

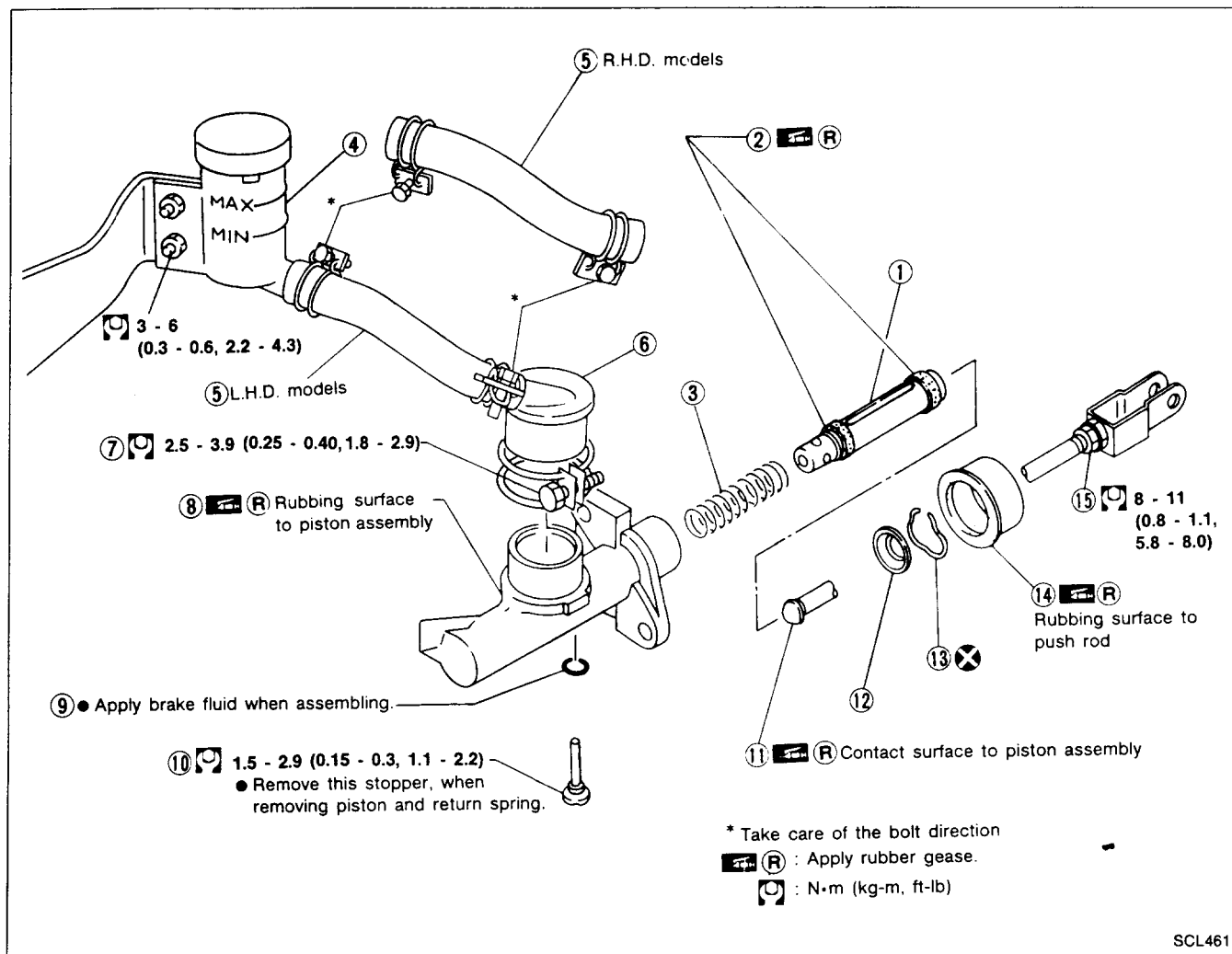
[illegible]

