

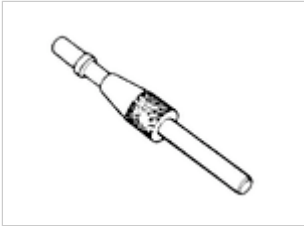
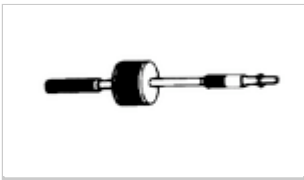
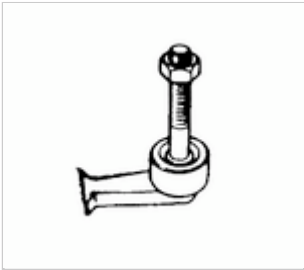


Clutch System

General Information



Special service tools

Tool(Name & Number)	Illustration	Use
OK130 160 010 Clutch disc centering tool		Used to install clutch disc to the center of flywheel.
OK130 130 019 Flare nut wrench		Used to remove clutch line.
OK410 111 012 Bearing puller		Used to remove pilot bearing in flywheel.
OK590 111 001 Ring gear brake		Used to remove clutch cover and flywheel.



Symptom-related diagnostic procedure

Problem	Possible cause	Action
Clutch slips	Clutch disc facing worn excessively Clutch disc facing is oil contaminated Pressure plate damaged Diaphragm spring damaged or weakened Insufficient clutch pedal play Clutch pedal sticking Flywheel damaged	Replace Repair or replace Repair or replace Replace Adjust Repair or replace Repair or replace
Clutch does not disengage smoothly	Excessive runout or damaged clutch disc Clutch disc splines rusted or worn Oil on facing Diaphragm spring weakened Excessive clutch pedal play Insufficient clutch fluid Leakage of clutch fluid	Replace Remove rust or replace Repair or replace Replace Adjust Add fluid and check for leaks Located and repair or replace
Clutch vibrates when acceleration	Oil on facing Torsion dampers weakened Clutch disc facing damaged Clutch disc facing rivets loose Pressure plate damaged or excessive runout Flywheel surface damaged Loose or worn engine mount	Repair or replace Replace Repair or replace Replace Replace Repair or replace Tighten or replace
Clutch pedal sticking	Pedal shaft not properly lubricated	Lubriate or replace
Abnormal noise fomr clutch	Clutch release bearing damaged Poor lubrication of release bearing sleeve Torsion dampers weakened Excessive crankshaft end play Pilot bearing worn or damaged Worn pivot point of release fork	Replace Lubricate or replace Replace Repair Replace Replace



Specifications

Item			Engine
			TB DOHC
Clutch control			Hydraulic
Clutch cover	Type		Diaphragm Spring
	Set load lb(kg)		979 (445)
Clutch disc	Outer diameter in(mm)		8.85(225)
	Inner diameter in(mm)		5.91(150)
	Thickness	Pressure plate side in(mm)	0.183(3.5)
		Flywheel side in(mm)	0.183(3.5)
Clutch pedal	Type		Suspended
	Pedal ratio		6.4 : 1
	Full stroke in(mm)		5.2(132)
	Height (includes carpet) in(mm)		8.78~8.98(223~228)
Master cylinder inner diameter in(mm)			0.625 (15.87)
Release cylinder inner diameter in(mm)			0.750 (19.05)
Hydraulic fluid			SAESAE J1703 or FMVSS 116 DOT-3 Brake Fluid

