

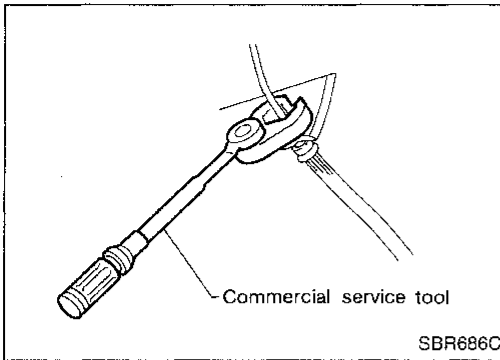
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PRECAUTIONS AND PREPARATION



Precautions

- Recommended fluid is brake fluid DOT 3.
- Never reuse drained brake fluid.
- Be careful not to splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Use flare nut wrench when removing and installing clutch piping.
- 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. They will ruin the rubber parts of the hydraulic system.

WARNING:

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

Special Service Tools

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

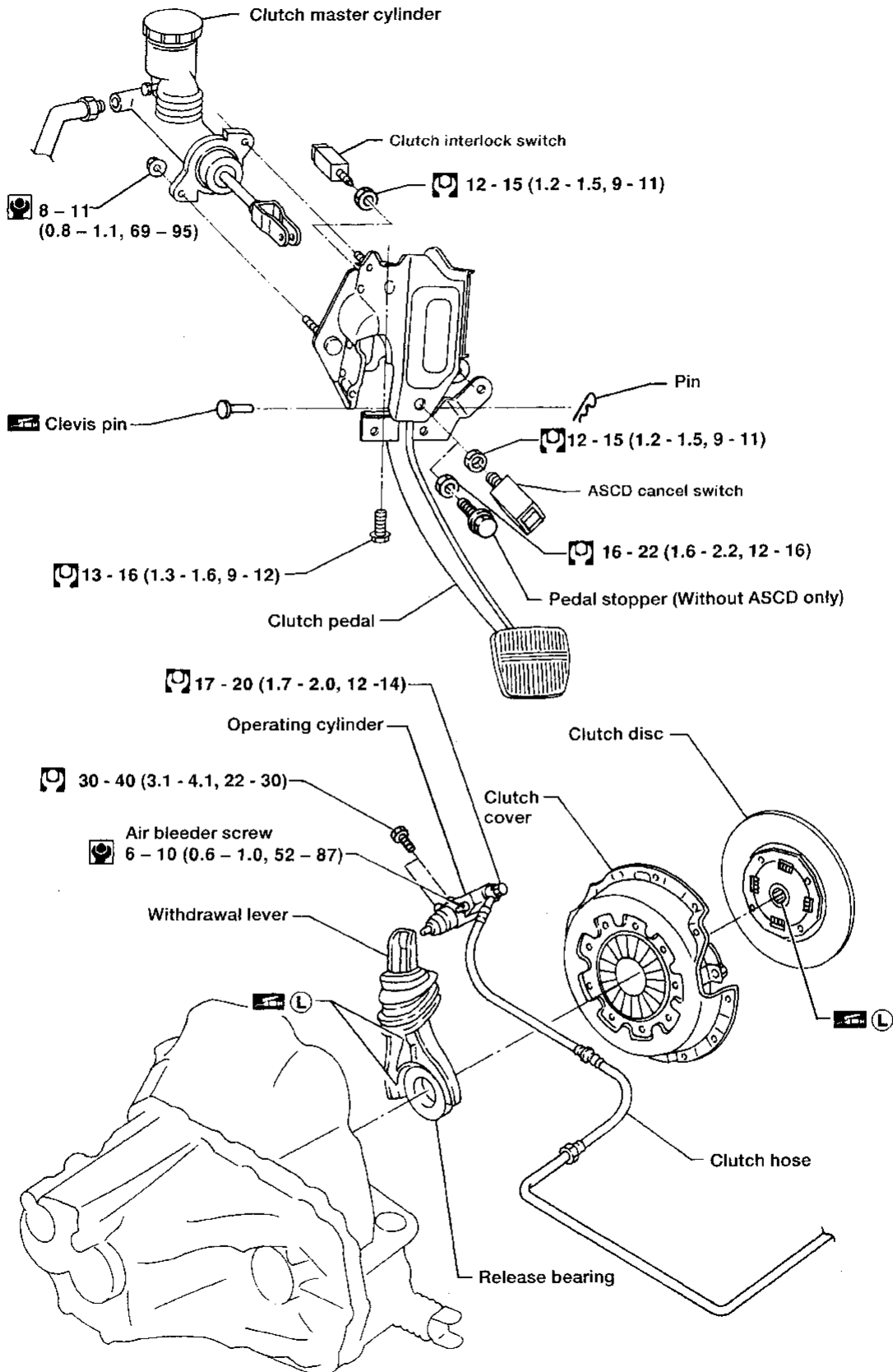
Tool number (Kent-Moore No.) Tool name	Description
KV30101600 (New) KV30101000 (Former) (J33213) Clutch aligning bar	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>New</p> </div> <div style="text-align: center;"> <p>Former</p> </div> </div> <p style="text-align: center;">NT645</p> <p style="text-align: right;">Installing clutch cover and clutch disc</p> <p style="text-align: right;">a: 15.9 mm (0.626 in) dia. b: 17.9 mm (0.705 in) dia. c: 40.0 mm (1.57 in)</p>
ST20050240 (—) Diaphragm spring adjusting wrench	<div style="text-align: center;"> </div> <p style="text-align: center;">NT404</p> <p style="text-align: right;">Adjusting unevenness of diaphragm spring of clutch cover</p> <p style="text-align: right;">a: 150 mm (5.91 in) b: 25 mm (0.98 in)</p>