- ① Clutch pedal bracket
- ② Clutch master cylinder
- ③ Assist spring
- ④ Bushing
- ⑤ Pin
- ⑥ Stopper rubber

- ⑦ Operating cylinder
- ⑧ Air bleeder screw
- ⑨ Withdrawal lever
- ⑩ Release bearing
- ⑪ Clutch hose
- ⑫ Clutch cover

- ⑬ Clutch disc
- ⑭ Clutch pedal
- ⑮ Clevis pin
- ⑯ Pedal stopper
- ⑰ Fulcrum pin

Clutch Master Cylinder



SCL461

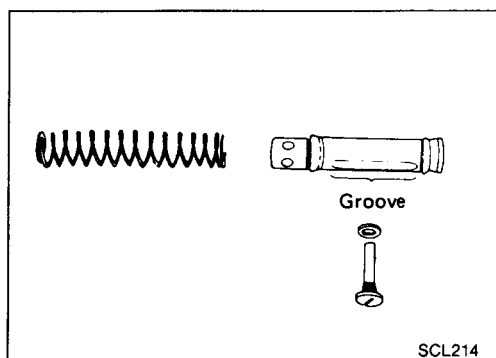
- ① Piston assembly
- ② Piston cup
- ③ Return spring
- ④ Reservoir tank
- ⑤ Reservoir hose

- ⑥ Reservoir cap
- ⑦ Reservoir band
- ⑧ Cylinder body
- ⑨ Packing
- ⑩ Valve stopper

- ⑪ Push rod
- ⑫ Stopper
- ⑬ Stopper ring
- ⑭ Dust cover
- ⑮ Lock nut

DISASSEMBLY AND ASSEMBLY

- Push piston into cylinder body with screwdriver when removing and installing valve stopper.
- Align groove of piston assembly and valve stopper when installing valve stopper.
- Check direction of piston cups.



HYDRAULIC CLUTCH CONTROL — Hydraulic Type

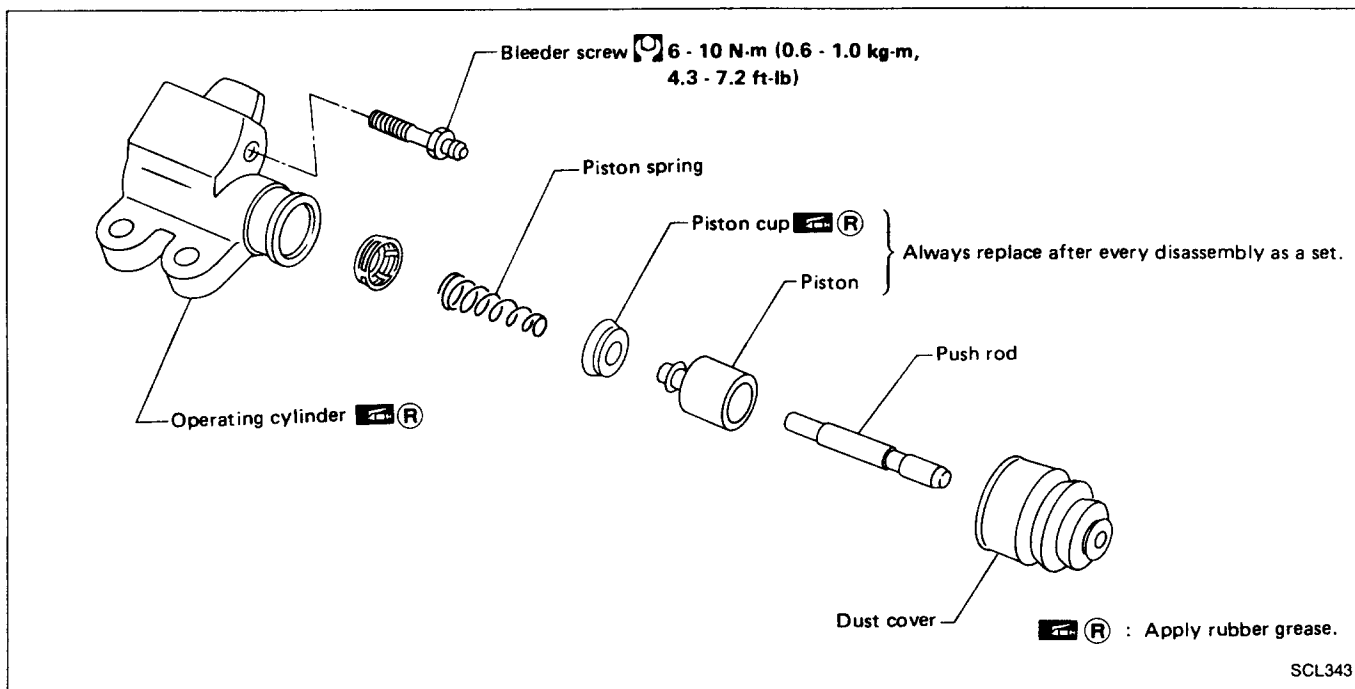
Clutch Master Cylinder (Cont'd)

