GENESIS COUPE(BK) > 2013 > G 3.8 GDI > Clutch System

Clutch System > General Information > Specifications

Specifications

Items		Specification	
Engine type		Gasoline 2.0 TCI	Gasoline 3.8 MPI/GDI
Transmission type		M6VR2	M6VR2
Clutch operation method		Hydraulic type	
Clutch disc	Type	Single dry with diaphragm	
	Facing diameter (outside x inside)mm (in)	Ø240 × 155 (Ø9.44 × 6.10)	
Clutch cover assembly		Diaphragm spring strap	
Clutch master cylinder * I.D. mm (in)		15.87 (0.6248)	

* I.D: Inside diameter

Service Standard

Items	Standard value
Clutch pedal height [Without carpet]	196.7mm (7.75in)
Clutch pedal free play	6 ~ 13mm (0.24 ~ 0.51in)
Clutch disc thickness [When free]	8.4 ± 0.3mm (0.33 ± 0.012in)
Clutch pedal stroke	130.7mm (5.14in)
Clutch disc rivet sink	0.3mm (0.012in)
Diaphragm spring end height difference	0.5mm (0.019in)
Clutch master cylinder clearance to piston	0.15mm (0.006in)

Tightening Torques

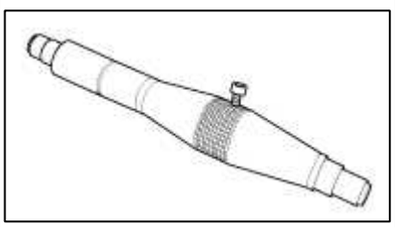
Items		kgf.m	lb-ft
Clutch pedal assembly	13 ~ 16	1.3 ~ 1.6	9.4 ~ 11.6
Clutch pedal Ignition lock switch nut	8 ~ 10	0.8 ~ 1.0	5.8 ~ 7.2
Clutch disc cover assembly	25 ~ 36	2.5 ~ 3.6	18.1~ 26.0

Lubricants

Items	Specified lubricants	Quantity
Inner surface of clutch disc spline	CASMOLY L9508	As required
Inner surface of clutch master cylinder and outer circumference of piston assembly	Brake fluid DOT 3 or DOT 4	As required
Clutch master cylinder push rod, clevis pin and washer	Wheel bearing grease SAE J310, NLGI No.2V	As required
Clutch pedal shaft and bushings	Chassis grease SAE J310a, NLGI No.1	As required

Clutch System > General Information > Special Service Tools

Special Service Tools

Tool (Number and name)	Illustration	Use
09411-1P000 Clutch disc guide		Installation of the clutch disc.

Clutch System > General Information > Troubleshooting

Troubleshooting

Trouble symptom		Suspect area	Remedy
Clutch slipping • Car will not respond to engine speed during acceleration • Insufficient vehicle speed • Lack of power during uphill driving		Insufficient pedal free play	Adjust
		Clogged hydraulic system	Correct or replace parts
		Excessive wear of clutch disc facing	Replace
		Hardened clutch disc facing, or oil on surface	Replace
		Damaged pressure plate or flywheel	Replace
		Weak or broken pressure spring	Replace
Difficult gear shifting (gear noise during shifting)		Excessive pedal free play	Adjust
		Hydraulic system fluid leaks, air trapping or clogging	Repair or replace parts
		Unusual wear or corrosion of the clutch disc spline	Replace
		Excessive vibration (distortion) of the clutch disc	Replace
Clutch noisy	When the clutch is not used	Insufficient play of the clutch pedal	Adjust
		Excessive wear of the clutch disc facing	Replace

	A noise is heard when the clutch is disengaged	Insufficient grease on the sliding surface of the bearing sleeve	Repair
		Improperly installed clutch assembly	Repair
	A noise is heard when the car suddenly rolled up with the clutch partially engaged	Damaged pilot bushing	Replace
Hard pedal effort		Insufficient lubrication of the clutch pedal	Repair
		Insufficient lubrication of the spline part of clutch disc	Repair
Hard to shift or will not shift		Excessive clutch pedal free play	Adjust the pedal free play
		Clutch disc out of place, runout is excessive or lining broken	Inspect the clutch disc
		Spline on the input shaft or clutch disc dirty or burned	Repair as necessary
		Faulty of the clutch pressure plate	Replace the clutch cover
Clutch slips		Insufficient clutch pedal free play	Adjust the pedal free play
		Clogged of the hydraulic system	Repair or replace parts
		Clutch disc lining oily or worn out	Inspect the clutch disc
		Faulty pressure plate	Replace the clutch cover
Clutch grabs/chatters		Clutch disc lining oily or worn out	Inspect the clutch disc
		Faulty the pressure plate	Replace the clutch cover
		Bent clutch diaphragm spring	Replace the clutch cover
		Worn or broken torsion spring	Replace the clutch disc
		Engine mounts loose	Repair as necessary
Clutch noisy		Damaged the clutch pedal bushing	Replace the clutch pedal bushing
		Loose part inside housing	Repair as necessary

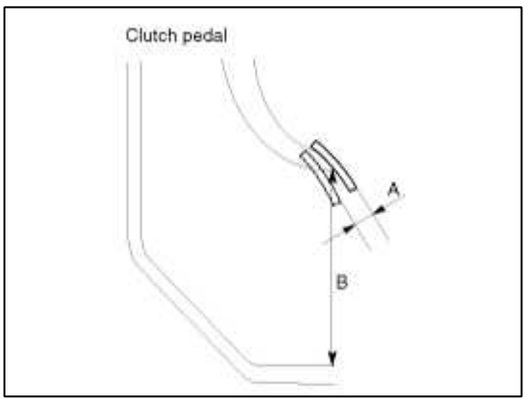
Clutch System > Clutch System > Repair procedures

Service Adjustment Procedure

Clutch Pedal Inspection And Adjustment

1. Measure the clutch pedal height (from the face of the pedal pad to the floorboard) and the clutch pedal clevis pin play (measured at the face of the pedal pad.)