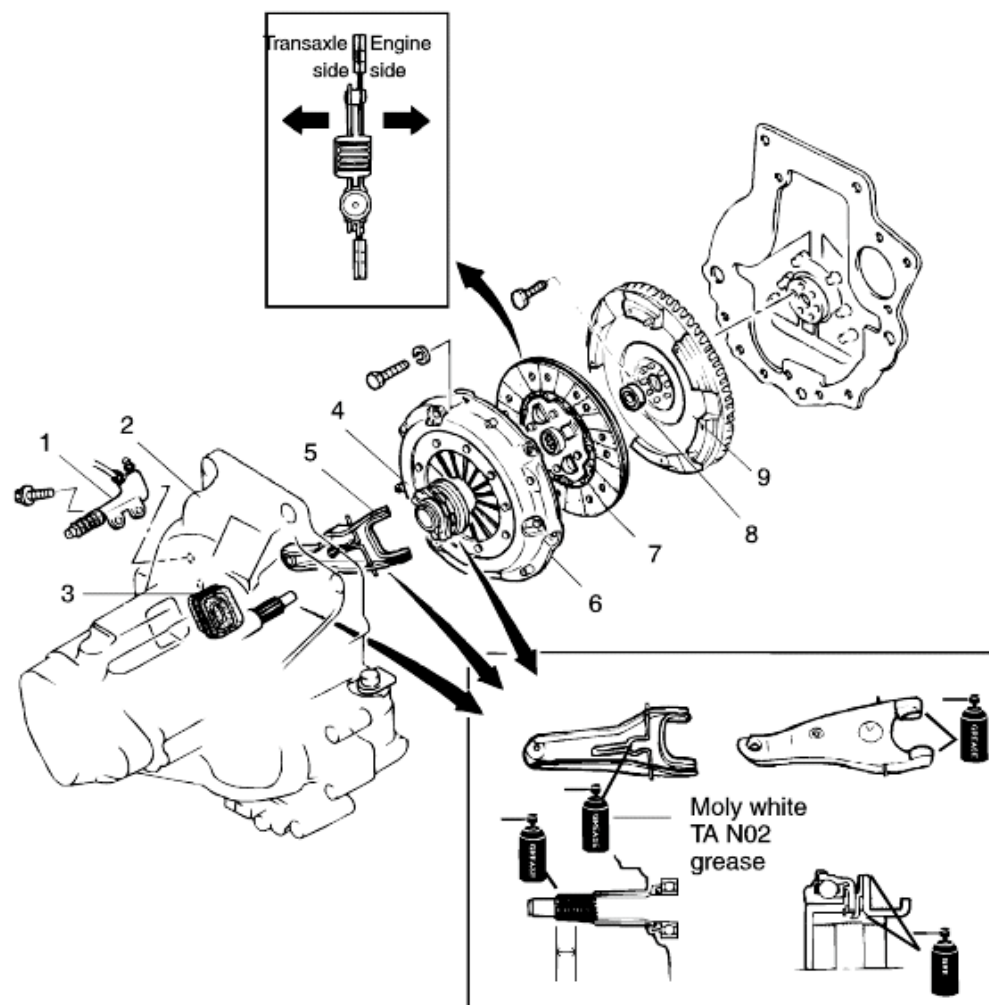


Clutch System

Clutch System



Component



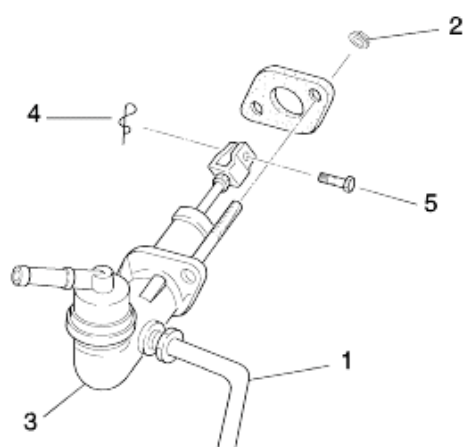
1. Clutch release cylinder
2. Transaxle housing
3. Boot
4. Release bearing
5. Clutch release fork

6. Clutch cover and pressure plate assembly
7. Clutch disc
8. Pilot bearing
9. Flywheel



Clutch System

Clutch Master Cylinder

**Component**

- 1. Clutch hydraulic line
- 2. Nut
- 3. Master cylinder

- 4. Snap pin
- 5. Joint pin

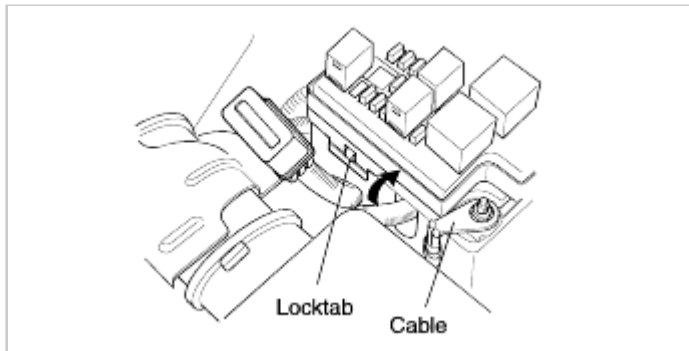


Removal

1. Disconnect cable.
2. Pull locktab then remove fuse box.
3. Remove Snap pin and Joint pin from master cylinder push rod.
4. Remove master cylinder mounting nuts.

NOTICE

Clutch brake fluid will damage painted surfaces so use a container or shop towels for fluid collection.
If fluid gets on a painted surface, rinse immediately with clear water to prevent damage.



5. Disconnect clutch master cylinder hose.
6. Disconnect clutch hydraulic line with SST(OK130 430 019).
7. Remove clutch master cylinder.

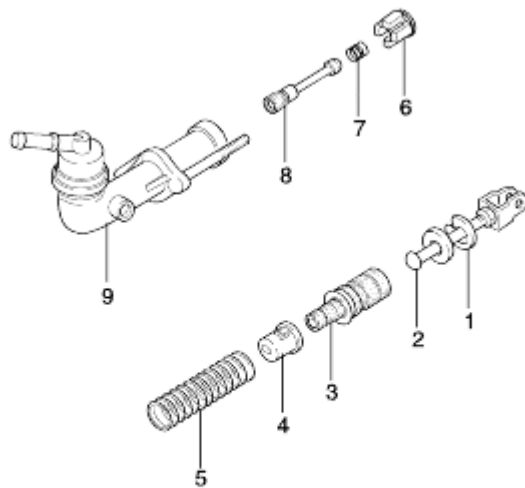
Installation

1. Install clutch master cylinder.
2. Tighten master cylinder mounting nuts.
3. Insert Snap pin and Joint pin into master cylinder push rod.
4. Tightening torque : 9.4~15.9 lb-ft (12.7~21.5 N·m, 1.3~2.2 kg-m)
5. Connect clutch master cylinder hose.



6. Install fuse box.
7. Install cable.
8. Perform clutch hydraulic line bleeding. (Refer to hydraulic line bleeding)
9. Verify that there is no leakage.
10. Perform a road test.

