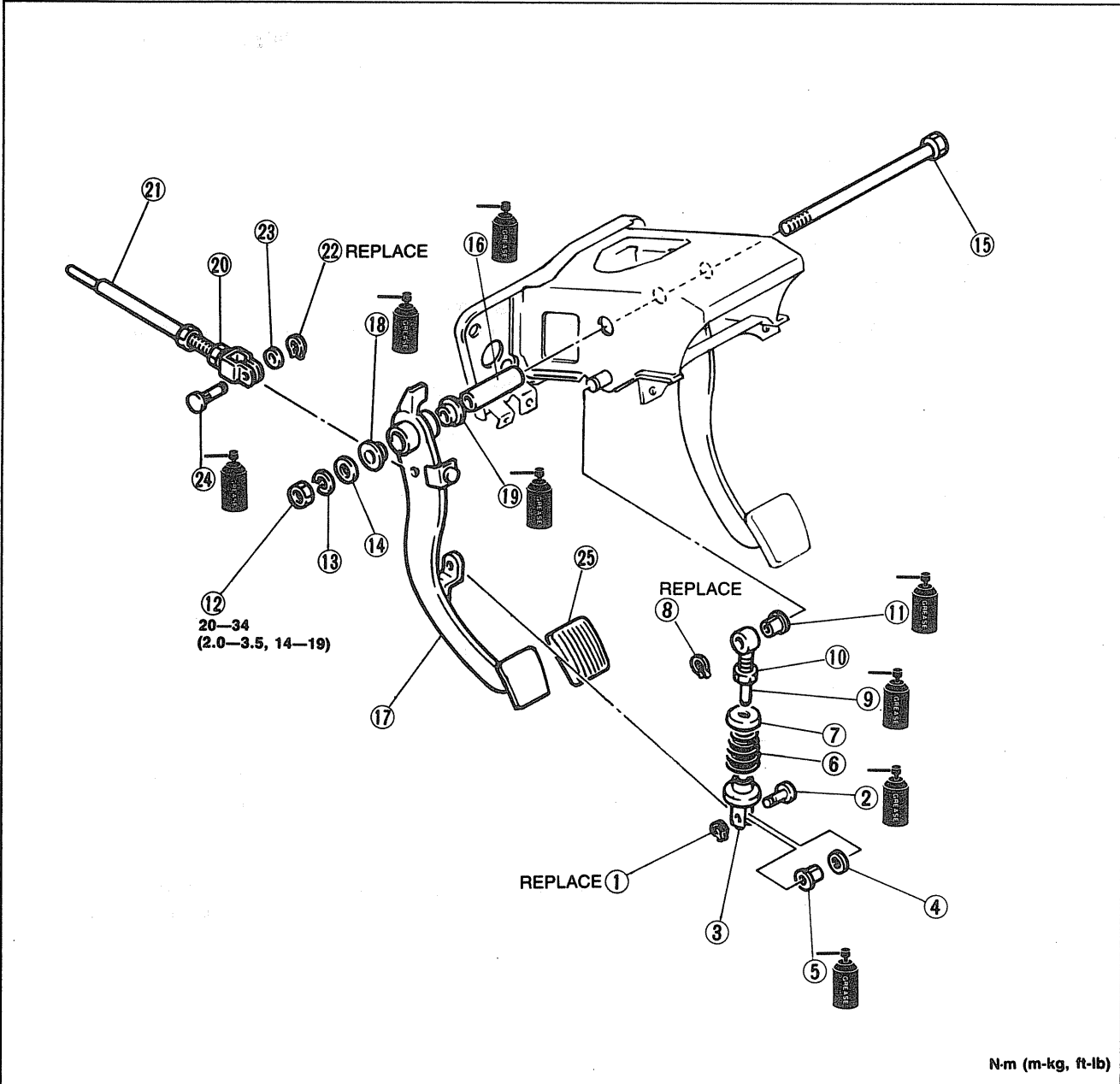
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### REMOVAL / INSPECTION / INSTALLATION

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.

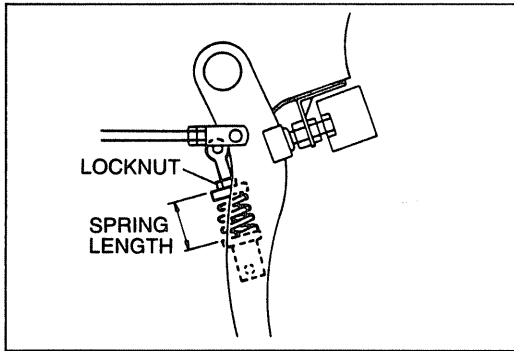
#### Note

- Apply lithium based grease to the bushings and pins when installing.



16UHX-002

- |                           |                           |                               |
|---------------------------|---------------------------|-------------------------------|
| 1. Clip                   | 10. Nut                   | 19. Bushing                   |
| 2. Pin                    | 11. Bushing               | 20. Nut                       |
| 3. Spring seat            | 12. Nut                   | 21. Push rod                  |
| 4. Spacer                 | 13. Lock washer           | Inspect for damage or bending |
| 5. Bushing                | 14. Flat washer           | 22. Clip                      |
| 6. Assist spring          | 15. Bolt                  | 23. Spacer                    |
| Adjustment..... page H- 7 | 16. Spacer                | 24. Pin                       |
| 7. Spring seat            | 17. Clutch pedal          | 25. Pedal pad                 |
| 8. Clip                   | Adjustment..... page H- 5 |                               |
| 9. Rod                    | 18. Bushing               |                               |



16U0HX-003

### Adjustment Assist spring

1. Turn the locknut until the spring length is correct.

### Standard spring length:

Turbo: 37.1—38.1mm (1.46—1.50 in)

Non-Turbo: 38.6—39.6mm (1.52—1.56 in)

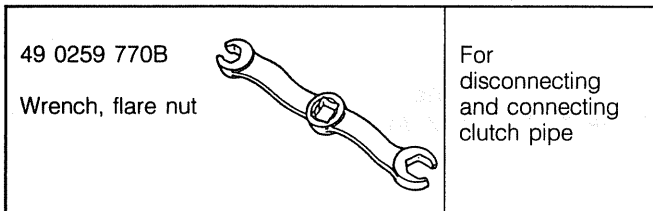
### Clutch pedal height and free play

Refer to page H-5.

