CH-2 Clutch System

General Information

Specifications

Item		Specification
Clutch operation method		Hydraulic type
Clutch cover assembly	Type	Diaphragm spring strap
Clutch disc	Type	Single dry with diaphragm
	Facing diameter (outside x inside)	Ø235 × Ø150mm (Ø9.2520 × Ø5.9055in.)
Concentric slave cylinder	Facing diameter (inside x outside)	Ø32.2 x Ø44mm (Ø1.2677 × Ø1.7323in.)
Clutch Master Cylinder	Facing diameter (inside)	15.77mm(0.6209in.)

Service Standard

Item	Specification
Clutch disc thickness [When free]	8.7 ± 0.3 mm (0.3425 ± 0.012 in.)
Clutch pedal height	216 mm (8.5036 in.)
Clutch pedal free play	6 ~ 13 mm (0.2362 ~ 0.5118 in.)
Clutch pedal stroke	145 ± 3mm (5.7087 ± 0.1181 in.)
Clutch disc rivet depth	1.3 mm (0.0512 in.)
Diaphragm spring end height difference	0.5 mm (0.0197 in.)

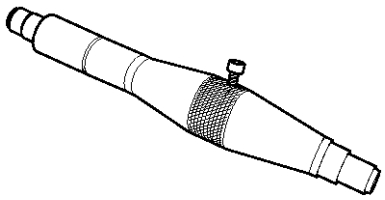
Tightening Torques

Item	N.m	kgf.m	lb-ft
Clutch cover asssembly	24.5 ~ 34.3	2.5 ~ 3.6	18.1 ~ 26.0
Ignition lock switch	7.8 ~ 9.8	0.8 ~ 1.0	5.8 ~ 7.2
Clutch pedal and pedal mounting bolt	9.8 ~ 14.7	1.0 ~ 1.5	7.2 ~ 10.8
Concentric slave cylinder Installation bolt	11.8 ~ 14.7	1.2 ~ 1.5	8.7 ~ 10.8

Lubricants

Item	Specified lubricants	Quantity
Input spline	CASMOLY L9508	0.2g
Concentric slave cylinder assembly	KLUBER 9R100	As required
Clutch pedal shaft and bushings	Chassis grease SAE J310, NGLI NO.1	

