

Clutch equipment

General

Main technical parameters

Clutch assembly

Clutch control equipment

Clutch master cylinder

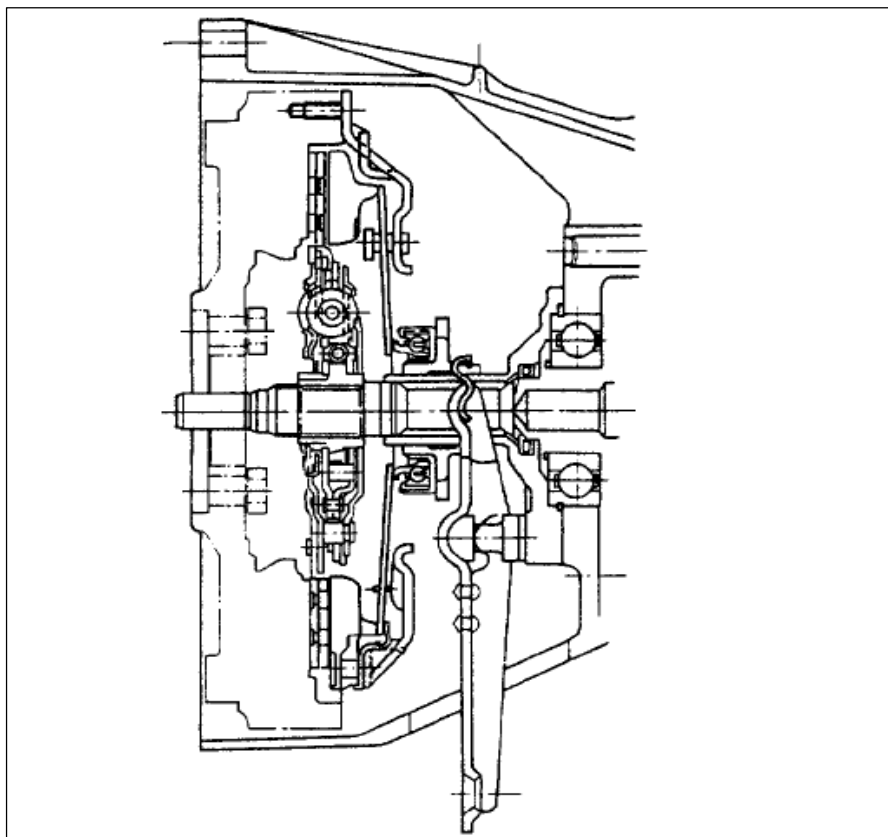
Clutch cylinder

Troubleshooting

Clutch

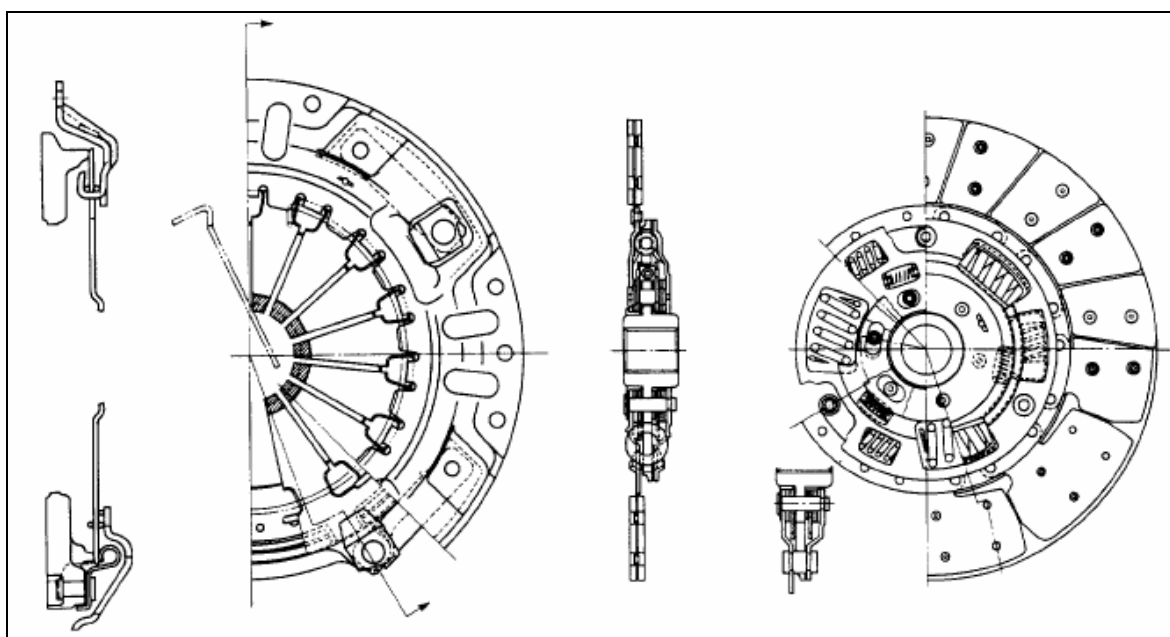
General

Clutch assembly



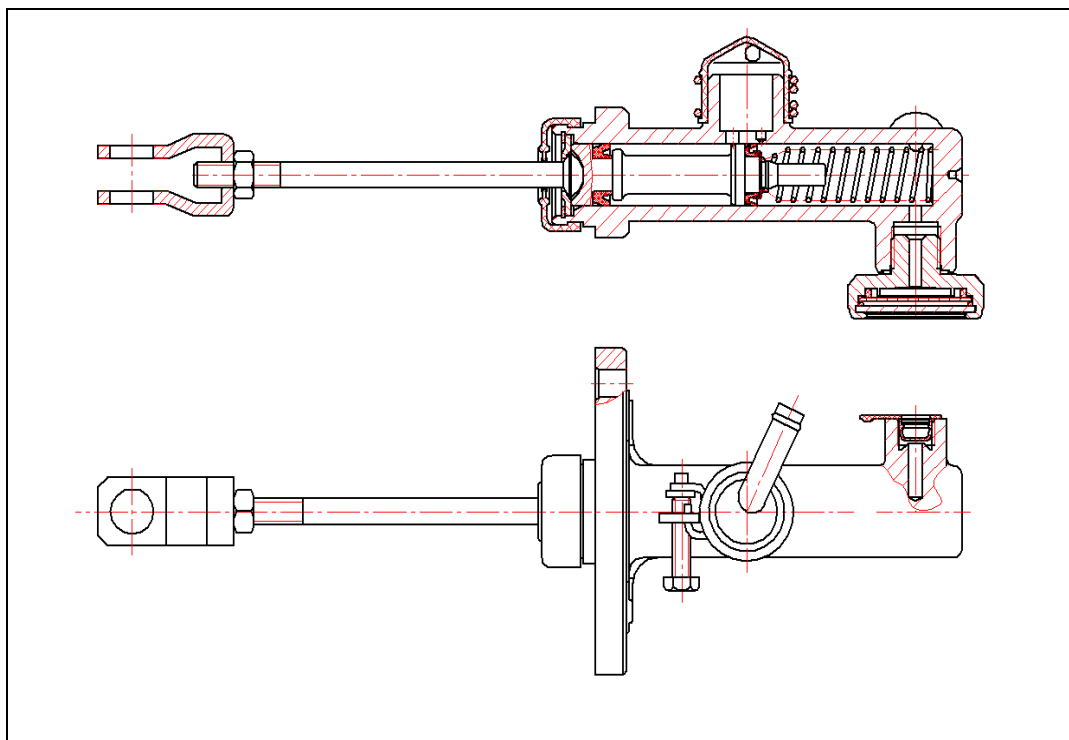
Clutch pressure plate assembly

Clutch slave disc assembly

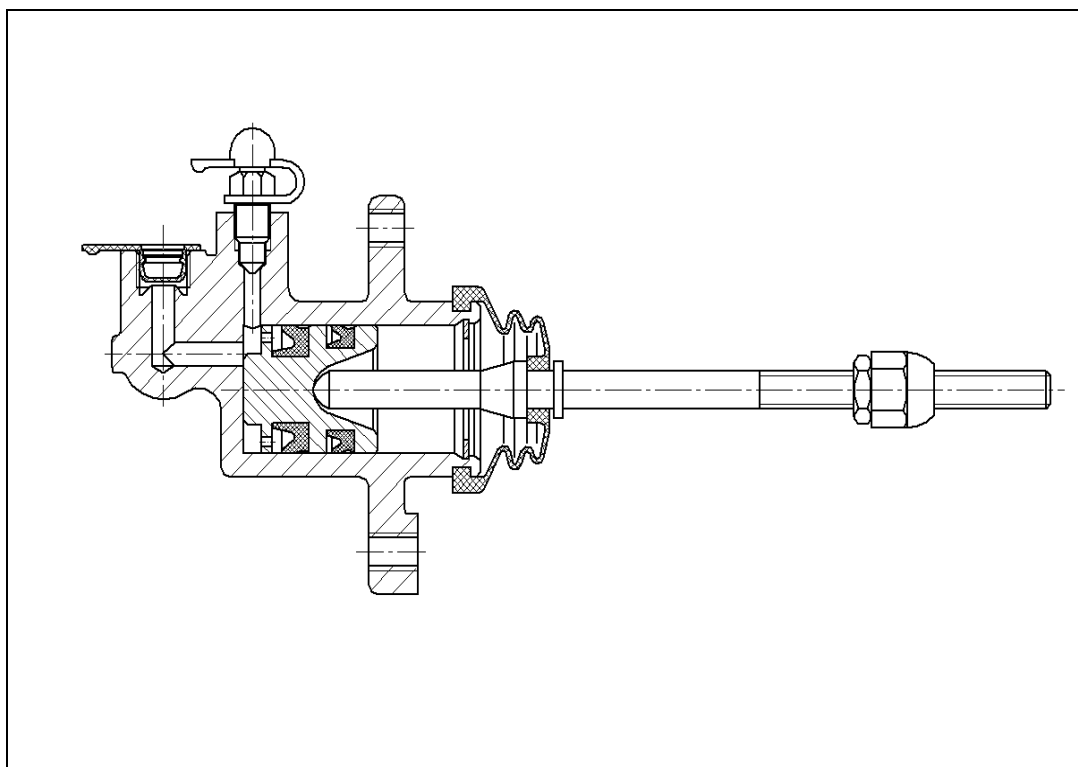


Clutch

Clutch master cylinder



Clutch cylinder



Clutch

Main technical parameters

Slave disc

Type	Dry single diaphragm type with damping spring
Size	Φ250mm
Quantity of damping springs	4

Friction disc

ID×OD	160×250
Quantity × thickness	2×3.5

Pressure plate

Type	Diaphragm spring
Max. pressing force	6276N

Hydraulic cylinder

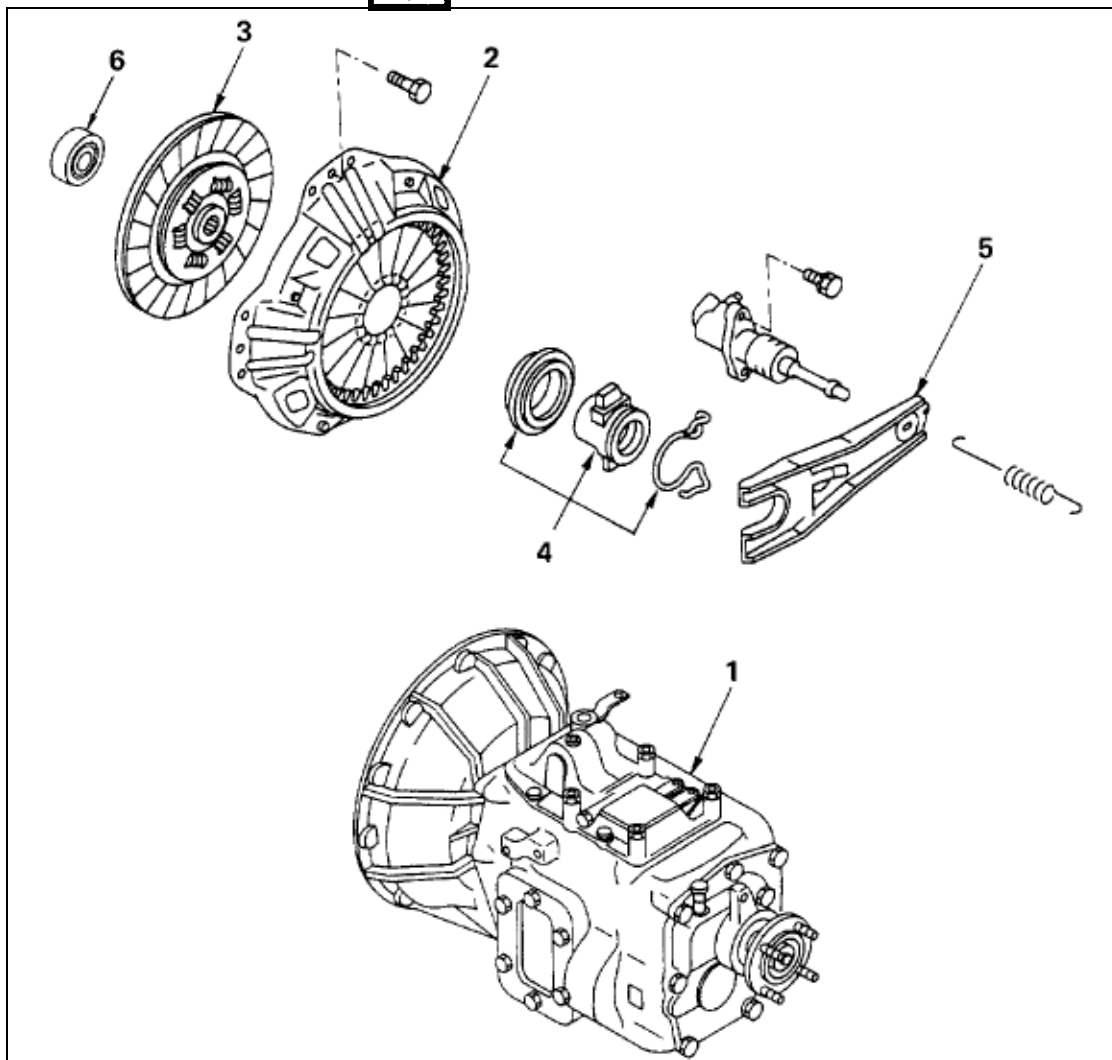
Clutch master cylinder bore × stroke	Φ19.05×35 (mm)
Clutch cylinder bore × stroke	Φ26.99×19.05 (mm)

Clutch

Clutch assembly



Disassembling drawing



Disassembling sequence

1. Transmission assembly; 2. Clutch pressure plate; 3. Clutch slave disc 4. Release sleeve;
5. Disengaging fork; 6. Guide bearing

Clutch

Steps of disassembling (according to sequence)