## CLUTCH MASTER CYLINDER

### PREPARATION

#### SST



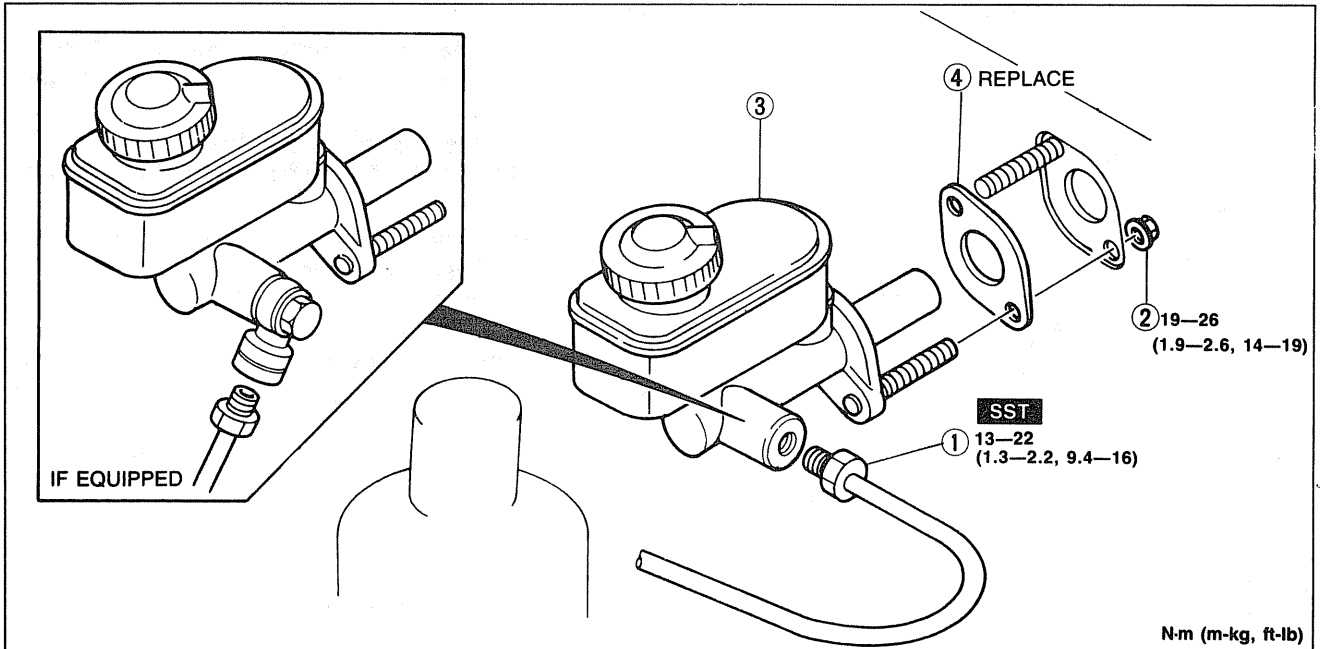
06U0HX-009

### REMOVAL / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

#### Caution

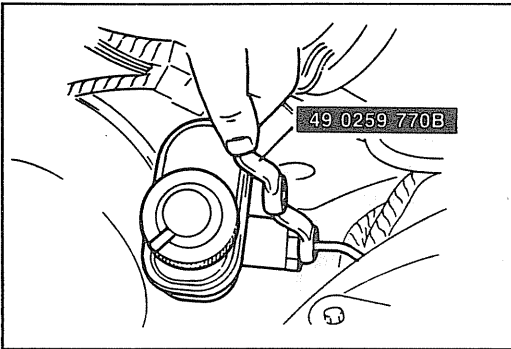
- Clutch fluid will damage painted surfaces. Be sure to use a container or rags to collect it.
- If fluid does get on a painted surface, wipe it off immediately with a rag.



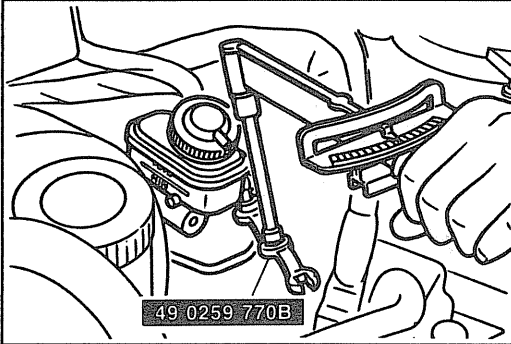
N-m (m-kg, ft-lb)

16U0HX-004

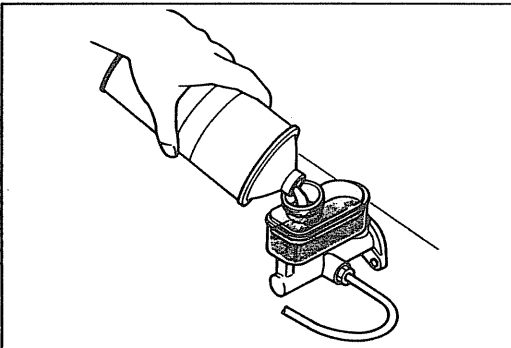
- |  |  |                  |
|--|--|------------------|
| <p>1. Clutch pipe<br/>Removal..... page H- 8<br/>Installation..... page H- 8</p> | <p>3. Clutch master cylinder<br/>Check for fluid leakage from<br/>the cylinder bore<br/>Overhaul..... page H- 9<br/>AIR BLEEDING page H- 8</p> | <p>4. Gasket</p> |
| <p>2. Nut</p>  |  |                  |



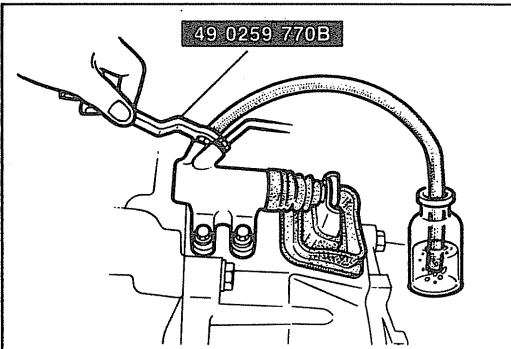
16U0HX-005



16U0HX-006



9MU0HX-049



97U0HX-010

**Removal Note****Clutch pipe**

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

**Installation Note****Clutch pipe**

1. Tighten the clutch pipe with the **SST**.

**Tightening torque:**

13—22 N·m (1.3—2.2 m·kg, 9.4—16 ft·lb)

**Air Bleeding**

1. After installation, bleed the clutch system.  
(Refer to below.)

**Inspection and Adjustment****Clutch pedal height and free play**

Refer to page H-5.

**AIR BLEEDING**

The clutch hydraulic system must be bled to remove air introduced whenever a hydraulic line is disconnected.

