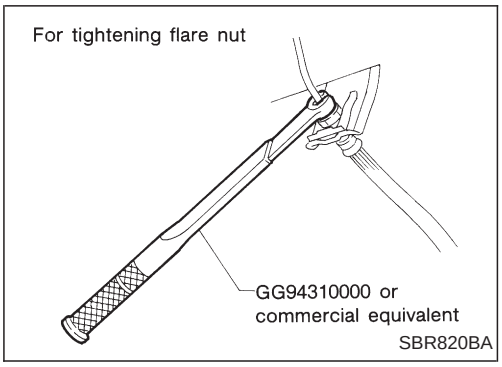
SECTION CL

CONTENTS

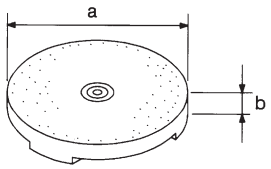
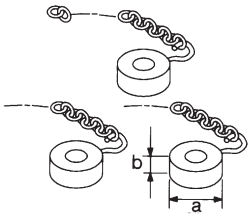
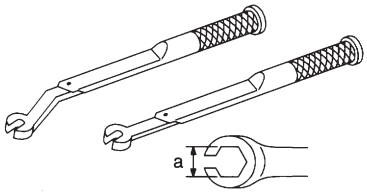
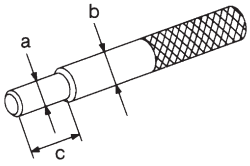
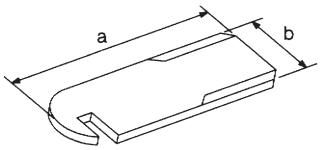


Precautions

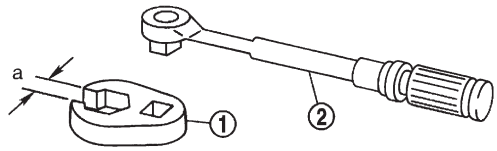
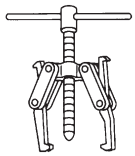
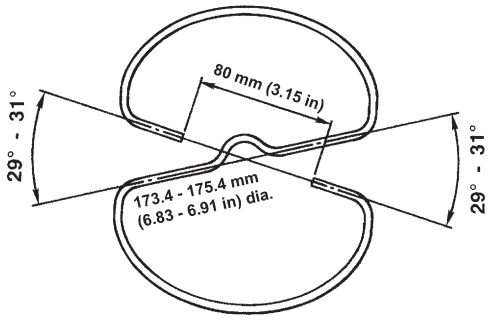
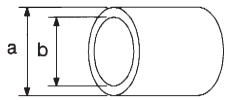
- **Recommended fluid is brake fluid "DOT 3".**
- **Do not reuse drained brake fluid.**
- **Be careful not to splash brake fluid on painted areas.**
- **When removing and installing clutch piping, use Tool.**
- **Use new brake fluid to clean or wash all parts of master cylinder, operating cylinder and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

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

Special Service Tools

Tool number Tool name	Description	
ST20050010 Base plate	 NT403	Inspecting diaphragm spring of clutch cover **a: 357 mm (14.06 in) dia.** **b: 43 mm (1.69 in)**
ST20050100 Distance piece	 NT402	Inspecting diaphragm spring of clutch cover **a: 25 mm (0.98 in) dia.** **b: 7.8 mm (0.307 in)**
GG94310000 Flare nut torque wrench	 NT406	Removing and installing each clutch piping **a: 10 mm (0.39 in)** **: 16.2 N·m (1.65 kg-m, 11.9 ft-lb)**
ST20630000 Clutch aligning bar	 NT405	Installing clutch cover and clutch disc **a: 15.8 mm (0.622 in) dia.** **b: 22.9 mm (0.902 in) dia.** **c: 45 mm (1.77 in)**
ST20050240 Diaphragm spring adjusting wrench	 NT404	Adjusting unevenness of clutch cover diaphragm spring **a: 150 mm (5.91 in)** **b: 25 mm (0.98 in)**

Commercial Service Tools

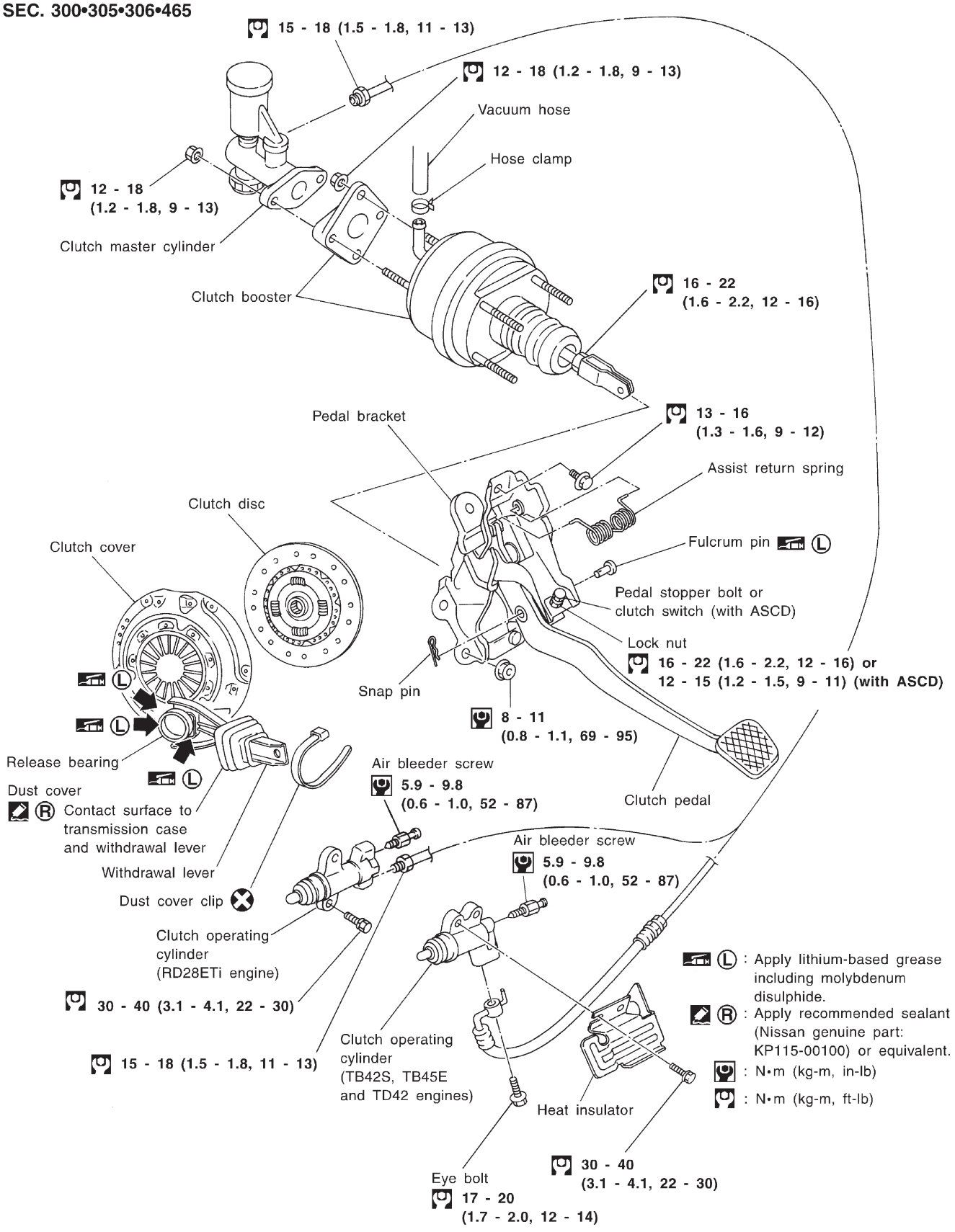
Tool name	Description	
① Flare nut crowfoot ② Torque wrench	 NT684	Removing and installing clutch piping **a: 10 mm (0.39 in)**
Bearing puller	 NT077	Removing release bearing
Wire	 NT727	Installing clutch cover **Wire: 3.2 mm (0.126 in) dia.**
Bearing drift	 NT474	Installing release bearing **a: 52 mm (2.05 in) dia.** **b: 45 mm (1.77 in) dia.**

