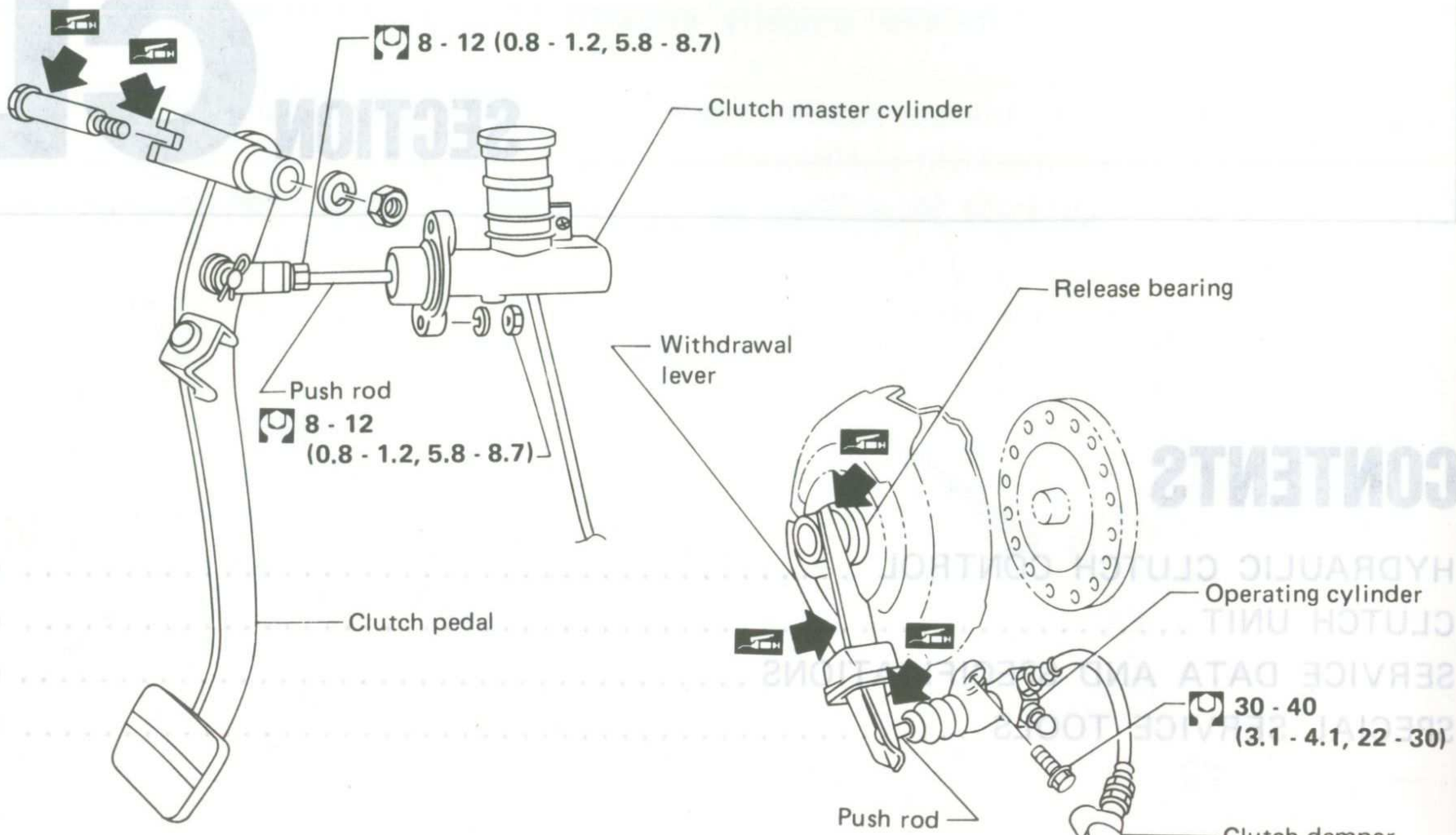
CLUTCH

SECTION CL

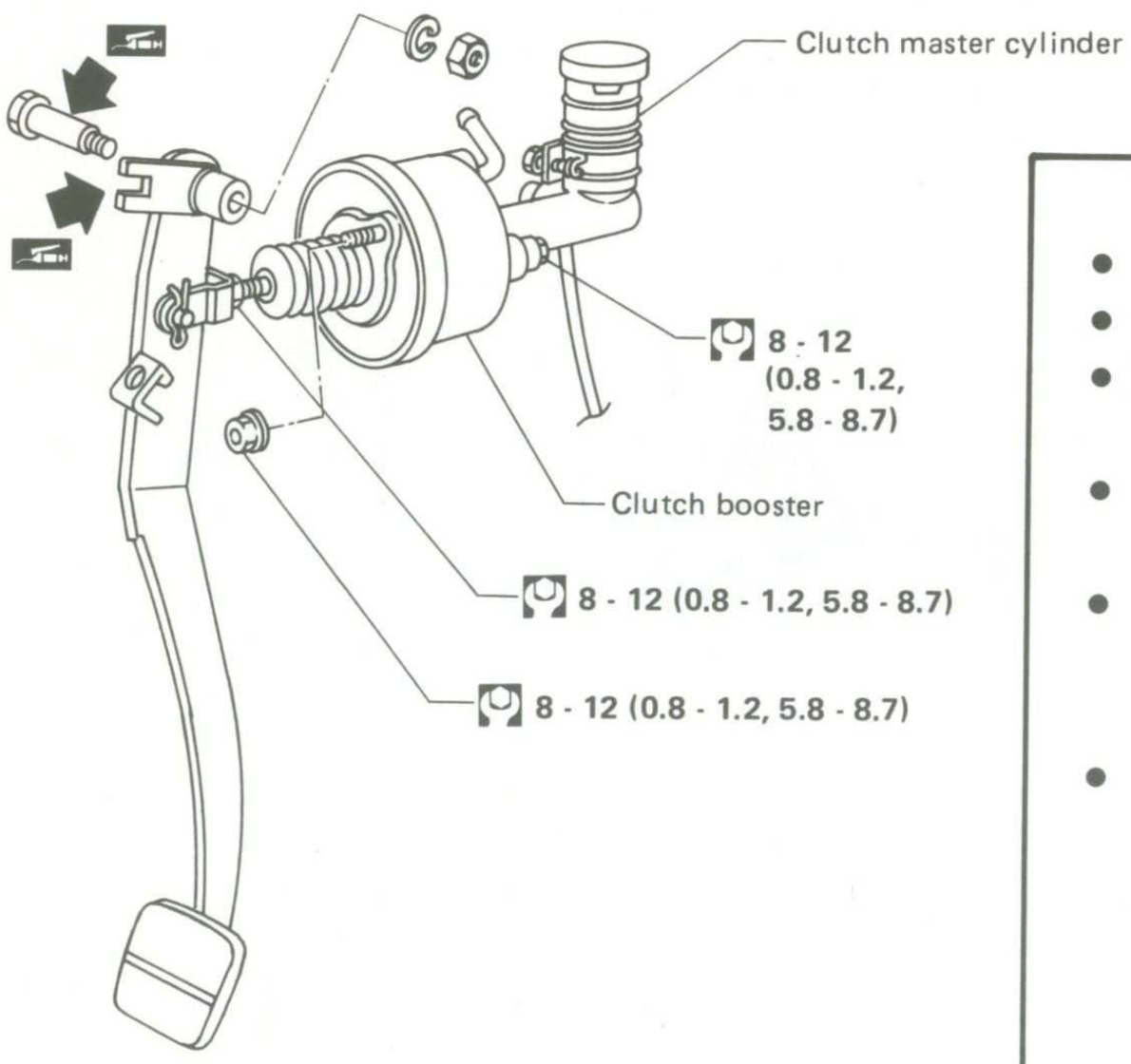
CONTENTS

HYDRAULIC CLUTCH CONTROL

Without clutch booster



With clutch booster



: N·m (kg-m, ft-lb)