**Note**

- The fluid in the reserve tank must be maintained at the 3/4 level or higher during air bleeding.

**Caution**

- Clutch fluid will damage a painted surface. If fluid does get on a painted surface, wipe it off immediately.
- Do not mix different brands of clutch fluid.
- Do not reuse the clutch fluid which was drained out.

1. Remove the bleeder cap from the clutch release cylinder and attach a vinyl hose to the bleeder plug.
2. Insert the other end of the vinyl hose into a clear container.
3. Slowly pump the clutch pedal several times.
4. While depressing the pedal, loosen the bleeder screw with the **SST** to let fluid and air escape.  
Close the bleeder screw with the **SST**.
5. Repeat Steps 3 and 4 until no air bubbles are seen in the fluid.
6. Tighten the bleeder screw.

**Tightening torque:**

5.9—8.8 N·m (60—90 cm·kg, 52—78 in·lb)

7. Check for correct clutch operation.
8. Verify that there is no fluid leakage.

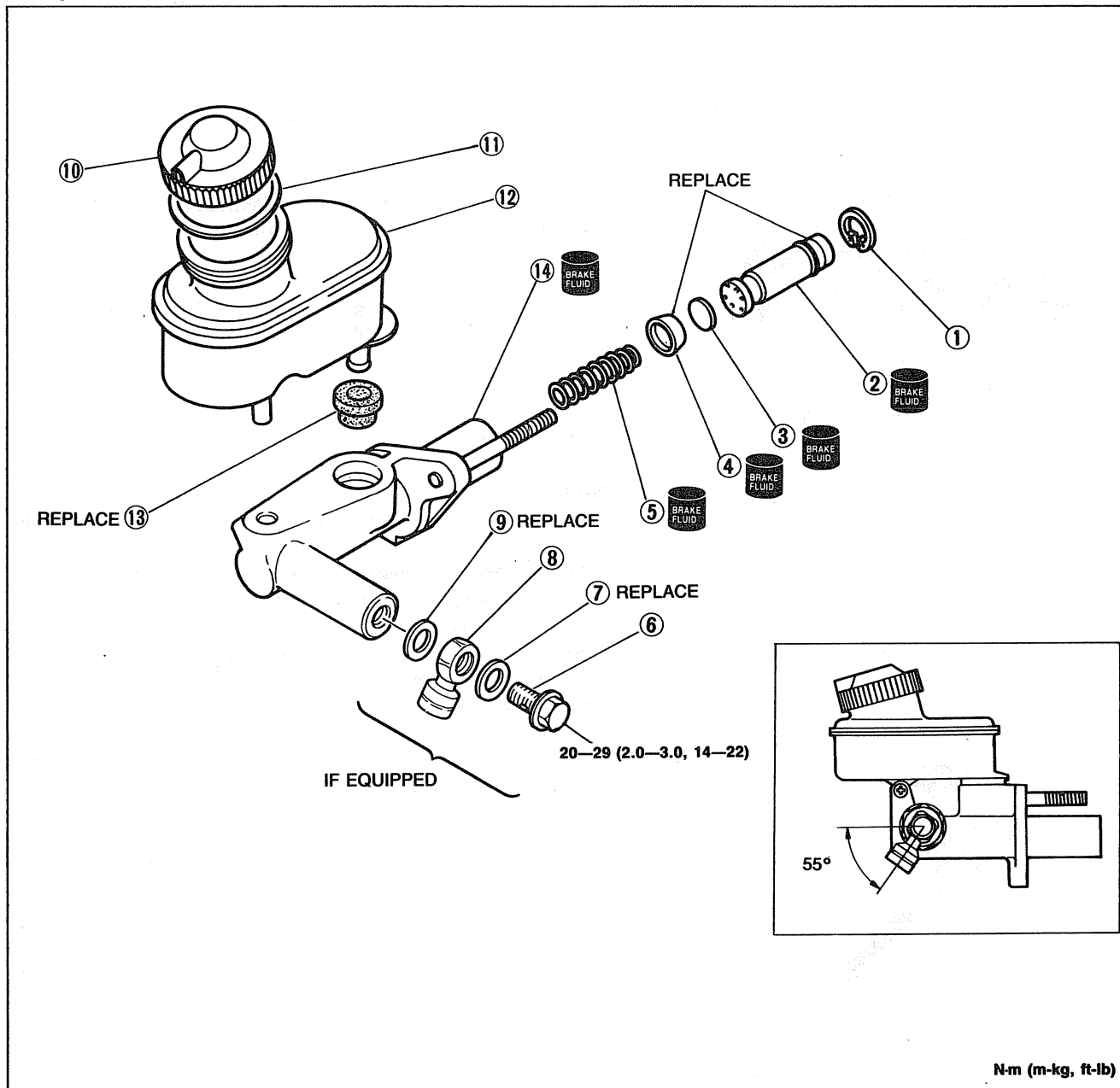


## OVERHAUL

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.

### Caution

- Clean the disassembled parts in solvent and blow through all ports and passages with compressed air.

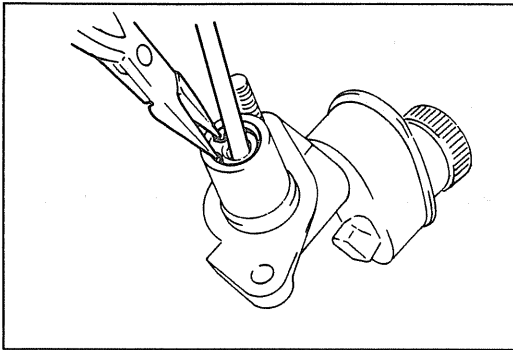


N-m (m-kg, ft-lb)

16UOHX-007

- |   |  |  |
|---|--|--|
| 1. Snap ring<br>Removal..... page H-10<br>Installation..... page H-11   | 3. Spacer                                    | 11. Packing  |
| 2. Piston and secondary cup assembly<br>Removal..... page H-10<br>Inspect for wear, scoring, or cracks<br>Installation..... page H-10 | 4. Primary cup<br>Inspect for wear or cracks | 12. Reservoir  |
|   | 5. Return spring                             | 13. Bushing  |
|   | 6. Connector bolt                            | 14. Master cylinder body<br>Inspect cylinder bore for scoring or corrosion |
|   | 7. Gasket                                    |  |
|   | 8. Connector                                 |  |
|   | 9. Gasket                                    |  |
|   | 10. Cap                                      |  |

## CLUTCH MASTER CYLINDER



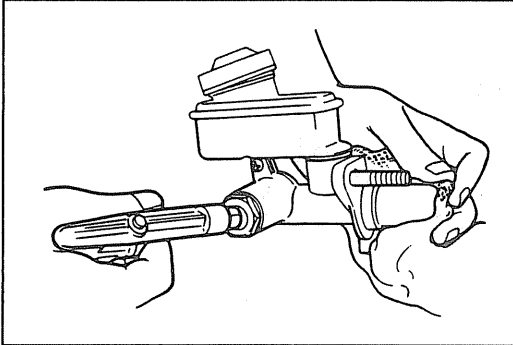
16U0HX-008

### Disassembly Note Snap ring

#### Note

- Do not damage the push rod contact surface of the piston.