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



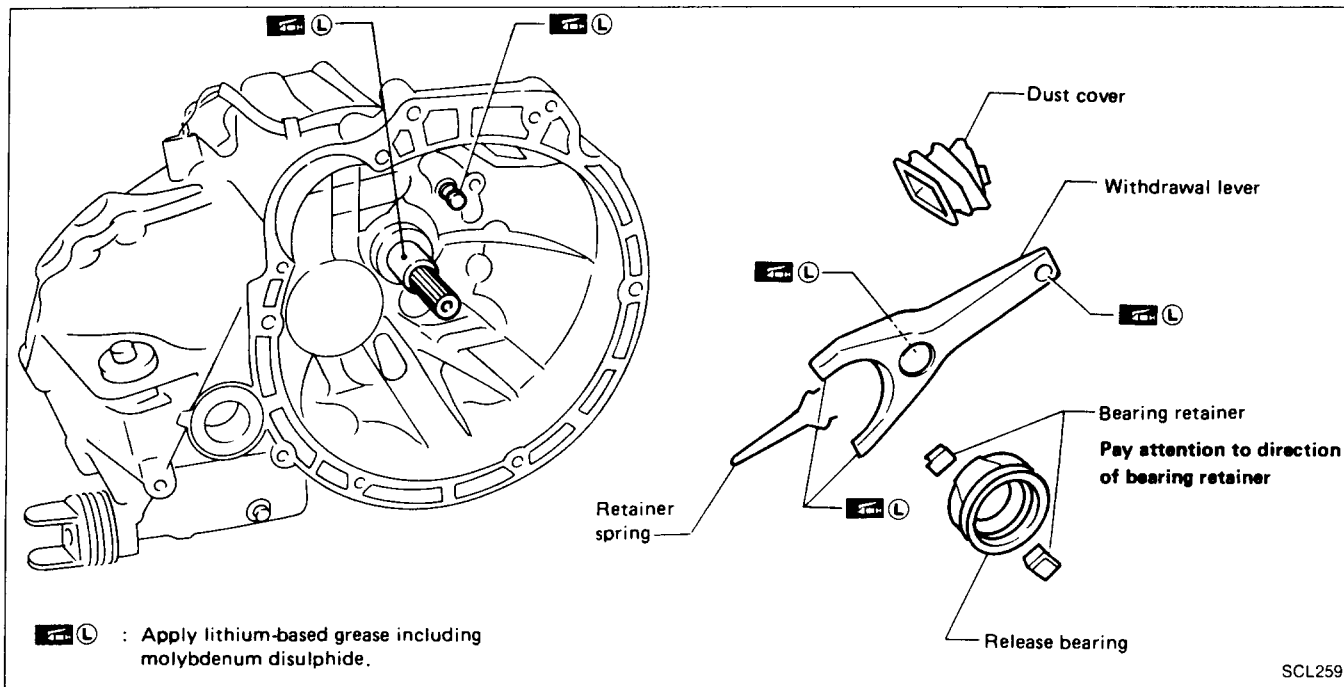
INSPECTION

Check the following items, and replace if necessary.