SCL184

Precautions

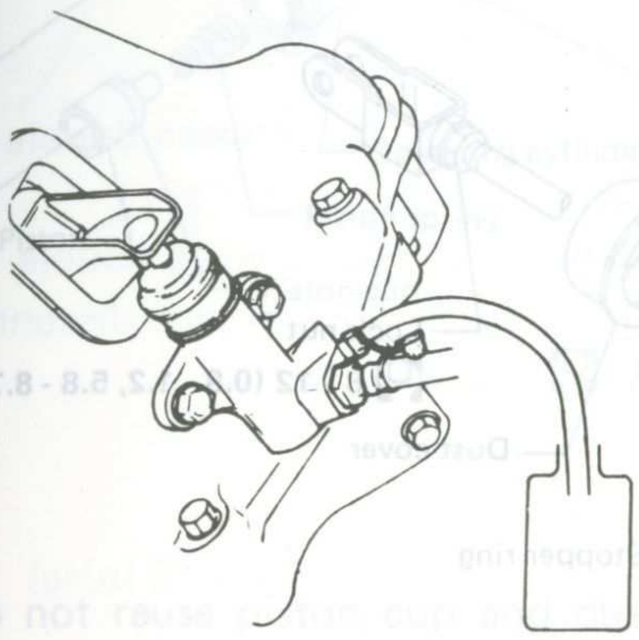
- Recommended fluid is brake fluid "DOT 3".
- Do not reuse drained brake fluid.
- Be careful not to splash brake fluid on painted areas.
- When removing and installing clutch tube, use Tool GG94310000.
- To clean or wash all parts of master cylinder, operating cylinder and clutch damper, clean brake fluid must be used.
- Never use mineral oils such as gasoline or kerosene. It will ruin the rubber parts of the hydraulic system.

HYDRAULIC CLUTCH CONTROL

Bleeding Procedure

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

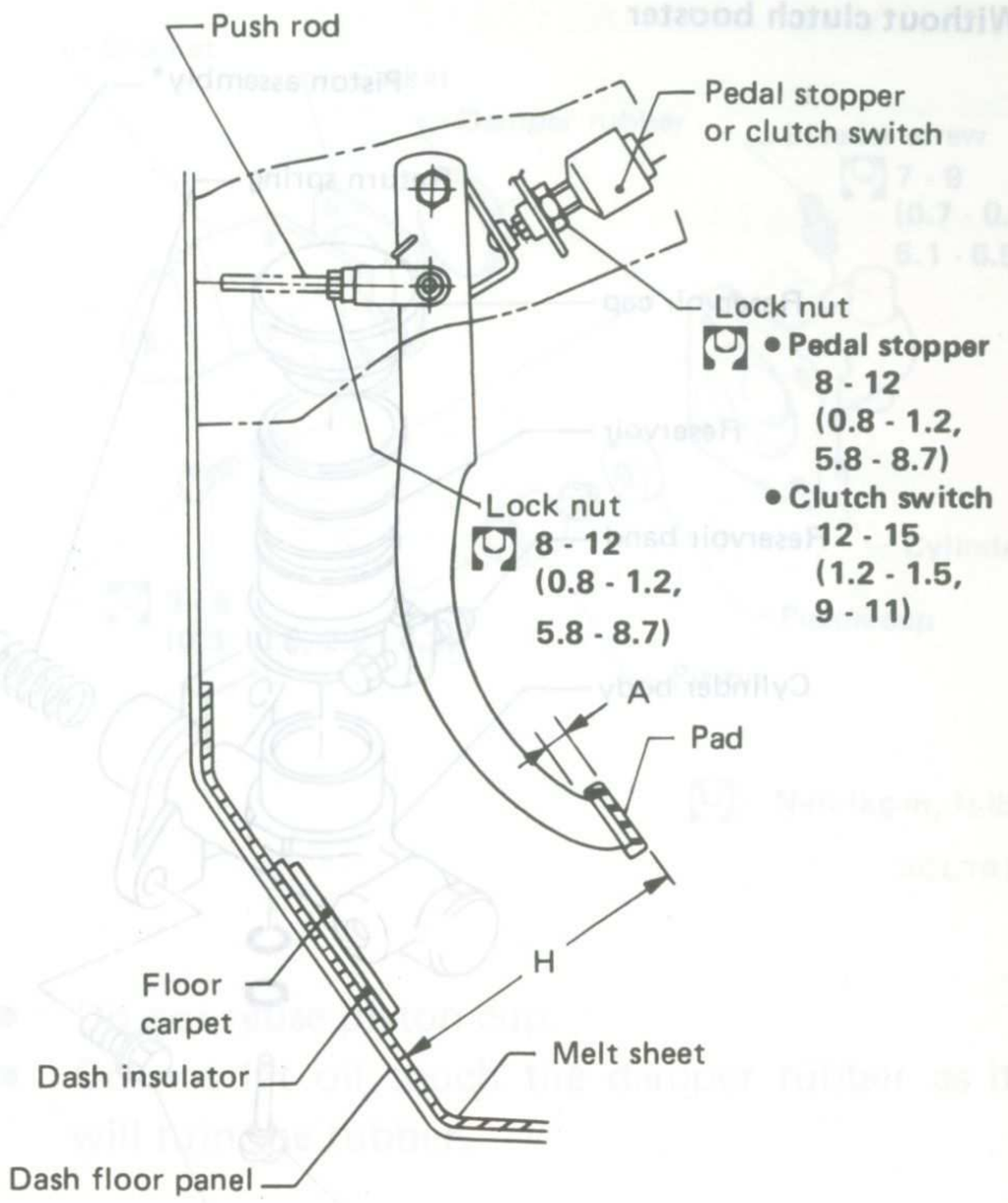
1. Top up reservoir with recommended brake fluid.
2. Connect a transparent vinyl tube to air bleeder valve of operating cylinder.



SCL009

3. Fully depress clutch pedal several times.
4. With clutch pedal depressed, open bleeder valve to release air.
5. Close bleeder valve.
6. Repeat steps 3 through 5 above until clear brake fluid comes out of air bleeder valve.

Adjusting Clutch Pedal



: N·m (kg-m, ft-lb)

SCL162

Pedal height "H"

195 - 205 mm (7.68 - 8.07 in)

Pedal free play "A"