1. Press down on the piston and remove the snap ring with snap-ring pliers.



16U0HX-009

### Piston and secondary cup assembly

#### Caution

- Hold a rag over the master cylinder to prevent the piston and secondary cup assembly from jumping out.

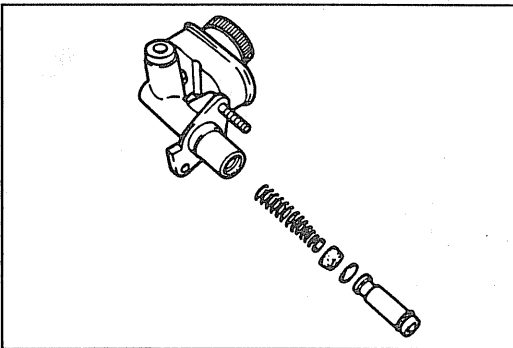
1. Remove the piston and secondary cup assembly, spacer, and primary cup by applying compressed air through the clutch pipe installation hole.

### Assembly Note

#### Caution

- Before assembly, make sure all parts are completely clean.
- Do not mix different brands of clutch fluid.
- Do not reuse the clutch fluid which was drained out.
- Apply the specified clutch fluid to the piston and secondary cup assembly, spacer, primary cup, and cylinder bore before assembly.
- Replace parts with new ones whenever specified to do so.

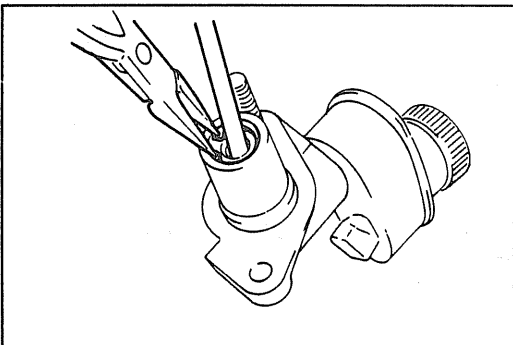
9MU0HX-021



16U0HX-010

### Piston and secondary cup assembly

1. Install the spring, primary cup, spacer, and piston and secondary cup assembly, noting the proper direction of the parts. (Refer to page H-9.)



16U0HX-011

### Snap ring

#### Note

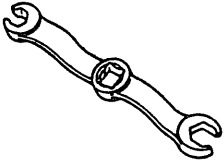
- Do not damage the push rod contact surface of the piston.

1. While pressing the piston, install the snap ring.

CLUTCH RELEASE CYLINDER

PREPARATION

SST

<p>49 0259 770B Wrench, flare nut</p>		<p>For disconnecting and connecting clutch pipe</p>
---	---	---

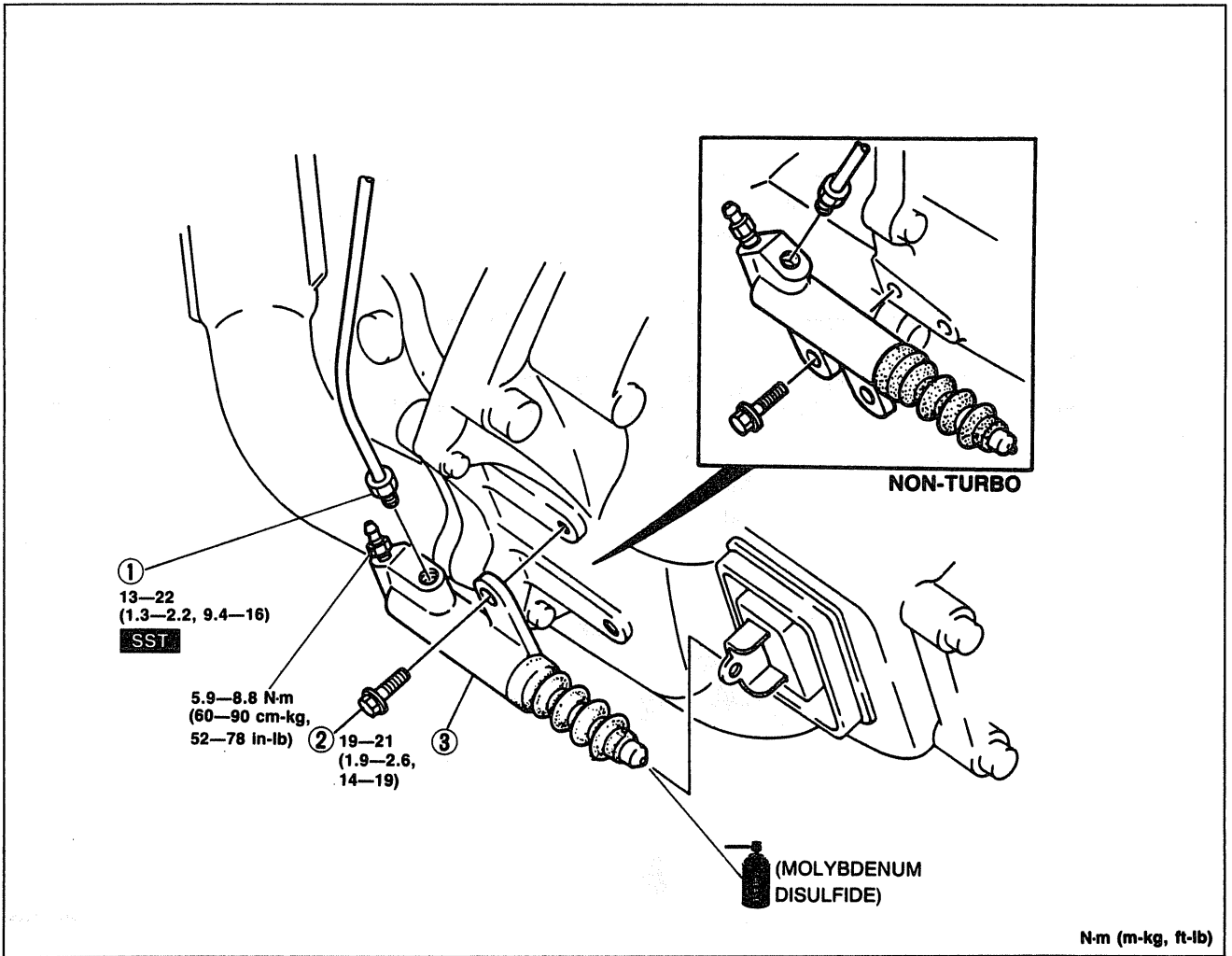
06U0HX-011

REMOVAL / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

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.