Commercial Service Tools

Tool name	Description
<ol style="list-style-type: none"> ① Flare nut crowfoot ② Torque wrench 	<div style="text-align: center;"> </div> <p style="text-align: center;">NT223</p> <p style="text-align: right;">Removing and installing clutch piping</p> <p style="text-align: right;">a: 10 mm (0.39 in)</p>

CLUTCH SYSTEM — Hydraulic Type

SEC. 300-305-306-465



: Apply lithium-based grease including molybdenum disulphide.

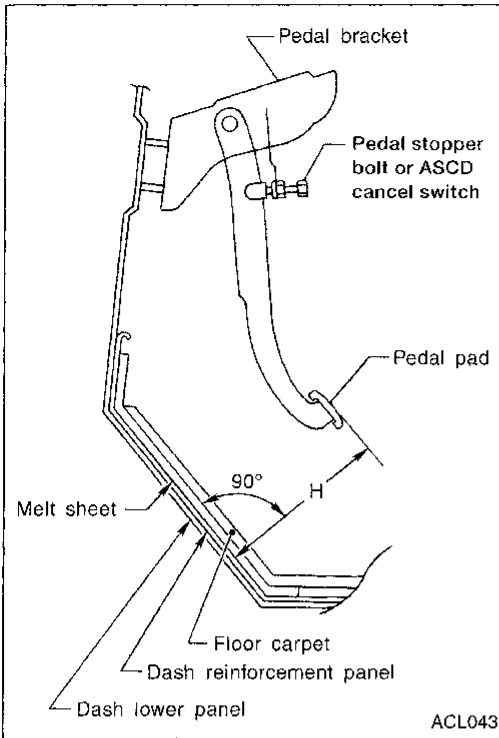
: N·m (kg-m, ft-lb)

: N·m (kg-m, in-lb)

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INSPECTION AND ADJUSTMENT

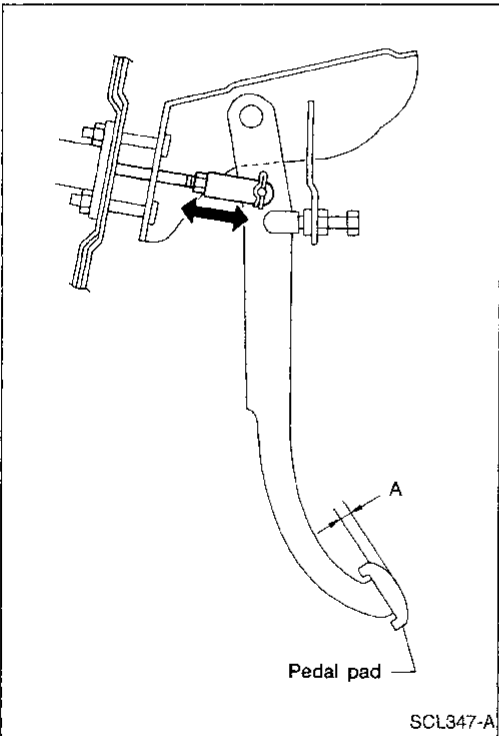


Adjusting Clutch Pedal

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

Pedal height "H":

168 - 178 mm (6.61 - 7.01 in)



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

Pedal free play is play due to clevis pin and clevis pin hole.