NVH Troubleshooting Chart

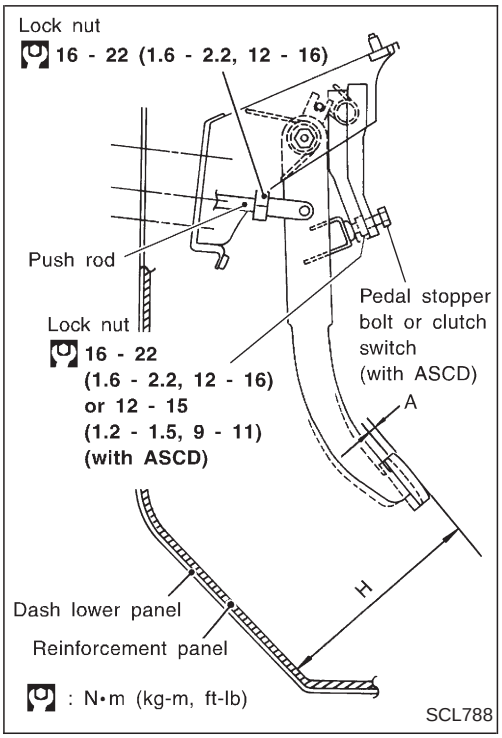
Use the chart below to help you find the cause of the symptom. The numbers indicate the order of inspection. If necessary, repair or replace these parts.

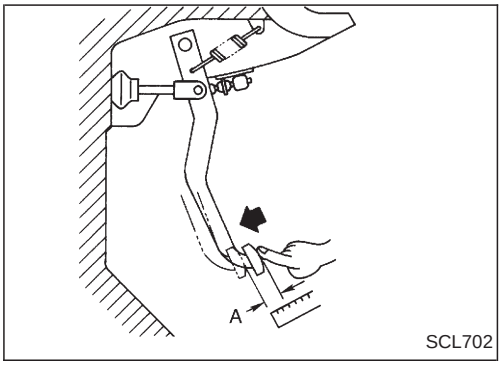
Reference page (CL-)		5	6	7	8	Refer to EM section.	11	13	13	13	13	13	13	13	13	14	14	14	14
SUSPECTED PARTS (Possible cause)		CLUTCH PEDAL (Free play out of adjustment)	CLUTCH LINE (Air in line)	MASTER CYLINDER PISTON CUP (Damaged)	OPERATING CYLINDER PISTON CUP (Damaged)	ENGINE MOUNTING (Loose)	RELEASE 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)	DIAPHRAGM SPRING (Out of tip alignment)	PRESSURE PLATE (Distortion)	FLYWHEEL (Distortion)
Symptom	Clutch grabs/chatters					1			2			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	6	7	

