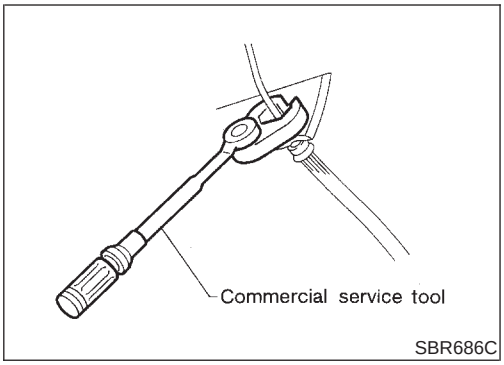
SECTION CL

CONTENTS



Precautions

NACL0001

- **Recommended fluid is brake fluid “DOT 3”.**
- **Never reuse drained brake fluid.**
- **Be careful not to splash brake fluid on painted areas.**
- **When removing and installing clutch piping, use Tool.**
- **Use new brake fluid to clean or wash all parts of master cylinder, operating cylinder and clutch damper.**
- **Never use mineral oils such as gasoline or kerosene. It will ruin the rubber parts of the hydraulic system.**

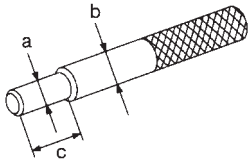
WARNING:

After cleaning the clutch disc, wipe it with a dust collector. Do not use compressed air.

Special Service Tools

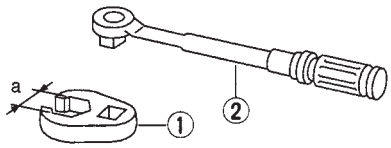
NACL0002

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
ST20670000 (—) Clutch aligning bar	 NT405 Installing clutch cover and clutch disc **a: 15 mm (0.59 in) dia.** **b: 23 mm (0.91 in) dia.** **c: 30 mm (1.18 in)**

Commercial Service Tools

NACL0003

Tool name	Description
1 Flare nut crowfoot 2 Torque wrench	 NT360 Removing and installing clutch piping **a: 10 mm (0.39 in)**

NVH Troubleshooting Chart

NACL0027S01

Use the chart 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, repair or replace these parts.