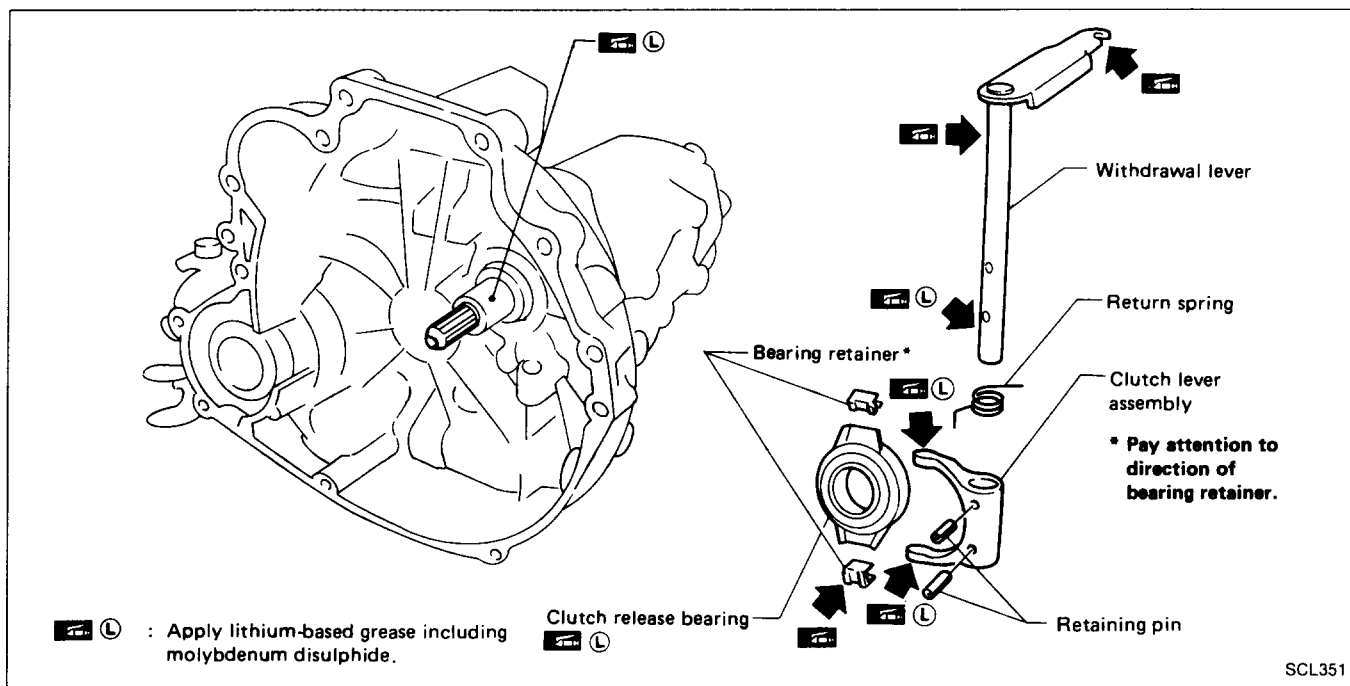
- Rubbing surface of cylinder and piston, for uneven wear, rust or damage
- Piston with piston cup, for wear or damage
- Piston spring, for wear or damage
- Dust cover, for cracks, deformation or damage