SEC. 300•305•306•465



SCL768



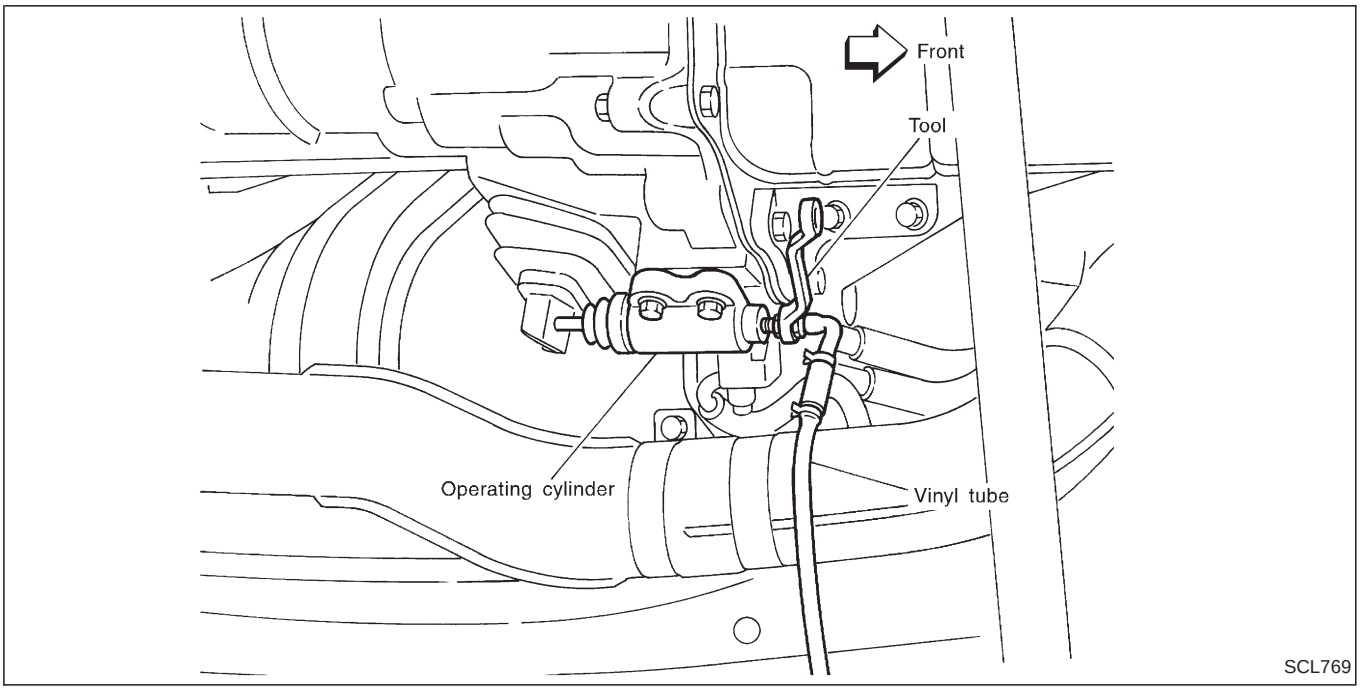


Adjusting Clutch Pedal

1. Adjust pedal height with pedal stopper.
   Pedal height "H*":
   195 - 205 mm (7.68 - 8.07 in)
   *: Measured from surface of dash reinforcement panel to pedal pad
2. Adjust pedal free play with master cylinder push rod or clutch booster input rod. Then tighten lock nut.
   Pedal free play "A":
   1.0 - 3.0 mm (0.039 - 0.118 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.**
- **Play due to piston and push rod.**
- Push or step on clutch pedal until resistance is felt, and check the distance the pedal moves.



Air Bleeding Procedure

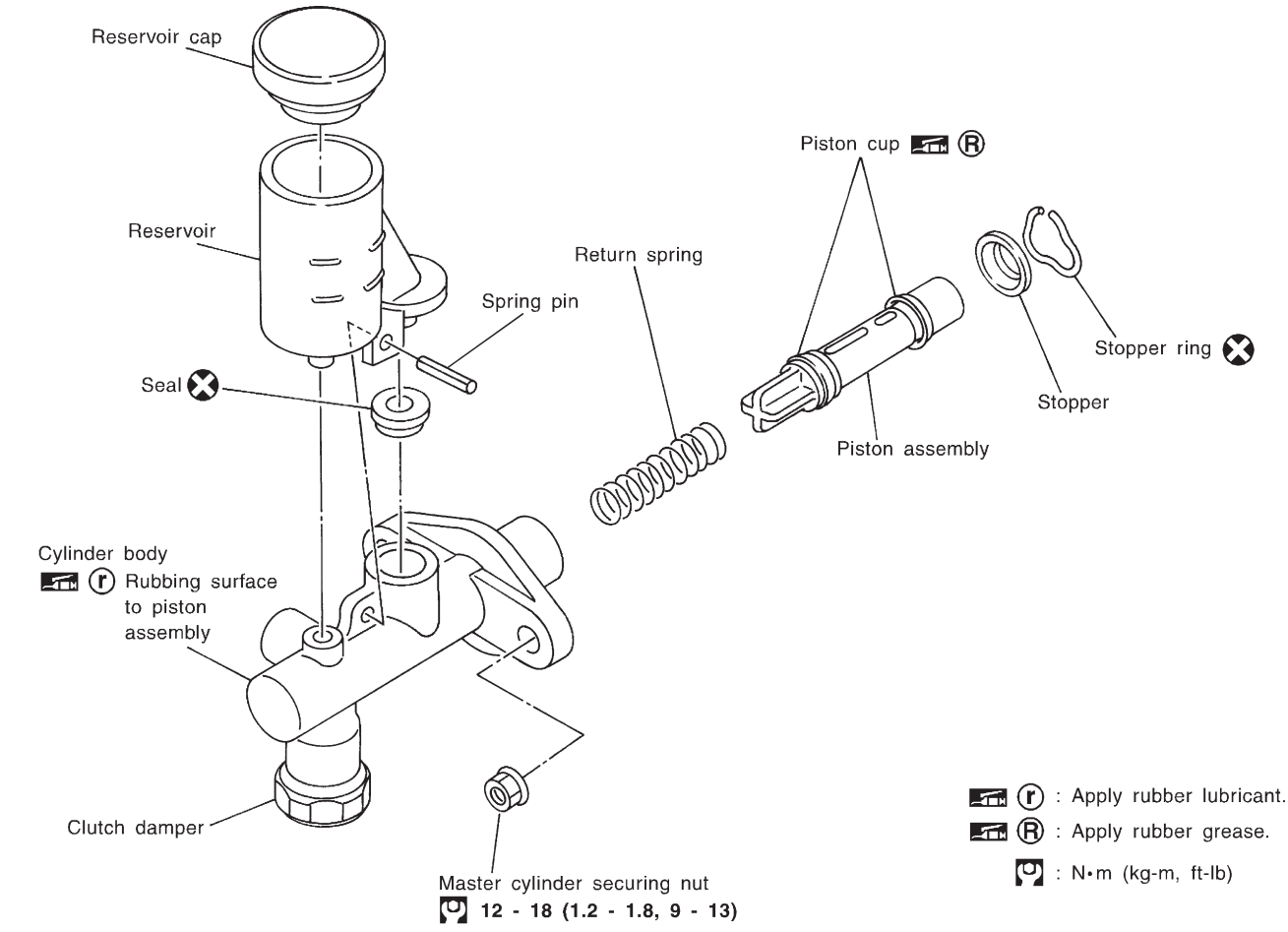
1. Bleed air from clutch operating cylinder according to the following procedure.

Carefully monitor fluid level at master cylinder during bleeding operation.

a. Top up reservoir with recommended brake fluid.
b. Connect a transparent vinyl tube to air bleeder valve.
c. Slowly depress clutch pedal to its full stroke and release it completely. Repeat this operation several times at 2 to 3 second intervals.
d. Hold clutch pedal depressed, open bleeder valve to release air.
e. Close bleeder valve.
f. Release clutch pedal and wait at least 5 seconds.
g. Repeat steps c through e above until brake fluid flows from air bleeder valve without air bubbles.