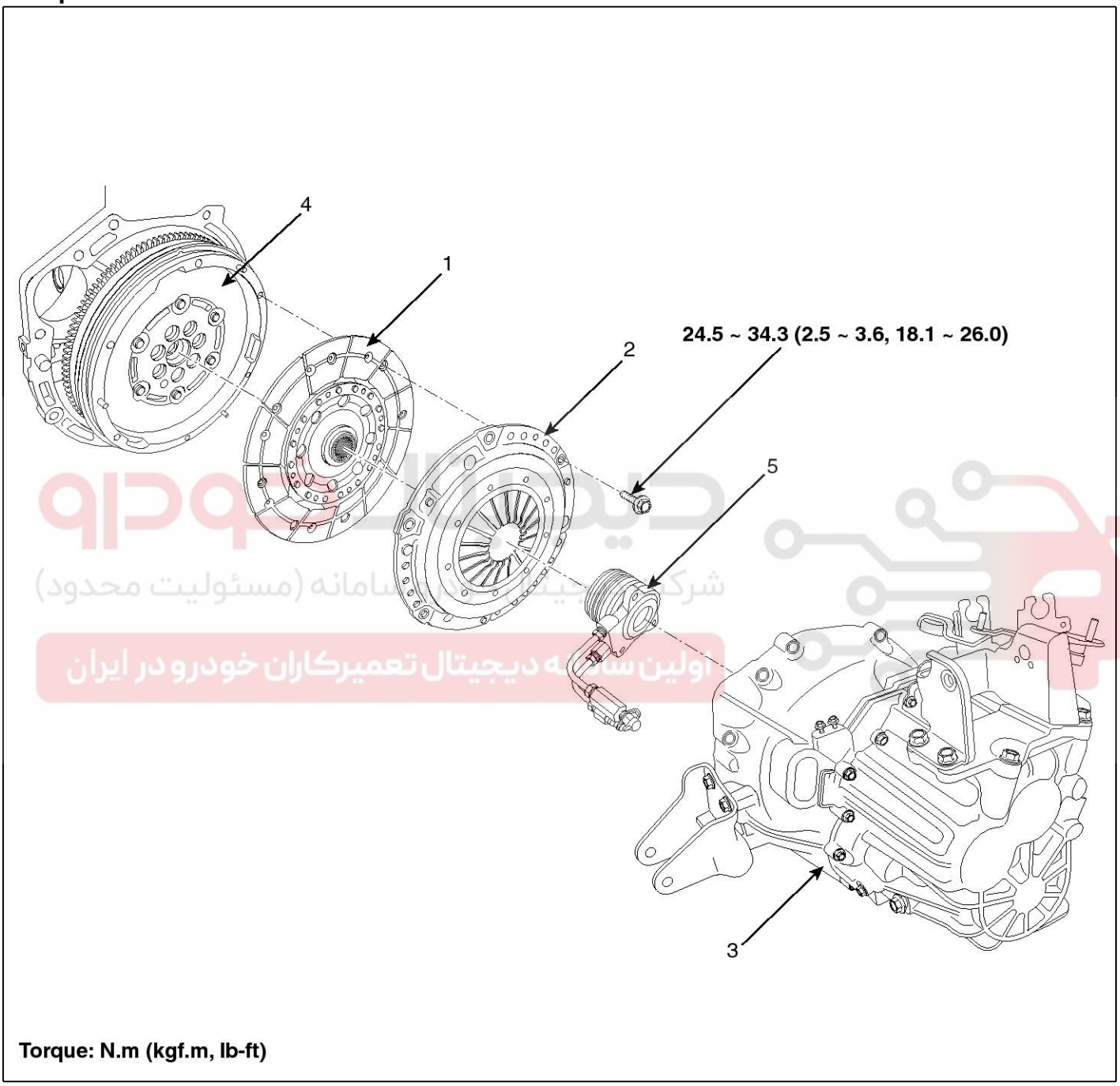
Special Service Tools

Tool (Number and name)	Illustration	Use
09411-1P000 Clutch disc guide	 SRBCH1012L	Installation of the clutch disc.

Clutch System

Clutch Cover And Disc

Components



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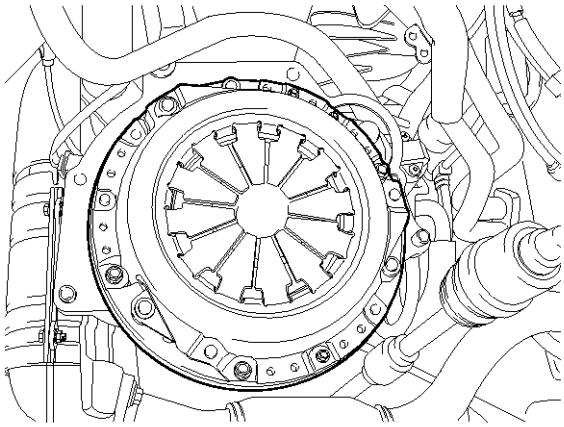
1. Clutch disc
2. Clutch cover
3. Manual transaxle
4. Engine flywheel
5. Concentric slave cylinder

Removal

1. Remove the transaxle assembly. (Refer to "Manual transaxle system" in MT group)
2. Remove the clutch cover bolts. Be careful not to be bent or twist bolts. Loosen bolts in diagonal directions.



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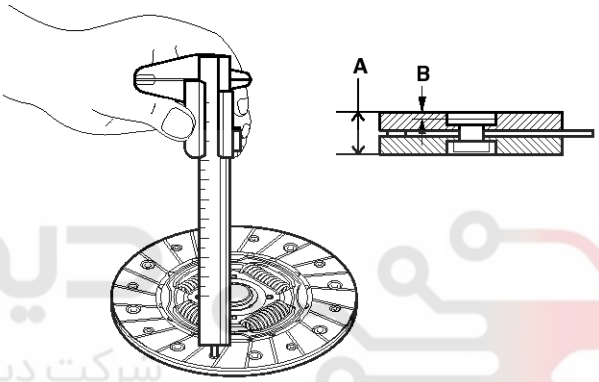
Inspection

1. Inspect diaphragm spring wear which is in contact with a concentric slave cylinder bearing.
2. Check the clutch cover and disc surface for wear or cracks.
3. Check the clutch disc lining for slipping or oil marks.
4. Measure the depth from a clutch lining surface to a rivet. If the measured value is less than the specification below, replace it.