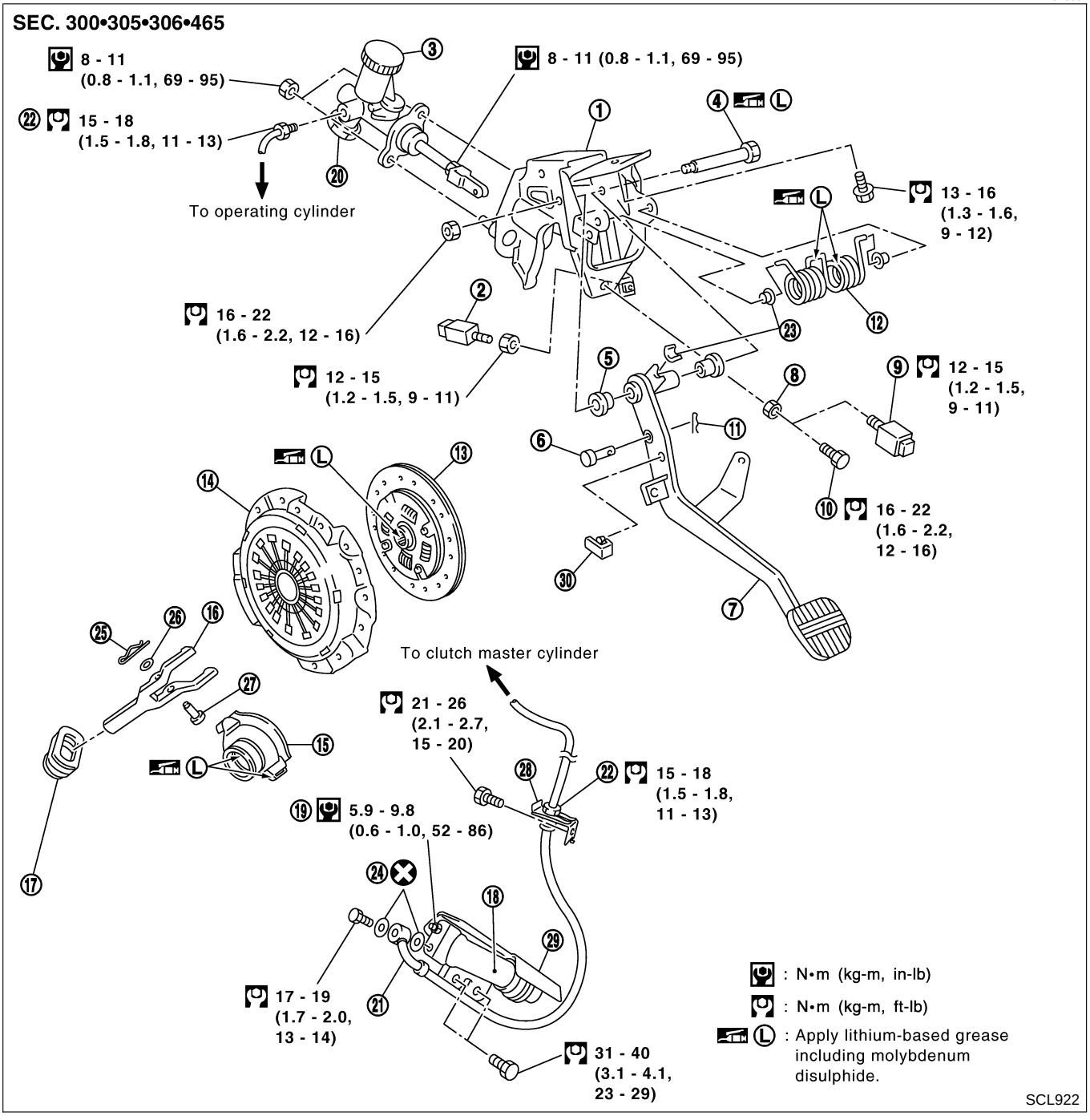
CLUTCH

NACL0027S0101

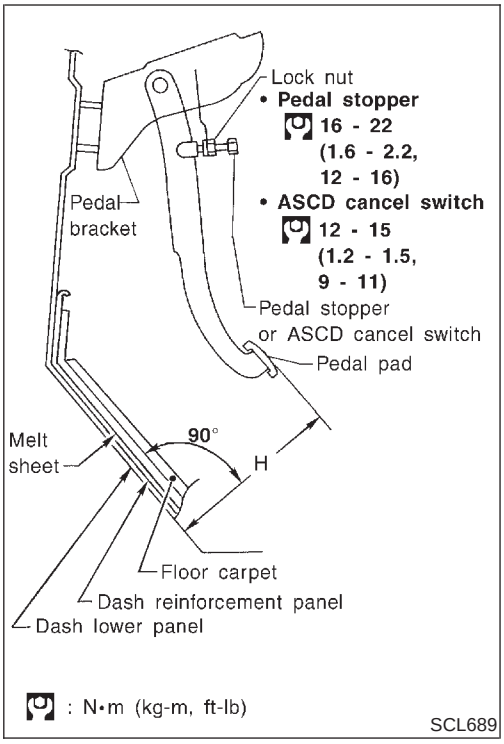
Reference page		CL-6	CL-7	CL-8	CL-9	Refer to EM-60, "REMOVAL".	CL-10	CL-12	CL-12	CL-12	CL-12	CL-12	CL-12	CL-12	CL-12	CL-13	CL-13	CL-13	CL-13
SUSPECTED PARTS (Possible cause)		CLUTCH PEDAL (Free play out of adjustment)	CLUTCH LINE (Air in line)	MASTER CYLINDER PISTON CUP (Damaged)	OPERATING CYLINDER PISTON CUP (Damaged)	ENGINE MOUNTING (Loose)	RELEASE BEARING (Worn, dirty or damaged)	CLUTCH DISC (Out of true)	CLUTCH DISC (Runout is excessive)	CLUTCH DISC (Lining broken)	CLUTCH DISC (Dirty or burned)	CLUTCH DISC (Oily)	CLUTCH DISC (Worn out)	CLUTCH DISC (Hardened)	CLUTCH DISC (Lack of spline grease)	DIAPHRAGM SPRING (Damaged)	PRESSURE PLATE (Distortion)	FLYWHEEL (Distortion)
Symptom	Clutch grabs/chatters					1			2			2	2	2				
	Clutch pedal spongy		1	2	2													
	Clutch noisy						1											
	Clutch slips	1										2	2			3	4	5
	Clutch does not disengage	1	2	3	4			5	5	5	5	5			5	6	7	

Components

NACL0004



1. Clutch pedal bracket
2. Clutch interlock switch
3. Clutch master cylinder
4. Fulcrum pin
5. Bushing
6. Clevis pin
7. Clutch pedal
8. Lock nut
9. ASCD cancel switch (With ASCD)
10. Pedal stopper (Without ASCD)
11. Snap pin
12. Assist spring
13. Clutch disc
14. Clutch cover
15. Release bearing
16. Withdrawal lever
17. Dust boot
18. Operating cylinder
19. Air bleeder
20. Clutch damper (not serviceable)
21. Clutch hose
22. Flare nut
23. Bushing
24. Copper washer
25. Snap pin
26. Washer
27. Withdrawal lever shaft
28. Lock spring
29. Heat insulator
30. Stopper rubber



Inspection and Adjustment

NACL0005

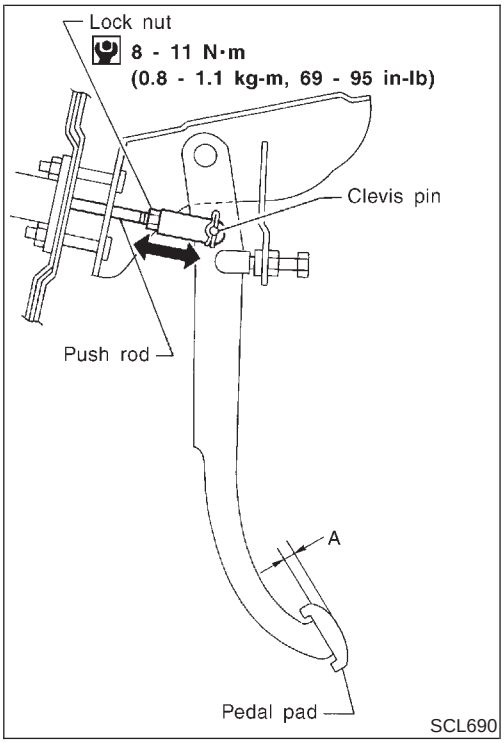
ADJUSTING CLUTCH PEDAL

NACL0005S01

1. Adjust pedal height with pedal stopper or ASCD cancel switch.

Pedal height “H”:

176 - 186 mm (6.93 - 7.32 in)



2. Adjust pedal free play with master cylinder push rod. Then tighten lock nut.

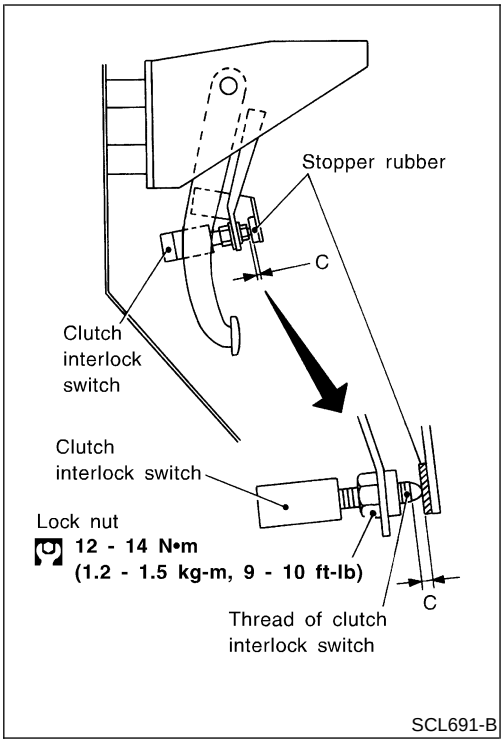
Pedal free play (measured at pedal pad) “A”:

9 - 16 mm (0.35 - 0.63 in)

Pedal free play means the following total measured at position of pedal pad:

- **Play due to clevis pin and clevis pin hole in clutch pedal.**

3. Make sure that clevis pin can rotate smoothly. If not, readjust pedal free play with master cylinder push rod.



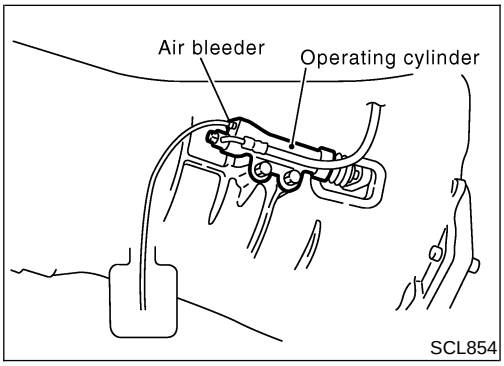
— Models with Clutch Interlock System —

NACL0005S0101

- Adjust clearance "C" shown in the figure while fully depressing clutch pedal.

Clearance C:

0.3 - 1.0 mm (0.012 - 0.039 in)



AIR BLEEDING PROCEDURE

NACL0005S02

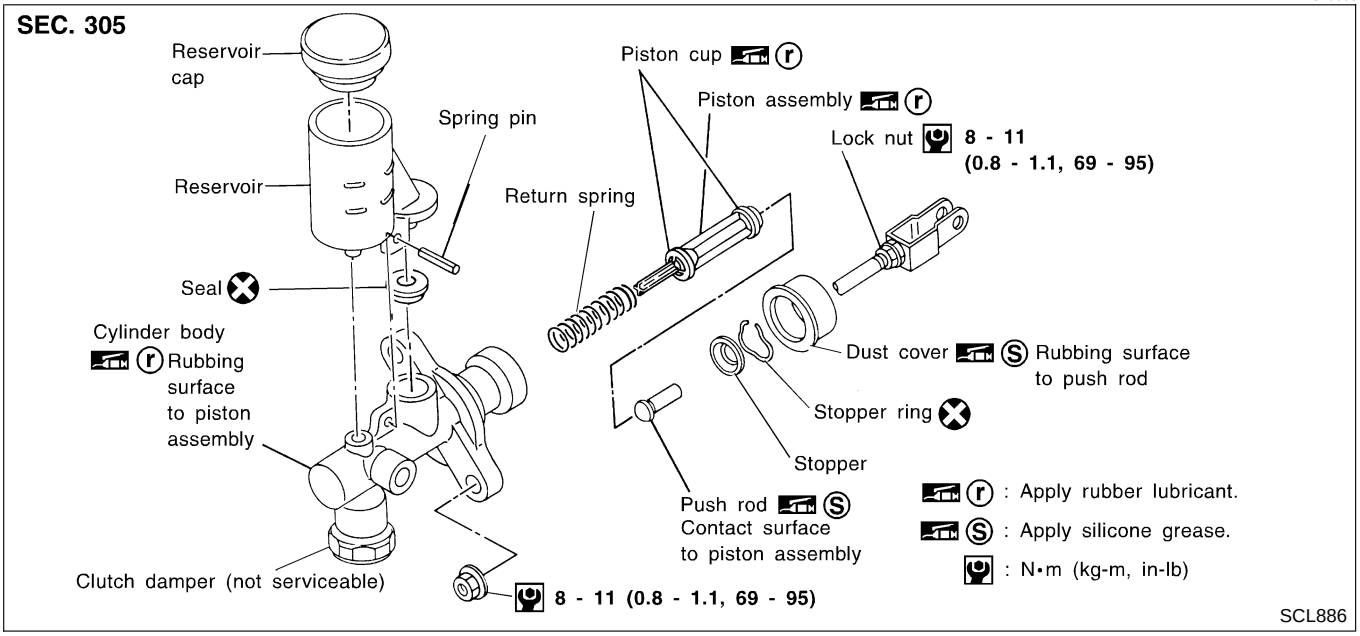
CAUTION:

- **Check the clutch fluid level of the reservoir for shortage.**
- **Keep clutch fluid away from the coating surface of the body or other parts. If it adheres, remove it quickly and flush the area with water.**

1. Fill up master cylinder reservoir tank with new clutch fluid.
2. Connect a clear vinyl hose to air bleeder.
3. Carefully depress clutch pedal fully and release it. Repeat the cycle several times at an interval of 2 or 3 seconds.
4. While depressing clutch pedal, open air bleeder.
5. Close air bleeder.
6. Release clutch pedal, and wait for approx. 5 seconds.
7. Repeat steps 3 to 6 until no air is found in clutch fluid.

Components

NACL0006



Disassembly and Assembly

NACL0007

- When removing and installing stopper ring, pry it off with screwdriver while pushing push rod into cylinder.

Inspection

NACL0008

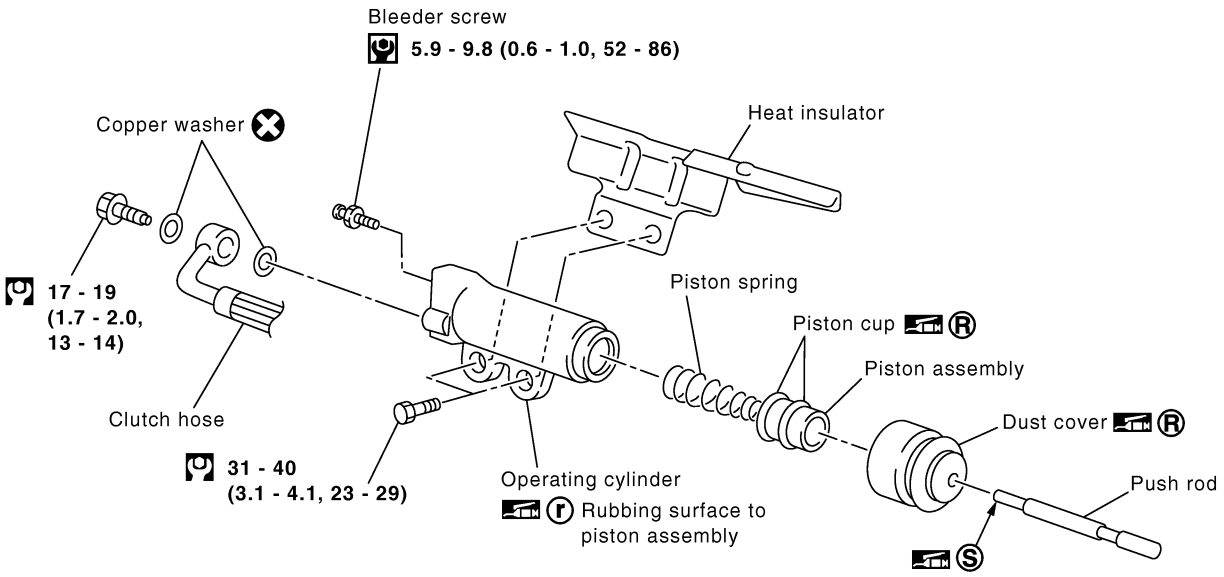
Check the following items, and replace if necessary.

- Rubbing surface of cylinder and piston, for uneven wear, rust or damage
- Piston with piston cup, for wear or damage
- Return spring, for wear or damage
- Dust cover, for cracks, deformation or damage
- Reservoir, for deformation or damage