Jack up the vehicle and safely support it.

1. Remove transmission (for operations, refer to the transmission part of this manual)
2. Pressure plate assembly;
3. Slave disc assembly.

Use a guide axle to prevent free sipping and fall of slave disc assembly.

Make markings on flywheel and pressure plate, which shall be used for alignment during reassembling.

4. Remove **clutch release fork**.
5. Release sleeve assembly.

Remove release sleeve along with return spring.



Caution: Avoid flow of brake fluid onto painted surfaces during disassembling.

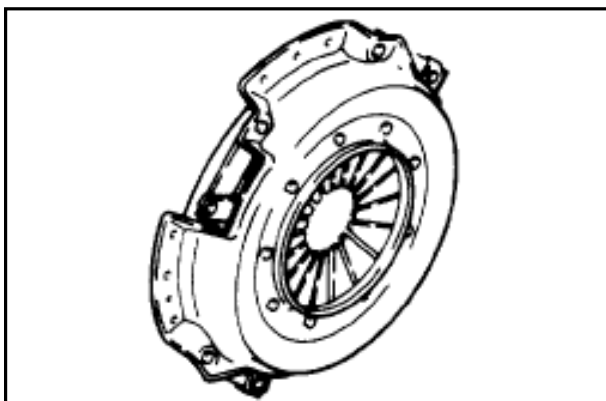
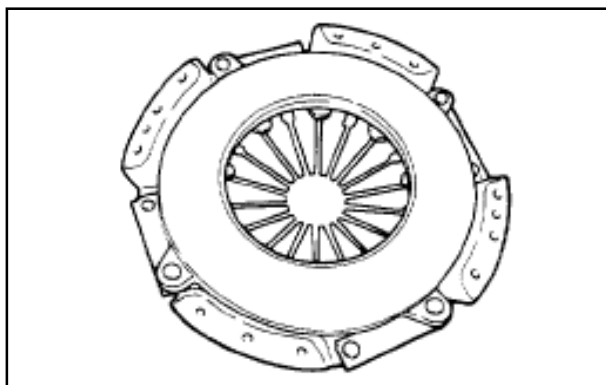
Immediately wipe out any such fluid on painted surfaces.



Inspection and repair

In case of excessive wear, damage or other fault found during inspection, make necessary adjustment and repair, or replace corresponding parts.

Clutch



Pressure plate assembly

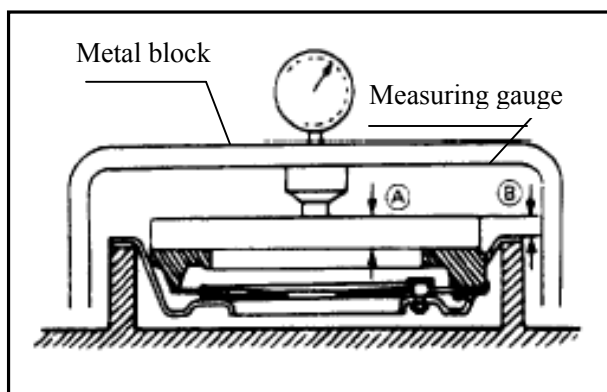
Perform visual inspection of pressure plate wear, thermal crack, bending deform. In case of excessive wear or bending deform, or too deep thermal crack, replace the pressure plate.