Standard value

Clutch disc thickness (A)[when free]:
8.5 ± 0.3 mm (0.3347 ± 0.012 in.)
Clutch disc rivet depth (B): 1.3 mm (0.0512 in.)



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Installation

NOTICE

If reinstalling used cover, the cover should be installed with its clutch disc as a set.

1. Replace a clutch cover and disc as a set.

   NOTICE

   - *When replacing only a disc, a slip problem can occur because of the load loss due to uneven surface wear.*
   - *When replacing only a disc, it can be difficult to cut power because the thickness of the disc won't permit it.*

2. Apply grease on a disc spline part and transmission input shaft spline part as required.

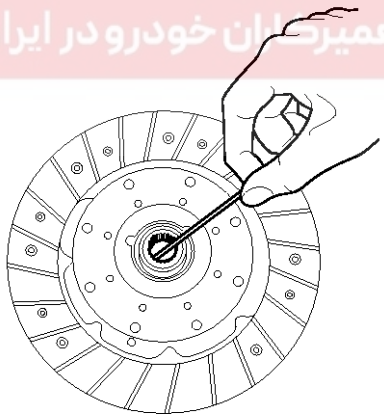
   NOTICE

   ** Possible problems when not following recommendations:*

   - *When not applying enough grease: Excessive wear of splinesand bad clutch operation can occur.*
   - *When excessive grease is applied:*

     Grease can be scattered by centrifugal force which can contaminate the clutch disc.

     This can cause a loss of friction force causing a slip.



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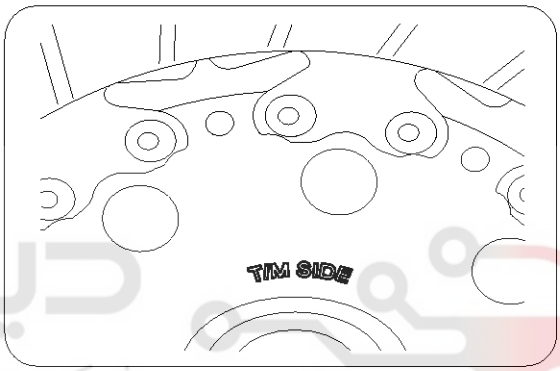
3. The 'T/M SIDE' marked surface should face the engineer.

   CAUTION

   *** Possible problems when the disc is installed in the opposite direction.**

   - **There can be an interference between the concentric slave cylinder on the TM side and a engine flywheel surface.**
   - **Transaxle shift error or a strange sound can occur due to clutch separation.**
   - **The concentric slave cylinder can break. If it does, the concentric slave cylinder should be replaced new one.**



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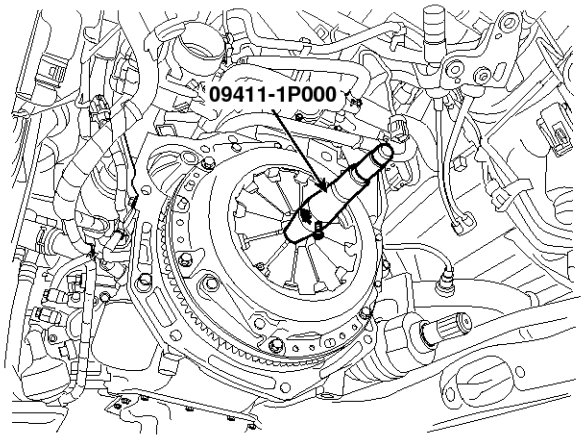
4. Install the clutch disc and the cover with SST (A : 09411-1P000).