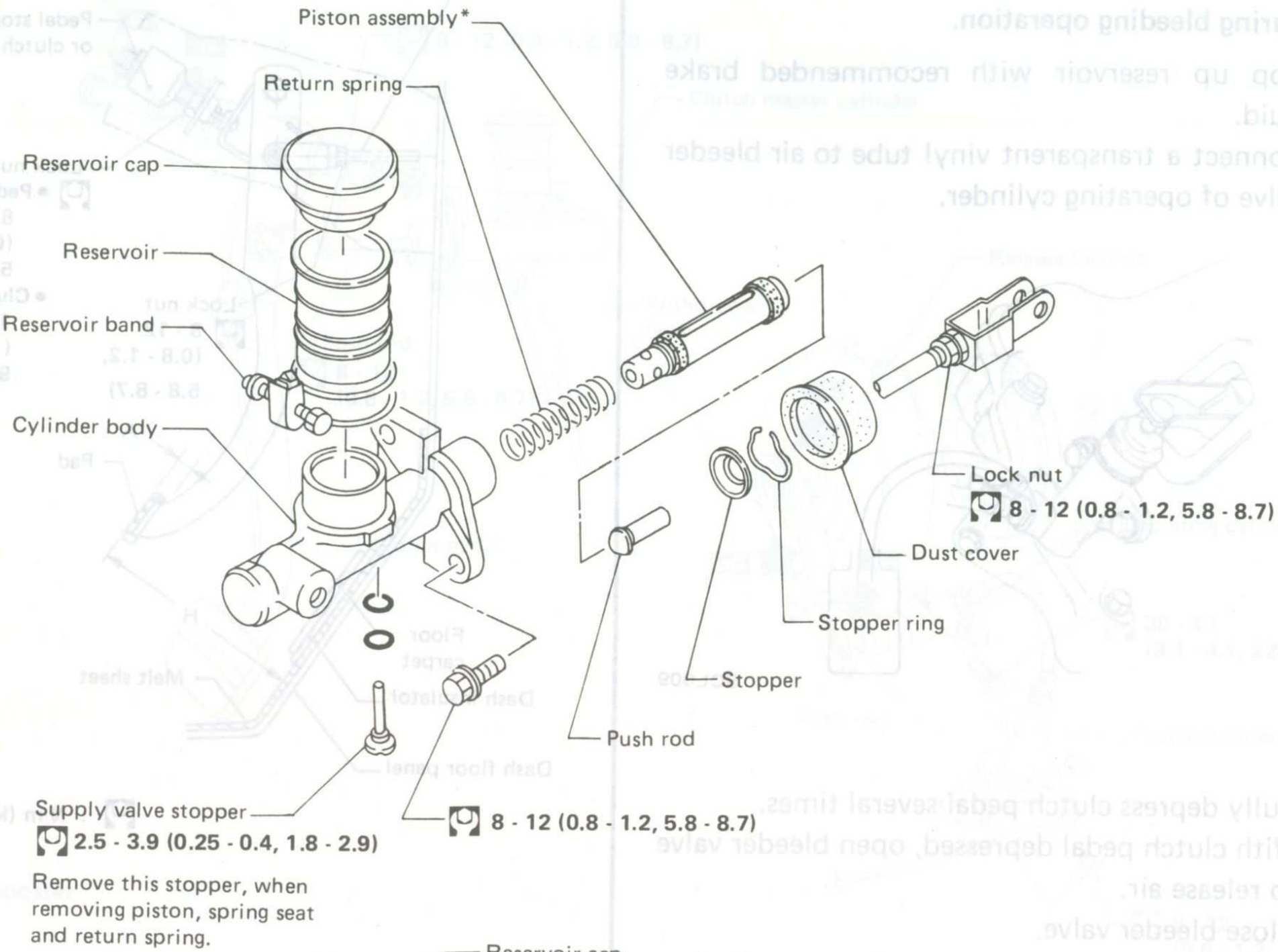
1 - 3 mm (0.04 - 0.12 in)

1. Adjust pedal height with pedal stopper or clutch switch.
2. Adjust pedal free play with push rod.

HYDRAULIC CLUTCH CONTROL

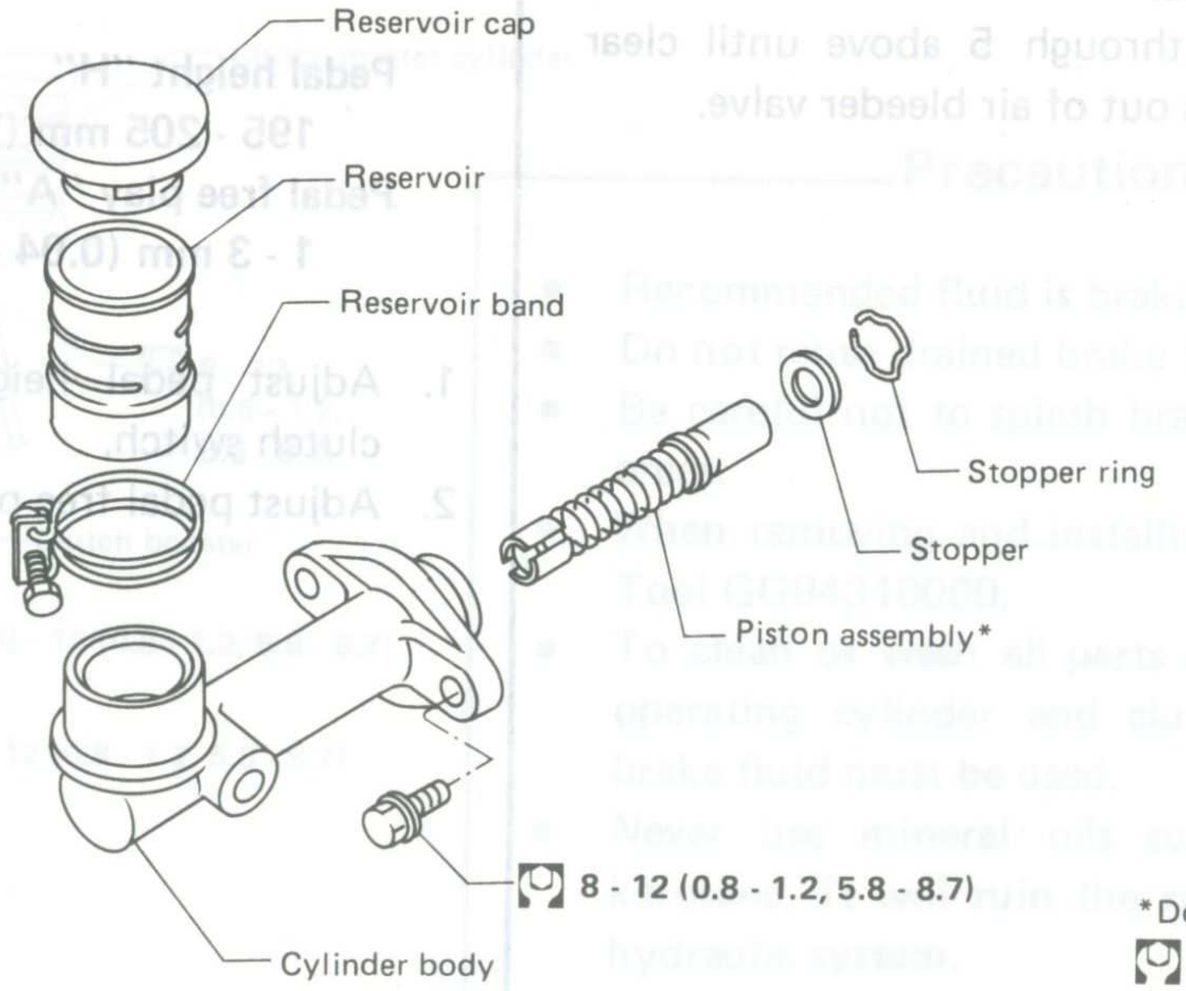
Clutch Master Cylinder

Without clutch booster



Remove this stopper, when removing piston, spring seat and return spring.

With clutch booster



*Do not reuse it after removal.