Disassembly



- | | |
|--------------------------------|-------------------|
| 1. Snap ring(replace) | 5. Spring |
| 2. Push rod | 6. Valve stopper |
| 3. Piston | 7. Spring |
| 4. Piston stopper
(replace) | 8. Valve assembly |
| | 9. Body |

NOTICE

Do not damage push rod contact surface of piston.

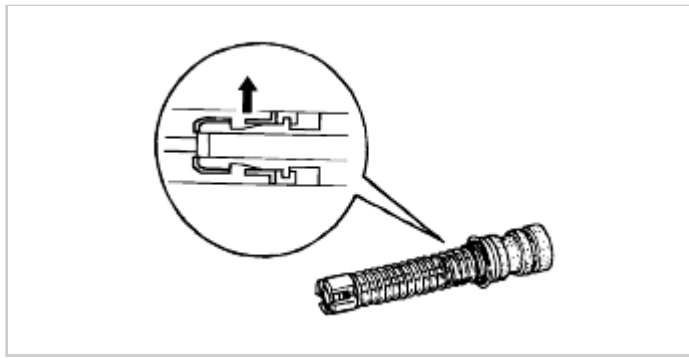
1. Press push rod down and remove internal snap ring with snap ring pliers.
2. Remove push rod, piston assembly, piston stopper, spring, valve stopper, spring and valve assembly.

CAUTION

Hold piston assembly to prevent it from flying apart.



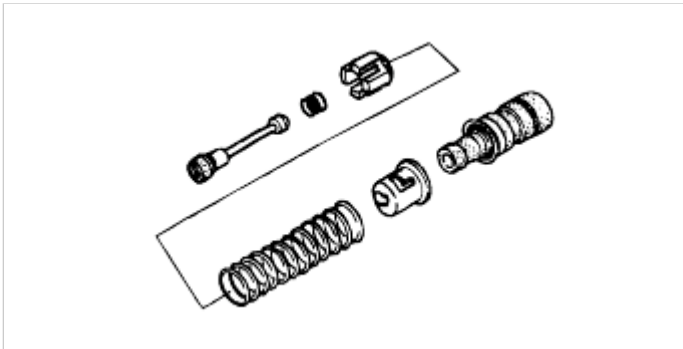
3. Release returning tabs of piston stopper with a suitable tool.



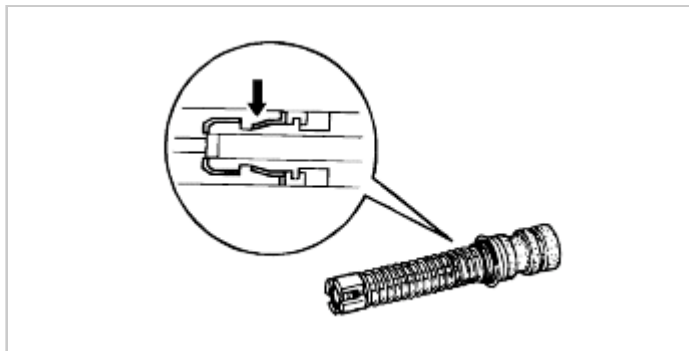
Reassembly

NOTICE

- Clean disassembled parts in solvent and blow through all parts and passages with compressed air.
- Do not mix different brands of clutch fluid.
- Apply specified clutch fluid to part of piston assembly and cylinder bore before assembly.
- Replace parts with new ones whenever directed to do so.



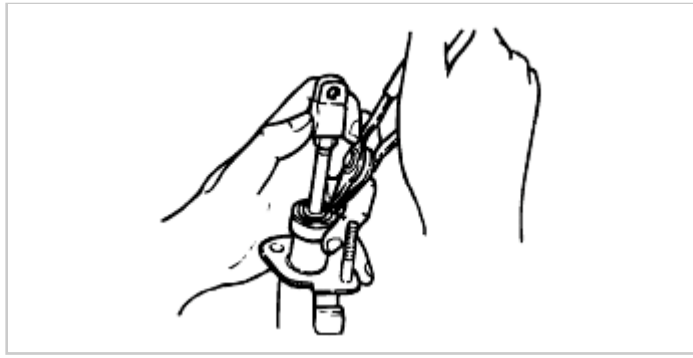
1. Depress retaining tabs.



NOTICE

Do not damage push rod contact surface of piston.