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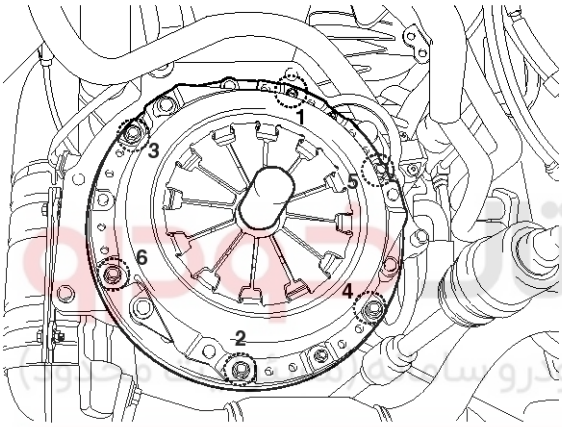
5. Install the clutch cover bolts. Not to be bent or twisted, Tighten them in diagonal directions.

Tightening torque:
24.5 ~ 35.3 N.m (2.5 ~ 3.6 kgf.m, 18.1 ~ 26.0 lb-ft)

⚠CAUTION

- **Loosely tighten every clutch cover bolts, then torque to specifications in a diagonal direction. This can prevent twisting, vibration of the cover, and the lifting of the pressure plate.**
- **Install the all the components with the specified torques. If not, the clutch torque transmission may have concerns or the mounting bolt can loosen.**



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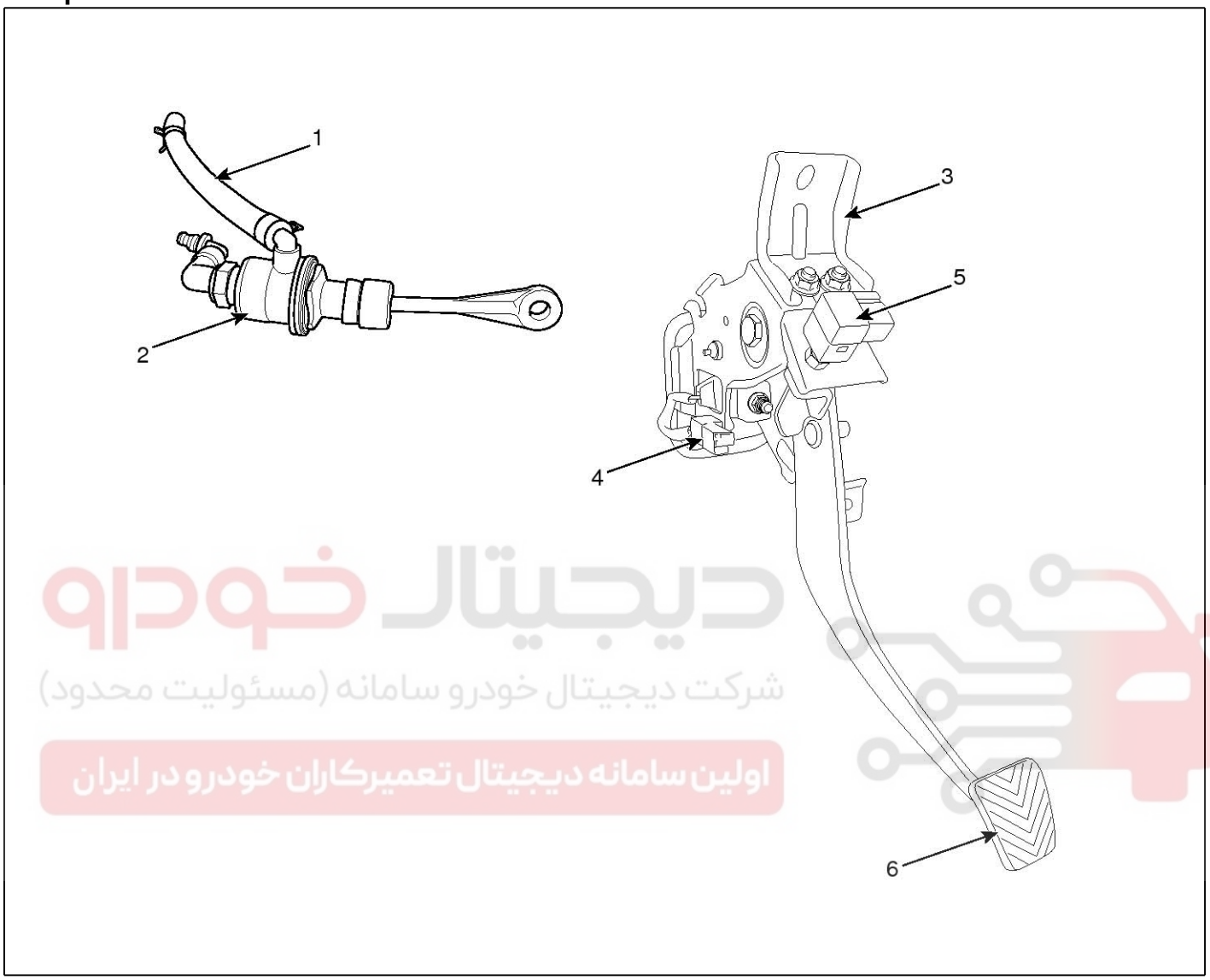
6. Install the transaxle assembly. (Refer to "Manual transaxle system" in MT group.)