Pedal free play "A":

1 - 3 mm (0.04 - 0.12 in)

Pedal free play, measured at pedal pad includes the following:

- Free play due to clevis pin and clevis pin hole, push rod and master cylinder.

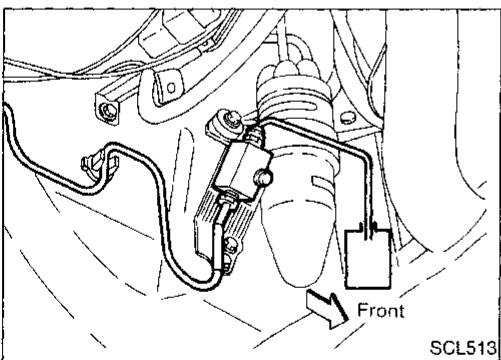
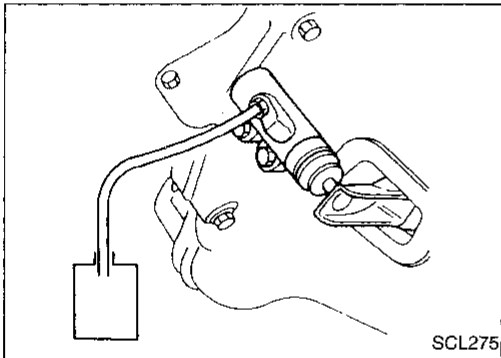
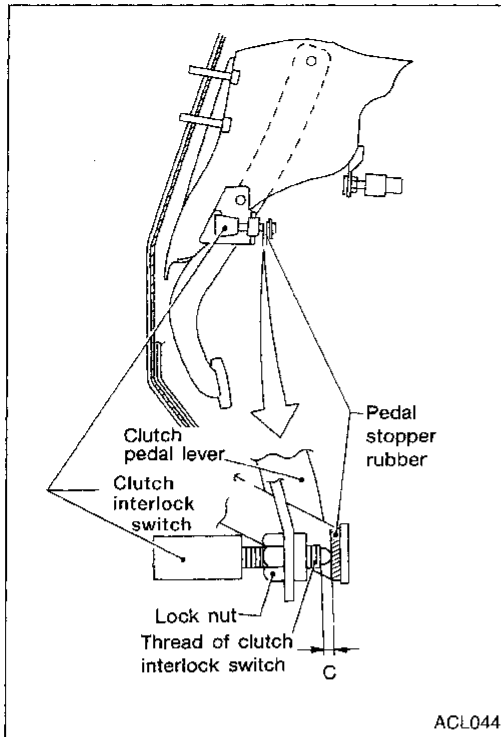
INSPECTION AND ADJUSTMENT

Adjusting Clutch Pedal (Cont'd)

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

Clearance "C":

0.1 - 1.0 mm (0.004 - 0.039 in)



Bleeding Procedure

Bleed air according to the following procedure.

- Carefully monitor fluid level at master cylinder during bleeding operation.

- Top off reservoir with recommended brake fluid.
- Connect a transparent vinyl tube to air bleeder valve of clutch operating cylinder.
- Fully depress clutch pedal several times.
- With clutch pedal depressed, open bleeder valve to release air.
- Close bleeder valve.
- Repeat steps 3 through 5 until clear brake fluid comes out of air bleeder valve.