2. Repeat the above bleeding procedure 1 several times.

Clutch Master Cylinder



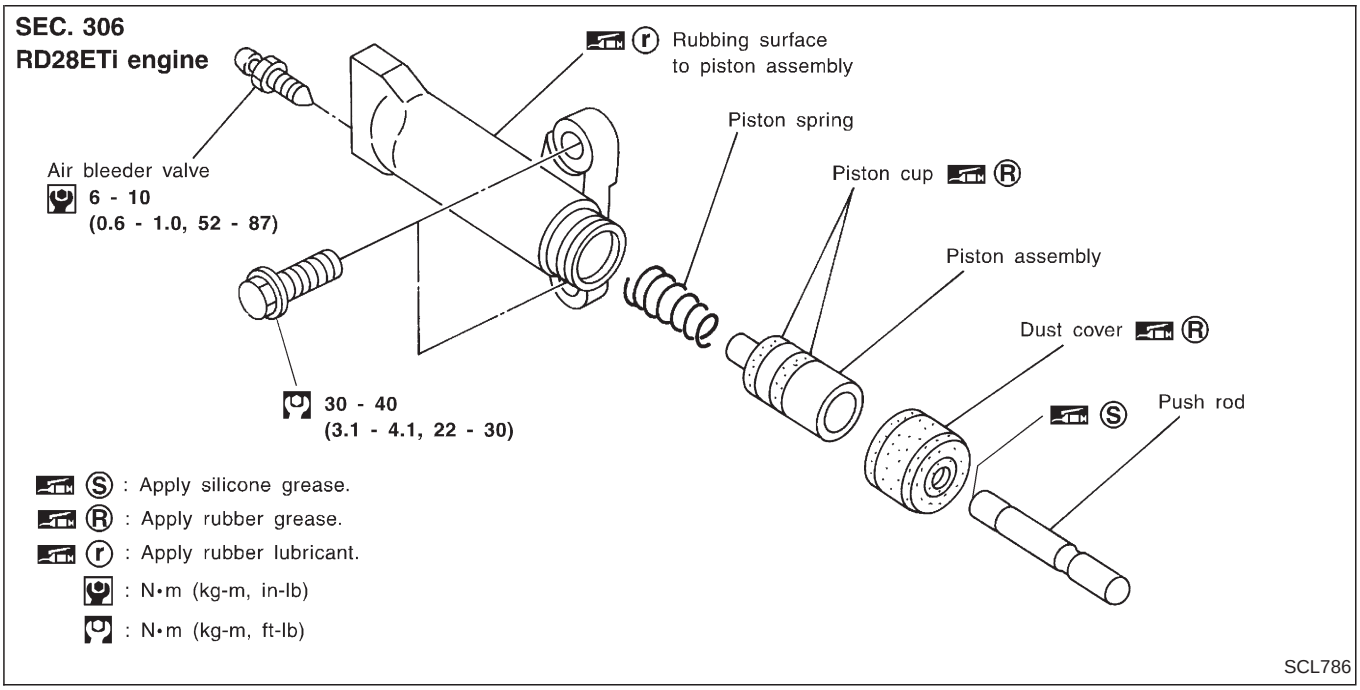
DISASSEMBLY AND ASSEMBLY

- When removing and installing stopper ring. Pry out or in with screwdriver while pushing stopper.

INSPECTION

- Check cylinder and piston rubbing surface for uneven wear, rust or damage. Replace if necessary.
- Check piston with piston cup for wear or damage. Replace if necessary.
- Check return spring for wear or damage. Replace if necessary.
- Check reservoir for deformation or damage. Replace if necessary.
- Check dust cover for cracks, deformation or damage. Replace if necessary.