Standard value
(A) : 6 ~ 13mm (0.24 ~ 0.51in)
(B) : 196.9mm (7.75in)

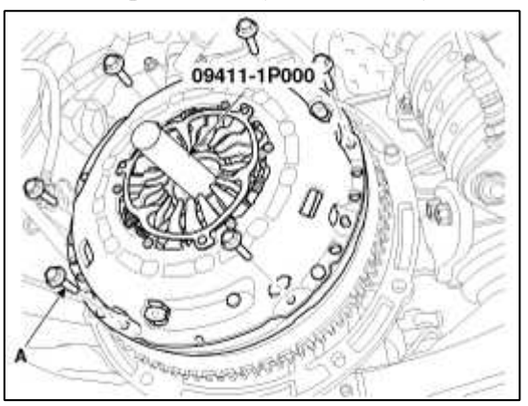


2. If the clutch pedal freeplay and height is not within the standard value range, adjust as follows:

Clutch System > Clutch System > Clutch Cover And Disc > Repair procedures

Removal

1. Remove the transmission assembly.
   (Refer to Manual transmission removal in MT group)
2. Insert the special tool (09411-1P000) in the clutch disc to prevent the disc from shifting.



3. Loosen the bolts(6ea) which attach the clutch cover to the flywheel in a star pattern.
   Loosen the bolts in succession, one or two turns at a time, to avoid bending the cover.

NOTE

Do not clean the clutch disc or the release bearing with cleaning solvent.

Inspection

Clutch Disc Cover Assembly

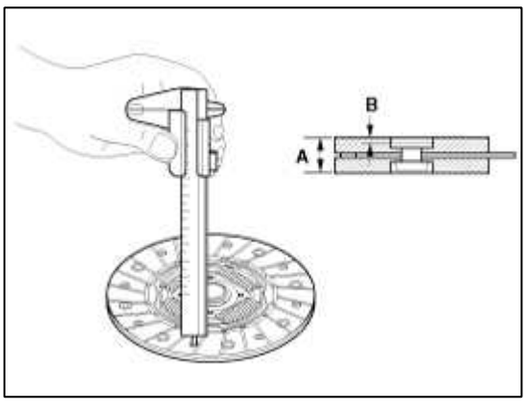
1. Check the diaphragm spring end for wear and uneven height.
2. Check the pressure plate surface for wear, cracks and color change.
3. Check the rivets for looseness and replace the clutch cover assembly if necessary.

Clutch Disc

1. Check the clutch facing for loose rivets, uneven contact, deterioration due to seizure, adhesion of oil, or grease, and replace the clutch disc if defective.

2. Measure the thickness of the disc when free.

Standard value
Clutch disc thickness (A) [when free] :
8.4 ± 0.3mm [0.33 ±0.012in]
Limit :
Clutch disc rivet depth (B) : 0.3mm [0.012in]



3. Check for the torsion spring play and damage and if defective, replace the clutch disc.
4. Clean the splines on the input shaft and install the clutch disc.
   If the disc does not slide smoothly or if play is excessive, replace the clutch disc and/or the input shaft.

Clutch Release Bearing

CAUTION

The release bearing is packed with grease. Do not use cleaning solvent or oil.

Standard grease : CASMOLY L9508

1. Check the bearing for seizure, damage or abnormal noise. Also check the diaphragm spring contacting points for wear.
2. Replace the bearing if the release fork contacting points are worn abnormally.

Clutch Release Fork

If there is abnormal wear at the point of contact with the bearing, replace the release fork assembly.

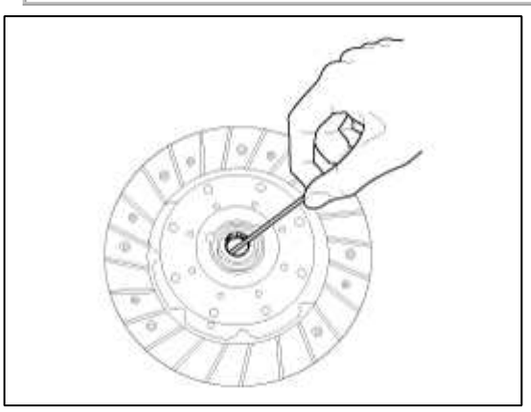
Installation

1. Apply multipurpose grease to the spline of the disc.

Grease : CASMOLY L 9508

CAUTION

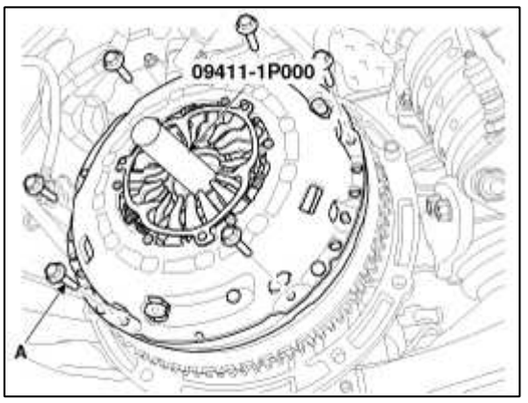
When installing the clutch, apply grease to each part, but be careful not to apply excessive grease.
It can cause clutch slippage and vibration (judder).