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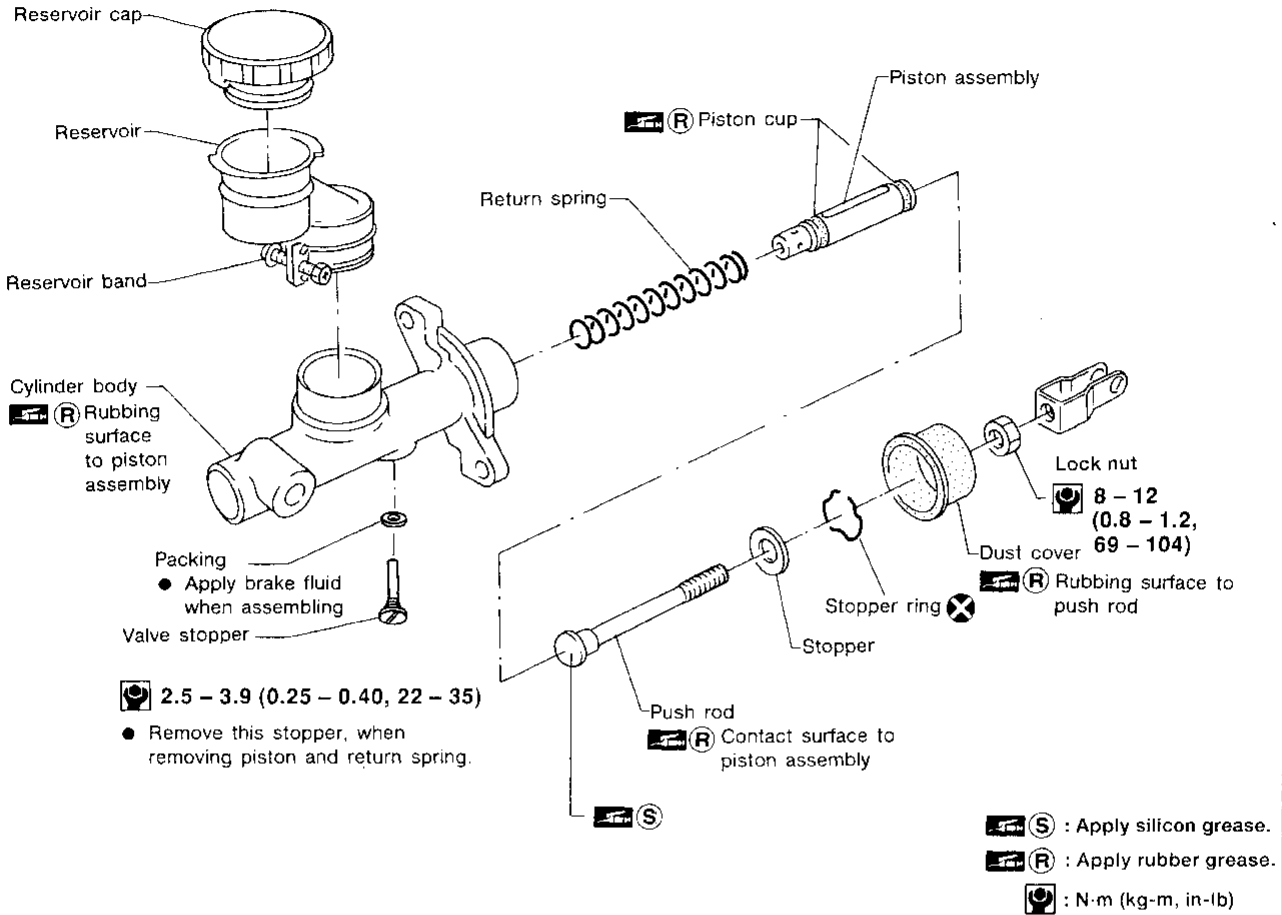
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HYDRAULIC CLUTCH CONTROL

Clutch Master Cylinder

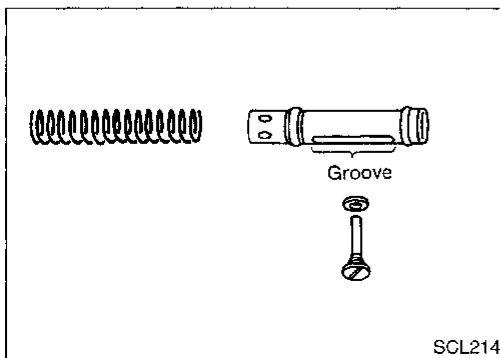
SEC. 305



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DISASSEMBLY AND ASSEMBLY

- Push piston into cylinder body with screwdriver when removing and installing valve stopper.
- Use a screwdriver to remove stopper ring while pushing push rod into cylinder.
- When installing stopper ring, tap in lightly while pushing push rod into cylinder.