Components

NACL0009

SEC. 306



SCL855-A

Inspection

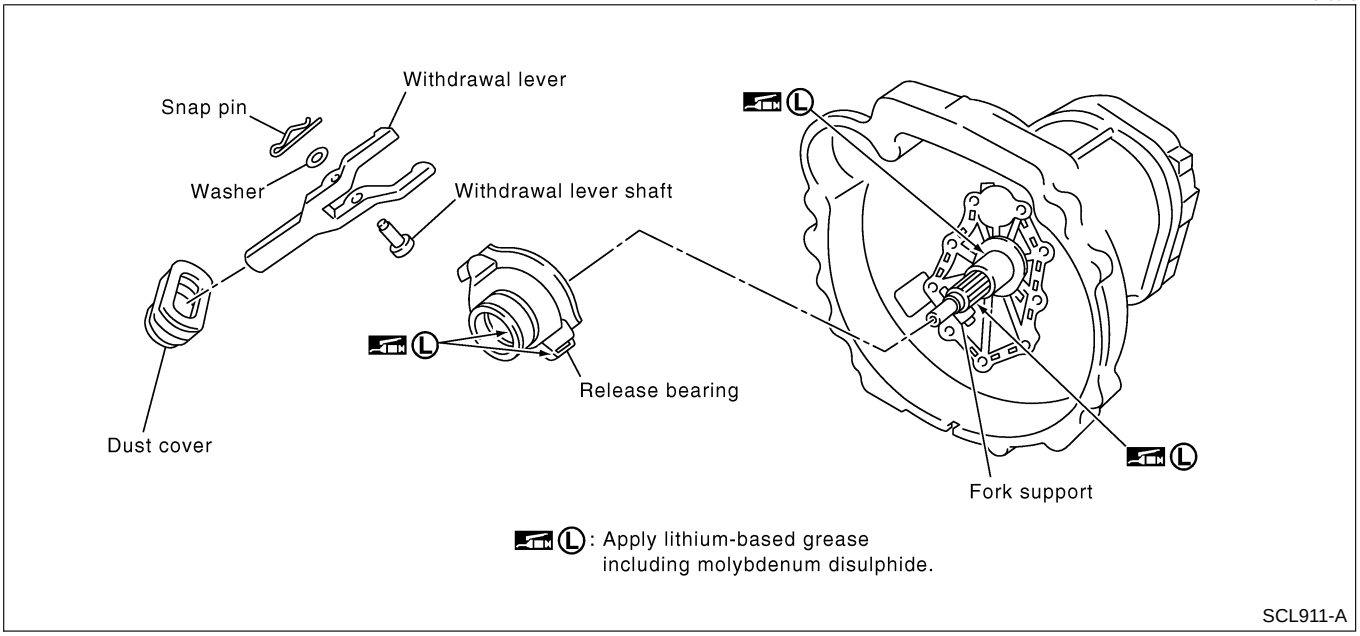
NACL0010

Check the following items, and replace if necessary.

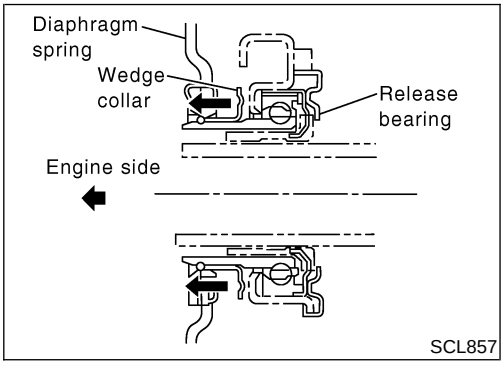
- Rubbing surface of cylinder and piston, for uneven wear, rust or damage
- Piston with piston cup, for wear or damage
- Piston spring, for wear or damage
- Dust cover, for cracks, deformation or damage

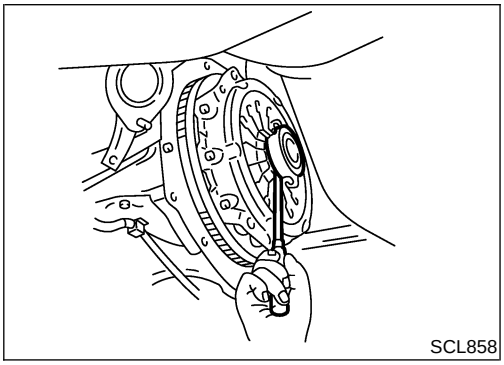
Components

NACL0013



CAUTION:
Keep the clutch disc facing, pressure plate and flywheel free of oil and grease.

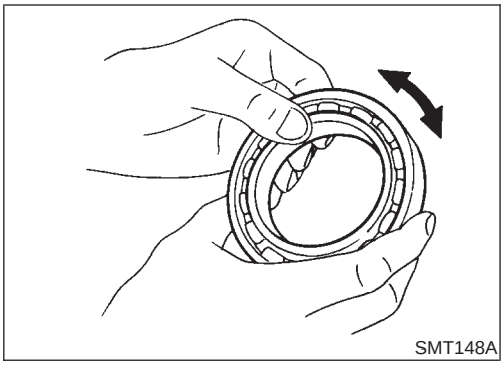




Removal

NACL0029

1. Remove manual transmission from the vehicle. Refer to MT-7, “Removal and Installation”.
2. Remove withdrawal lever from inside clutch housing.
3. Press wedge collar on clutch cover toward the engine.
4. Using a flat-head screwdriver or the like, remove release bearing from clutch cover.

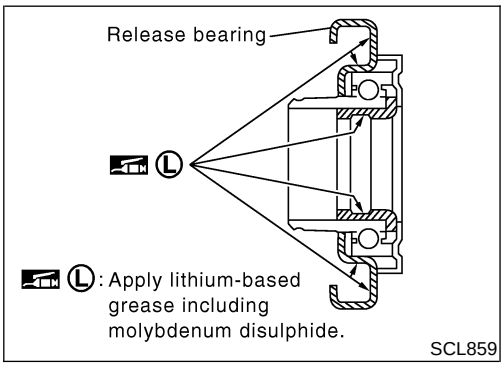

SMT148A

Inspection

NACL0030

Check the following items, and replace the part, if necessary.