2. Install the clutch disc assembly to the flywheel using the special tool (09411-1P000).

3. Install the clutch cover assembly to the flywheel and temporarily tighten the bolts one or two steps at a time in a star pattern.

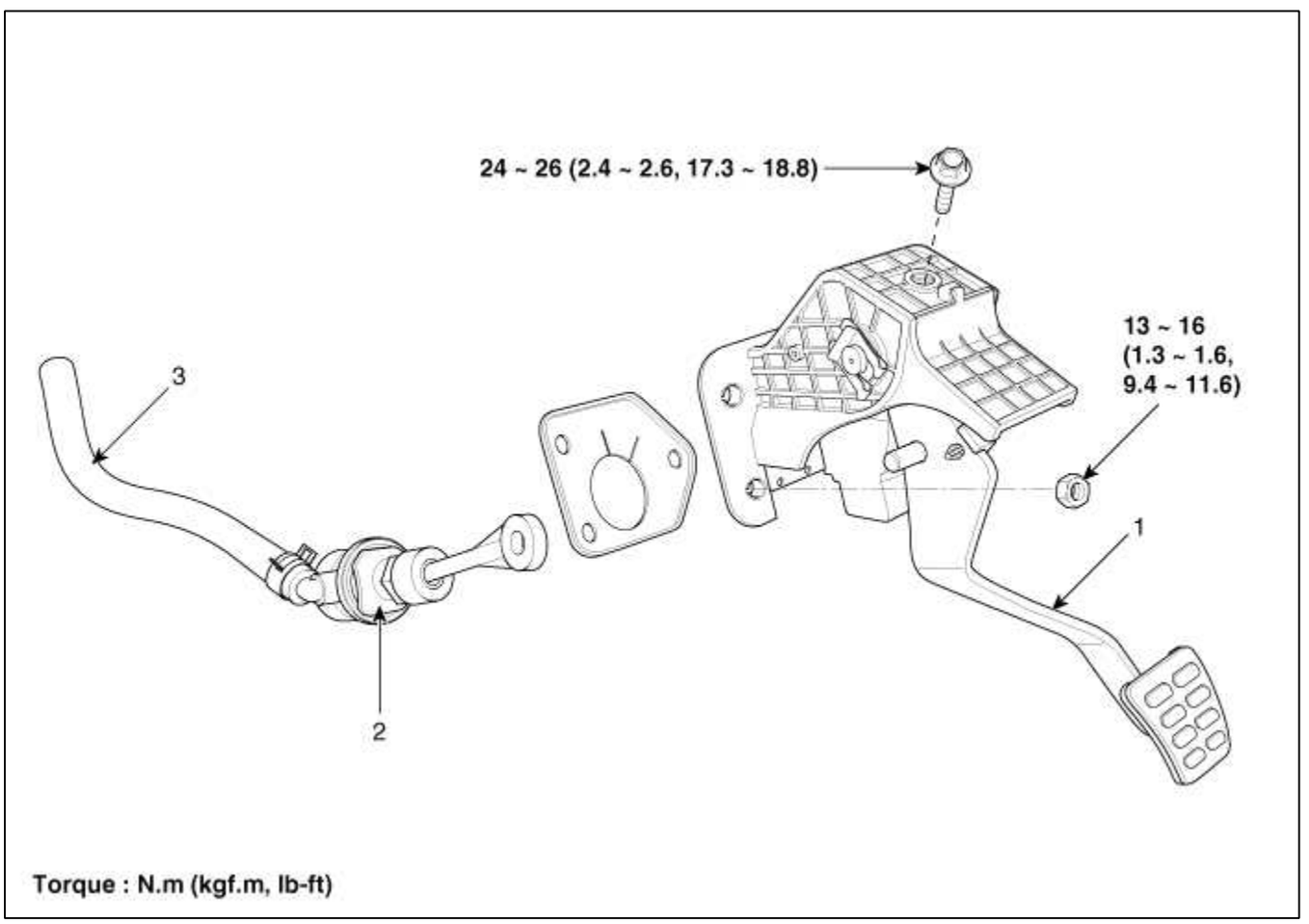
Tightening torque :
Clutch disc cover bolt :
25 ~ 36Nm (2.5 ~ 3.6kgf.m, 18.1 ~ 26.0lb-ft)



4. Remove the clutch disc guide (09411-1P000).
5. Install the transmission assembly to the engine. (Refer to Manual transmission installation in MT group)

Clutch System > Clutch System > Clutch Master Cylinder > Components and Components Location