Clutch Master Cylinder

Components



STFCH1002D

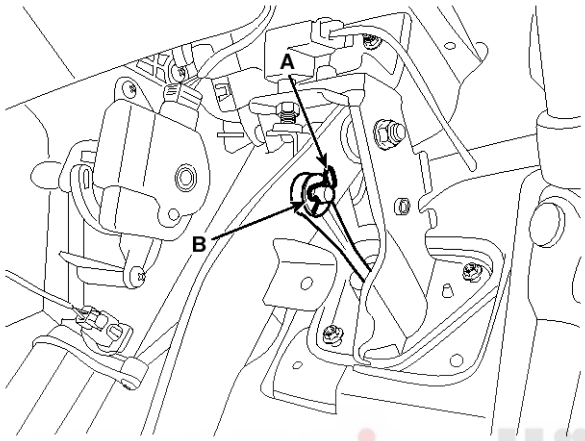
1. Reservoir hose
2. Master cylinder
3. Member assembly
4. Ignition lock switch
5. Clutch switch
6. Pedal pad

Removal

NOTICE

Do not spill brake fluid on the vehicle; it may damage the paint if brake fluid does contact the paint, wash it off immediately with water.

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



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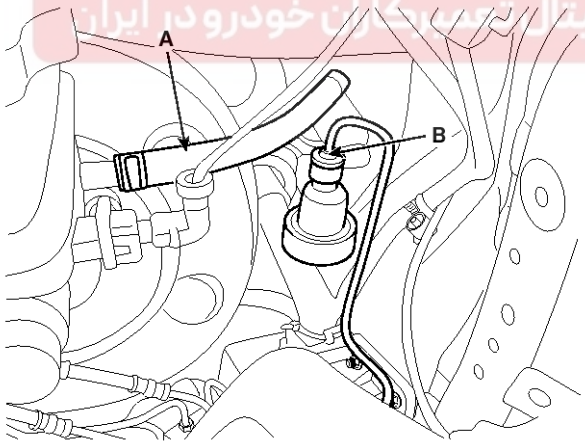
2. Remove the air cleaner assembly and air duct. (Refer to "Intake and Exhaust system" in EM group.)
3. Disconnect the clutch tube (B) and reservoir hose (A) from the clutch master cylinder.



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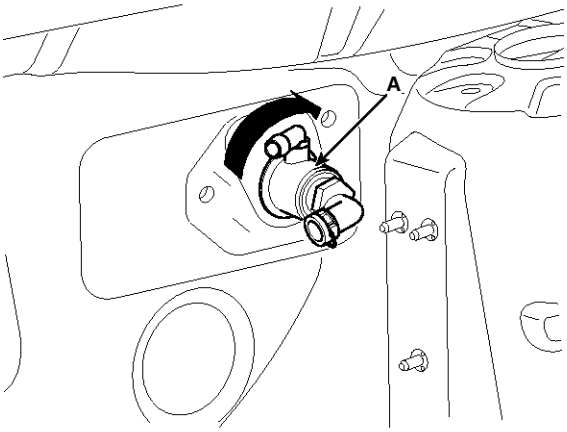
4. Remove the clutch master cylinder by turning it clockwise (A).