CLUTCH RELEASE MECHANISM

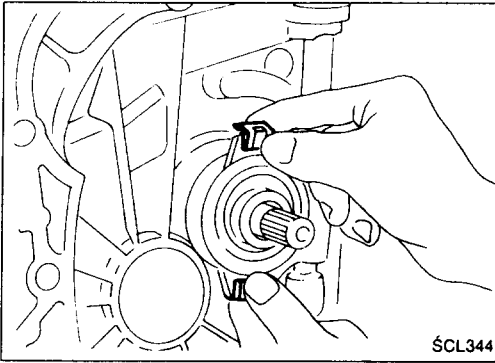
HYDRAULIC TYPE



MECHANICAL TYPE

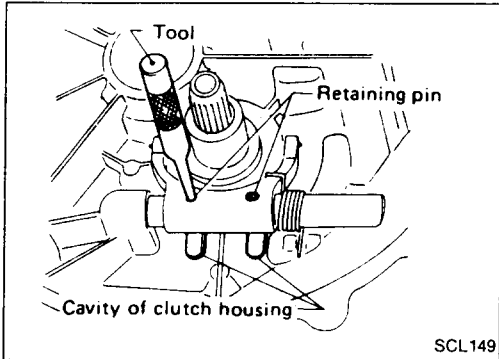


CLUTCH RELEASE MECHANISM



REMOVAL AND INSTALLATION

- Remove release bearing by pulling bearing retainers outward.

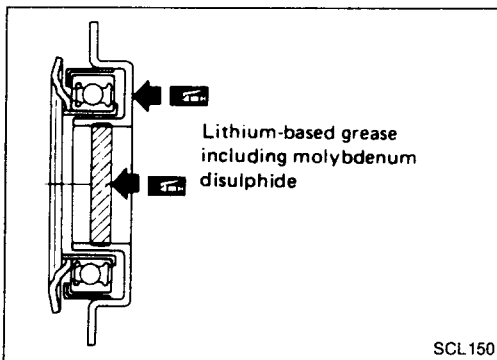


- Align retaining pin with cavity of clutch housing and tap out retaining pin.

INSPECTION

Check the following items, and replace if necessary.