Components

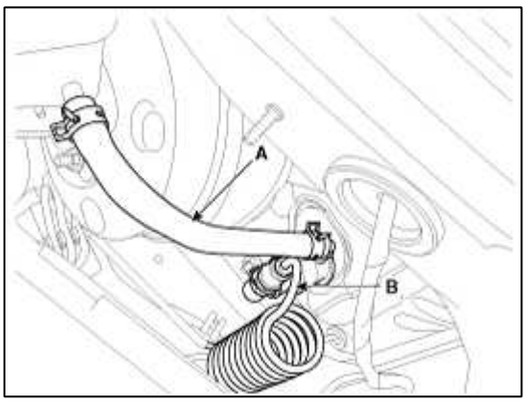


1. Clutch pedal assembly **2. Clutch master cylinder assembly**	**3. Clutch fluid hose**

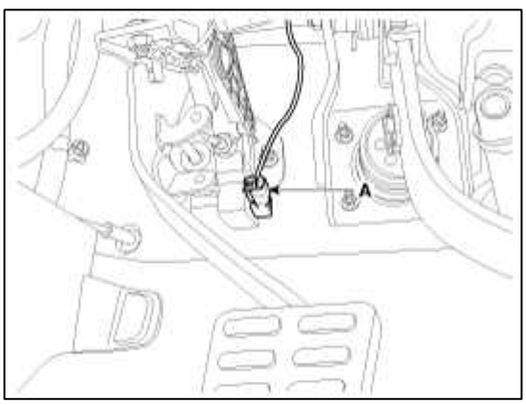
Clutch System > Clutch System > Clutch Master Cylinder > Repair procedures

Removal

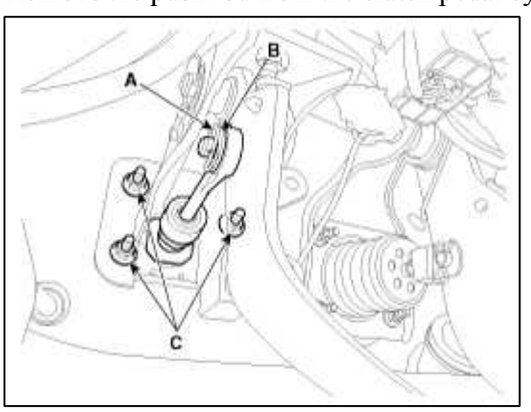
1. Remove the flexible hose (A) from the brake reserve tank.



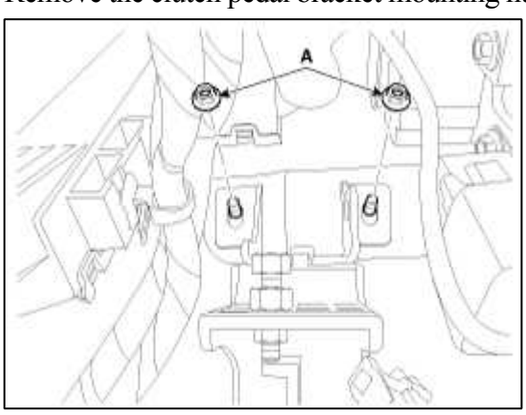
2. After pulling out a clip, disconnect the clutch tube (B) from the master cylinder.
3. Disconnect the ignition lock switch connector (A).



4. Remove the push rod from the clutch pedal by removing the snap pin (A) and washer (B).



5. Remove the clutch pedal mounting nut (C-3ea).
6. Remove the clutch pedal bracket mounting nut (A-2ea).



7. Remove the clutch master cylinder from the clutch pedal assembly by rotating the clutch master cylinder 45 degree counter clockwise.

Inspection

1. Check the inside of the cylinder body for rust, pitting or scoring.
2. Check the piston cup for wear or distortion.
3. Check the piston for rust, pitting or scoring.
4. Check to make sure the clutch line tube is not clogged or restricted in any way.

5. Measure the master cylinder inside diameter and the piston outside diameter with a cylinder gauge micrometer.

> NOTE
>
> Measure the inside diameter of the master cylinder at three places (bottom, middle, and top) in a perpendicular direction.

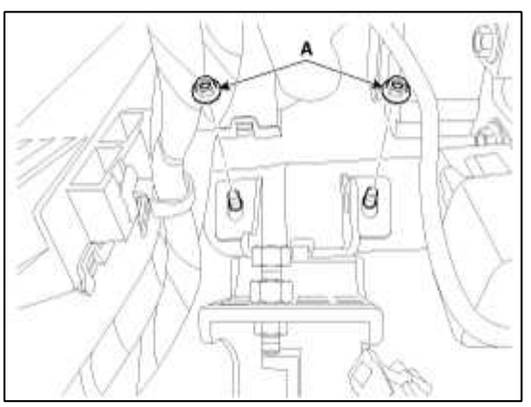
6. If the master cylinder-to-piston clearance exceeds the limit, replace the master cylinder and/or piston assembly.

Limit : 0.15 mm (0.006 in)

Installation

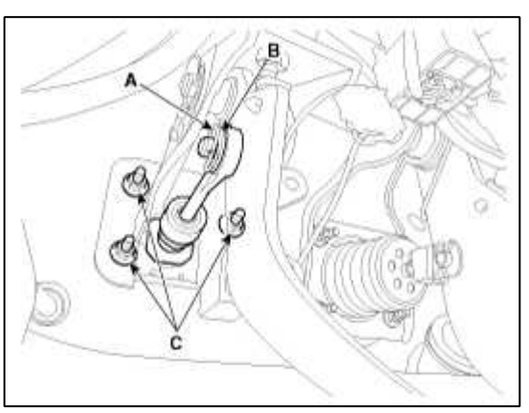
1. Install the clutch master cylinder to the clutch pedal assembly by rotating the clutch master cylinder 45 degree clockwise.
2. Install the clutch pedal bracket mounting nut (A-2ea).