- Align piston assembly groove and valve stopper when installing valve stopper.
- Check direction of piston cups.

HYDRAULIC CLUTCH CONTROL

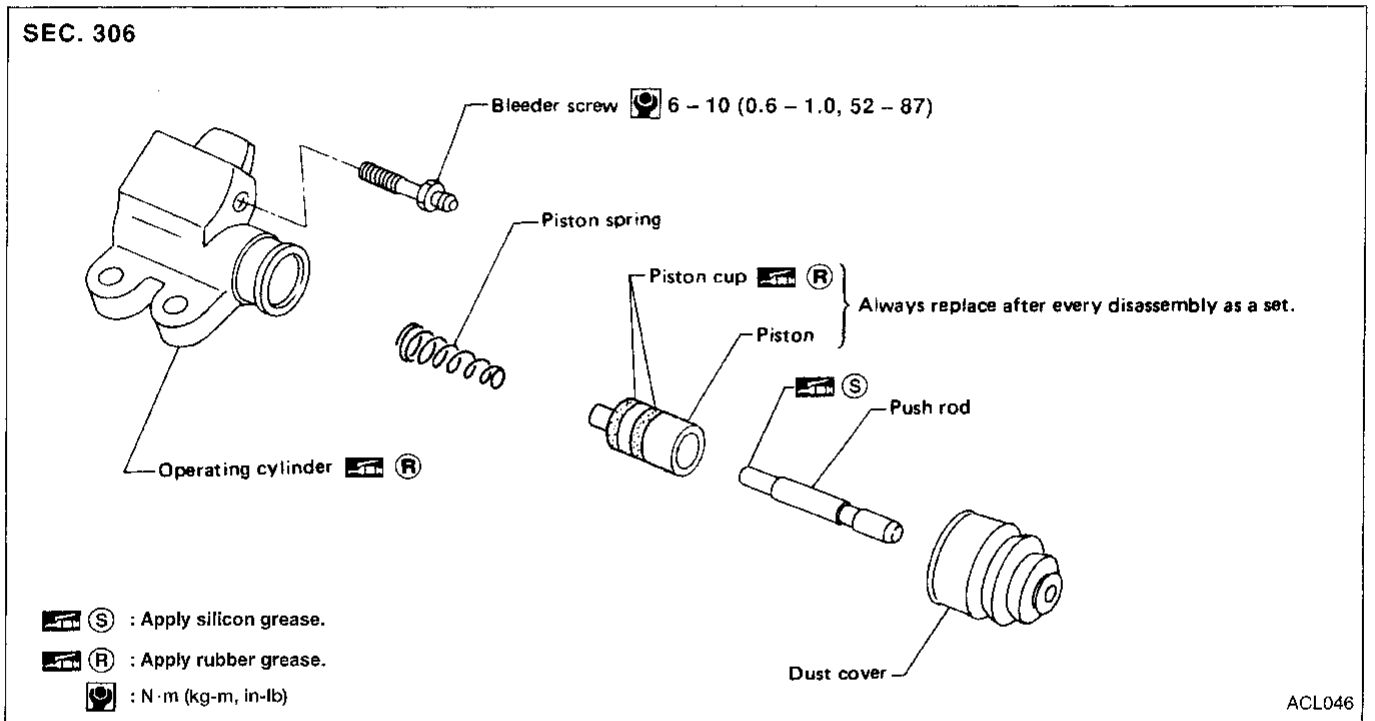
Clutch Master Cylinder (Cont'd)