(Pressure plate deformation—— measure planeness of pressure plate friction face; replace pressure plate assembly if the limit value is exceeded. Limit: 0.3mm)



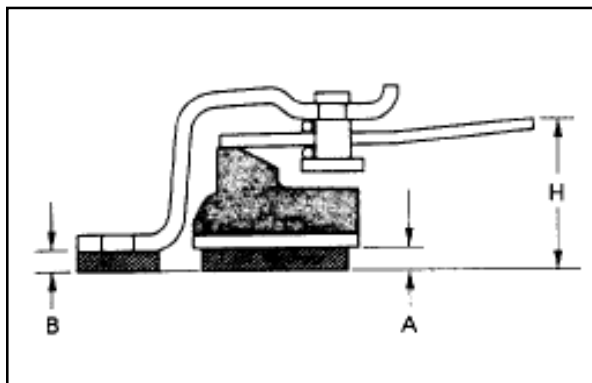
Clutch cover

Perform visual inspection of wear, crack or other damage of the whole clutch cover. Clutch cover with excessive wear, crack or other damage must be replaced.



Mounting pressing force

- 1) Put clutch pressure plate upside-down;
 - 2) Place an 8mm thick metal block on pressure plate;
 - 3) Press pressure plate down till distance "B" is 0mm.
 - 4) Record pressure reading on the gauge.
- Standard pressure: 6276N

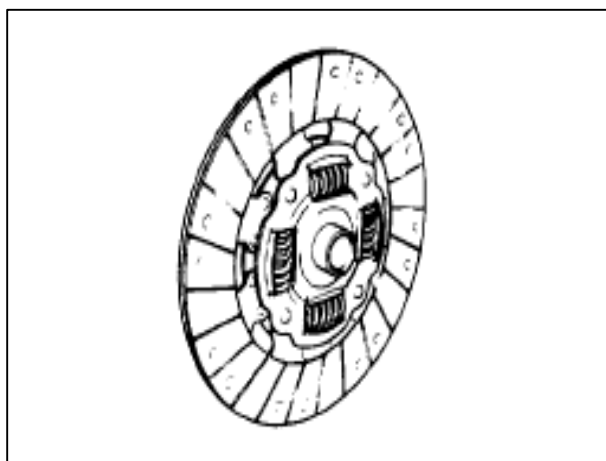


Height of diaphragm spring disengaging finger

- 1) Place an 8mm thick metal block under pressure plate
- 2) Press pressure plate down till distance "B" is 0mm. 2 methods can be used:
 - a. press top of pressure plate down;
 - b. tighten pressure plate mounting bolts.
- 3) Measure from base plane to disengaging finger end.

Standard height: 40±1mm

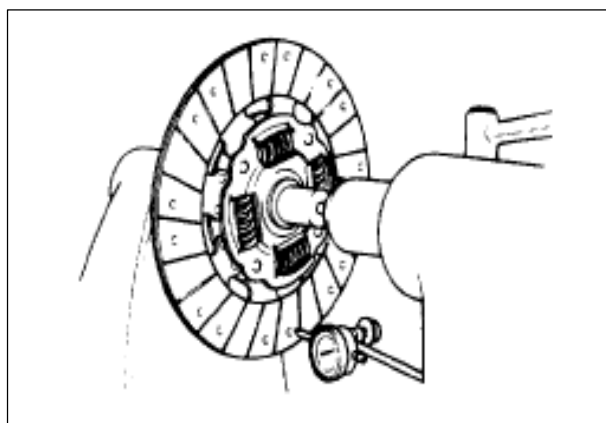
Clutch



Slave disc assembly

Visually check **torsion spring** for looseness, softening and cracking; in case of any of these, replace slave disc assembly.

Visually check friction surface for crack, grease or excessive charring; in case of any of these, clean or replace slave disc assembly. Check if this assembly can move smoothly on transmission first shaft spline.



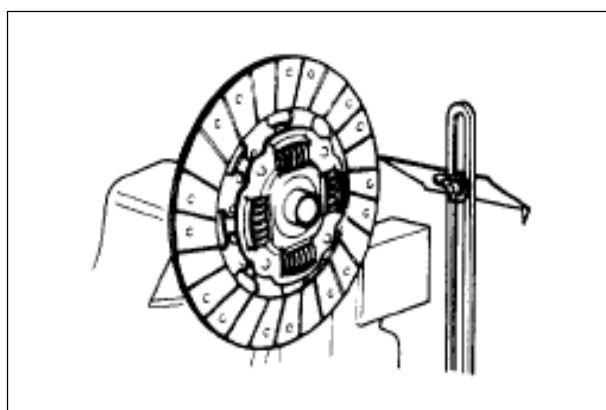
Deform of slave disc

Insert guide axle in spline hub.

Guide axle must be kept very smooth and straight. Fit a scale gauge on slave disc outer circle and slowly rotate slave disc assembly to obtain reading on the gauge.

If measured value exceeds a limit, replace slave disc assembly.

Limit value: 1.0mm



Wear of slave disc spline hub

Clean insides of spline hub.

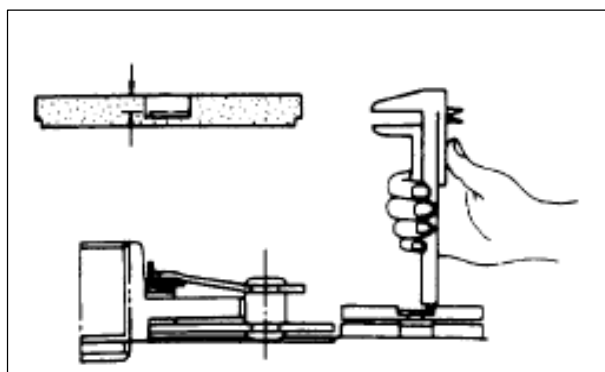
Fit slave disc on transmission 1st shaft spline.

Fit a surface measuring instrument on outer circle of slave disc. Slowly rotate slave disc and measure change of outer circle.

Replace slave disc assembly if measured value exceeds a limit.

Wear limit of slave disc spline hub: 1.0mm

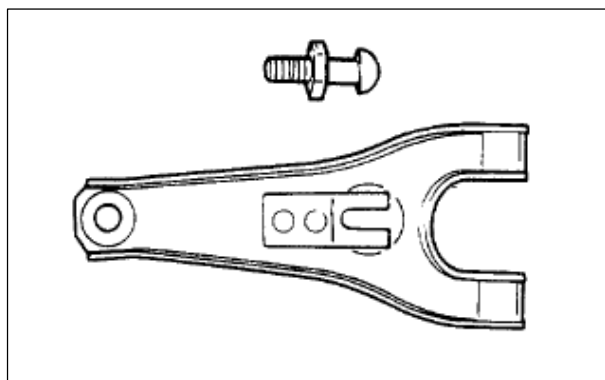
Clutch



Slave disc rivet head depth

Use a depth gauge to measure distance from rivet head to friction surface. Measure both sides. If measured value is less than a limit. Replace slave disc assembly.

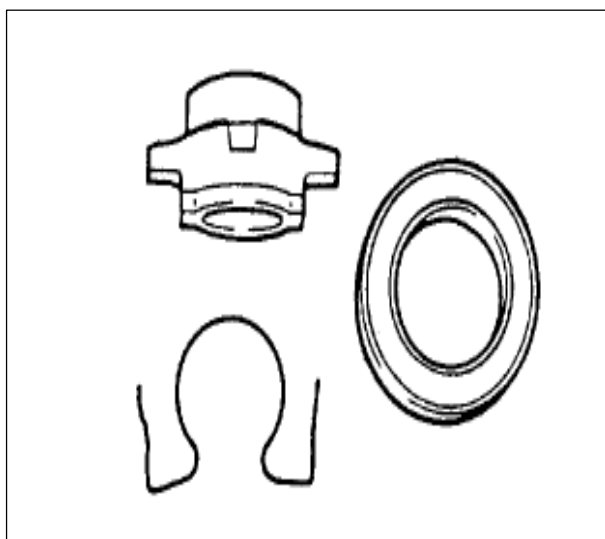
Rivet head depth limit: 0.2mm



Release yoke and support

Visually check surface of release yoke in contact with release sleeve and support.

Replace part in case of excessive wear or surface roughness.



Release sleeve assembly

Before disassembling release sleeve assembly, check wear and roughing of release sleeve assembly.