2. Install valve assembly to master cylinder body.
3. Install snap ring while pushing in push rod.



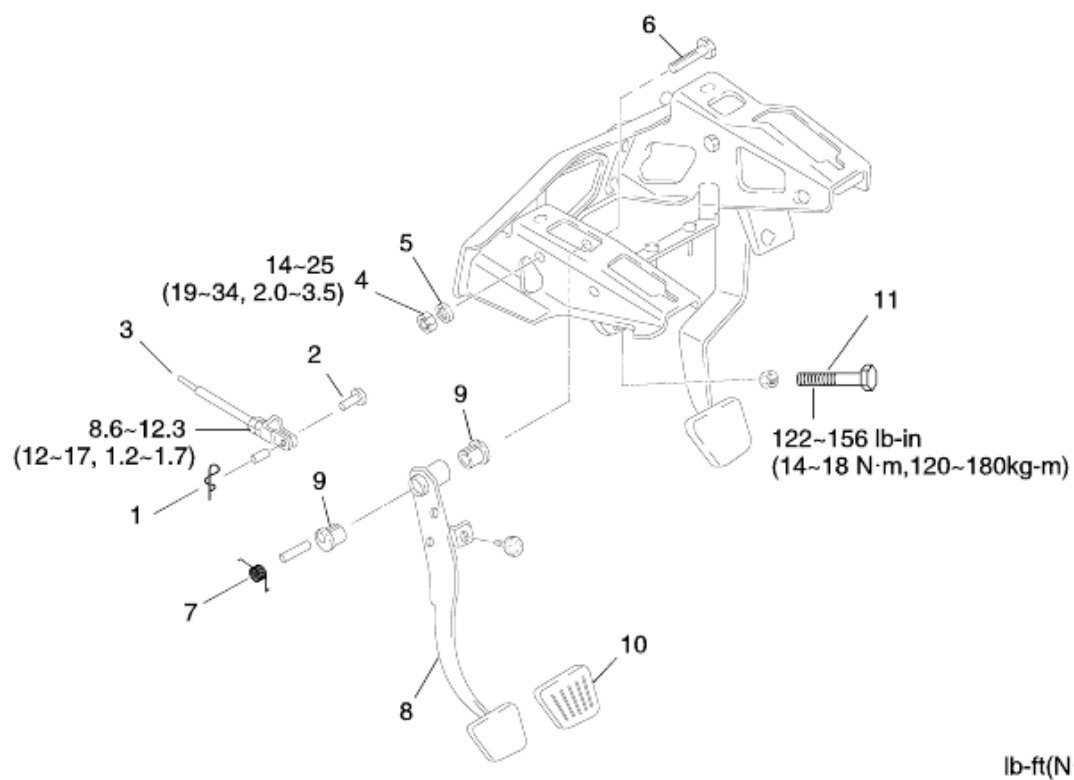


Clutch System

Clutch Pedal



Component



1. Snap pin
2. Joint pin
3. Push rod
4. Nut
5. Spring washer
6. Bolt

7. Assist spring
8. Clutch pedal
9. Bush
10. Clutch pedal pad
11. Stopper bolt



Inspection

1. Measure distance from front surface of pedal to vehicle carpet.

Pedal height : 8.78~8.98 in (223~28 mm)

2. If necessary, adjust pedal height.

Inspection

Clutch pedal free play

1. Lightly depress clutch pedal by hand until clutch resistance is felt.
2. If necessary, adjust pedal free play.

Total pedal free play : 0.12~0.20 in (3.0~5.0 mm)

3. Check that the pedal pad stroke is met when loading pedal with 2kgf.

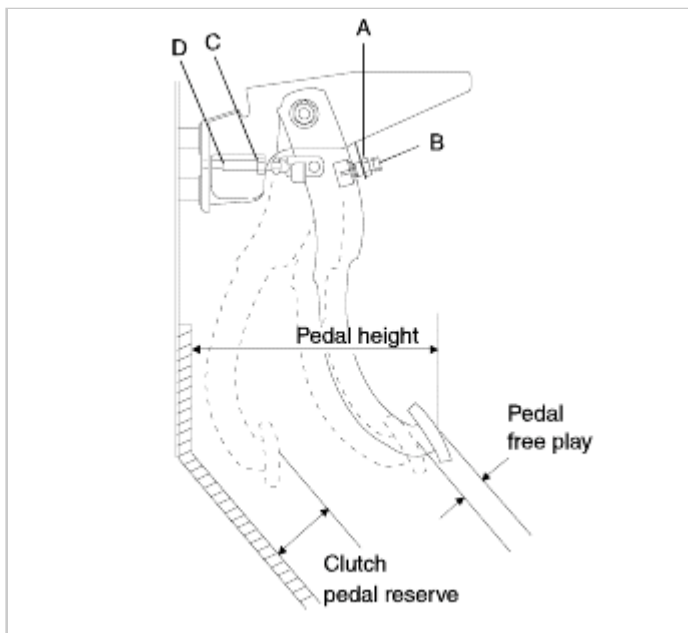
Pedal pad stroke : 7.7~16.6 mm

Adjustment

1. Loosen locknut ③ and turn adjust bolt ⑤ until height is correct.
2. Tighten locknut ③.

Tightening torque : 122~156 lb-in (14~18 N·m, 143~183 kg-cm)

3. After adjustment, measure pedal free play.



Adjustment

1. Loosen locknut ③ and turn push rod ④ until pedal free play is correct.
2. Check that the minimum clutch pedal reserve (from front surface of pedal to carpet) is met when pedal is fully depressed.

Minimum clutch pedal reserve : 1.99 in (50.6 mm)

3. Tighten locknut ③.

Tightening torque : 104~147 lb-in (12~17 N·m, 120~170 kg-cm)

4. After adjustment, inspect pedal height.

Removal

1. Remove parts in order shown in figure below.
2. Inspect all parts and repair or replace as necessary.

NOTICE

Apply a thin coat of lithium grease to bushing and pins before installation.