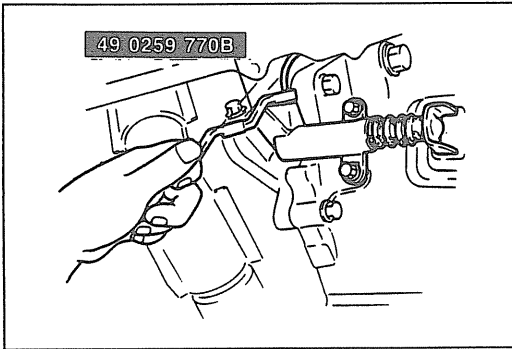


N·m (m·kg, ft·lb)

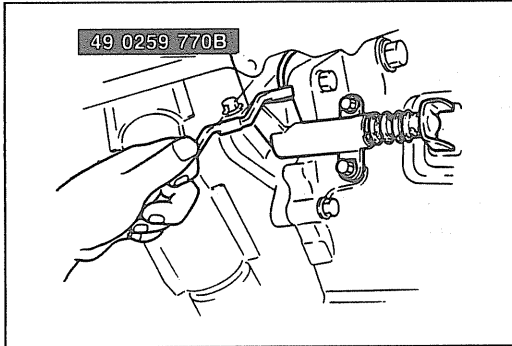
16U0HX-012

1. Clutch pipe  
Removal ..... page H-12  
Installation ..... page H-12
2. Bolts

3. Clutch release cylinder  
Remove boot and check for fluid leakage  
Overhaul..... page H-12  
AIR BLEEDING..... page H- 8



16U0HX-013



16U0HX-014

### Removal Note

#### Clutch pipe

#### Caution

- After disconnecting the clutch pipe, plug the clutch pipe to prevent fluid leakage.

1. Disconnect the clutch pipe with the SST.

### Installation Note

#### Clutch pipe

1. Tighten the clutch pipe with the SST.

#### Tightening torque:

13–22 N·m (1.3–2.2 m·kg, 9.4–16 ft·lb)

### Air Bleeding

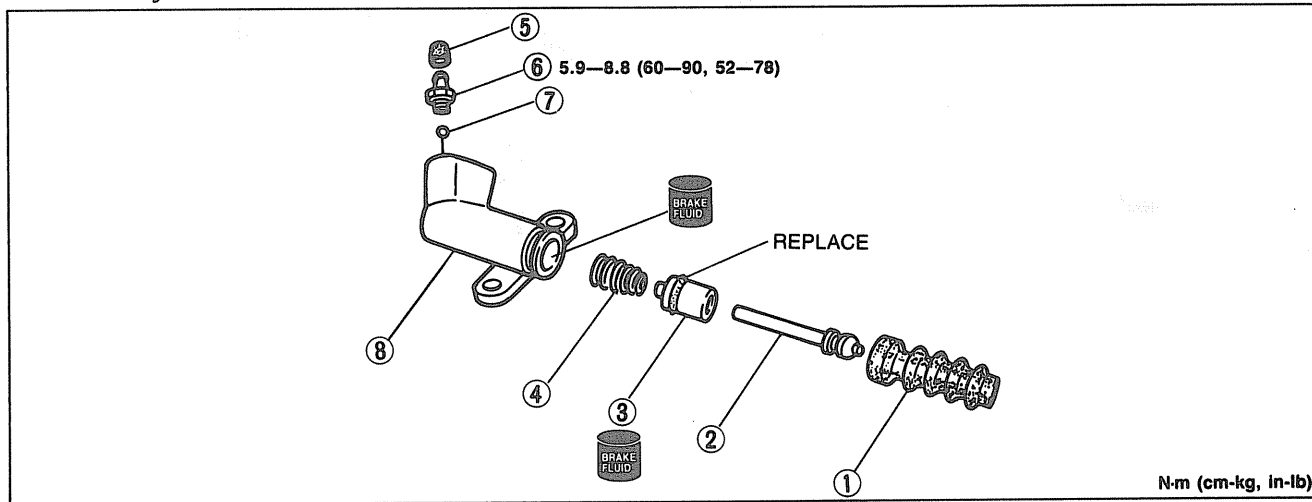
1. After installation, bleed the clutch system.  
(Refer to page H-8.)

### OVERHAUL

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly.

#### Caution

- Clean the disassembled parts in solvent and blow through all ports and passages with compressed air.
- Before assembly, make sure all parts are completely clean.
- Apply the specified clutch fluid to the piston and cup assembly and cylinder bore before assembly.



N·m (cm·kg, in·lb)

16U0HX-015

1. Boot

2. Push rod

3. Piston and cup assembly

Removal..... page H-13

Inspect for wear, scoring,  
or cracks

4. Spring

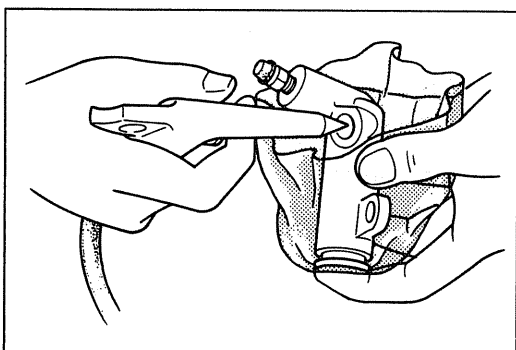
5. Bleeder cap

6. Bleeder screw

7. Steel ball

8. Release cylinder body

Inspect cylinder bore for  
scoring or corrosion



16U0HX-016

## Disassembly Note Piston and cup assembly

### Caution

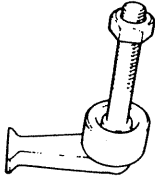
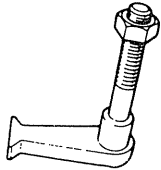
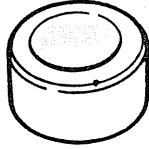
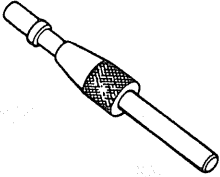
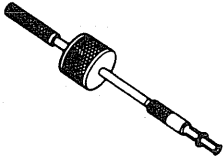
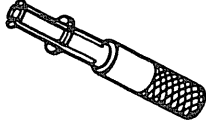
- Hold a rag over the release cylinder to prevent the piston and cup assembly from jumping out.