A. Surface of release bearing is rough or noise is heard in rotation when being lightly pressed.

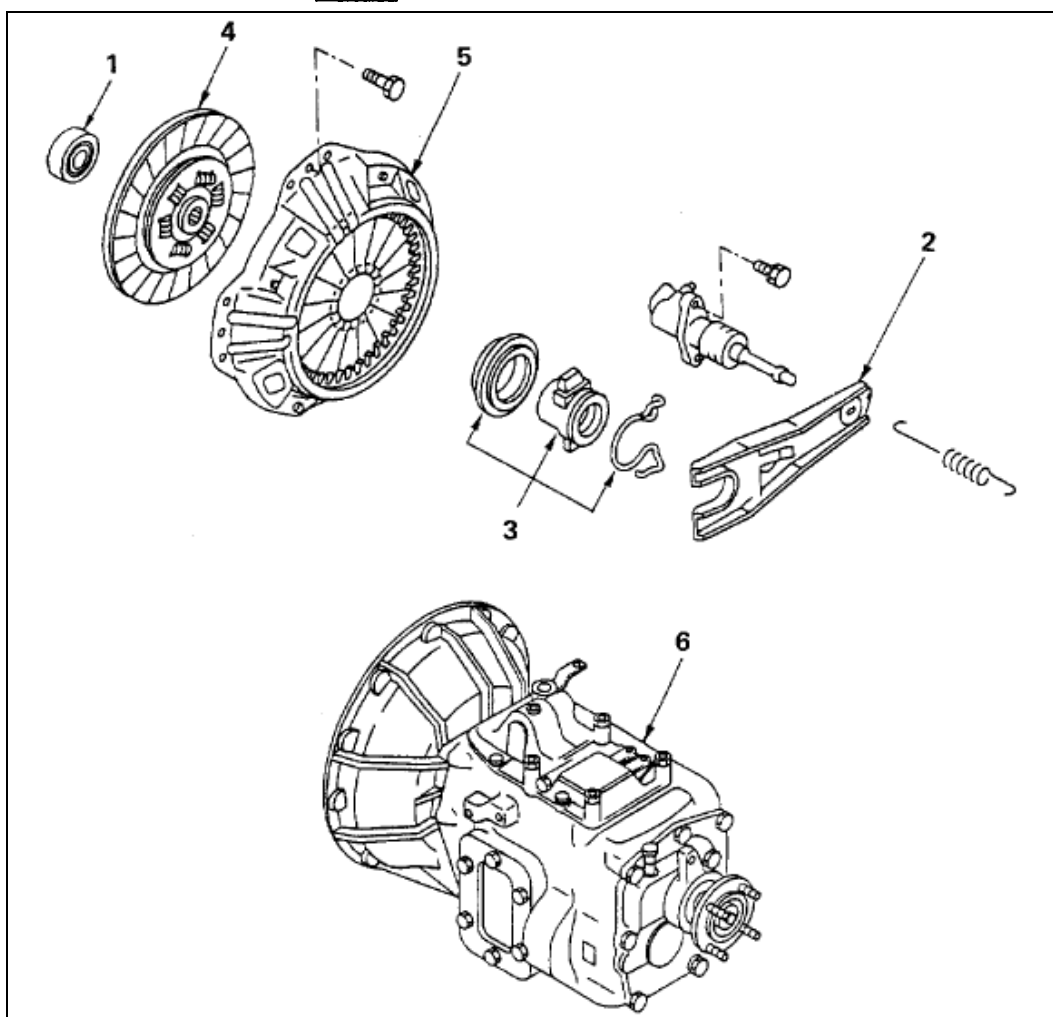
B. Surface is rough or damaged (surface in contact with release yoke and release bearing front cover face).

Warning: The release bearing is loaded with lubricant in advance. Do not place this bearing in solvent for cleaning, as this will dissolve the lubricant. Note that do not disassemble the release sleeve if there is no problem. Visually check return spring for cracking and softening. Part replacement is required in case of such situations.

Clutch



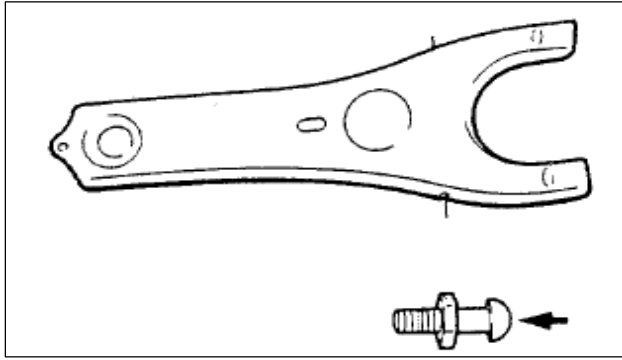
Reassembling



Sequence of reassembling

1. Guide bearing; 2. Clutch release fork; 3. Release sleeve assembly; 4. Slave disc assembly;
5. Pressure plate assembly; 6. Transmission

Clutch



Reassembling steps

1. Release yoke

Apply Supramoly multi-purpose grease on surface of release yoke in contact with release sleeve assembly and support.

2. Release sleeve assembly

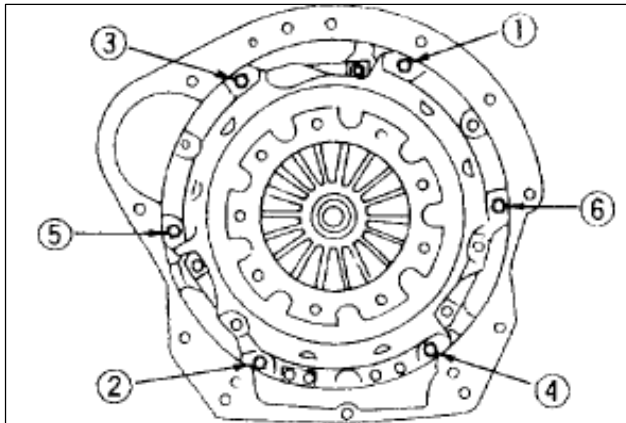
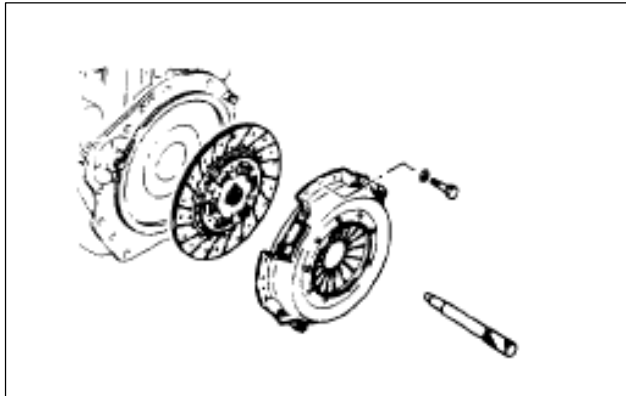
it release sleeve with return spring.

3. Slave disc assembly

4. Pressure plate assembly

Apply Supramoly multi-purpose grease inside slave disc spline hub.

Use guide axle to install slave disc assembly.



Tighten pressure plate mounting bolts in the sequence shown by numbers.

Tightening torque for pressure plate mounting bolts: 18N·m

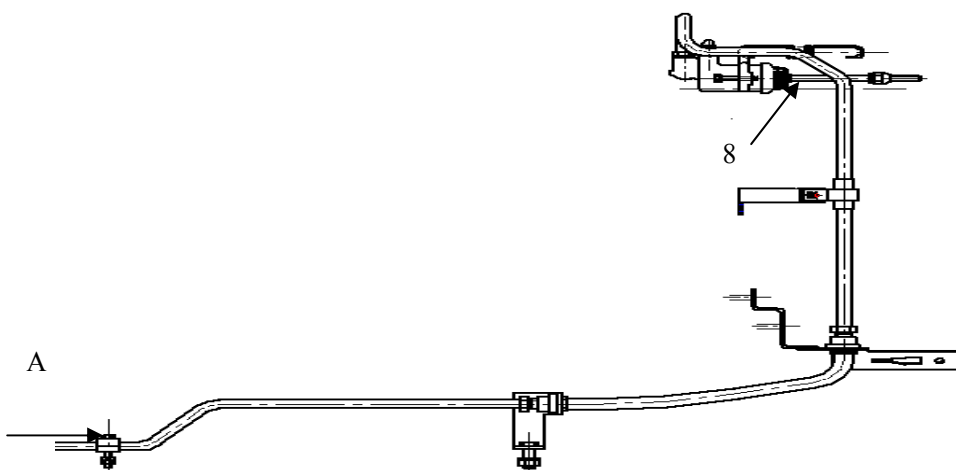
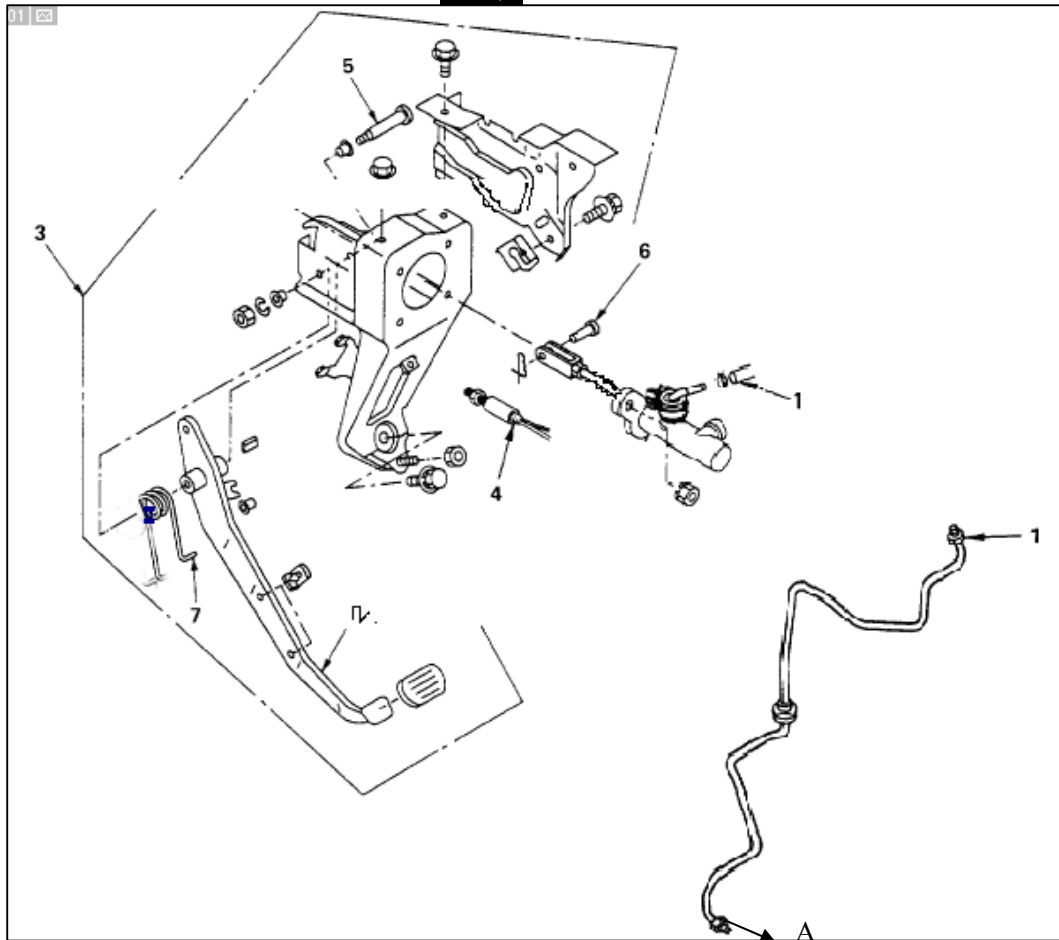
Warning: After tightening of pressure plate mounting bolts, remove steel wire protecting diaphragm spring.