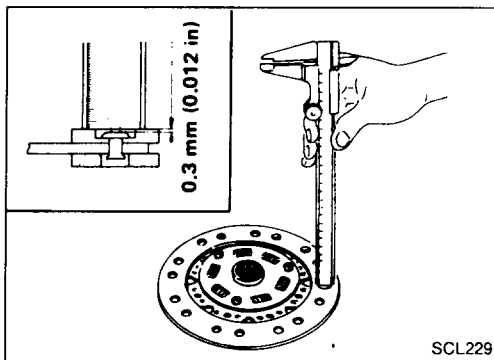
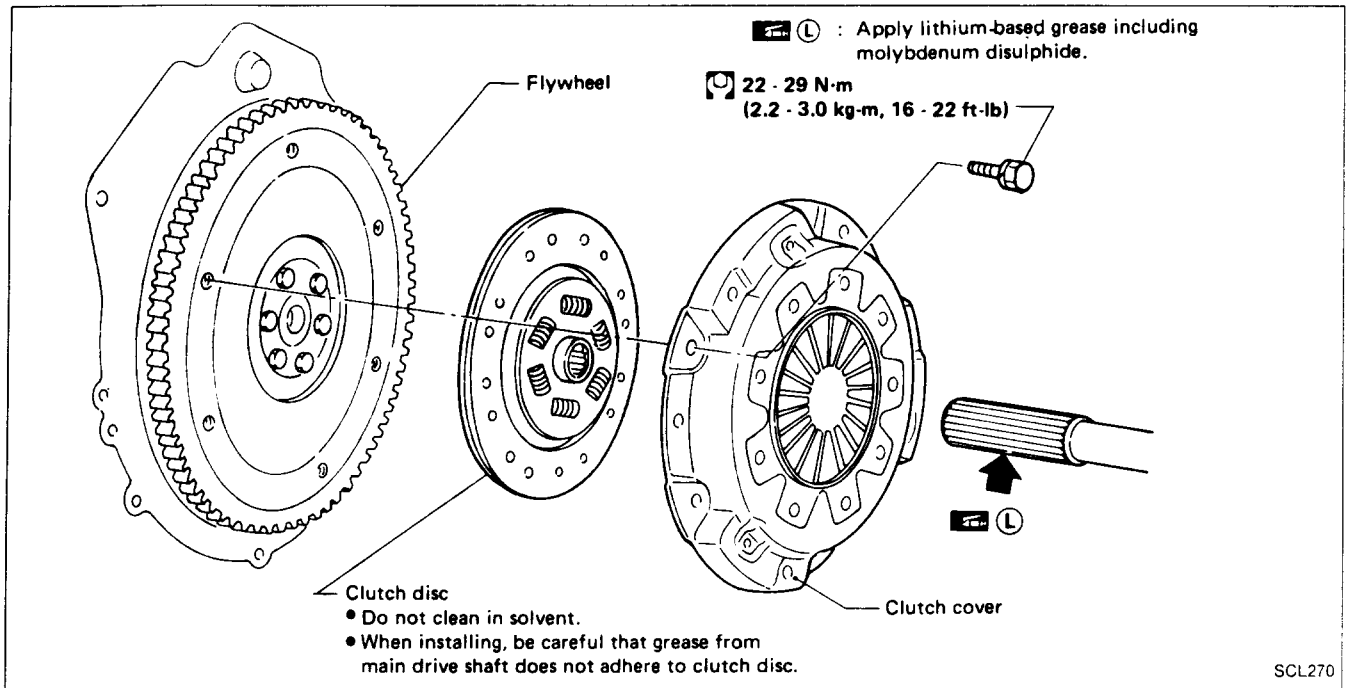
- Release bearing, to see that it rolls freely and is free from noise, cracks, pitting or wear
- Release sleeve and withdrawal lever rubbing surface, for wear, rust or damage



LUBRICATION

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

CLUTCH DISC AND CLUTCH COVER

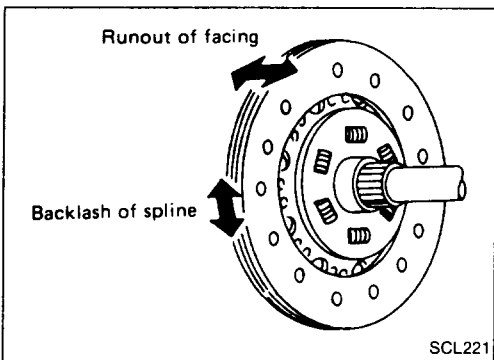


Clutch Disc

INSPECTION

Check 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):

180CBL	0.7 mm (0.028 in)
190TBL, 200TBL	0.8 mm (0.031 in)
215TBL	0.9 mm (0.035 in)
240LTD	1.0 mm (0.039 in)

Runout limit:

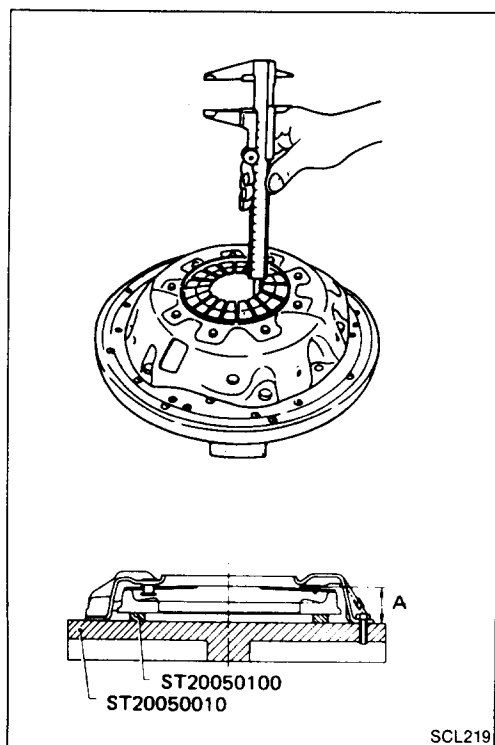
1.0 mm (0.039 in)