INSPECTION

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

Operating Cylinder

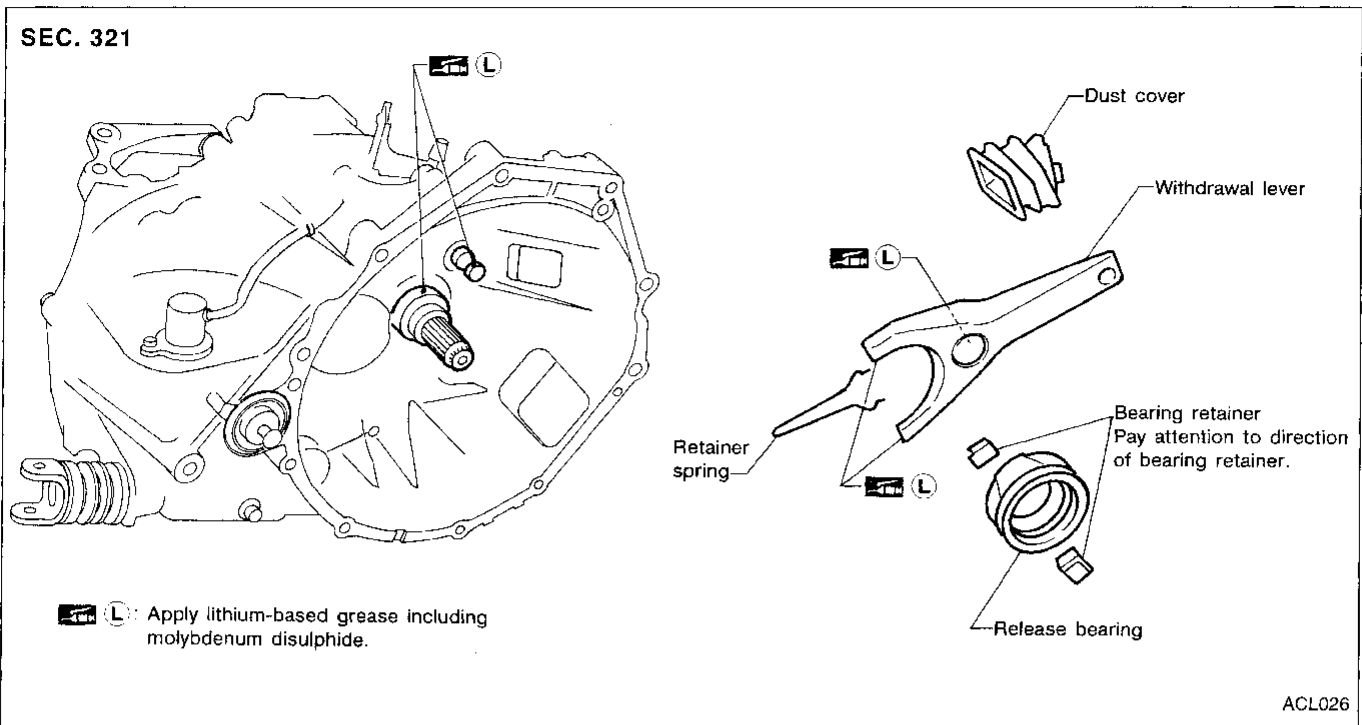


INSPECTION

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

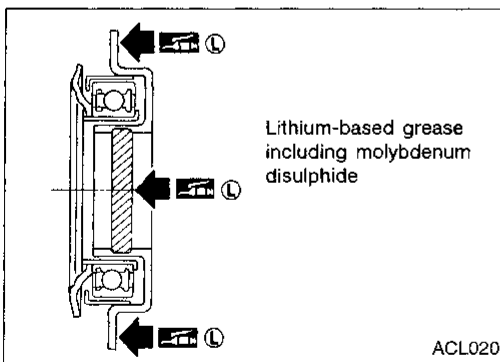
CLUTCH RELEASE MECHANISM



INSPECTION

Check the following items, and replace if necessary.