: N·m (kg-m, ft-lb)

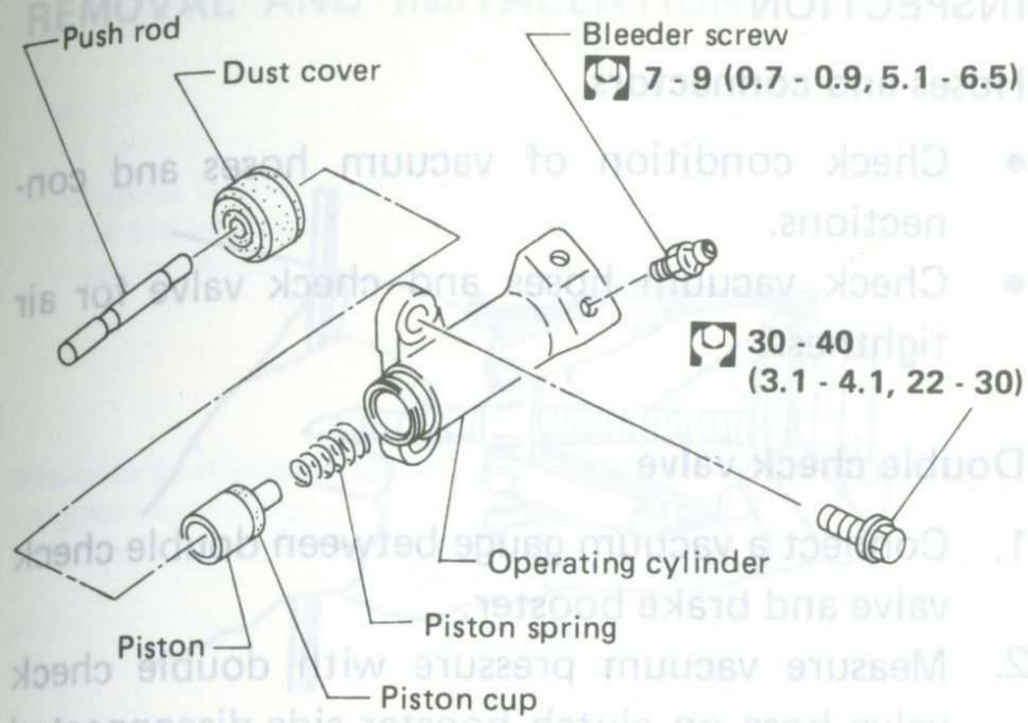
SCL185

INSPECTION

- Check parts for wear or damage. Replace if any of above conditions are observed.

HYDRAULIC CLUTCH CONTROL

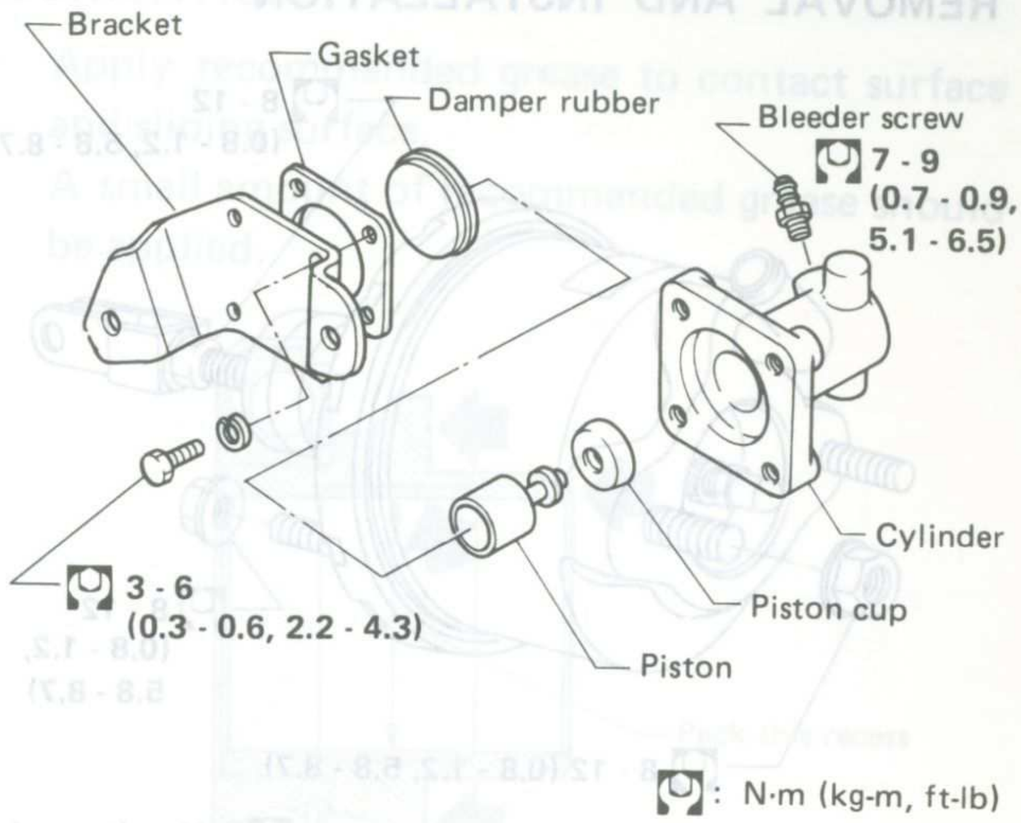
Operating Cylinder



SCL186

- Do not reuse piston cup and dust cover after removal.

Clutch Damper



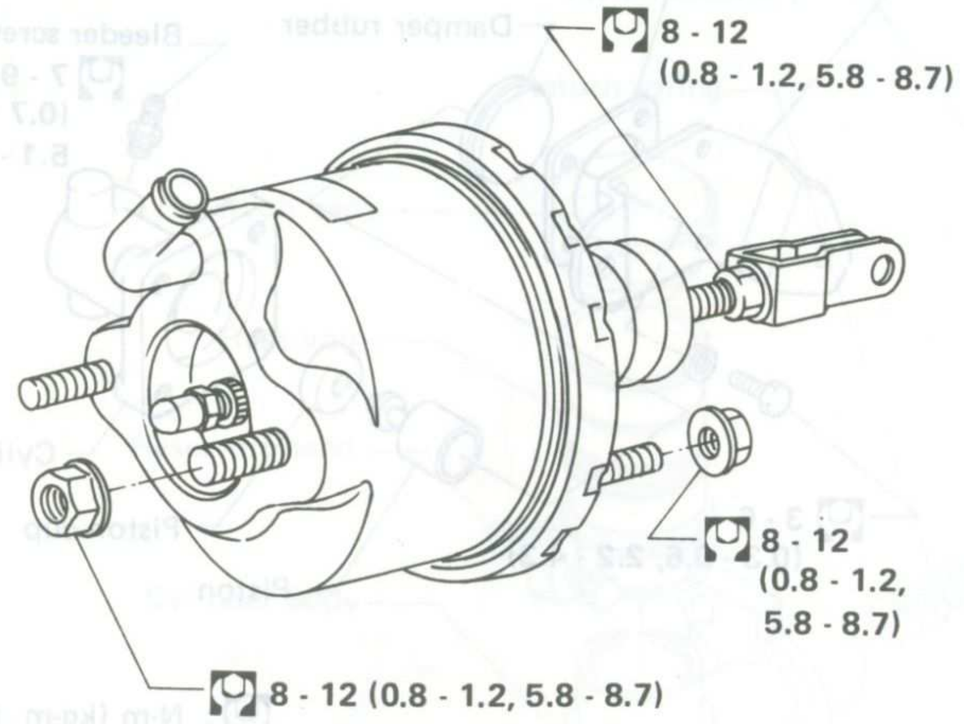
SCL187

- Do not reuse piston cup.
- Do not let oil touch the damper rubber as it will ruin the rubber.