3. Install in reverse order of removal.

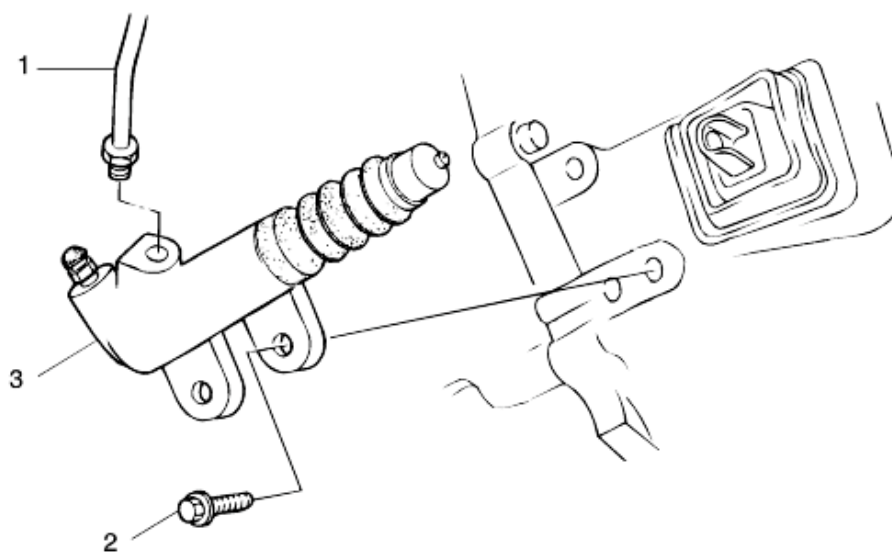


Clutch System

Clutch Release Bearing



Component

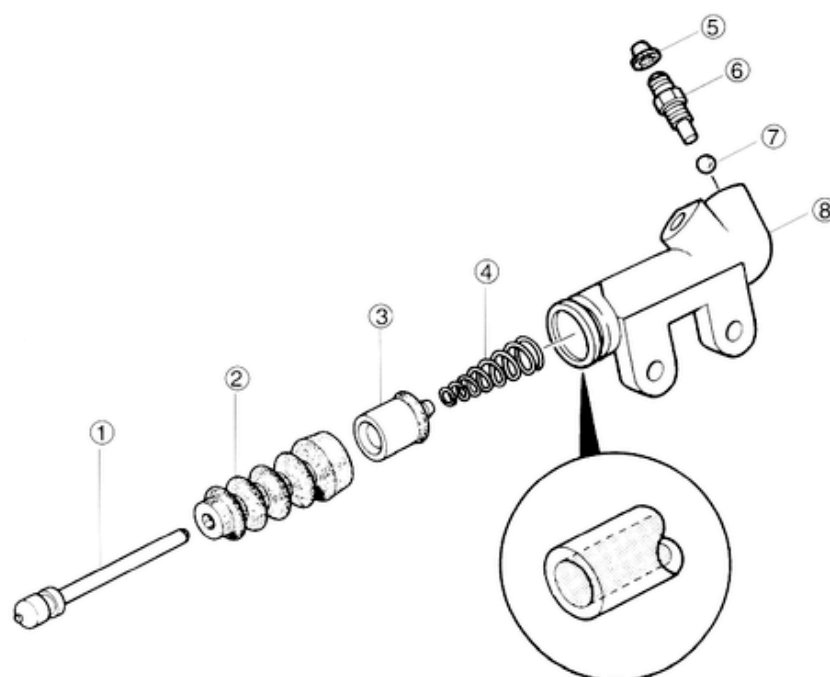


1. Clutch hydraulic line

2. bolt

3. Clutch release cylinder

Component



- (1) Push rod
- (2) Clutch release cylinder boot
- (3) Clutch release cylinder piston
- (4) Spring

- (5) Bleeder screw cap
- (6) Bleeder screw
- (7) Steel ball
- (8) Clutch release cylinder body



Removal

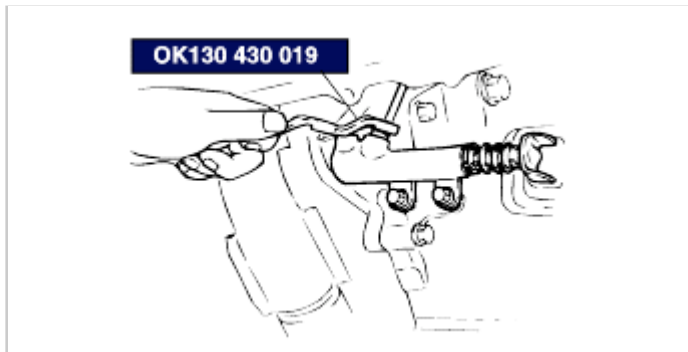
NOTICE

- Clutch fluid will damage painted surfaces. Be sure to use a container or shop towels to collect it.
- If fluid contacts a painted surface, rinse immediately with clear water to prevent damage.

CAUTION

After removing the clutch line, plug the clutch line to avoid fluid leakage.

1. Raise and properly support vehicle.
2. Remove gravel shield from under engine (seven bolts).
3. Disconnect clutch line with SST(OK130 430 019).
4. Remove two release cylinder bolts then remove release cylinder.