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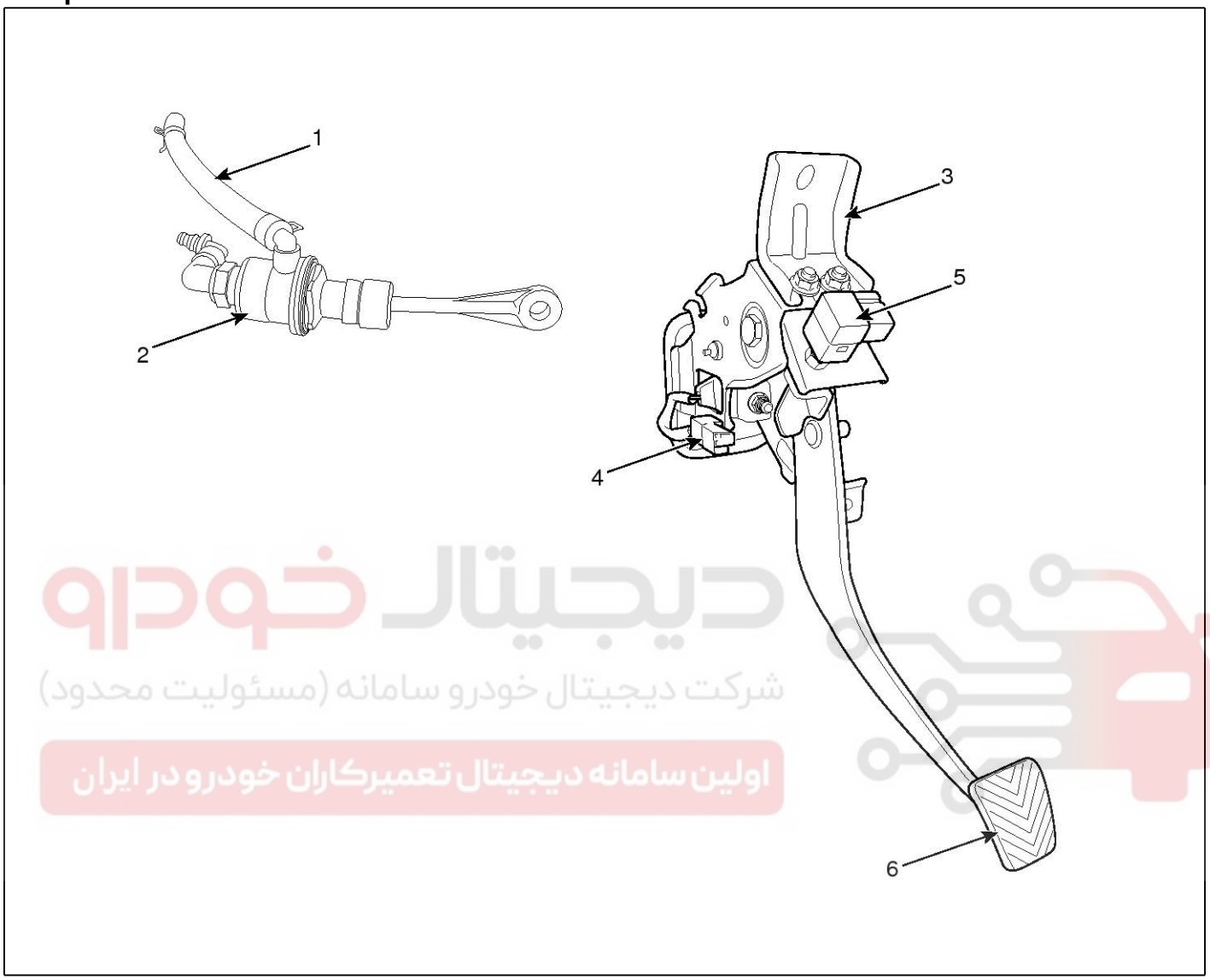
Installation

1. Installation is in reverse order of removal.
   - Perform bleeding air procedure in concentric slave cylinder after pouring the brake fluid. (Refer to "Concentric slave cylinder" in CH group.)