HYDRAULIC CLUTCH CONTROL

Clutch Booster

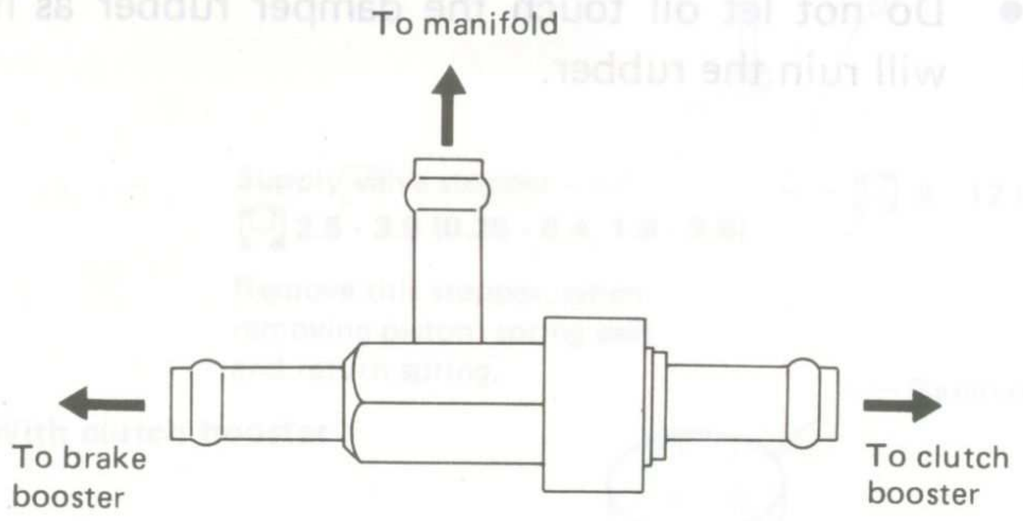
REMOVAL AND INSTALLATION



: N·m (kg-m, ft-lb)

SCL188

- Double check valve



SCL189

INSPECTION

Hoses and connectors

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

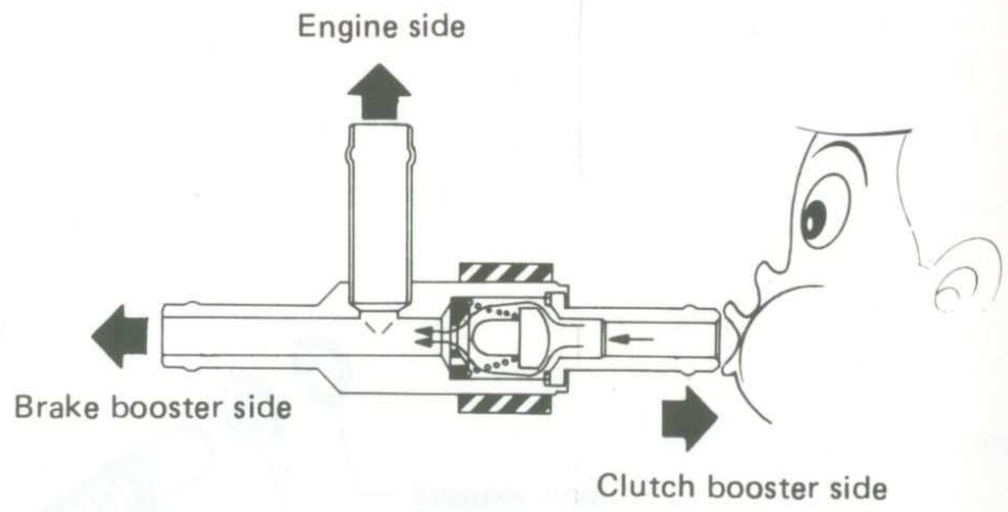
Double check valve

1. Connect a vacuum gauge between double check valve and brake booster.
2. Measure vacuum pressure with double check valve hose on clutch booster side disconnected and with engine at idle.

   Vacuum pressure:
   More than 53.3 kPa
   (533 mbar, 400 mmHg, 15.75 inHg)

If necessary, replace double check valve.

3. When pressure is applied to the clutch booster side of check valve as shown below and valve does not open, replace check valve with a new one.