Installation

1. Install clutch release cylinder.
2. Tighten two release cylinder bolts.

Tightening torque : 13.7 ~18.8 lb-ft (18.6~25.5 N·m, 1.9~2.6kg-m)

3. Tightening clutch hydraulic line flar nu with SST(OK130 430 019)

Tightening torque : 9.4~15.9 lb-ft (12.7~21.5 N·m, 1.3~2.2 kg-m)

4. After installation, bleed the clutch system.(Refer to hydraulic line bleeding)
5. Verify that there is no leakage.



6. Perform a road test.

Disassembly

1. Remove clutch cylinder boot and push rod.
2. Remove piston and cup assembly by applying compressed air through the clutch hydraulic line installation hole.

CAUTION

Hold a rag over the opening of release cylinder piston bore to prevent piston assembly from flying out.

Reassembly

NOTICE

- Clean disassembled parts in solvent and blow through all parts and passages with compressed air.
- Before assembly, make sure all parts are completely clean.
- Apply specified clutch fluid to piston and cup assembly and cylinder bore before assembly.

1. Install spring, cylinder piston and clutch cylinder boot in release cylinder body bore.
2. Install push rod.



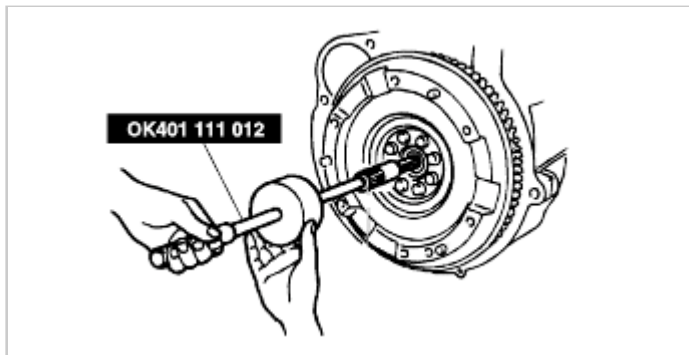


Removal

NOTICE

- Remove clutch release cylinder with clutch line connected.
- Do not remove pilot bearing unless necessary.
- Wipe off residual grease when assembling the release bearing to nose part of transmission primary shaft.
- Also wipe off residual grease when assembling the clutch disc to transmission primary shaft.

1. Remove transaxle assembly.(Refer to section Manual transaxle).
2. Install SST(OK130 430 010/OK590 111 001).
3. Loosen each bolt one turn at a time, in a crisscross pattern, until spring tension is released. Proceed to remove clutch cover assembly and disc.
4. Remove pilot bearing with SST(OK401 111 012), if necessary.



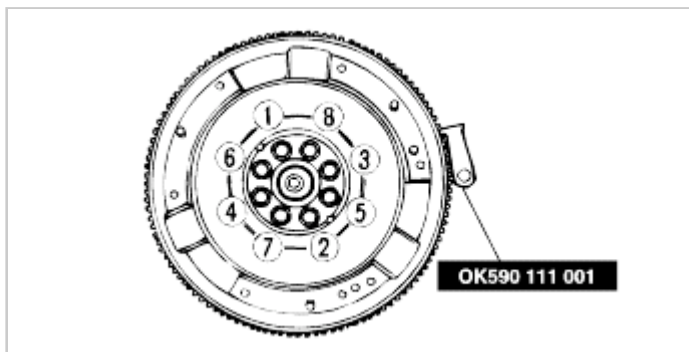
NOTICE

After removing flywheel, inspect for oil leakage past crankshaft rear oil seal. If necessary, replace oil seal.(Refer to section engine).

5. Measure flywheel runout with a dial indicator. Replace flywheel if turnout is excessive.

Runout : 0.008 in (0.2 mm) maximum

6. Hold flywheel with SST(OK590 111 001).
7. Remove six bolts and then remove flywheel.



Installation

NOTICE

- Install pilot bearing flush with flywheel.
- Wipe off residual grease when assembling the release bearing to nose part of transmission primary shaft.
- Wipe off residual grease when assembling the clutch disc to transmission primary shaft.

1. Install pilot bearing flush with a suitable tool.

Bearing outer diameter : 1.378 in (35 mm)

2. Wipe bolts and apply sealant to bolt threads.
3. Install flywheel and SST(OK590 111 001).
4. Tighten bolts in pattern shown below.

Tightening torque : 70.8~75.9lb-ft (96.1~103.0 N·m, 9.8~10.5 kg-m)

5. Clean clutch disc internal splines ; then apply a thin coat of molybdenum disulfide grease to the splines.
6. Hold clutch disc in position with SST(OK130 160 010).



7. Align dowel holes of clutch cover assembly with flywheel dowels.
8. Tighten bolts perpendicularly and gradually in pattern shown below.

Tightening torque : 13.0~19.5 lb-ft(17.6~26.5 N·m, 1.8~2.7 kg-m)