Tightening torque :
13 ~ 16 N.m (1.3 ~ 1.6 kgf.m, 9.4 ~ 11.6 lb-ft)



3. Install the clutch pedal mounting nut (C-3ea).

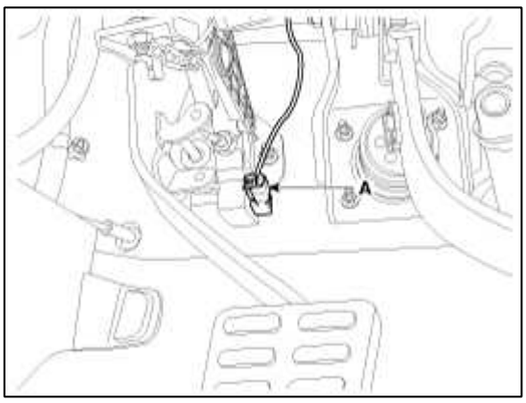
Tightening torque :
13 ~ 16 N.m (1.3 ~ 1.6 kgf.m, 9.4 ~ 11.6 lb-ft)



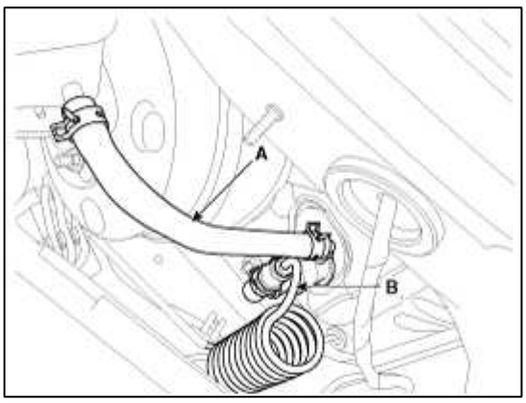
4. Install the push rod to the clutch pedal by installing the snap pin (A) and washer (B).

Wheel bearing grease : SAE J310, NLGI No.2

5. Connect the ignition lock switch connector (A).



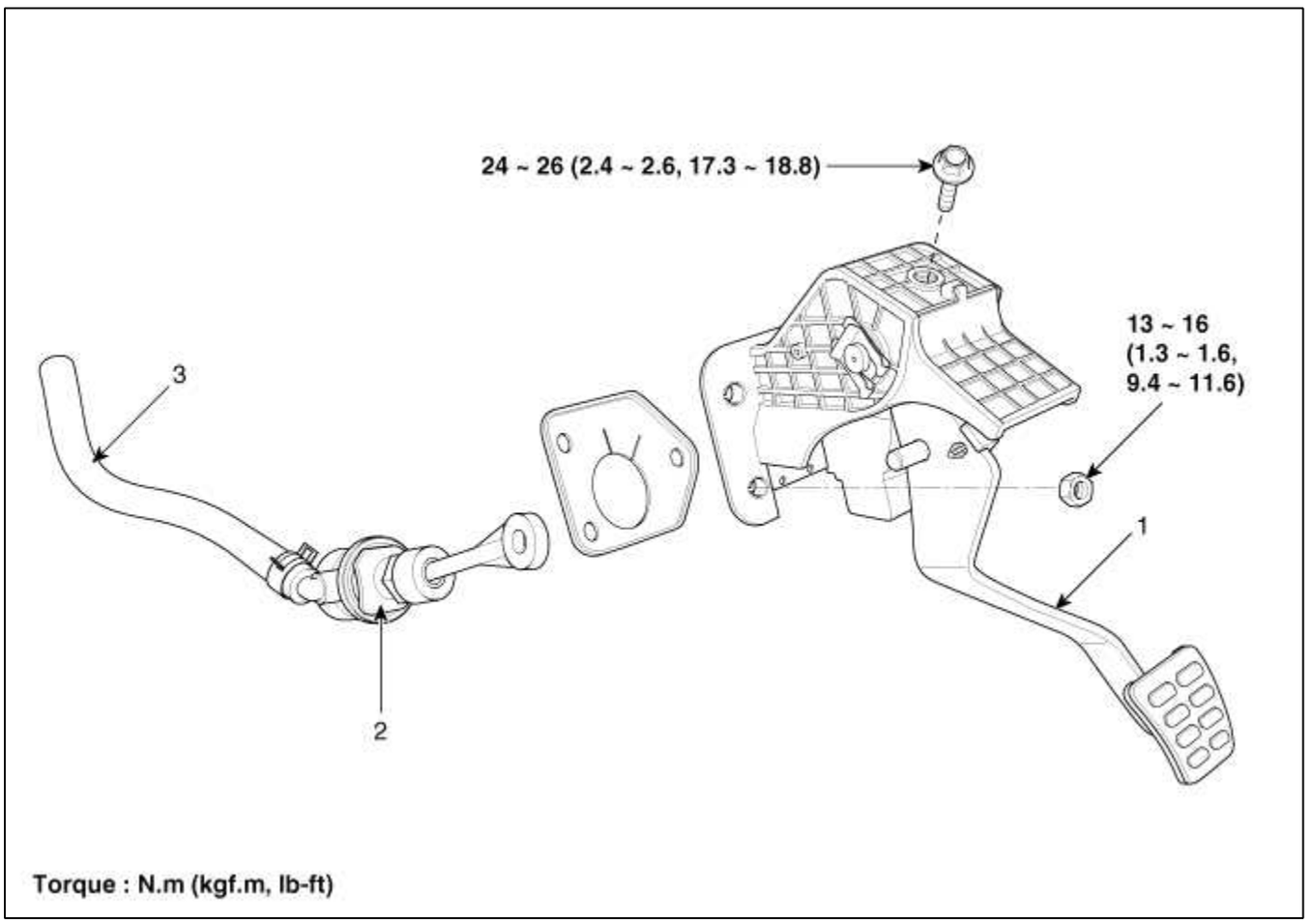
6. Install the flexible hose (A) to the brake reserve tank.