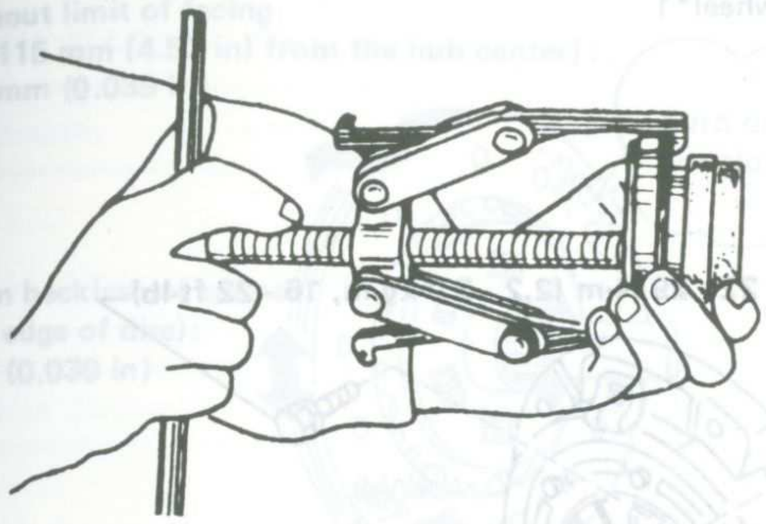


SCL190

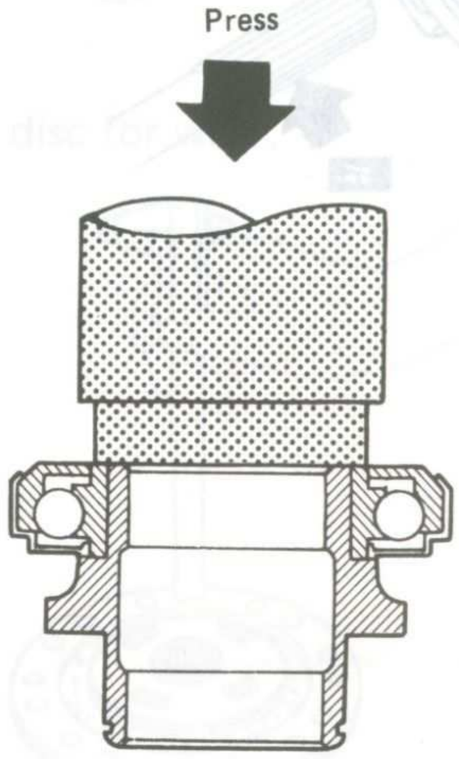
HYDRAULIC CLUTCH CONTROL

Release Bearing

REMOVAL AND INSTALLATION



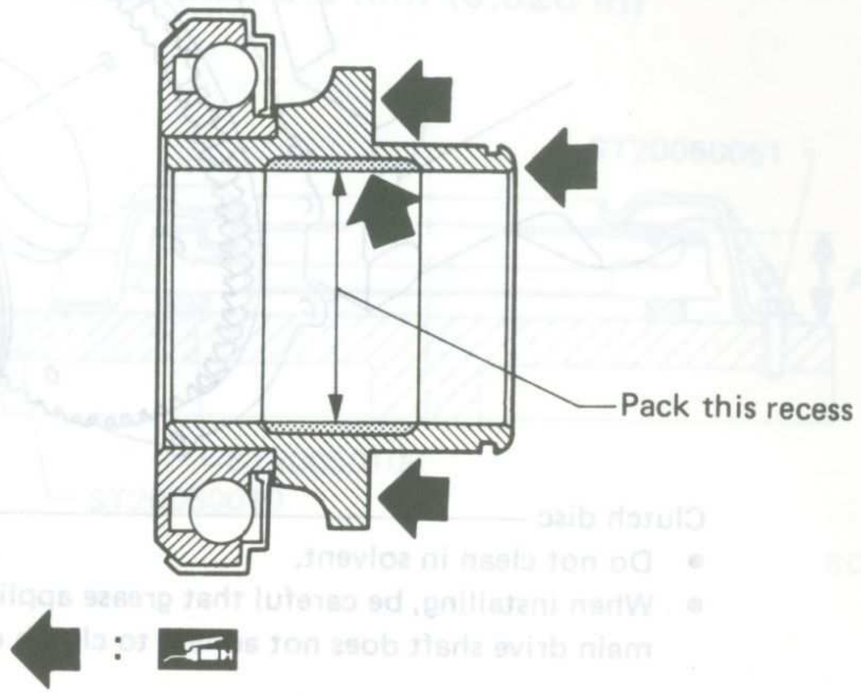
CL145



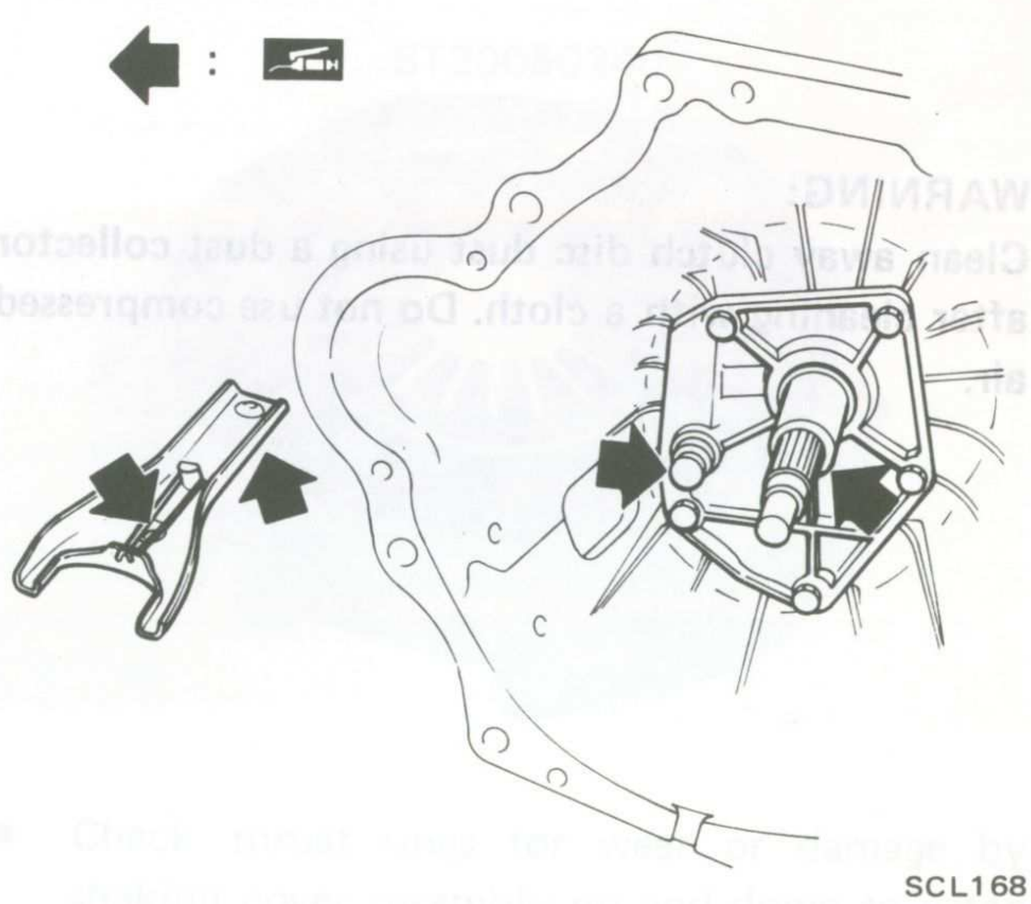
SCL166

LUBRICATION

- Apply recommended grease to contact surface and sliding surface.
- A small amount of recommended grease should be applied.



SCL167

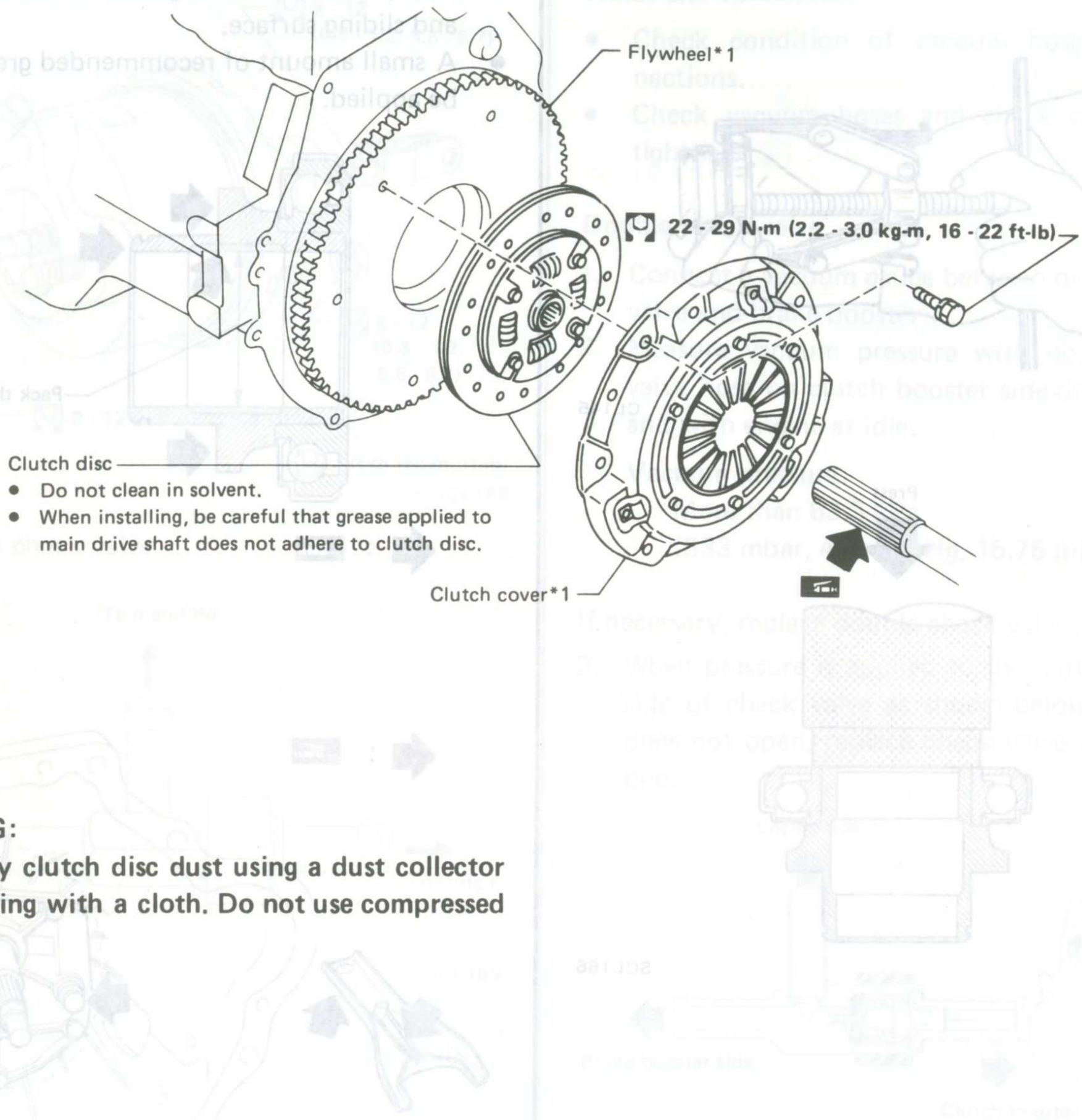


SCL168

CLUTCH UNIT

Clutch Unit

*1: Slight burn or discoloration of contact surface with clutch disc can be fixed by polishing with emery paper.



- Do not clean in solvent.
- When installing, be careful that grease applied to main drive shaft does not adhere to clutch disc.