9. Install transaxle assembly.(Refer to section manual transaxle.)

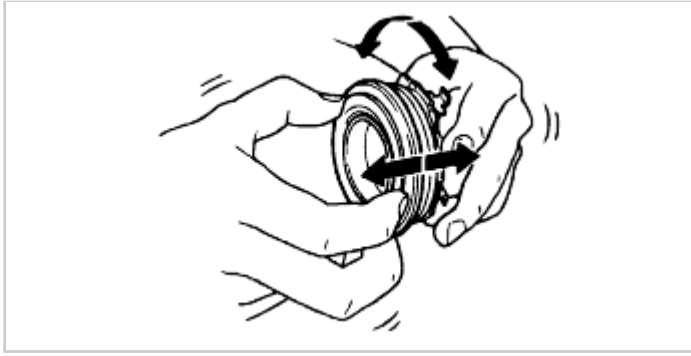
Inspection

Release bearing

NOTICE

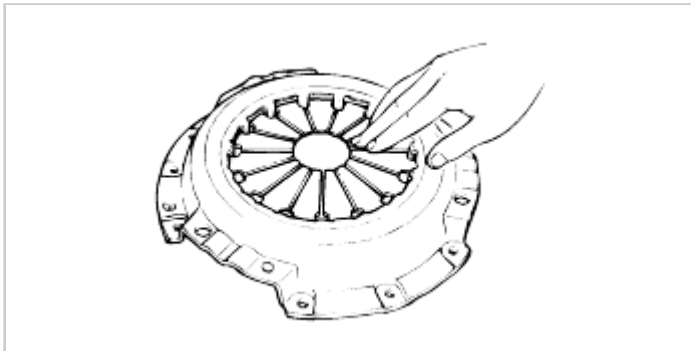
The clutch release bearing is sealed, and should not be washed in solvent.

1. Turn bearing while applying force in axial direction.
If bearing sticks or has excessive resistance, replace it.



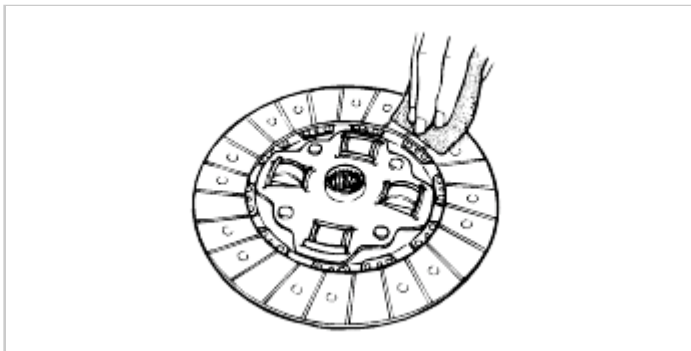
Clutch cover

1. Inspect contact surface of pressure plate for scoring, cracks, and burning. Resurface or replace as necessary.
2. Inspect release bearing contact surface (on the diaphragm spring fingers)for wear and cracks. if there is wear or cracks on diaphragm fingers, replace clutch cover assembly.



Clutch disc

1. Inspect lining surface for burning oil contamination or other damage.
Replace clutch disc if it is burned, oil soaked or other damaged.
2. Inspect for loose clutch facing rivets and damaged torsional dampers.
Replace clutch disc if either is faulty.



3. Measure depth of lining from clutch face to head of a rivet with calipers. Replace clutch disc if thickness on either side is less than minimum.

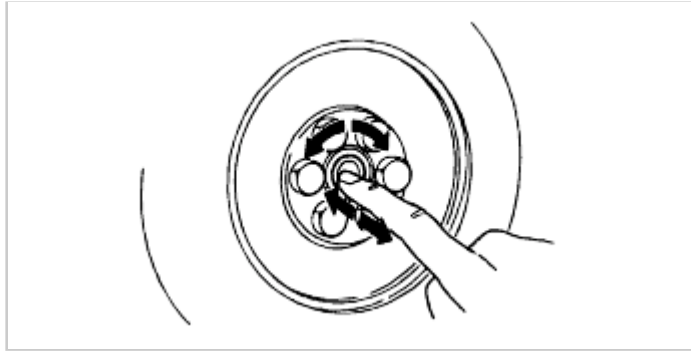
Thickness : 0.012 in (0.3 mm) minimum

4. Measure clutch disc runout with a dial indicator.
Replace clutch disc if runout is excessive.

Runout : 0.028 in (0.7 mm) maximum

Pilot bearing

1. Turn bearing while applying force in axial direction. If bearing sticks or has excessive resistance, replace it.

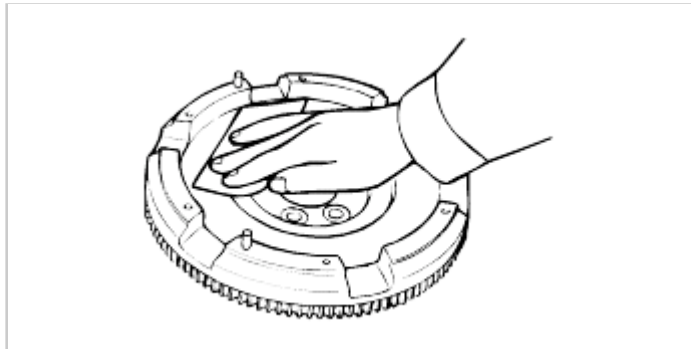


Flywheel

NOTICE

Minor scoring or burning should be removed with emery cloth.