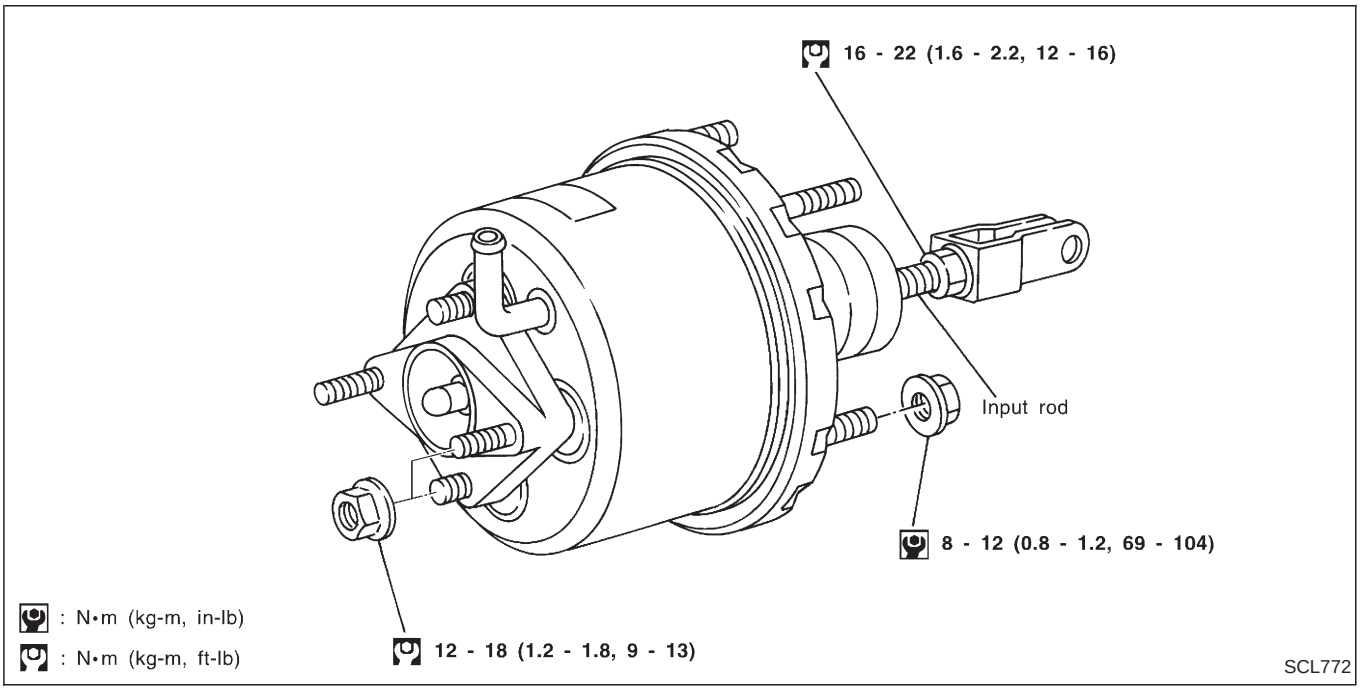
Clutch Operating Cylinder



INSPECTION

- Check rubbing surface of cylinder for wear, rust or damage. Replace if necessary.
- Check piston with piston cup for wear or damage. Replace if necessary.
- Check dust cover for cracks, deformation or damage. Replace if necessary.
- Check piston spring for wear or damage. Replace if necessary.

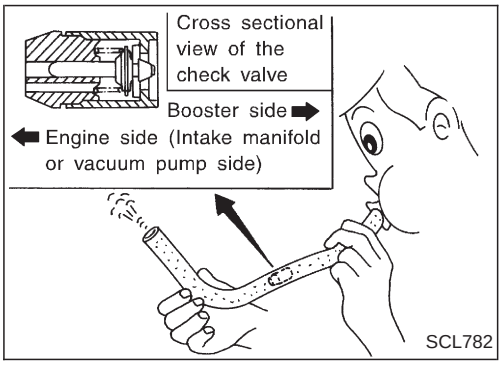
Clutch Booster



INSPECTION

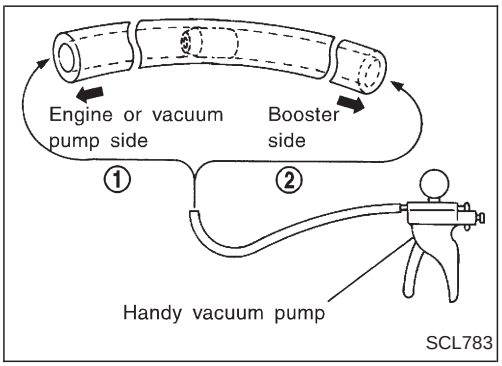
Hoses and connectors

- Check condition of vacuum hoses and connections.
- Check vacuum hoses and check valve for air tightness.



Vacuum hose check valve

1. Remove the vacuum hose.
2. Blow air through one end (booster side) of the vacuum hose and make sure that air passage continuity exists.
3. Blow air through the other end (engine side) of the vacuum hose and make sure that air passage continuity does not exist.

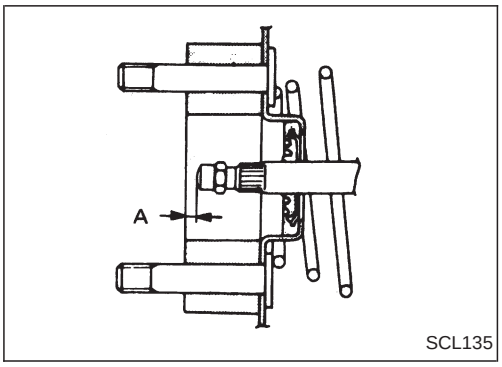


Check valve

1. Remove the vacuum hose.
2. Check the condition of the check valve using a handy vacuum pump.

①	②
Vacuum pump connected to the engine side	Vacuum pump connected to the booster side
No vacuum pressure is applied.	Vacuum drop is less than 1.3 kPa (13 mbar, 10 mmHg, 0.39 inHg) at a vacuum pressure of −66.7 kPa (−667 mbar, −500 mmHg, −19.69 inHg).

Clutch Booster (Cont'd)



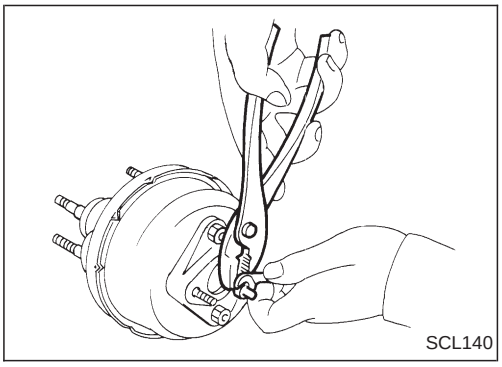
SCL135

ADJUSTMENT

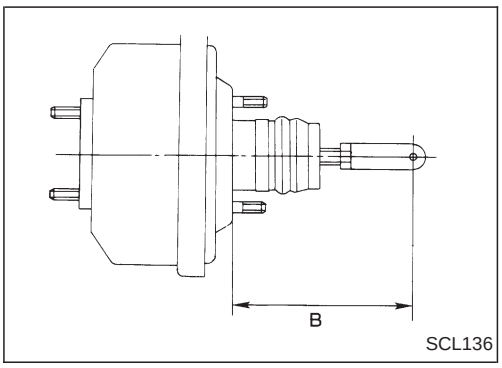
Output rod length:

Length "A"

1.30 - 1.55 mm (0.0512 - 0.0610 in)


SCL140

If amount of adjustment required exceeds 0.5 mm (0.020 in), reaction disc may have either been dislocated or fallen off. Replace clutch booster assembly.