7. Connect the clutch tube (B) to the master cylinder and insert a clip.
8. Refill the brake fluid.
9. Bleed the air in the clutch system.
   (Refer to bleeding in service adjustment procedure)

Clutch System > Clutch System > Clutch Pedal > Components and Components Location

Components

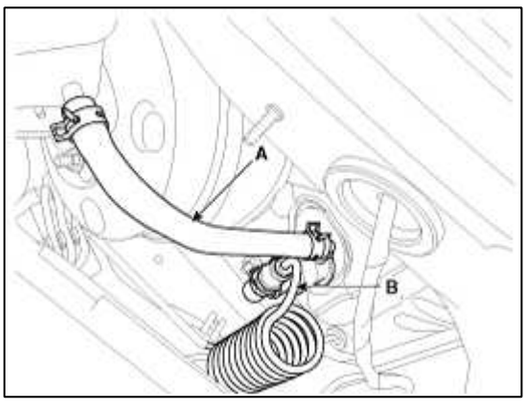


1. Clutch pedal assembly **2. Clutch master cylinder assembly**	**3. Clutch fluid hose**

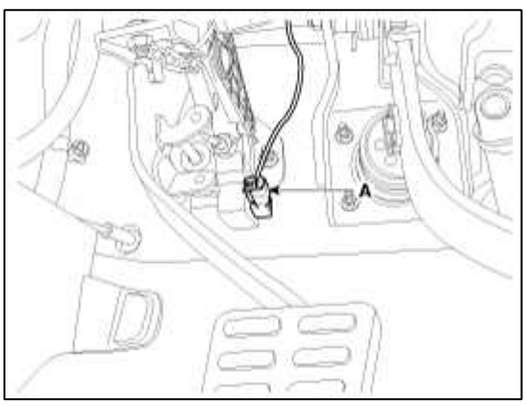
Clutch System > Clutch System > Clutch Pedal > Repair procedures

Removal

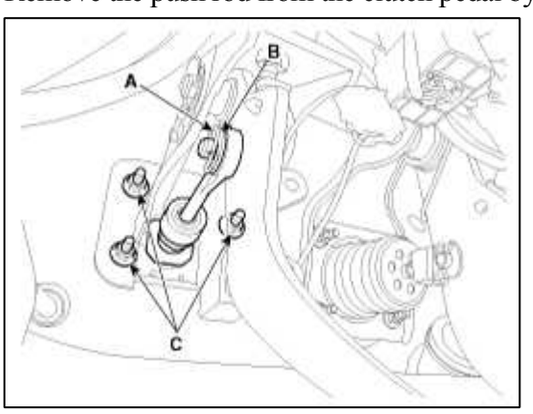
1. Remove the flexible hose (A) from the brake reserve tank.



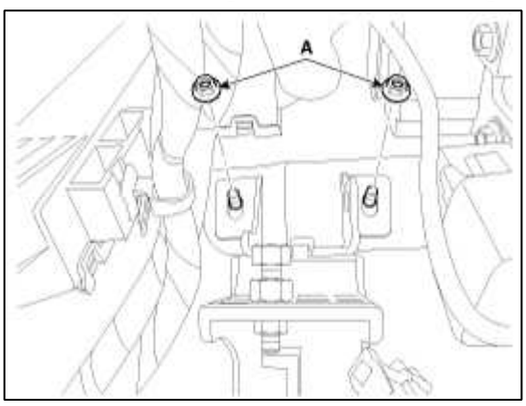
2. After pulling out a clip, disconnect the clutch tube (B) from the master cylinder.
3. Disconnect the ignition lock switch connector (A).



4. Remove the push rod from the clutch pedal by removing the snap pin (A) and washer (B).



5. Remove the clutch pedal mounting nut (C-3ea).
6. Remove the clutch pedal bracket mounting nut (A-2ea).



7. Remove the clutch master cylinder from the clutch pedal assembly by rotating the clutch master cylinder 45 degree counter clockwise.

Inspection

Clutch Pedal Assembly

1. Check the pedal shaft and bushing for wear.
2. Check the clutch pedal for bending or torsion.
3. Check the return spring for damage or deterioration.
4. Check the pedal pad for damage or wear.

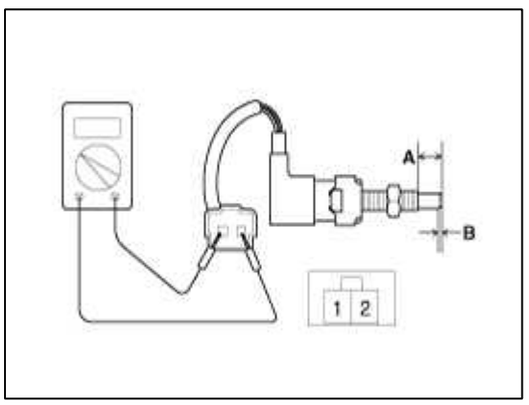
Ignition lock switch inspection

Remove the ignition lock switch and check for continuity between the terminals. If the continuity is not as specified, replace the switch.