- Release bearing seizure, damages, and rough rotation.
- Abnormal wear on contact surfaces of release bearing or withdrawal lever.
- Dust cover cracks.



SCL859

Installation

NACL0031

1. Apply clutch sleeve grease to the areas shown by the arrows in the figure.
2. Install the release bearing to main drive shaft.
3. Install withdrawal lever to fork support, and secure it with withdrawal lever shaft, washer, and snap pin.
4. Operate withdrawal lever to check sliding parts for smooth movement.

CAUTION:

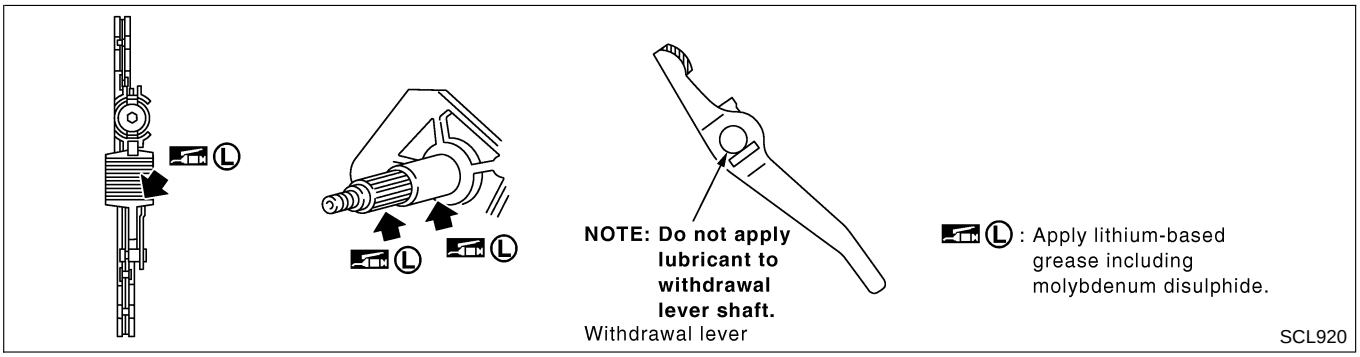
Remove excessive grease coming-out.

5. Install manual transmission.
   Refer to MT-7, “Removal and Installation”.

Lubrication

NACL0016

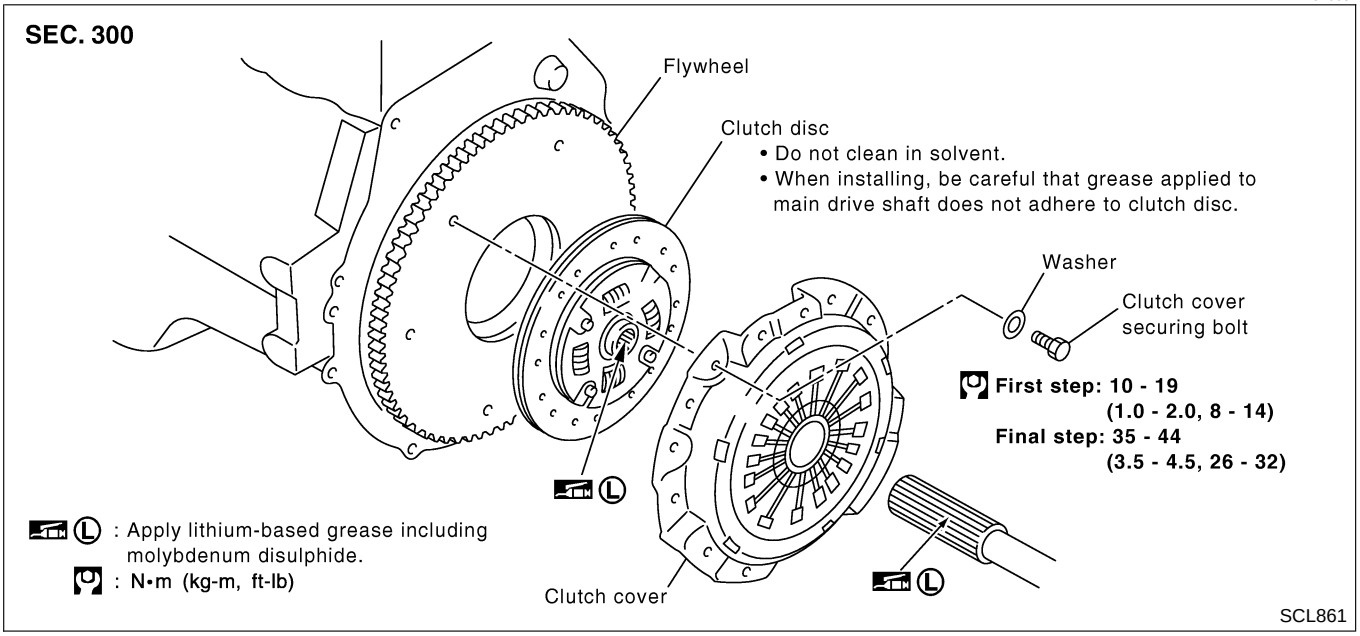
- Apply recommended grease to contact surface and rubbing surface.
- **Too much lubricant might damage clutch disc facing.**