1. Inspect contact surface of flywheel for scoring, cracks, and burning ; resurface or replace as necessary.



2. Inspect starter ring gear teeth for wear or damage. If necessary, replace ring gear.

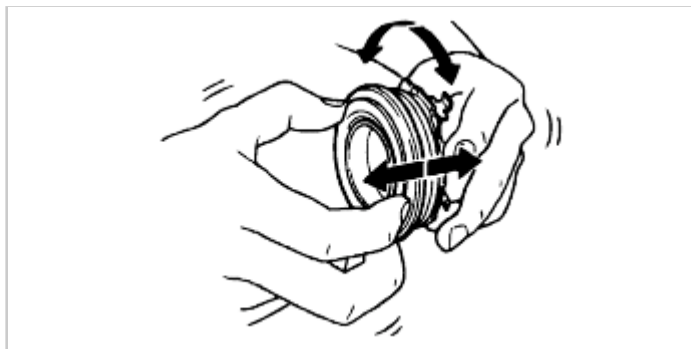
Inspection

Release bearing

NOTICE

The clutch release bearing is sealed, and should not be washed in solvent.

1. Turn bearing while applying force in axial direction.
If bearing sticks or has excessive resistance, replace it.

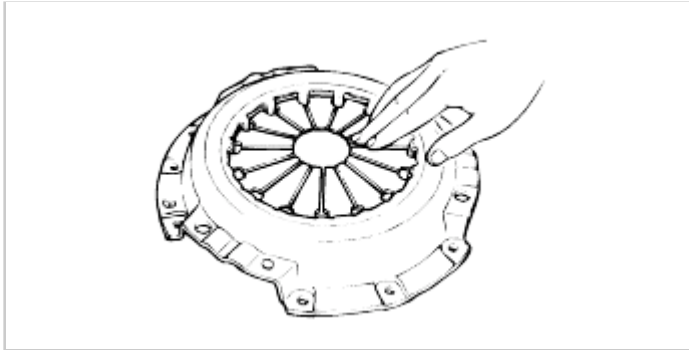


Clutch cover

1. Inspect contact surface of pressure plate for scoring, cracks, and burning. Resurface or replace as

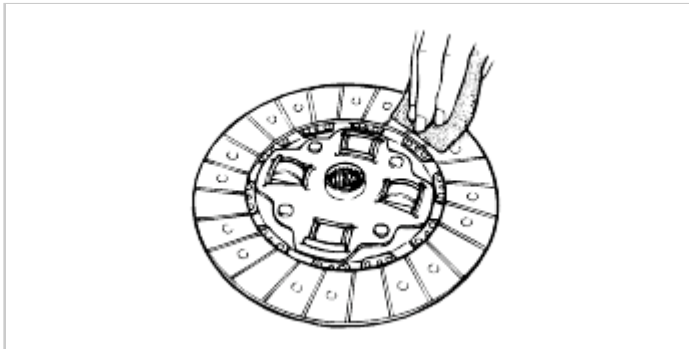
necessary.

2. Inspect release bearing contact surface (on the diaphragm spring fingers)for wear and cracks. if there is wear or cracks on diaphragm fingers, replace clutch cover assembly.



Clutch disc

1. Inspect lining surface for burning oil contamination or other damage.
Replace clutch disc if it is burned, oil soaked or other damaged.
2. Inspect for loose clutch facing rivets and damaged torsional dampers.
Replace clutch disc if either is faulty.



3. Measure depth of lining from clutch face to head of a rivet with calipers. Replace clutch disc if thickness on either side is less than minimum.

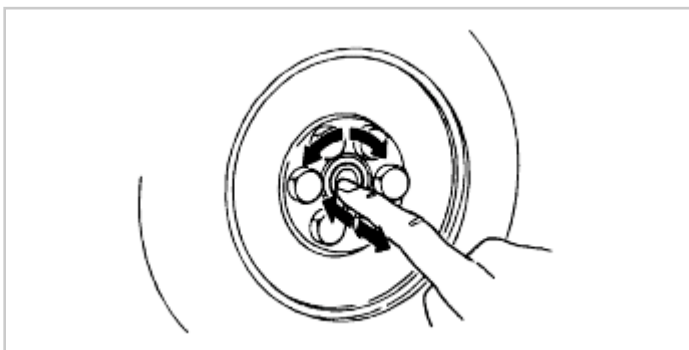
Thickness : 0.012 in (0.3 mm) minimum

4. Measure clutch disc runout with a dial indicator.
Replace clutch disc if runout is excessive.

Runout : 0.028 in (0.7 mm) maximum

Pilot bearing

1. Turn bearing while applying force in axial direction. If bearing sticks or has excessive resistance, replace it.

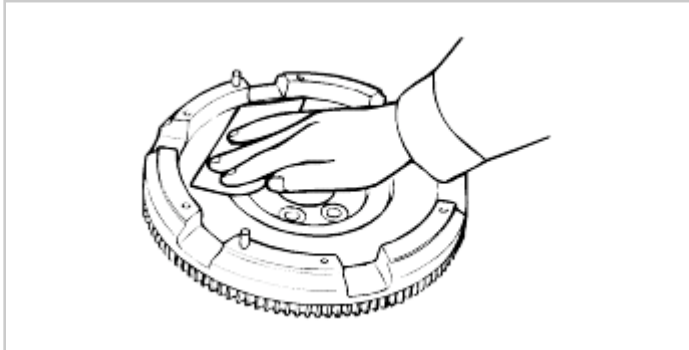


Flywheel

NOTICE

Minor scoring or burning should be removed with emery cloth.

1. Inspect contact surface of flywheel for scoring, cracks, and burning ; resurface or replace as necessary.



2. Inspect starter ring gear teeth for wear or damage. If necessary, replace ring gear.