Distance of runout check point (from hub center):

180CBL	85 mm (3.35 in)
190TBL	90 mm (3.54 in)
200TBL	95 mm (3.74 in)
215TBL	102.5 mm (4.04 in)
240LTD	115 mm (4.53 in)

- Check clutch disc for burns, discoloration or oil or grease leakage. Replace if necessary.

CLUTCH DISC AND CLUTCH COVER



Clutch Cover and Flywheel

INSPECTION AND ADJUSTMENT

- Set Tools and check height and unevenness of diaphragm spring.

Set specified feeler gauges on distance pieces (ST20050100) to obtain the same thickness as clutch disc.

Thickness of feeler gauges:

C180S, C190S and C200S (CD20 engine models)

0.4 mm (0.016 in)

C200S (4WD models with GA16DS engine)

0.1 mm (0.004 in)

C215S Not required

C240S 0.3 mm (0.012 in)

Diaphragm spring height "A":

C180S 29 - 31 mm (1.14 - 1.22 in)

C190S

Except for models with CD17 engine

29 - 31 mm (1.14 - 1.22 in)

For models with CD17 engine

31 - 33 mm (1.22 - 1.30 in)

C200S 31 - 33 mm (1.22 - 1.30 in)

C215S 30.5 - 32.5 mm (1.201 - 1.280 in)

C240S 37.5 - 39.5 mm (1.476 - 1.555 in)

- Check thrust rings for wear or damage by shaking cover assembly and listening 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:

C180S 1.0 mm (0.039 in)

C190S, C200S and C215S 0.7 mm (0.028 in)

C240S 0.5 mm (0.020 in)



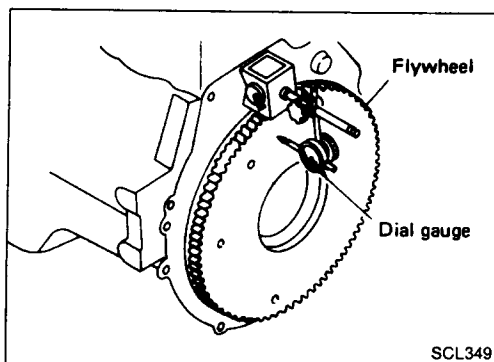
FLYWHEEL INSPECTION

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

Runout (Total indicator reading):

Flywheel

Less than 0.15 mm (0.0059 in)

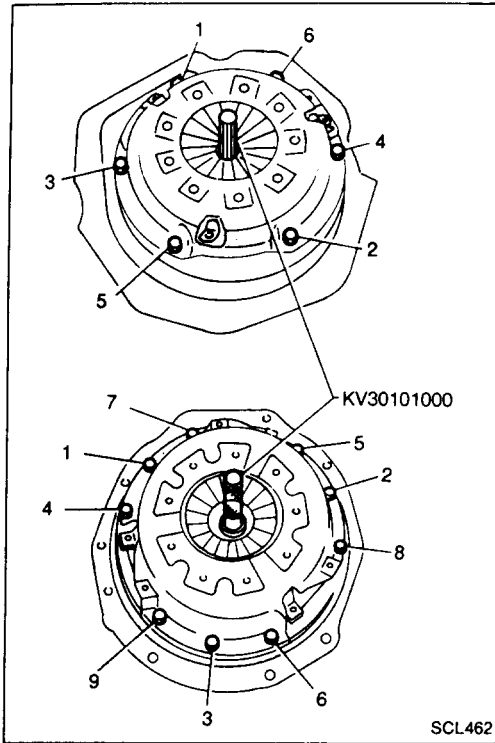


CLUTCH DISC AND CLUTCH COVER

Clutch Cover and Flywheel (Cont'd)

INSTALLATION

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



SERVICE DATA AND SPECIFICATIONS (S.D.S.)