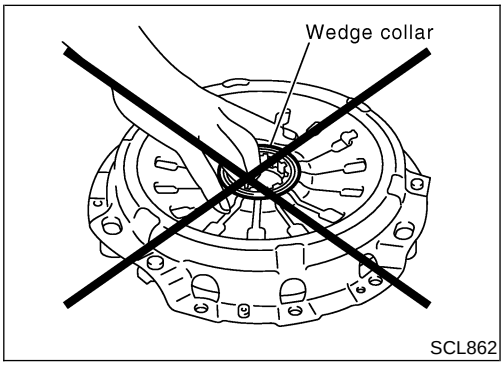


SCL920

Components

NACL0032



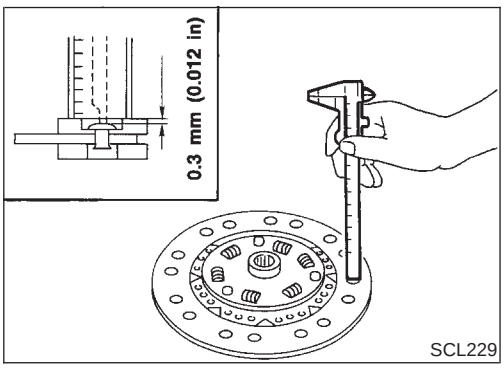


Removal

NACL0033

1. Remove manual transmission from the vehicle. Refer to MT-7, “Removal and Installation”.
2. Remove release bearing from clutch cover.
3. Loosen mounting bolts on the clutch cover evenly, and remove clutch cover and clutch disc.

CAUTION:
Do not hold the wedge collar when handling the clutch cover.



Inspection and Adjustment

NACL0019

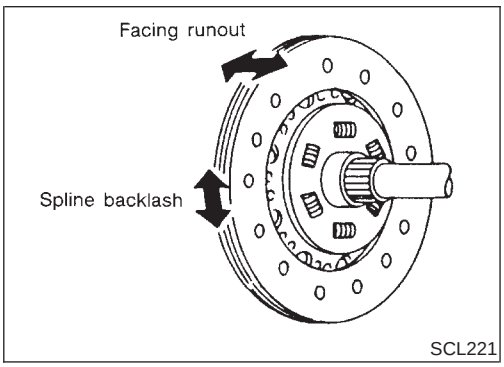
CLUTCH DISC

NACL0019S01

Check the following items, and replace if necessary.

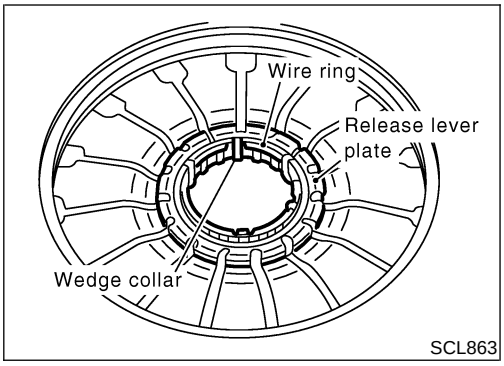
- Clutch disc, for burns, discoloration, oil or grease leakage
- Clutch disc, for wear of facing

  Wear limit of facing surface to rivet head:
  0.3 mm (0.012 in)



- Clutch disc, for backlash of spline and runout of facing

  Maximum backlash of spline (at outer edge of disc):
  1.0 mm (0.039 in)
  Runout limit:
  Less than 0.7 mm (0.028 in)
  Distance of runout check point (from hub center):
  120 mm (4.72 in)



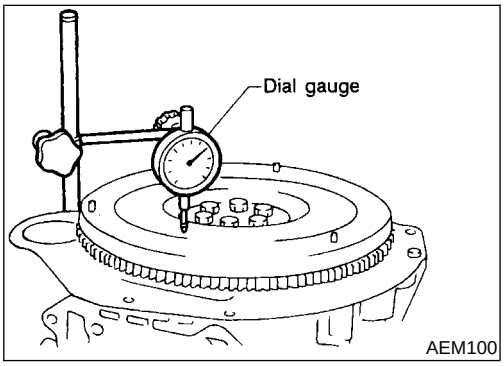
CLUTCH COVER

NACL0019S04

- Check parts (wedge collar and wiring) contacting the release bearing. If any worn or damaged parts are found, replace the clutch cover as an assembly.
- Check release lever plate for looseness. If necessary, replace clutch cover as an assembly.
- Check thrust ring of the clutch cover for wear or bending. If necessary, replace clutch cover as an assembly.
- If seizure mark or discoloration is found with the mating surfaces between pressure plate and clutch disc of clutch cover, repair them with sand-paper. If surfaces are distorted or damaged, replace clutch cover as an assembly.