Clutch

Clutch control equipment



Disassembling



Disassembling sequence

1. Clutch pipe and hose; 2. Clutch pedal; 3. Clutch pedal and support assembly; 4. Clutch switch

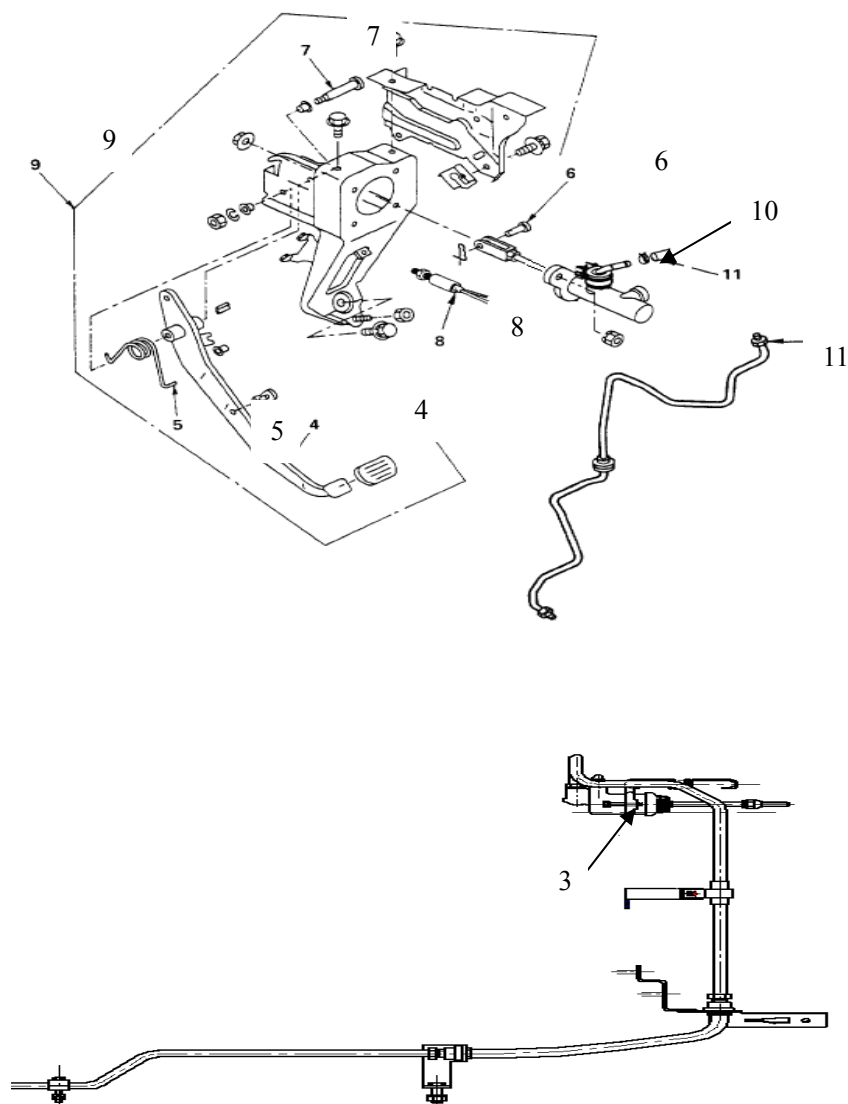
or limit bolt; 5. Axle; 6. Pin; 7. Spring; 8. Clutch cylinder

Inspection and repair

In case of excessive wear or damage of part found during inspection, make necessary adjustment, or repair or replace parts.



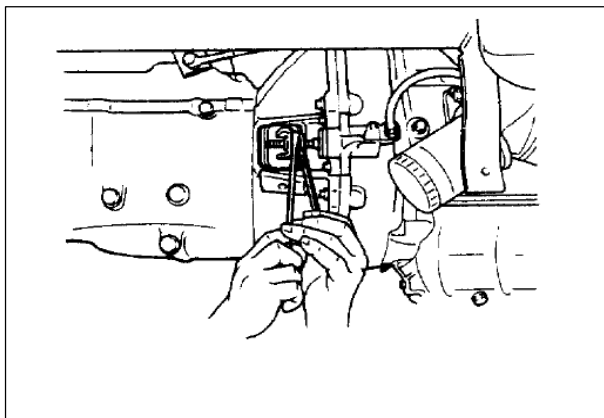
Reassembling



Reassembling sequence

1. Clutch cylinder; 2. Hose; 3. Clutch cylinder; 4. Clutch pedal; 5. Return spring; 6. Pin; 7. Axle; 8. Clutch switch or limit bolt; 9. Clutch pedal and support assembly; 10. Master cylinder oil inlet hose; 11. Clutch pipe and hose

Clutch



Assembling steps

1. Clutch cylinder

Clutch cylinder mounting bolts mounting torque: 16 N·m

Before assembling clutch cylinder return spring, first adjust clutch cylinder jogger.

- 1) Loosen clutch jogger lock nut;
- 2) Rotate jogger till pushing against

disengaging fork;

- 3) Rotate jogger back by 1.5 rounds (free travel of the fork is about 2mm)

- 4) Tighten lock nut (19 N·m)

2. Clutch hose

3. Clutch master cylinder

Install clutch master cylinder on clutch pedal and support. Tightening torque for mounting nut shall be 13N·m

4. Clutch pedal

5. Return spring

6. Pin

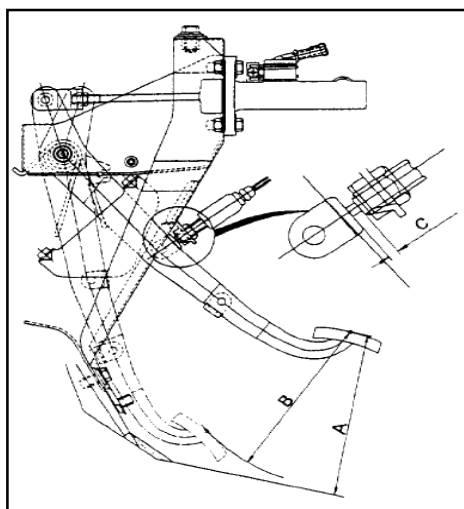
7. Axle

8. Clutch switch or limit bolt

9. Clutch pedal and support assembly

Tightening torque for bolts of clutch pedal and support assembly is 38N·m.

After above assembling, adjust clutch control equipment.