General Specifications

CLUTCH CONTROL SYSTEM

Engine	Except for SR20DET	SR20DET
Type of clutch control	Mechanical	Hydraulic

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)

Engine	E10S, GA13DS, GA14DS	GA16DS (2WD), GA16DE, CD17	CD20	GA16DS (4WD)	SR20DE	SR20DET
Model	180CBL	190TBL	200TBL		215TBL	240LTD
Facing size (Outer dia. x inner dia. x thickness)	180 x 125 x 3.5 (7.09 x 4.92 x 0.138)	190 x 132 x 3.5 (7.48 x 5.20 x 0.138)	200 x 130 x 3.5 (7.87 x 5.12 x 0.138)		215 x 140 x 3.5 (8.46 x 5.51 x 0.138)	240 x 160 x 3.5 (9.45 x 6.30 x 0.138)
Thickness of disc assembly with load	8.0 - 8.4 (0.315 - 0.331) with 3,923 N (400 kg, 882 lb)			7.7 - 8.1 (0.303 - 0.319) with 3,923 N (400 kg, 882 lb)	7.6 - 8.0 (0.299 - 0.315) with 3,923 N (400 kg, 882 lb)	7.9 - 8.3 (0.311 - 0.327) with 4,904 N (500 kg, 1,103 lb)

CLUTCH COVER

Engine	E10S	GA13DS, GA14DS	GA16DS (2WD)	GA16DE	CD17	CD20, GA16DS (4WD)	SR20DE	SR20DET
Model	C180S		C190S			C200S	C215S	C240S
Full-load N (kg, lb)	2,746 (280, 617)	3,236 (330, 728)	3,432 (350, 772)	3,825 (390, 860)	2,844 (290, 639)	3,481 (355, 783)	4,413 (450, 992)	5,688 (580, 1,279)

SERVICE DATA AND SPECIFICATIONS (S.D.S.)

Inspection and Adjustment

CLUTCH PEDAL

Unit: mm (in)

Applied model	2WD		4WD	
	R.H.D.	L.H.D.	GA16DS engine models	SR20DET engine models
Pedal height*	159 - 169 (6.26 - 6.65)	150 - 160 (5.91 - 6.30)	162 - 172 (6.38 - 6.77)	159 - 169 (6.26 - 6.65)
Pedal free play "A ₁ " (Backlash at clevis)	—			1 - 3 (0.04 - 0.12)
Pedal free travel "A ₂ "	10.8 - 15.1 (0.425 - 0.594)			—
Withdrawal lever play "B"	2.5 - 3.5 (0.098 - 0.138)			—

*: Measured from surface of melt sheet to surface of pedal pad.

CLUTCH DISC

Unit: mm (in)

Disc model	180CBL	190TBL	200TBL	215TBL	240LTD
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 hub center)	85 (3.35)	90 (3.54)	95 (3.74)	102.5 (4.04)	115 (4.53)
Maximum backlash of spline (at outer edge of disc)	0.7 (0.028)	0.8 (0.031)	0.8 (0.031)	0.9 (0.035)	1.0 (0.039)

CLUTCH COVER

Unit: mm (in)

Cover model	C180S	C190S		C200S	C215S	C240S
Diaphragm spring height	29 - 31 (1.14 - 1.22)	29 - 31 (1.14 - 1.22)	31 - 33 (1.22 - 1.30)*	31 - 33 (1.22 - 1.30)	30.5 - 32.5 (1.201 - 1.280)	37.5 - 39.5 (1.476 - 1.555)
Uneven limit of diaphragm spring toe height "A"	1.0 (0.039)	0.7 (0.028)				0.5 (0.020)

*: For models with CD17 engine