Terminal / Condition	1	2
Pushed(ON)	○———	———○
Free(OFF)		

Standard value

Full stroke(A) : 12.0 ± 0.3mm (0.472 ± 0.012 in.)
ON-OFF point (B) : 2.0 ± 0.3mm (0.078 ± 0.012 in)

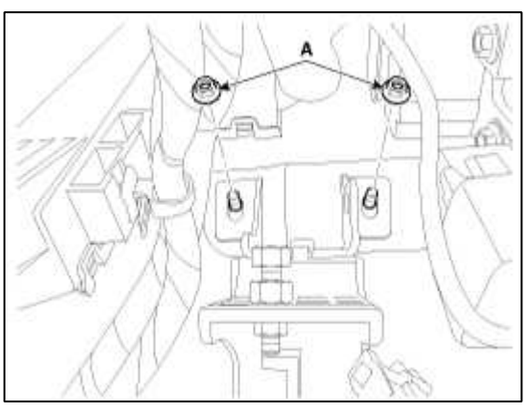


Installation

1. Install the clutch master cylinder to the clutch pedal assembly by rotating the clutch master cylinder 45 degree clockwise.
2. Install the clutch pedal bracket mounting nut (A-2ea).

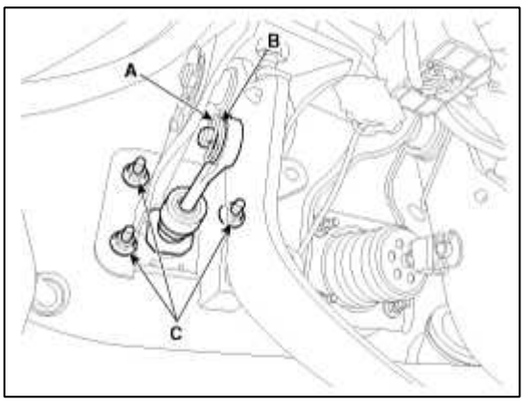
Tightening torque :

13 ~ 16 N.m (1.3 ~ 1.6 kgf.m, 9.4 ~ 11.6 lb-ft)



3. Install the clutch pedal mounting nut (C-3ea).

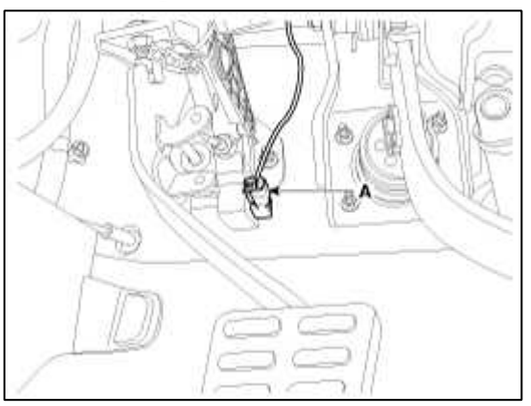
Tightening torque :
13 ~ 16 N.m (1.3 ~ 1.6 kgf.m, 9.4 ~ 11.6 lb-ft)



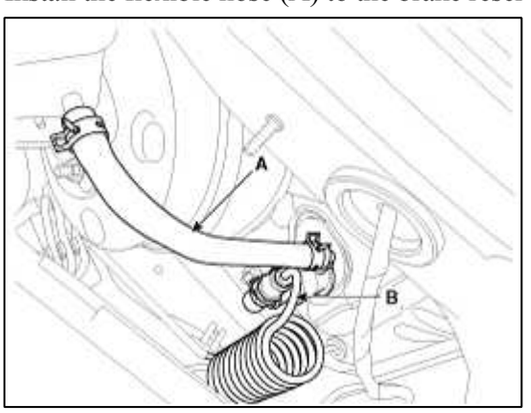
4. Install the push rod to the clutch pedal by installing the snap pin (A) and washer (B).