REFERENCE:

- **If thrust ring is worn, chattering noise is heard when the riveted area is lightly hit with a hammer.**
- **If thrust ring is bent, jangling noise is heard when cover is swung up and down.**



FLYWHEEL INSPECTION

NACL0019S03

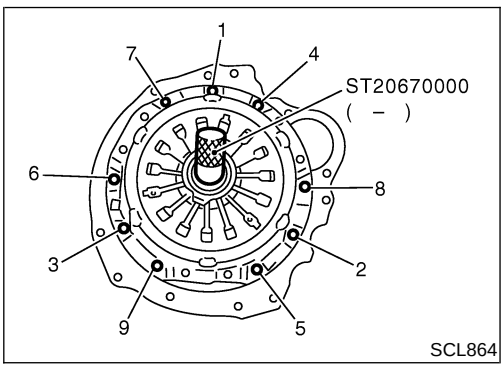
CAUTION:

Do not allow any magnetic materials to contact the ring gear teeth.

- Inspect contact surface of flywheel for slight burns or discoloration. Clean flywheel with emery paper.
- Check flywheel runout.

Maximum allowable runout:

Refer to EM-72, "Flywheel/Drive plate Runout".



Installation

NACL0035

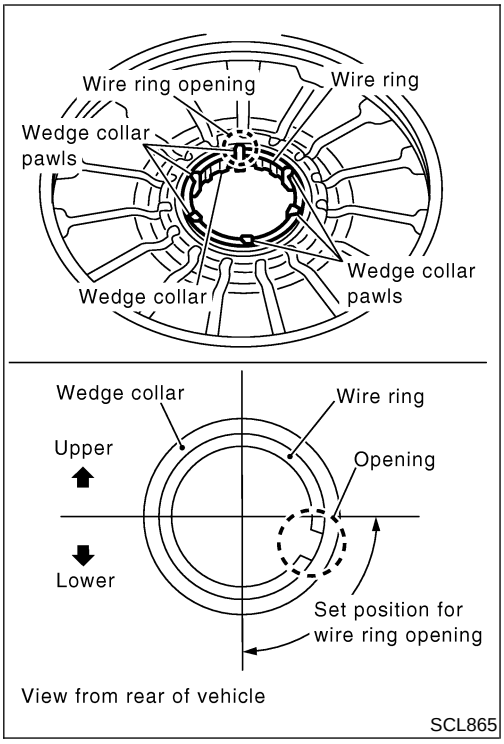
1. Apply specified Nissan clutch grease to clutch disc and spline of main drive shaft.

CAUTION:

Always apply grease. If no grease is applied, it may cause abnormal noise, insufficient disengagement, or damage to the clutch. Also, always remove excessive grease. If grease is applied excessively, it may cause sliding or juddering.

2. Install clutch disc and clutch cover. Tighten mounting bolts temporarily, and install clutch aligning bar (SST).

Installation (Cont'd)



3. Tighten clutch cover mounting bolts evenly in the order shown in the figure by two steps.

   1st step:

   : 10 - 19 N·m (1.0 - 2.0 kg-m, 8 - 14 ft-lb)

   Final step:

   : 35 - 44 N·m (3.5 - 4.5 kg-m, 26 - 32 ft-lb)

4. Check that the wire ring of clutch cover is installed securely to wedge collar pawls.
5. Turn flywheel so that the wire ring opening is positioned as shown in the figure.

CAUTION:

Always perform alignment of the wire ring opening. If transmission is installed without alignment, it may cause clutch disengagement failure or clutch pedal operation failure.

6. Install manual transmission.
   Refer to MT-7, "Removal and Installation".

Clutch Control System

NACL0028

Type of clutch control	Hydraulic

Clutch Master Cylinder (With damper)

NACL0021

Inner diameter	15.87 mm (5/8 in)

Clutch Operating Cylinder

NACL0022

Inner diameter	19.05 mm (3/4 in)

Clutch Disc

NACL0023

Unit: mm (in)

Model	250
Facing size (Outer dia. x inner dia. x thickness)	250 × 160 × 3.5 (9.84 × 6.30 × 0.138)
Thickness of disc assembly With load	7.9 - 8.3 (0.311 - 0.327) with 7,355 N (750 kg, 1,654 lb)
Wear limit of facing surface to rivet head	0.3 (0.012)
Runout limit of facing	0.7 (0.028)
Distance of runout check point (from hub center)	120 (4.72)
Maximum backlash of spline (at outer edge of disc)	1.0 (0.039)

Clutch Cover

NACL0024

Unit: mm (in)

Model	250
Set-load	7,355 N (750 kg, 1,654 lb)
Diaphragm spring height	48.2 - 50.2 (1.898 - 1.976)
Uneven limit of diaphragm spring toe height	0.6 (0.024)

Clutch Pedal

NACL0025

Unit: mm (in)

Pedal height “H”*	176 - 186 (6.93 - 7.32)
Pedal free play “A” (at pedal pad)	9 - 16 (0.35 - 0.63)
Clearance between pedal stopper bracket and threaded end of clutch interlock switch (when depressing clutch pedal fully.)	0.3 - 1.0 (0.012 - 0.039)

*: Measured from surface of dash lower panel to pedal pad.

NOTES