1. Remove the piston and cup assembly by applying compressed air through the flexible hose installation hole.

## CLUTCH UNIT

### PREPARATION

#### SST

<p>49 E301 060 Brake, ring gear</p> 	<p>For holding ring gear</p>	<p>49 E301 061 Body (Part of 49 E301 060)</p> 	<p>For holding ring gear</p>
<p>49 E301 062 Collar (Part of 49 E301 060)</p> 	<p>For holding ring gear</p>	<p>49 SE01 310 Clutch disc centering tool</p> 	<p>For removal and installation of clutch disc</p>
<p>49 1285 071 Puller, bearing</p> 	<p>For removal of pilot bearing</p>	<p>49 1285 073 Chuck (Part of 49 1285 071)</p> 	<p>For removal of pilot bearing</p>

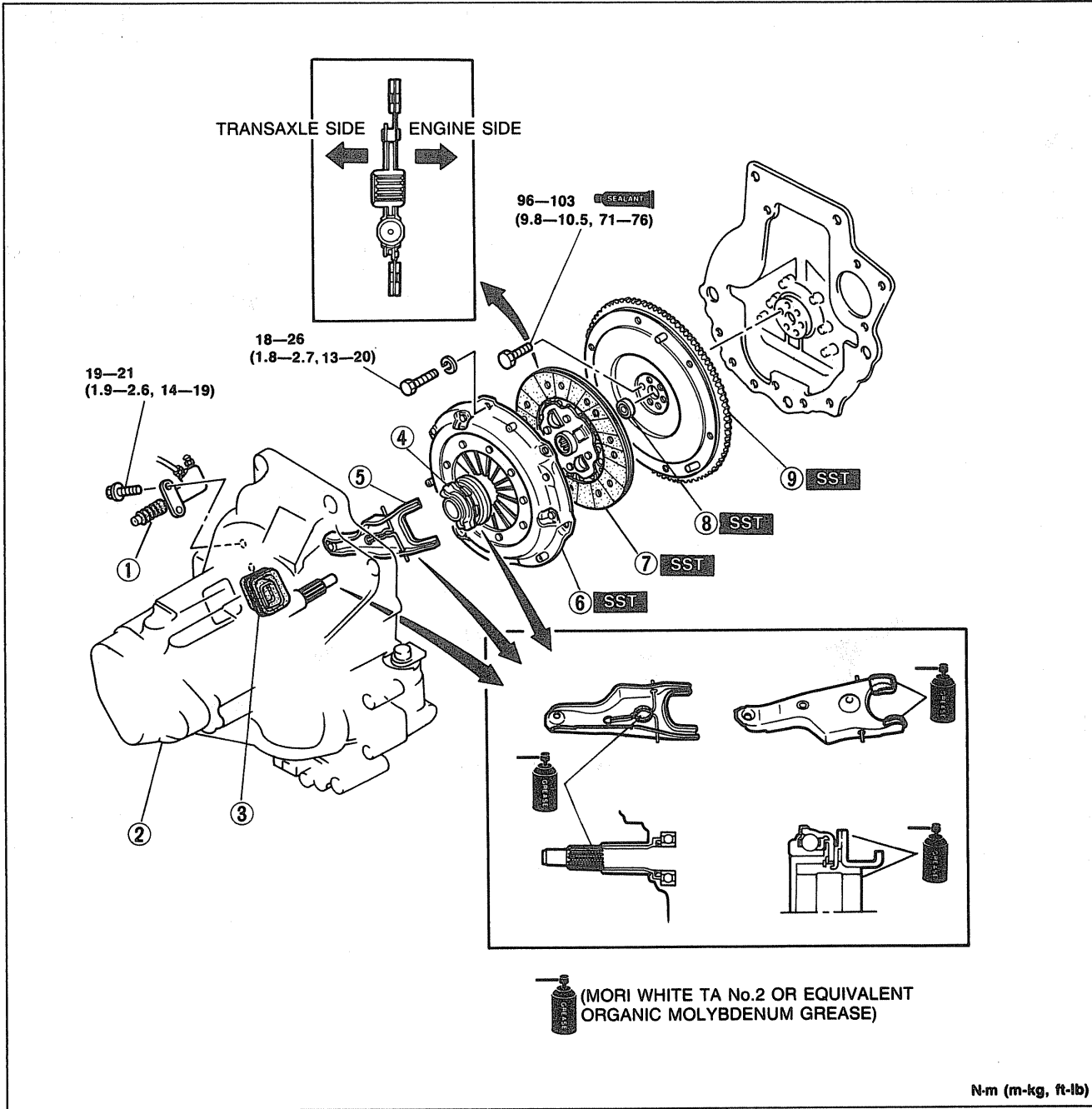
16U0HX-017

### REMOVAL / INSTALLATION

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

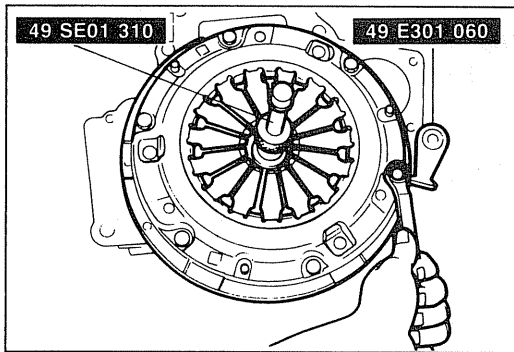
#### Note

- Remove the clutch release cylinder with the clutch pipe connected.
- Do not remove the pilot bearing if not necessary.