Clutch pedal height and travel

- 1) Loosen clutch master cylinder jogger lock nut

- 2) Rotate jogger to adjust pedal

Clutch pedal height A: 160-180mm

Clutch pedal travel B: 160-170mm

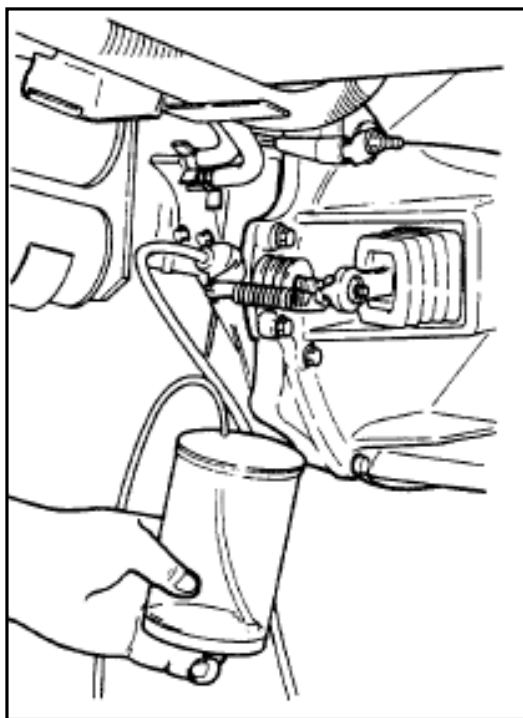
- 3) Clutch master cylinder jogger lock nut tightening torque is 13N·m

- 4) Reinstall instrument and adjust clutch pedal free travel

- 1) Loosen clutch switch or pedal limit bolt.

- 2) Adjust clutch switch or pedal limit bolt so that clutch pedal free travel is 3-5mm.

Clutch



Venting of clutch pipeline

Follow the steps below:

1. Pull parking brake tight;
2. Add brake fluid in oil storage pot to max. level. During venting, note brake fluid in the pot.
3. Remove rubber cap on venting screw of clutch cylinder. Connect one end of a plastic pipe to this screw and the other end to a transparent vessel filled with brake fluid.
4. Continuously step down clutch pedal for a number of times and then keep the pedal down.
5. With the pedal stepped down, loosen venting screw to vent air. Later, tighten the venting screw.
6. Repeat above operations till air in pipeline is completely vented.

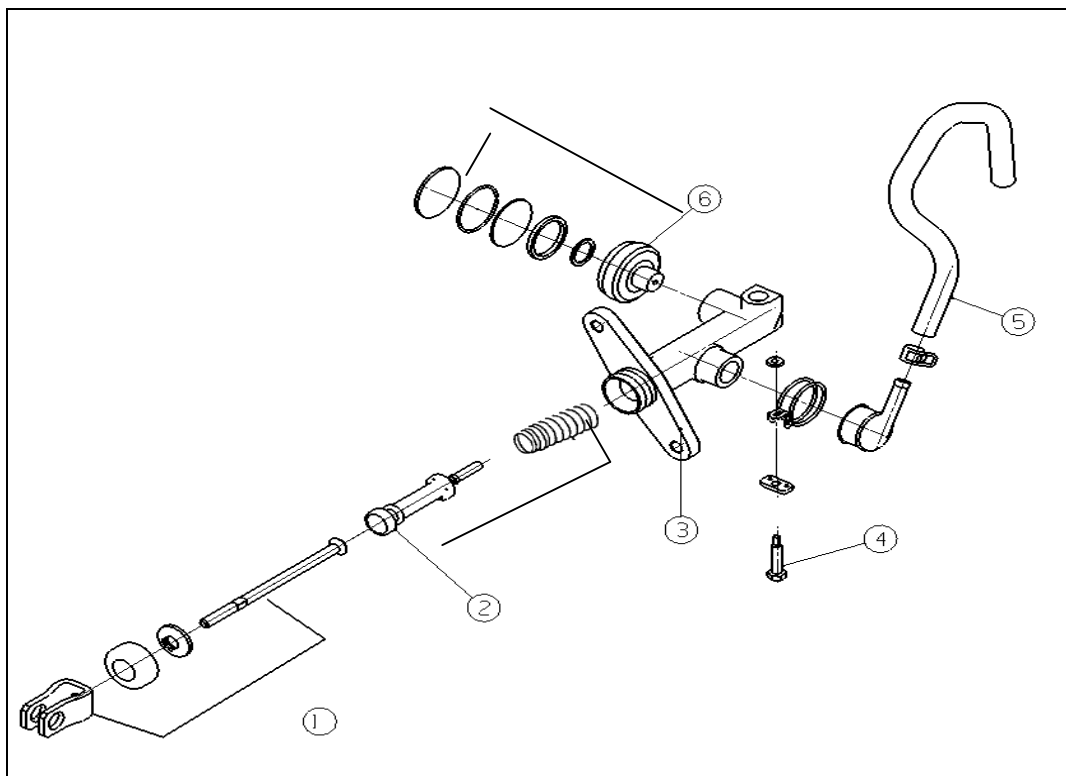
After venting operation, add brake fluid in the oil storage pot to the "MAX" marking.

Clutch

Clutch master cylinder



Disassembling

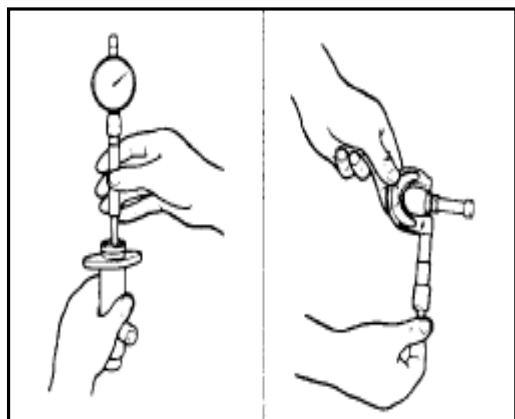


Disassembling sequence

1. Jogger and dust sleeve; 2. Piston assembly and return spring; 3. Cylinder body; 4. Clip;
5. Oil inlet hose; 6. Valve seat assembly

Inspection and repair

In case of excessive wear or damage found during inspection, make necessary adjustment, repair or replacement of parts.



Clutch master cylinder assembly

Use brake fluid to clean clutch master cylinder body. Check oil return hole for clogging; clean if necessary.

Measure ID of master cylinder body.

Master cylinder ID: 19.050---19.102mm

Clearance between clutch master cylinder piston and ID of the cylinder: 0.12mm (limit)

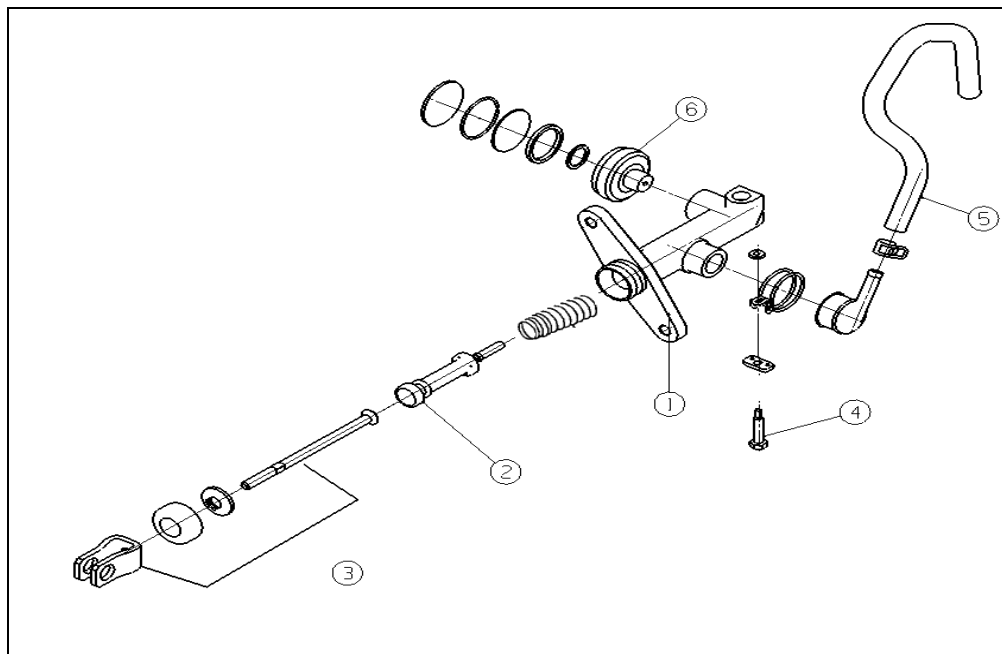
Warning: For disassembled clutch master cylinder,

repair pack must be replaced.