Wheel bearing grease : SAE J310, NLGI No.2

5. Connect the ignition lock switch connector (A).



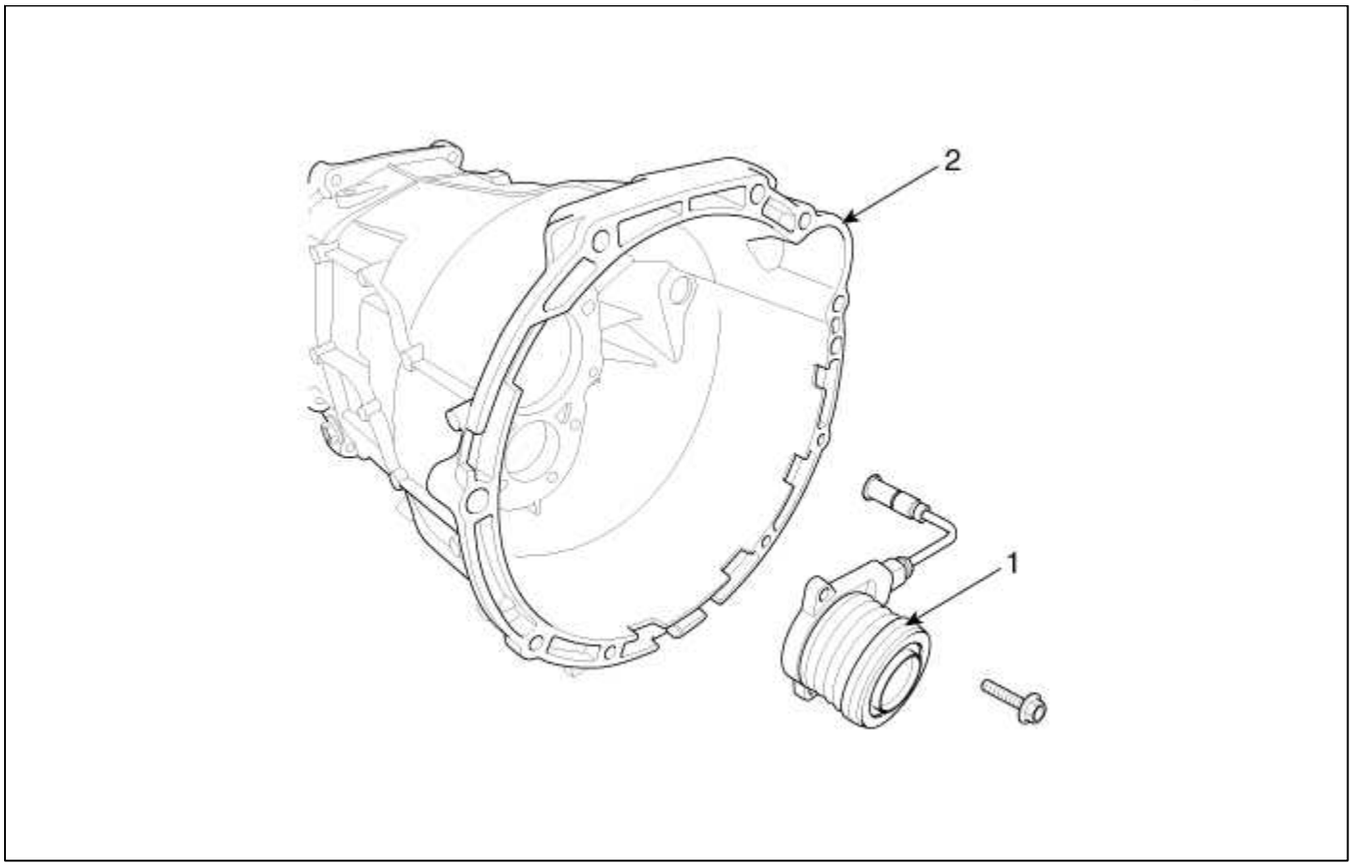
6. Install the flexible hose (A) to the brake reserve tank.



7. Connect the clutch tube (B) to the master cylinder and insert a clip.
8. Refill the brake fluid.
9. Bleed the air in the clutch system.
   (Refer to bleeding in service adjustment procedure)

Clutch System > Clutch System > Concentric Slave Cylinder Assembly > Components and Components Location

Components

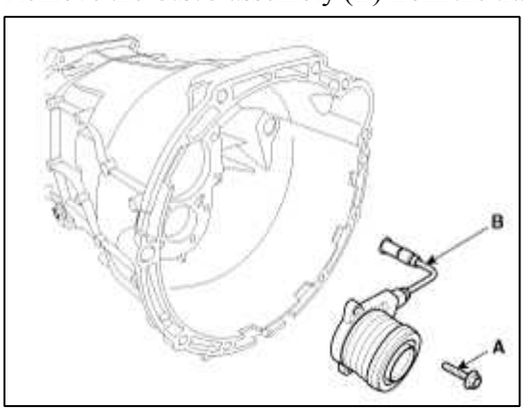


1. C.S.C (Concentric Slave Cylinder) assembly	2. Manual transaxle case

Clutch System > Clutch System > Concentric Slave Cylinder Assembly > Repair procedures

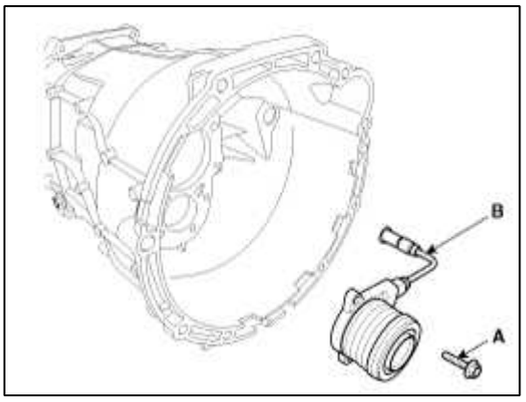
Removal

1. Remove the transaxle assembly.
   (Refer to Manual transaxle removal in MT group)
2. Remove the C.S.C assembly (B) from the transaxle case by removing bolts (A-3ea).



Installation

1. Install the C.S.C assembly (B) to the transaxle case by installing bolts (A-3ea).



2. Install the transaxle assembly.
   (Refer to Manual transaxle installation in MT group)
3. Bleed the air in the C.S.C system.
   (Refer to C.S.C Adjustment Procedure)

C.S.C Adjustment Procedure

C.S.C(Concentric Slave Cylinder) Air Bleeding

1. After disconnecting a cap from the concentric slave cylinder air bleeder, insert a vinyl hose in the plug.
2. Loosening the plug screw, press and release the clutch pedal about 10 times.

> CAUTION
>
> Hold the air bleeder body not to rotate with a spanner.
> The holding is needed when the plug loosened or tightened.

3. Tighten the plug during the clutch pedal pressed.
   Afterwards, raise the pedal with a hand.

Tightening torque :
8 ~ 10 Nm (0.8 ~ 1.0 kgf.m, 2.8 ~ 7.2 lb-ft)

4. After pressing the clutch pedal 3 times more, loosen the plug and retighten it with the pedal pressed. Raise it again, then.
5. Repeat the step 4 two or three times. (until there is no bubble in the fluid)