WARNING:

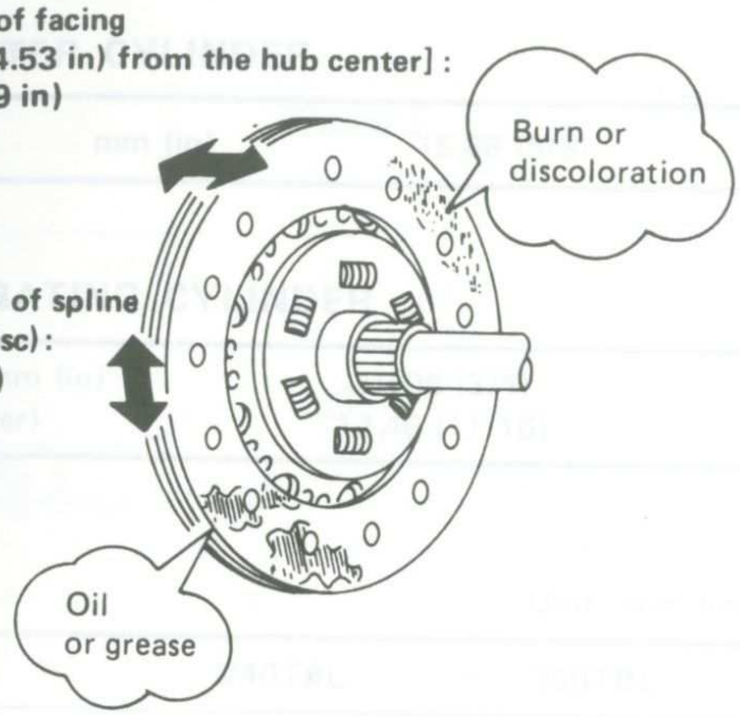
Clean away clutch disc dust using a dust collector after cleaning with a cloth. Do not use compressed air.

CLUTCH UNIT

Inspecting Clutch Disc

Check clutch disc for runout, etc.

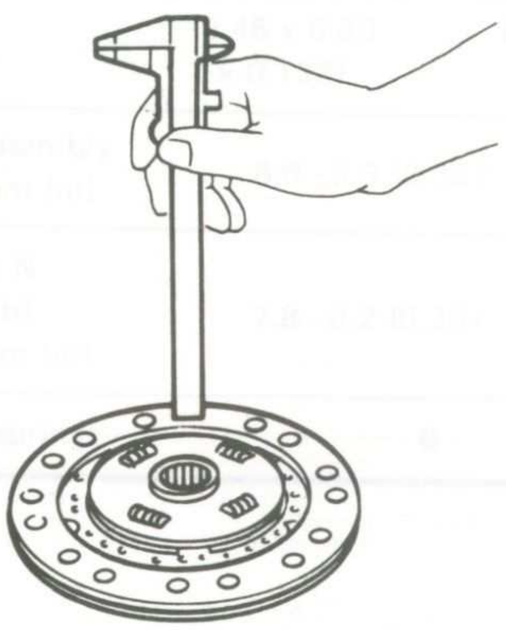
Runout limit of facing
[at 115 mm (4.53 in) from the hub center] :
1.0 mm (0.039 in)



Maximum backlash of spline
(at outer edge of disc) :
1.0 mm (0.039 in)

SCL153

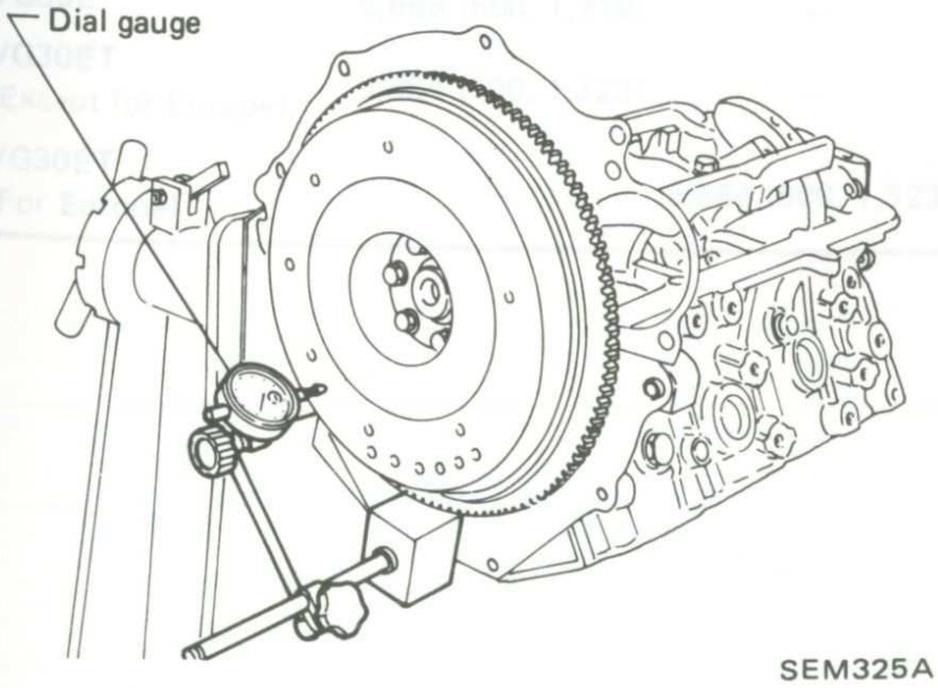
Check clutch disc for wear.



- **Measure the depth of rivet head.**
  More than 0.3 mm (0.012 in)

SCL169

Check flywheel runout.



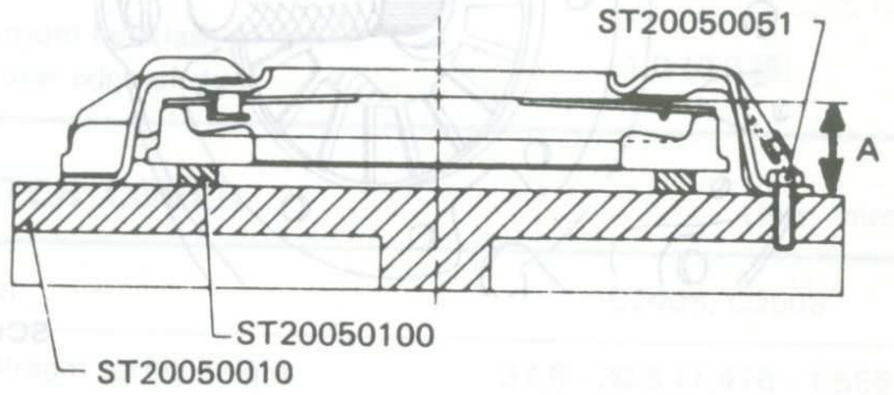
SEM325A

Runout (Total indicator reading):
Less than 0.15 mm (0.0059 in)