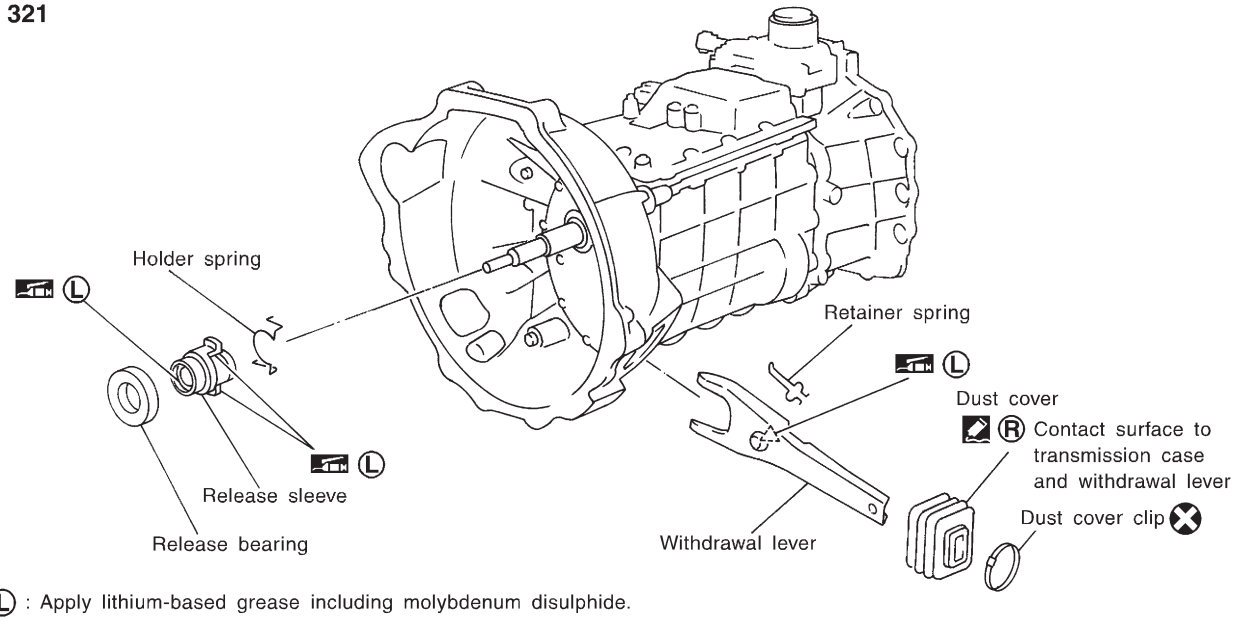
SCL136

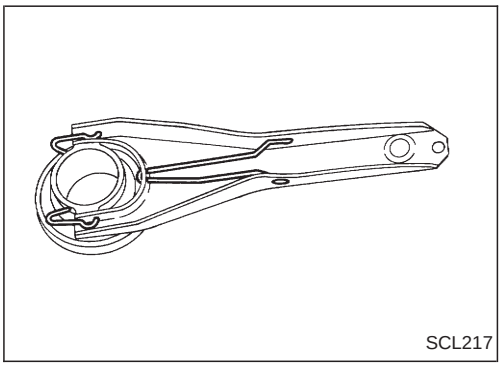
Input rod length:

Length "B"

130 mm (5.12 in)

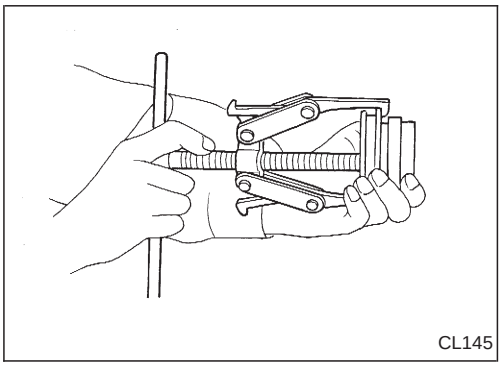
SEC. 321



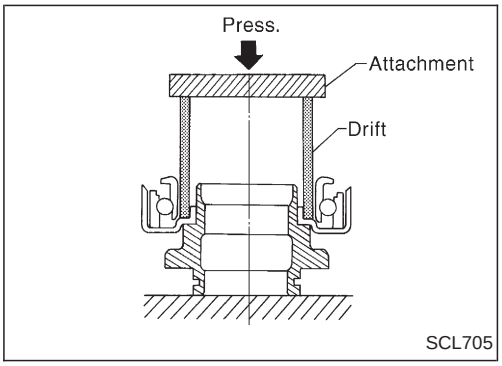

SCL217

REMOVAL AND INSTALLATION

- Install retainer spring and holder spring.


CL145

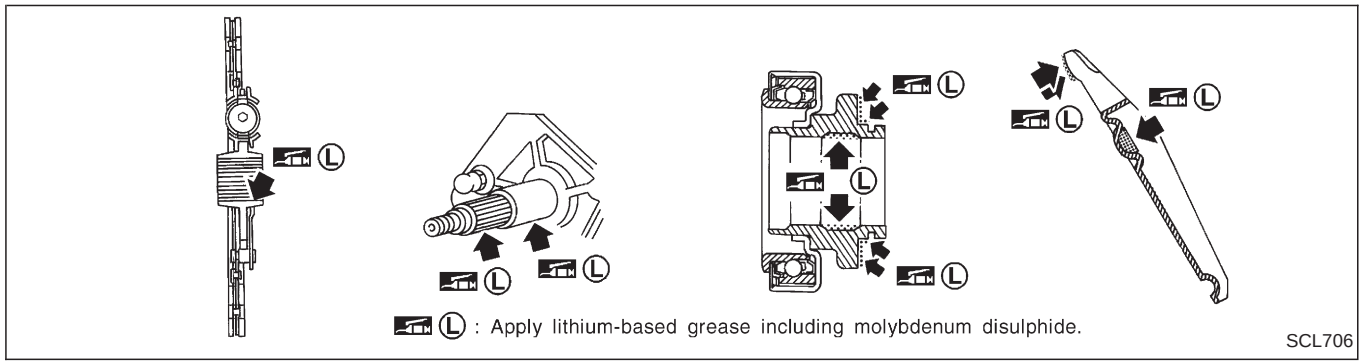
- Remove release bearing.



- Install release bearing with suitable drift.

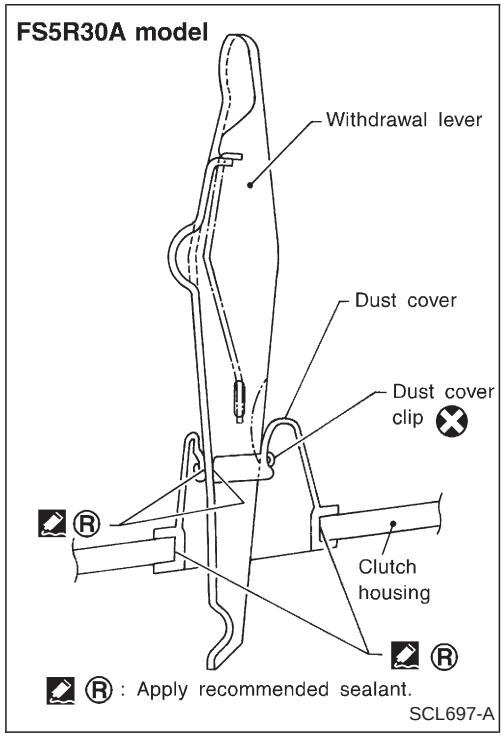
INSPECTION

- Check release bearing to see that it rolls freely and is free from noise, cracks, pitting or wear. Replace if necessary.
- Check release sleeve and withdrawal lever rubbing surface for wear, rust or damage. Replace if necessary.