Clutch



Reassembling



Reassembling sequence

1. Cylinder body; 2. Piston assembly and return spring; 3. Jogger and dust sleeve; 4. Clip;
5. Oil inlet hose; 6. Valve seat assembly

Precautions on reassembling:

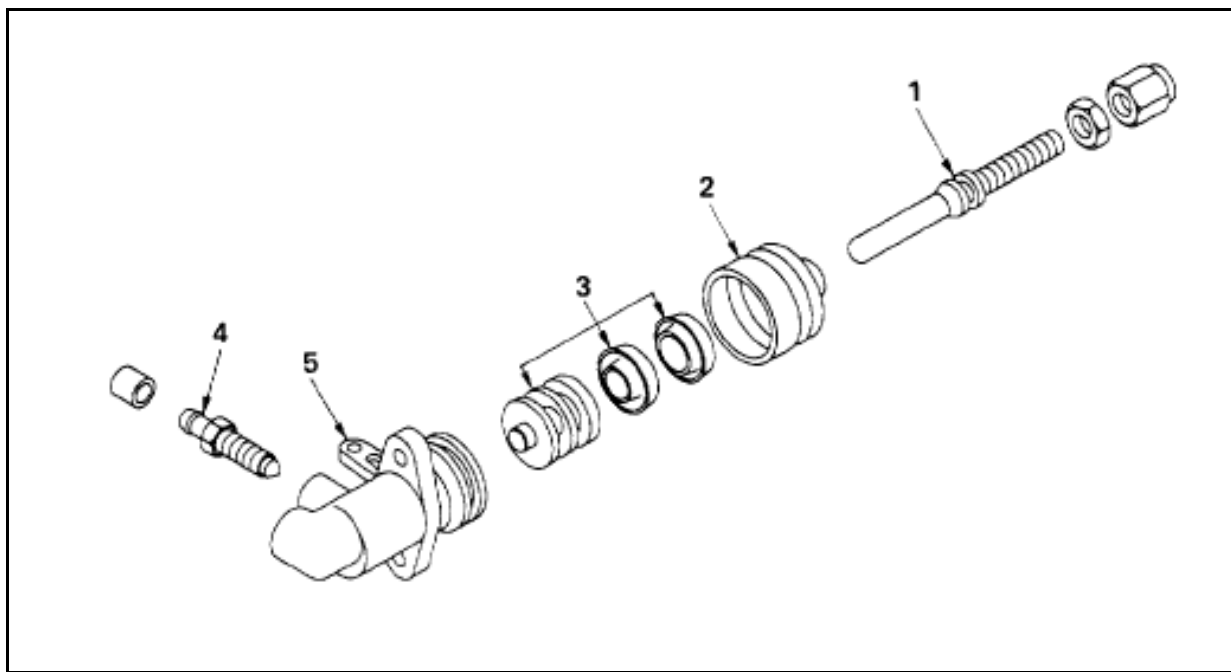
1. Before reassembling, use clean brake fluid to wet pump body and piston;
2. Apply a thin layer of grease on the rubber cup;
3. Prevent damage of rubber cup lip during assembling.

Clutch

Clutch cylinder



Disassembling

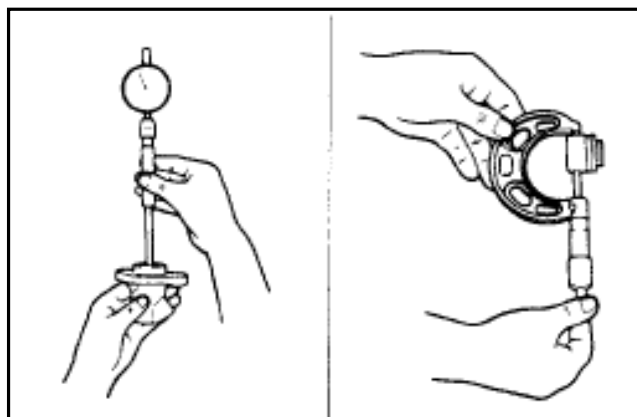


Sequence of disassembling

1. Jogger; 2. Dust cover; 3. Piston assembly; 4. Venting screw; 5. Cylinder body

Inspection and repair

In case of excessive wear or damage of part found during inspection, make necessary adjustment or repair/replacement of the part.



Clutch cylinder assembly

Use brake fluid to clean clutch cylinder body.

Measure master cylinder inner diameter.

Master cylinder ID: 26.99---27.042mm

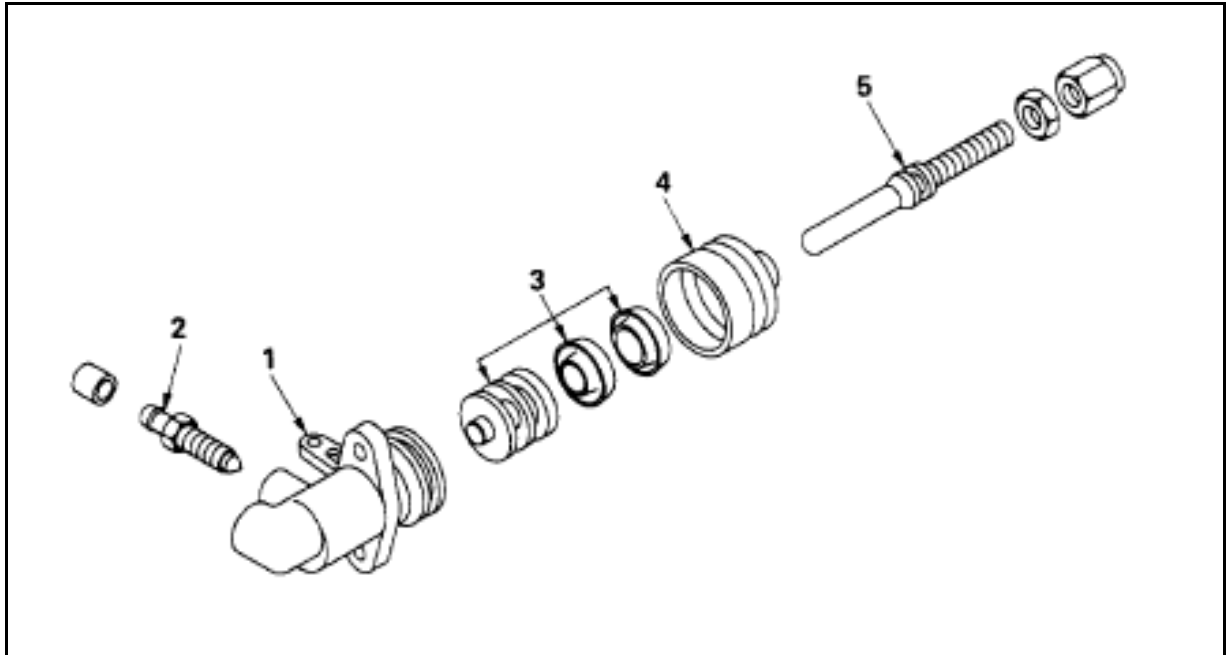
Clearance between clutch cylinder piston and cylinder ID: 0.12mm (limit)

Warning: For disassembled clutch cylinder, repair pack must be replaced.

Clutch



Reassembling



Sequence of reassembling

1. Push rod; 2. Dust cover; 3. Piston assembly; 4. Venting screw; 5. Cylinder body

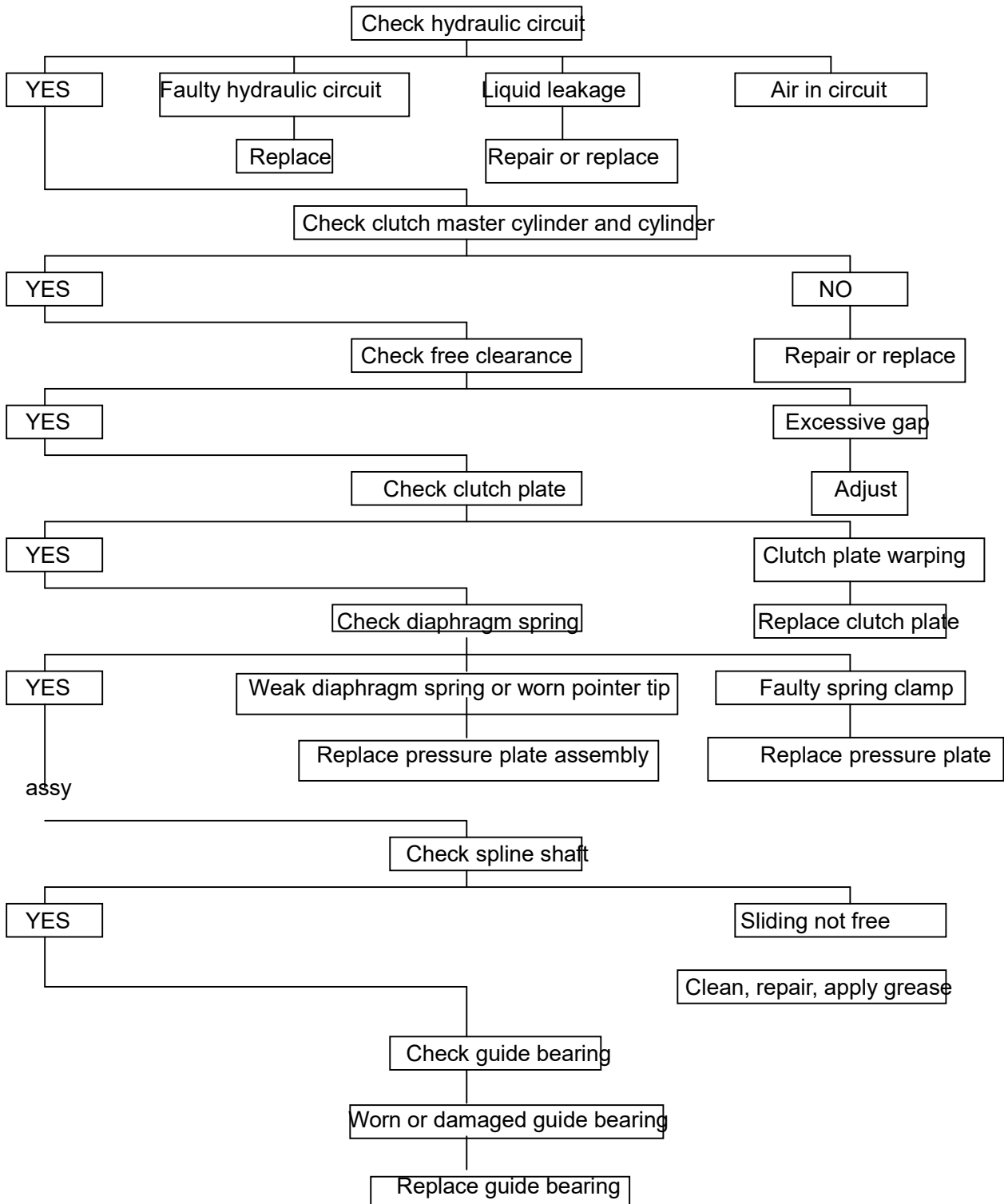
Precautions on reassembling:

1. Before reassembling, use clean brake fluid to wet pump body and piston;
2. Apply a thin layer of grease on rubber cup;
3. Prevent damage of rubber cup lip during assembling.