Inspecting Clutch Cover

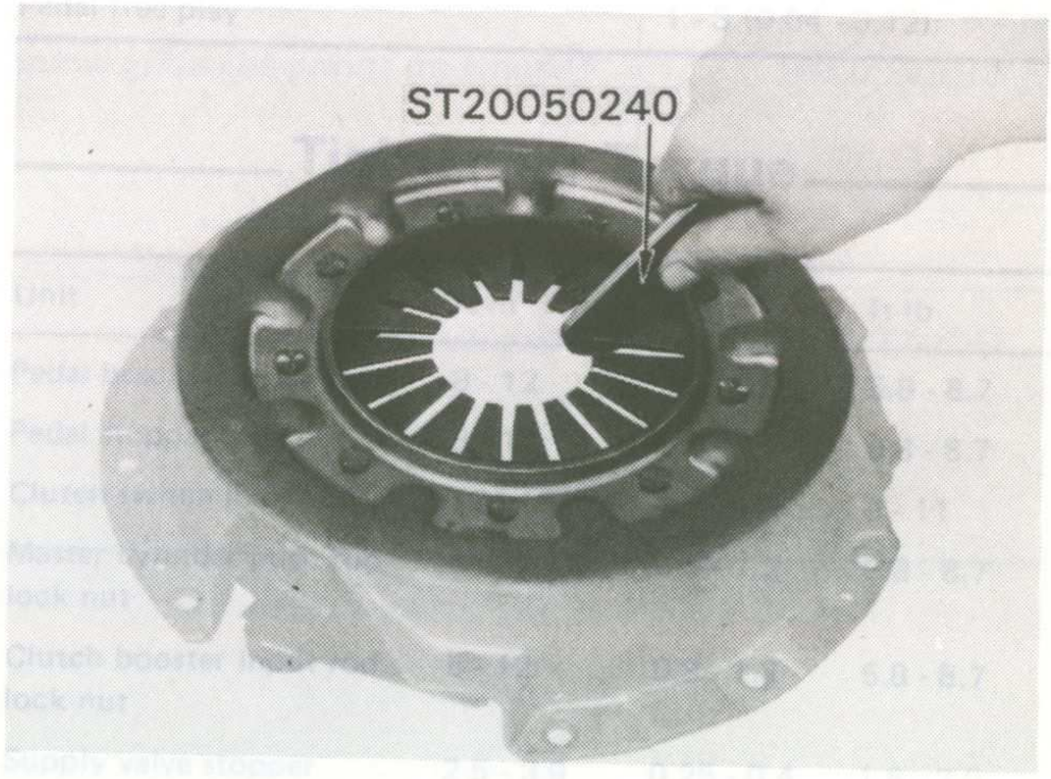
- Check height and unevenness of diaphragm spring after setting Tool.

Diaphragm spring height "A":
37.5 - 39.5 mm (1.476 - 1.555 in)
Unevenness:
Less than 0.5 mm (0.020 in)



SCL155

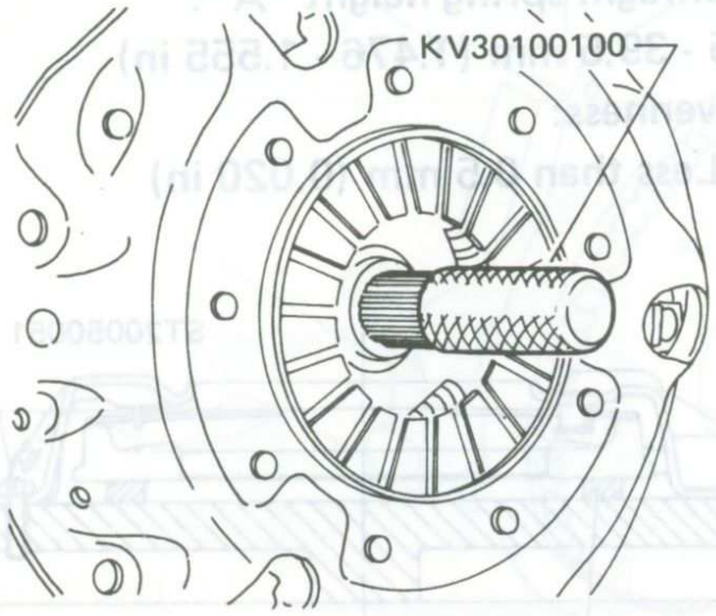
- Adjust unevenness of diaphragm spring with Tool.



- 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.

Installing Clutch Cover

- Insert Tool into clutch disc hub when installing clutch cover and disc.



SCL170

SERVICE DATA AND SPECIFICATIONS

General Specifications

CLUTCH CONTROL SYSTEM

Type of clutch control	Hydraulic

CLUTCH MASTER CYLINDER

Inner diameter	mm (in)	15.88 (5/8)

CLUTCH OPERATING CYLINDER

Inner diameter mm (in) (With clutch booster)	19.05 (3/4) 17.46 (11/16)

CLUTCH DISC

Unit: mm (in)

Model	240TBL	250TBL
Engine	VG30E VG30ET*1	VG30ET*2
Facing size	240 x 160 x 3.5 (9.45 x 6.30 x 0.138)	250 x 160 x 3.5 (9.84 x 6.30 x 0.138)
Thickness of disc assembly Free mm (in)	8.6 - 9.3 (0.339 - 0.366)	
With load 5,884 N (600 kg, 1,323 lb) mm (in)	7.8 - 8.2 (0.307 - 0.323)	
Number of torsion springs	6	

*1 Except Europe
*2 For Europe

CLUTCH COVER

Model	C240S	C250S
Full load N (kg, lb)		
VG30E	5,688 (580, 1,279)	—
VG30ET (Except for Europe)	5,884 (600, 1,323)	—
VG30ET (For Europe)	—	5,884 (600, 1,323)

Inspection and Adjustment

CLUTCH DISC

Unit: mm (in)

Model	240TBL, 250TBL
Wear limit of facing surface to rivet head	0.3 (0.012)
Runout limit	1.0 (0.039)
Distance of runout checkpoint (from the hub center)	115 (4.53)
Maximum backlash of spline (at outer edge of disc)	1.0 (0.039)

CLUTCH COVER

Unit: mm (in)

Model	C240S, C250S
Diaphragm spring height	37.5 - 39.5 (1.476 - 1.555)
Unevenness of diaphragm spring toe height	Less than 0.5 (0.020)

CLUTCH PEDAL

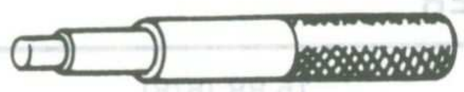
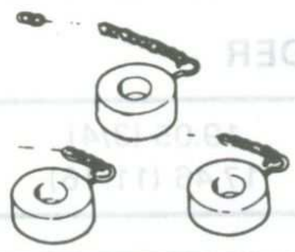
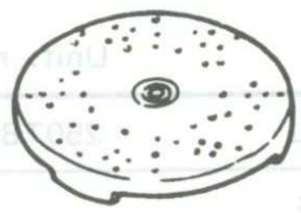
Unit: mm (in)

Pedal height	195 - 205 (7.68 - 8.07)
Pedal free play	1 - 3 (0.04 - 0.12)

Tightening Torque

Unit	N·m	kg-m	ft-lb
Pedal bracket securing nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Pedal stopper lock nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Clutch switch lock nut	12 - 15	1.2 - 1.5	9 - 11
Master cylinder push rod lock nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Clutch booster input rod lock nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Supply valve stopper	2.5 - 3.9	0.25 - 0.4	1.8 - 2.9
Master cylinder securing nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Clutch booster securing nut	8 - 12	0.8 - 1.2	5.8 - 8.7
Clutch tube flare nut	15 - 18	1.5 - 1.8	11 - 13
Bleeder screw	7 - 9	0.7 - 0.9	5.1 - 6.5
Operating cylinder securing nut	30 - 40	3.1 - 4.1	22 - 30
Clutch hose to operating cylinder securing nut	17 - 20	1.7 - 2.0	12 - 14
Damper bracket to cylinder bolt	3 - 6	0.3 - 0.6	2.2 - 4.3
Damper bracket to body	8 - 12	0.8 - 1.2	5.8 - 8.7
Clutch cover securing bolt	22 - 29	2.2 - 3.0	16 - 22

SPECIAL SERVICE TOOLS

Tool number	Tool name	
KV30100100	Clutch aligning bar	
ST20050100	Distance piece	
ST20050010	Base plate	
ST20050051	Set bolt	
ST20050240	Diaphragm spring adjusting wrench	
GG94310000	Flare nut torque wrench