LUBRICATION

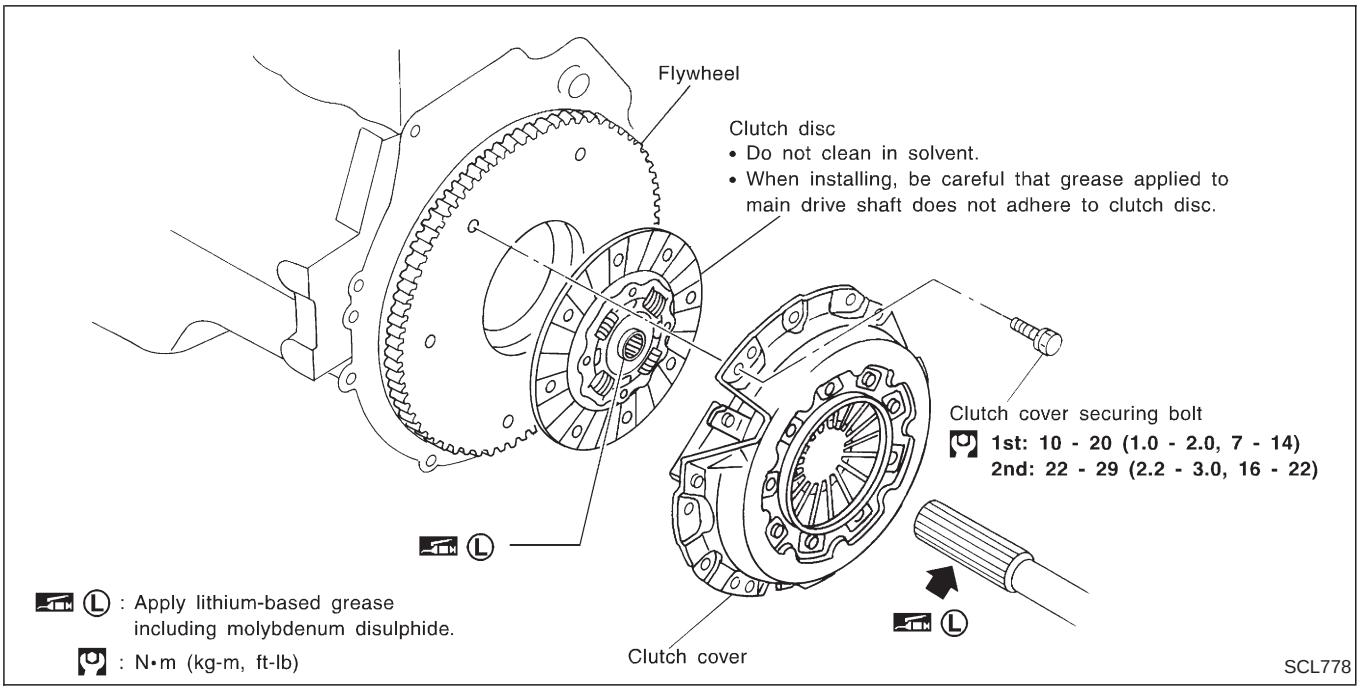
- Apply recommended grease to contact surface and rubbing surface.
- Too much lubricant might damage clutch disc facing.

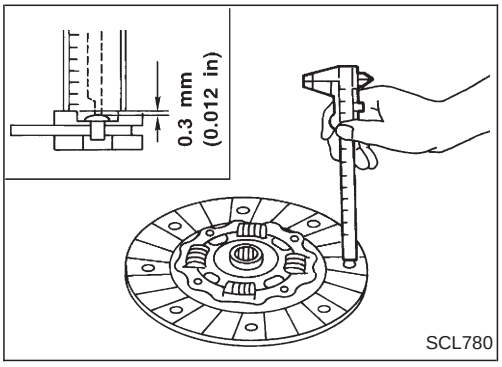


WATERPROOF

- Apply recommended sealant to contact surface of transmission case dust cover and withdrawal lever, then install dust cover clip.

  Recommended sealant:
  Nissan genuine part (KP115-00100) or equivalent.



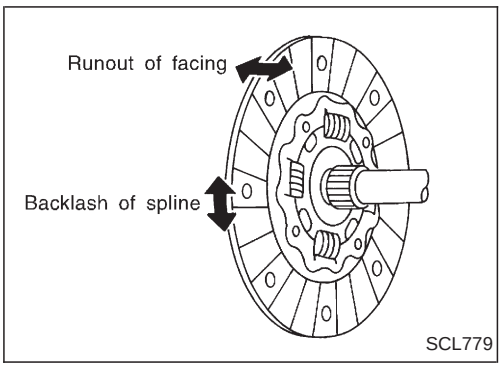


Clutch Disc

INSPECTION

Check clutch disc for wear of facing.

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

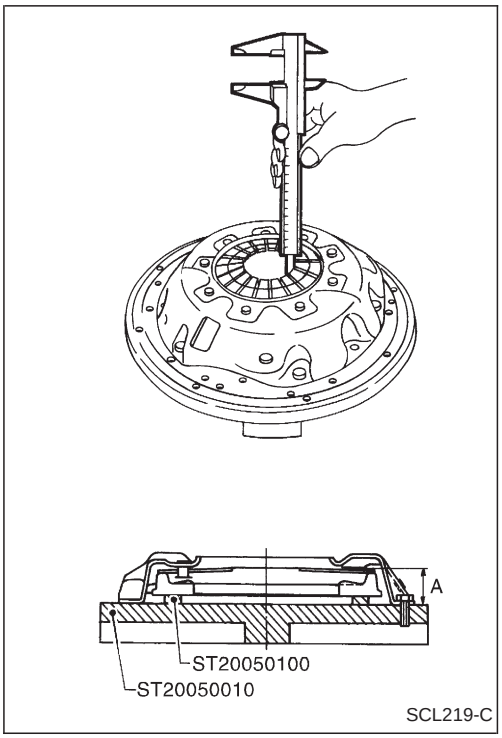


- Check clutch disc for backlash of spline and runout of facing.
  Maximum backlash of spline (at outer edge of disc):
  Model 240
  1.0 mm (0.039 in)
  Runout limit:
  Model 240
  0.7 mm (0.028 in)
  Distance of runout check point (from hub center):
  Model 240
  115.0 mm (4.53 in)
- Check clutch disc for burns, discoloration or oil or grease leakage. Replace if necessary.