Clutch

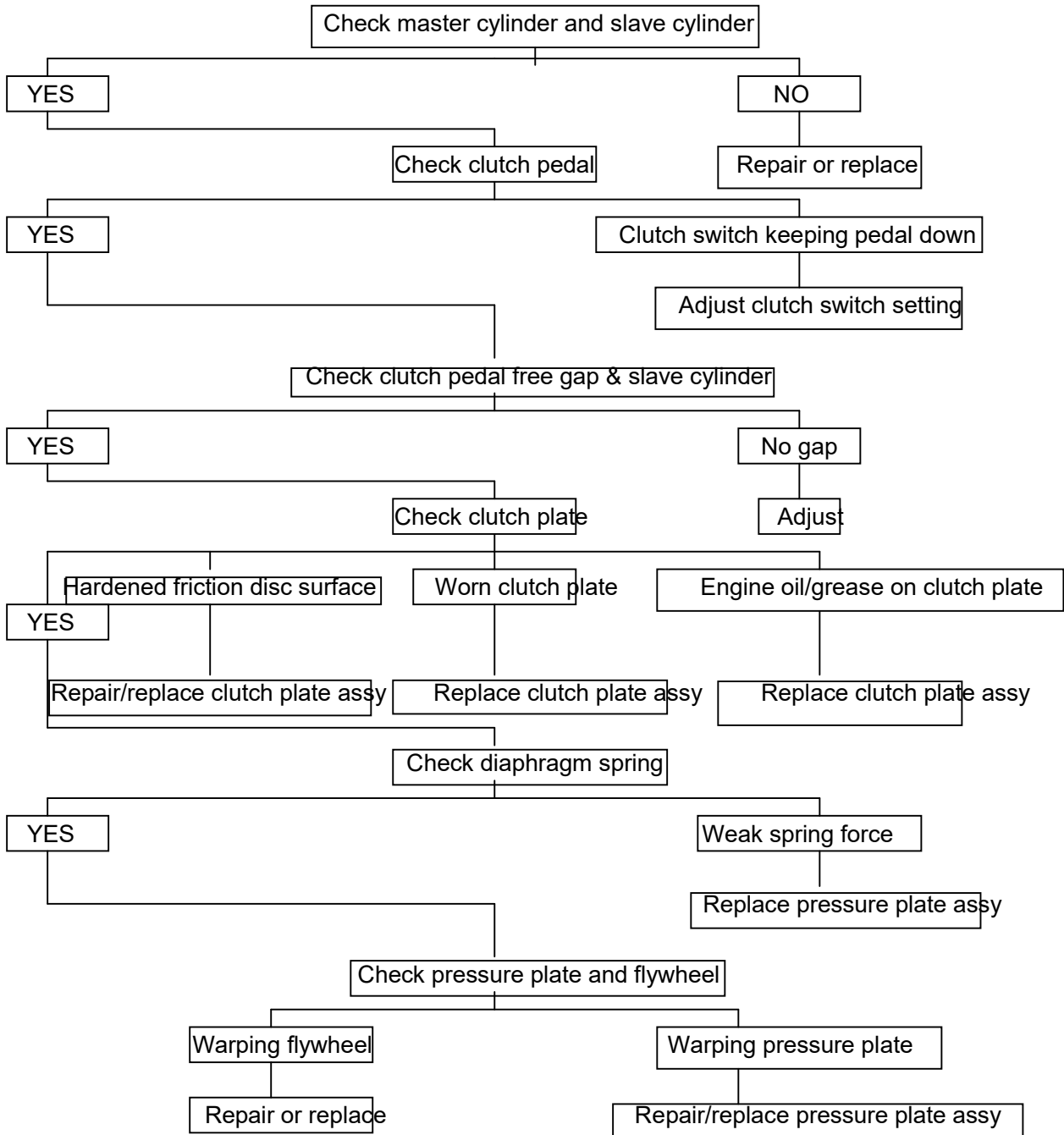
Troubleshooting

Sluggish clutch (noise of gear grinding during shifting)



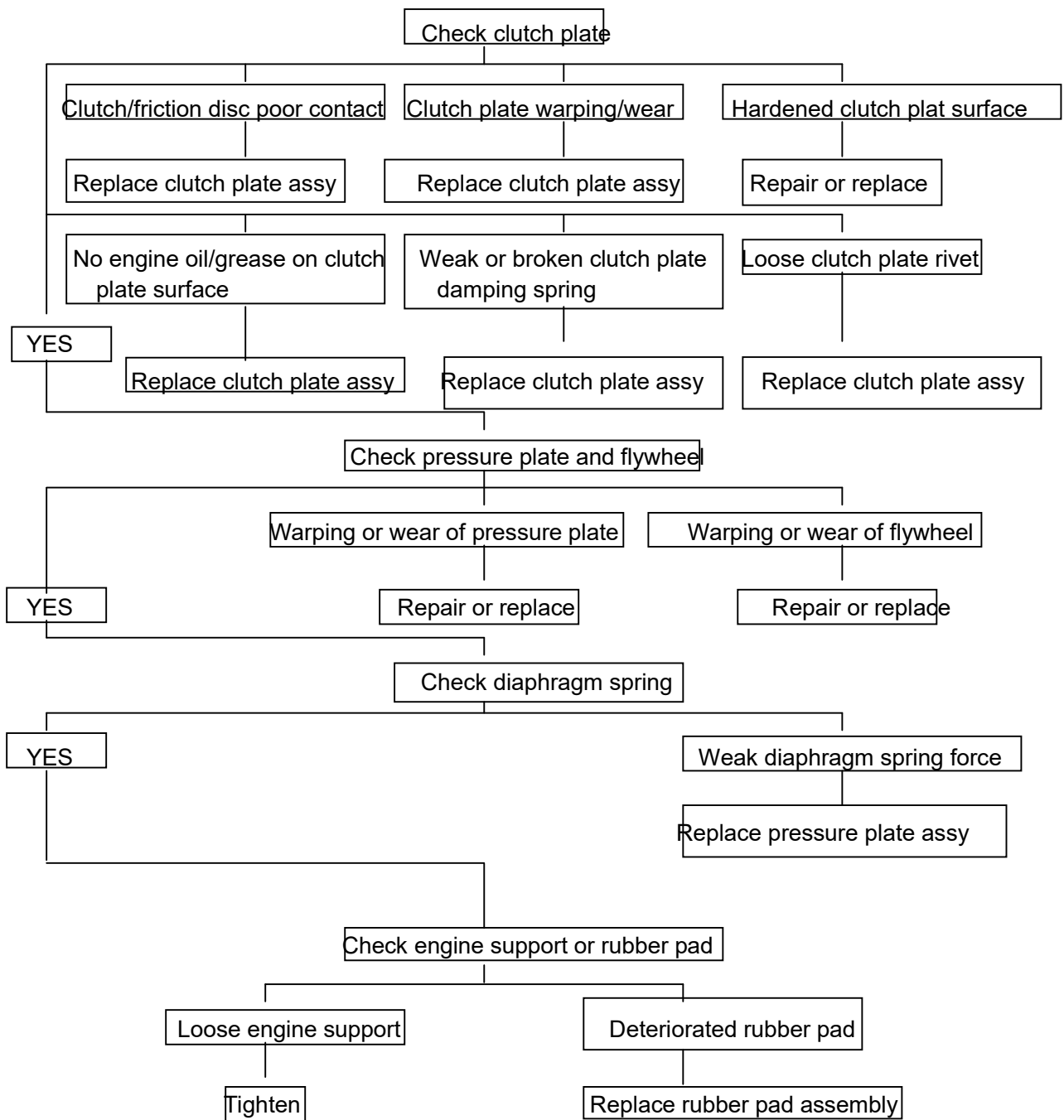
Clutch

Slipping of clutch



Clutch

Vibration of clutch (clutch vibration during engaging start of clutch)



Clutch

Noise of clutch (check clutch noise during engaging and disengaging of clutch to determine cause of noise)