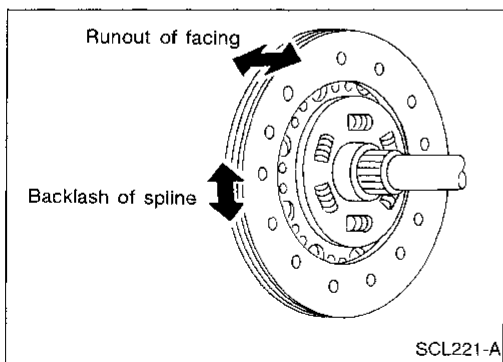
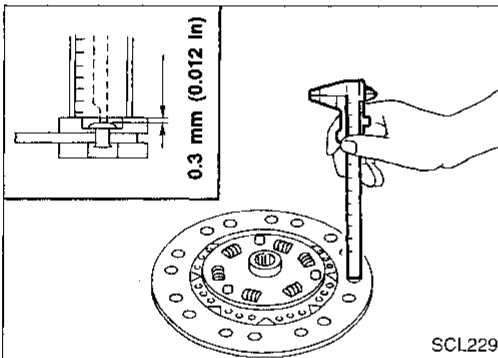
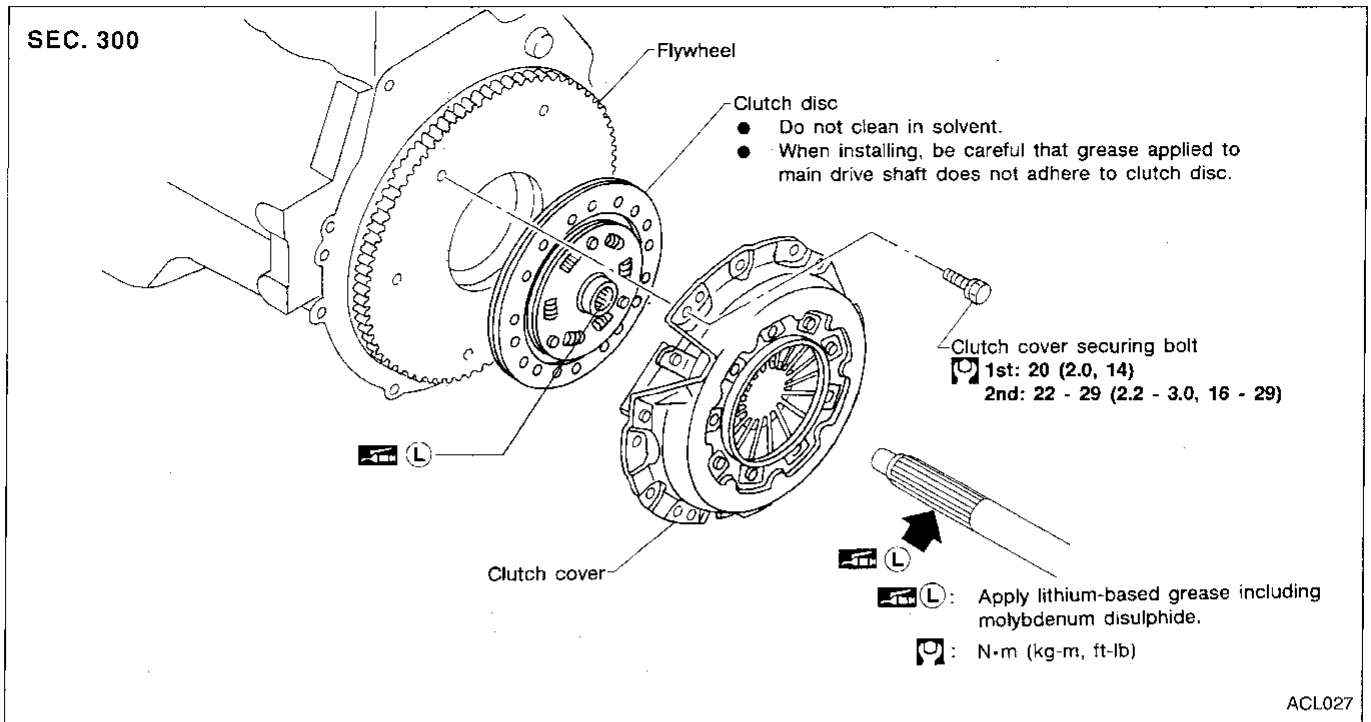
- Release bearing, to see that it rolls freely and is free from noise, cracks, pitting or wear
- Release sleeve and withdrawal lever rubbing surface, for wear, rust or damage



LUBRICATION

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

CLUTCH DISC AND CLUTCH COVER



Clutch Disc

INSPECTION

Check the following items, and replace if necessary.

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

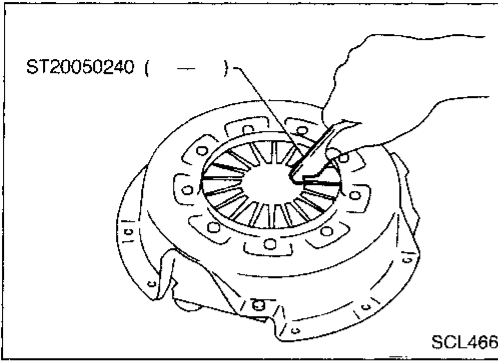
Wear limit of facing surface to rivet head:
0.3 mm (0.012 in)

- Clutch disc, for backlash of spline and runout of facing.
 - Maximum backlash of spline (at outer edge of disc):**
0.9 mm (0.035 in)
 - Runout limit:**
1.0 mm (0.039 in)
 - Distance of runout check point (from hub center)**
107.5 mm (4.23 in)

INSTALLATION

- Apply recommended grease to contact surface of splines.
- Too much lubricant might damage clutch facing.