INSTALLATION

- Apply recommended grease to contact surface of spline portion.

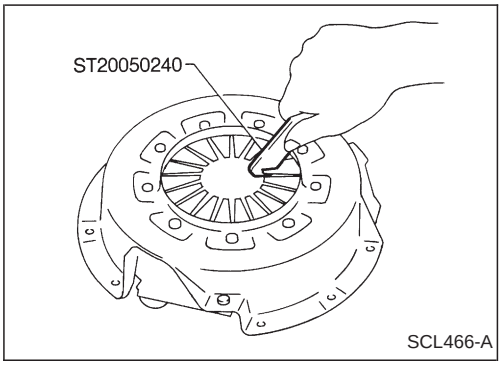
Too much lubricant might cause clutch disc facing damage.



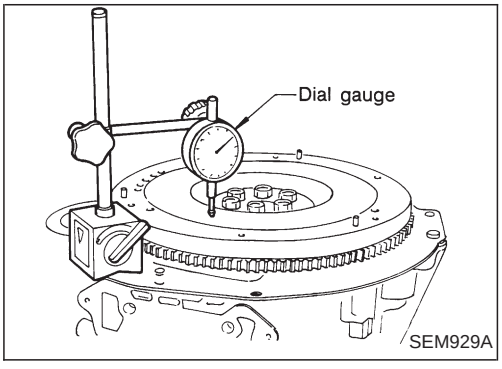
Clutch Cover and Flywheel

INSPECTION

- Set Tool and check height and unevenness of diaphragm spring.
  Diaphragm spring height "A":
  Model 240
  37.5 - 39.5 mm (1.476 - 1.555 in)
- Check thrust rings for wear or damage by shaking cover assembly up and down to listen for chattering noise, or lightly hammering on rivets for a slightly cracked noise. Replace clutch cover assembly if necessary.
- Check pressure plate and clutch disc contact surface for slight burns or discoloration. Repair pressure plate with emery paper.
- Check pressure plate and clutch disc contact surface for deformation or damage. Replace if necessary.



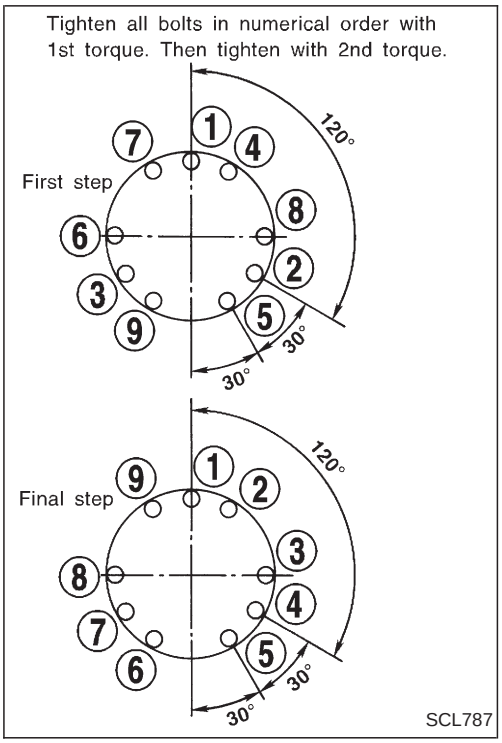
- Adjust unevenness of diaphragm spring with Tool.
  Uneven limit:
  0.7 mm (0.028 in)



- Check flywheel and clutch disc contact surface for slight burns or discoloration. Repair flywheel with emery paper.
- Check flywheel runout.
  Maximum allowable runout:
  Refer to EM section ("Inspection", "CYLINDER BLOCK").

Clutch Cover and Flywheel (Cont'd)

INSTALLATION



Model 240

- Insert Tool into clutch disc hub while 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:

  : 10 - 20 N·m (1.0 - 2.0 kg-m, 7 - 14 ft-lb)

  Final step:

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

General Specifications

CLUTCH CONTROL SYSTEM

Type of clutch control	Hydraulic

CLUTCH MASTER CYLINDER (with clutch damper)

Unit: mm (in)

Inner diameter	17.46 (11/16)

CLUTCH OPERATING CYLINDER

Unit: mm (in)

Inner diameter	20.64 (13/16)

CLUTCH BOOSTER

Unit: mm (in)

Type	M45
Diaphragm diameter	114.3 (4.50)
Check valve type	Built-in hose type

CLUTCH DISC

Model	240
Engine	RD28ETi
Facing size (Outer dia. x inner dia. x thickness) mm (in)	240 x 160 x 3.5 (9.45 x 6.30 x 0.138)
Thickness of disc assembly with load mm (in)/N (kg, lb)	7.7 - 8.1 (0.303 - 0.319)/ 8,336 (850, 1,874)

CLUTCH COVER

Model	240
Engine	RD28ETi
Destination	—
Full load N (kg, lb)	5,835 - 6,620 (595 - 675, 1,312 - 1,488)

Inspection and Adjustment

CLUTCH PEDAL

Unit: mm (in)

Pedal height "H*"	195 - 205 (7.68 - 8.07)
Pedal free play "A" (at pedal pad)	1.0 - 3.0 (0.039 - 0.118)

*: Measured from surface of melt sheet to pedal pad

CLUTCH BOOSTER

Unit: mm (in)

Output rod length "A"	1.30 - 1.55 (0.0512 - 0.0610)
Input rod length "B"	130 (5.12)

CLUTCH DISC

Unit: mm (in)

Model	240
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 the hub center)	115.0 (4.53)
Maximum backlash of spline (at outer edge of disc)	1.0 (0.039)

CLUTCH COVER

Unit: mm (in)

Model	240
Diaphragm spring height "A"	37.5 - 39.5 (1.476 - 1.555)
Uneven limit of diaphragm spring toe height	0.7 (0.028)