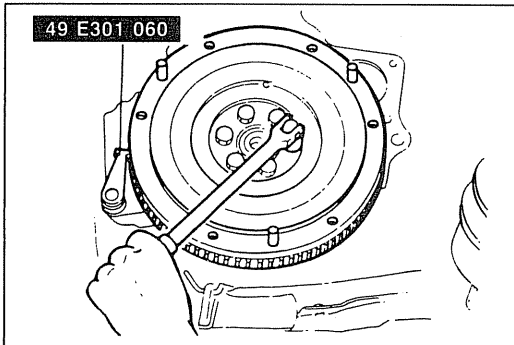


16U0HX-018

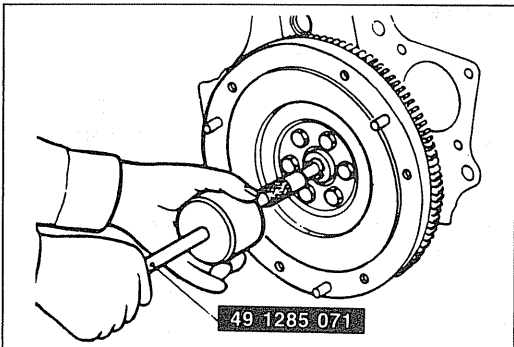
1. Clutch release cylinder	6. Clutch cover	8. Pilot bearing
2. Transaxle	Removal..... page H-15	Inspection ..... page H-17
Service..... Section J1 or J2	Inspection ..... page H-16	Removal..... page H-15
3. Boot	Installation..... page H-16	Installation..... page H-15
4. Release bearing	7. Clutch disc	9. Flywheel
Inspection ..... page H-16	Removal..... page H-15	Removal..... page H-15
5. Release fork	Inspection ..... page H-16	Inspection ..... page H-17
	Installation..... page H-16	Installation..... page H-15



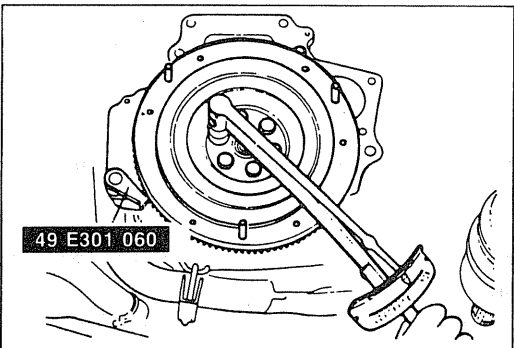
97U0HX-016



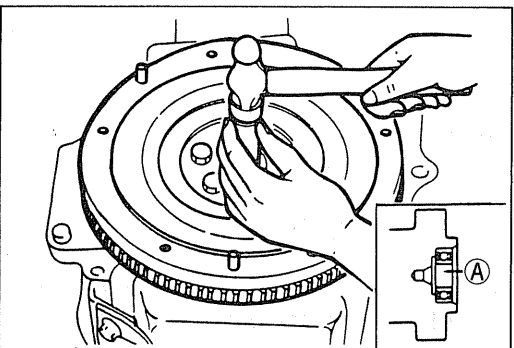
06U0HX-016



16U0HX-019



06U0HX-018



16U0HX-020

## Removal Note Clutch cover and disc

1. Install the **SST**.
2. Loosen each bolt one turn at a time in a crisscross pattern until spring tension is released. Then remove the clutch cover and disc.

## Flywheel

1. Hold the flywheel with the **SST**.

### Note

- After removing the flywheel, inspect for oil leakage past the crankshaft rear oil seal.
- If necessary replace it. (Refer to Section B.)

2. Remove the flywheel.

## Pilot bearing

1. Remove the pilot bearing with the **SST**.

## Installation Note

### Flywheel

1. Remove any old sealant from the bolts and bolt holes. If old sealant can not be removed from the bolt, replace it.
2. Apply sealant to the bolt threads.
3. Install the flywheel and **SST**.
4. Tighten the bolts in a crisscross pattern.

### Tightening torque:

**96—103 N·m (9.8—10.5 m·kg, 71—76 ft·lb)**

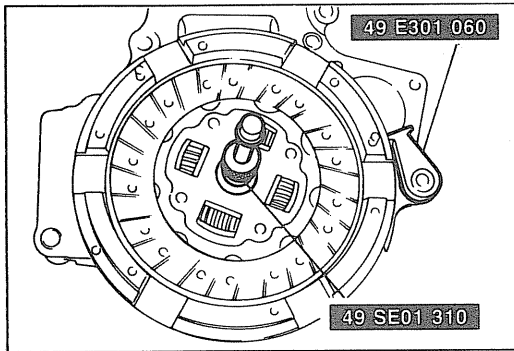
## Pilot bearing

1. Install the new bearing.

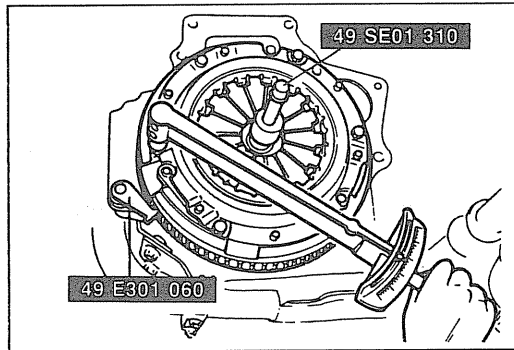
### Note

- Tap it in until distance **A** in the figure is 3.8—4.2mm (0.150—0.165 in).

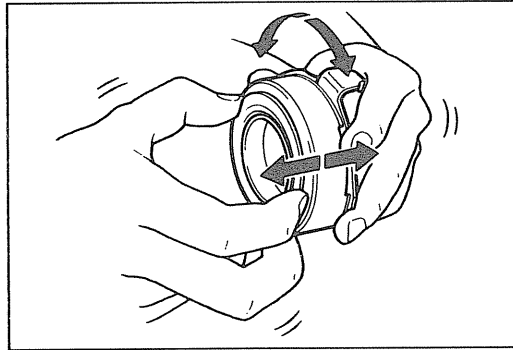
# H CLUTCH UNIT, RELEASE BEARING, CLUTCH COVER, CLUTCH DISC



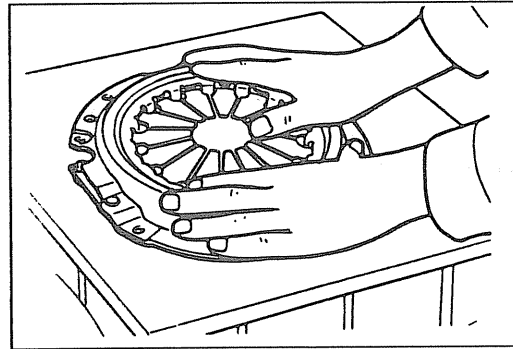
06U0HX-021



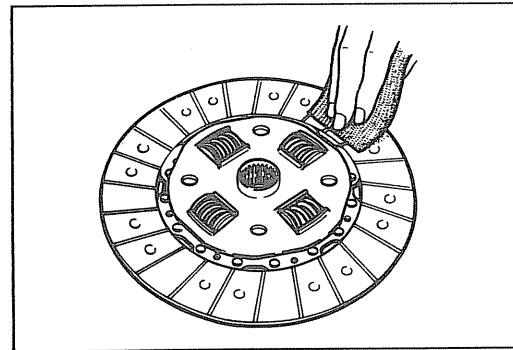
06U0HX-022



16U0HX-021



9MU0HX-041



9MU0HX-042

## Clutch disc

1. Clean the clutch disc splines and primary shaft splines, then apply Mori White TA No.2 or equivalent organic molybdenum grease.
2. Set the clutch disc into position with the **SST**.