CLUTCH DISC AND CLUTCH COVER



Clutch Cover and Flywheel

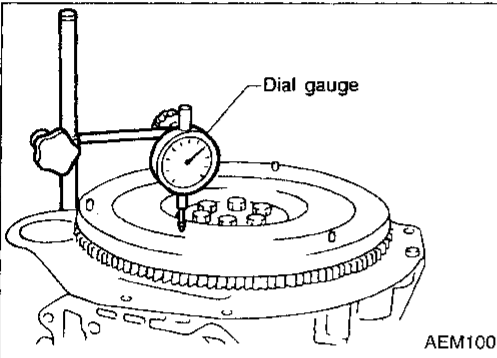
INSPECTION AND ADJUSTMENT

- Check clutch cover while installed on vehicle, for uneven diaphragm spring toe height.

Uneven limit:

0.7 mm (0.028 in)

- If out of limit, adjust the height with Tool.



FLYWHEEL INSPECTION

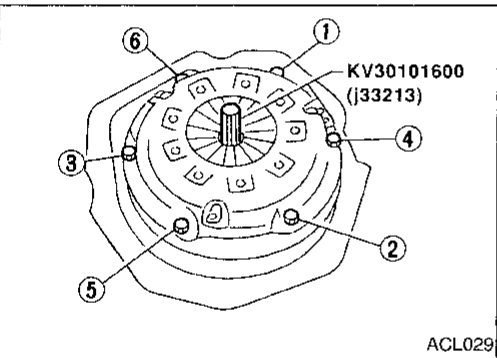
CAUTION:

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 section ("Inspection", "CYLINDER BLOCK").



INSTALLATION

- Insert Tool into clutch disc hub when installing clutch cover and disc.
- Be careful not to allow grease to contaminate clutch facing.
- Tighten bolts in numerical order, in two steps.

First step:

: 20 N·m (2.0 kg-m, 14 ft-lb)

Final step:

: 22 - 29 N·m (2.2 - 3.0 kg-m, 16 - 22 ft-lb)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

CLUTCH CONTROL SYSTEM

Type of clutch control	Hydraulic
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CLUTCH MASTER CYLINDER

Inner diameter	mm (in)	15.87 (5/8)
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CLUTCH OPERATING CYLINDER

Inner diameter	mm (in)	19.05 (3/4)
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CLUTCH DISC

		Unit: mm (in)
Model	225	
Facing size (Outer dia. x inner dia. x thickness)	225 x 150 x 3.5 (8.86 x 5.91 x 0.138)	
Thickness of disc assembly With load	7.9 - 8.3 (0.311 - 0.327) with 4,904 N (500 kg, 1,103 lb)	

CLUTCH COVER

Model	225	
Full-load	N (kg, lb)	4,904 (500, 1,103)

Inspection and Adjustment

CLUTCH PEDAL

		Unit: mm (in)
Pedal height "H"*1	168 - 178 (6.61 - 7.01)	
Pedal free play "A" (at pedal pad)	1 - 3 (0.04 - 0.12)	
Clearance "C" (between pedal stopper rubber and clutch interlock switch)*2	0.1 - 1.0 (0.004 - 0.039)	

*1: Measured from surface of dash reinforcement panel

*2: Clutch pedal fully depressed

CLUTCH DISC

		Unit: mm (in)
Model	225	
Wear limit of facing surface to rivet head	0.3 (0.012)	
Runout limit of facing	1.0 (0.039)	
Distance of runout check point (from the hub center)	107.5 (4.23)	
Maximum backlash of spline (at outer edge disc)	0.9 (0.035)	

CLUTCH COVER

		Unit: mm (in)
Model	225	
Uneven limit of diaphragm spring toe height	0.7 (0.028)	

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