## Clutch cover

1. Align the dowel holes with the flywheel dowels.
2. Tighten the bolts evenly and gradually in the crisscross pattern with the **SST**.

## Tightening torque:

18—26 N·m (1.8—2.7 m·kg, 13—20 ft·lb)

## RELEASE BEARING

### INSPECTION

1. Turn the bearing while applying force in the axial direction. If the bearing sticks or has excessive resistance, replace it.

### Note

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

## CLUTCH COVER

### INSPECTION

1. Inspect the contact surface of the clutch disc for scoring, cracks, or burning, repair or replace as necessary.

### Note

- Minor scoring or burning should be removed with emery paper.

2. Inspect the contact surface of the clutch release bearing for wear or cracks. If there is wear or cracks, replace the clutch cover.

## CLUTCH DISC

### INSPECTION

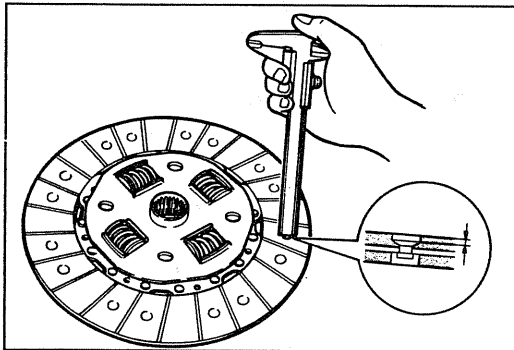
1. Inspect the lining surface for burning or oil contamination. Replace it if it is badly burned or oil soaked.

### Note

- Use sandpaper if the trouble is minor.

2. Inspect for loose facing rivets or torsion springs. Replace the clutch disc if any are loose.

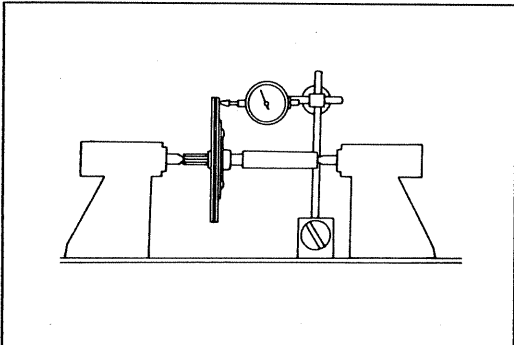




9MU0HX-043

3. Measure the thickness of the lining at a rivet head on both sides with vernier calipers.  
Replace it if less than minimum.

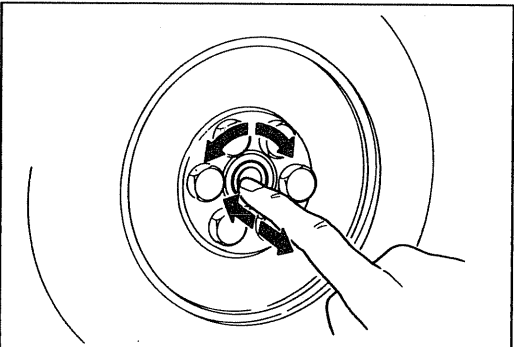
**Minimum thickness: 0.3mm (0.012 in)**



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4. Measure the clutch disc runout with a dial indicator.  
Replace the clutch disc if runout is excessive.

**Maximum runout: 1.0mm (0.039 in)**

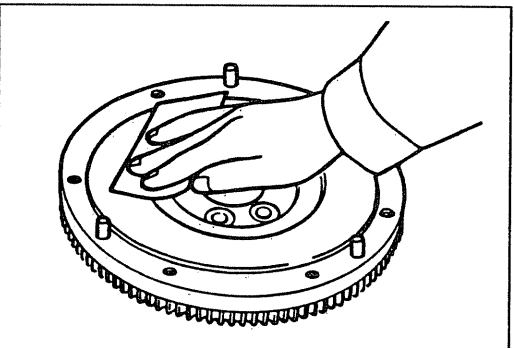


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## PILOT BEARING

### INSPECTION

1. Turn the bearing while applying force in the axial direction.  
If the bearing sticks or has excessive resistance, replace it.



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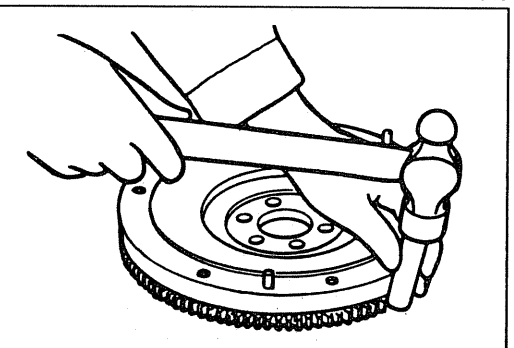
## FLYWHEEL

### INSPECTION

1. Inspect the contact surface of the clutch disc for scoring, cracks, or burning, repair or replace as necessary.

#### Note

- Minor scoring or burning should be removed with emery paper.



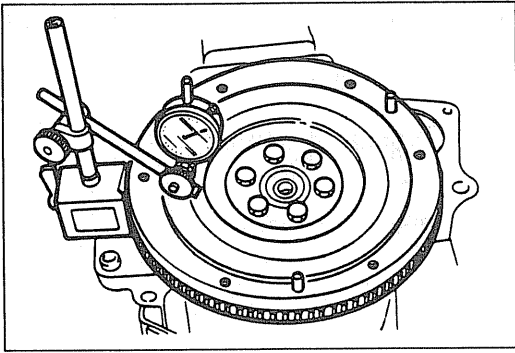
9MU0HX-047

2. Inspect the ring gear teeth for wear or damage. If necessary, replace the ring gear as follows:

- (1) Heat the ring gear with a blowtorch. 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.

#### Note

- The beveled side of the ring gear must face the engine side.



9MU0HX-048

3. Measure the flywheel runout with a dial indicator.  
Replace the flywheel if runout is excessive.

**Maximum runout: 0.2mm (0.008 in)**