Clutch Pedal

Components



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1. Reservoir hose
2. Master cylinder
3. Member assembly
4. Ignition lock switch
5. Clutch switch
6. Pedal pad

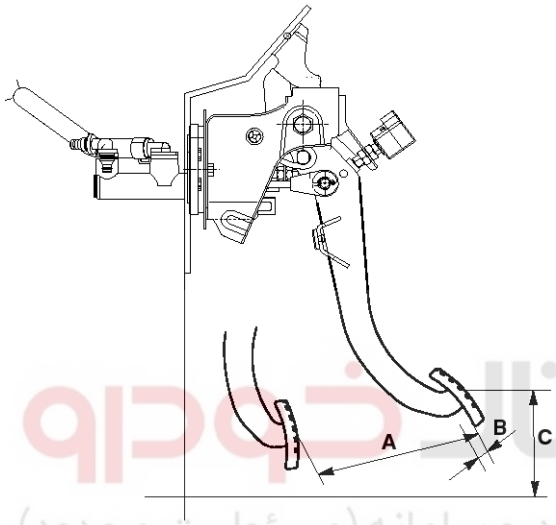
Inspection

Clutch Pedal Inspection

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

Stroke (A): 145 ± 3mm (5.7087 ± 0.1181 in.)
Free play (B): 6 ~ 13 mm (0.2362 ~ 0.5118 in.)
Height (C): 167mm (6.5748 in.)



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Ignition Lock Switch Inspection

1. Disconnect 2P-connector from a ignition lock switch.
2. Disconnect the ignition lock switch. (if you can install a tester with the switch fixed, this step can be omissible)
3. Check for continuity between terminals. (refer to the table below)

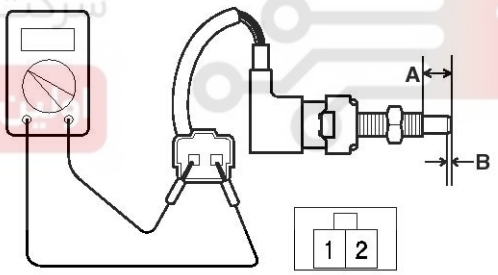
NOTICE

- *If there is difference between what tested and the table above, replace the ignition lock switch with a new one.*

Pedal position	Clutch switch	Ignition lock switch
Released	Pressed (Continuity)	Released (Open)
Fully pressed	Released (Open)	Pressed (Continuity)

Standard value

Full stroke (A): 12.0 ± 0.3mm (0.4724 ± 0.0118 in.)
ON-OFF point (B): 2.0 ± 0.3mm (0.0787 ± 0.0118 in)



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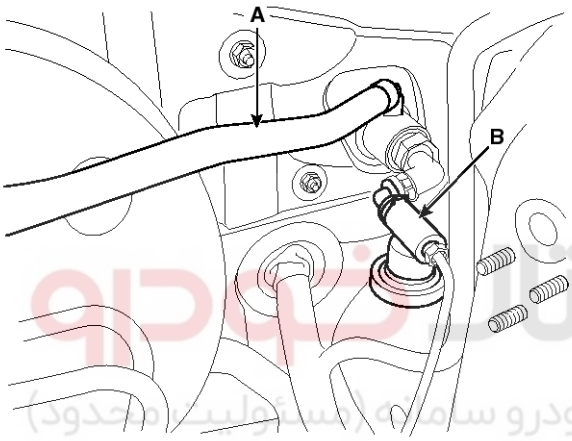
4. If there is difference between what tested and the table above, replace the ignition lock switch with a new one.

Removal

NOTICE

Do not spill brake fluid on the vehicle; it may damage the paint if brake fluid does contact the paint, wash it off immediately with water.

1. Remove the brake fluid from the clutch master cylinder reservoir with a syringe.
2. Clamp the clutch master cylinder hose (A). If there is not enough room for clamping, you can also clamp the hose from the brake master cylinder side.
3. Disconnect the clutch master tube line (B) after removing the pin on the clutch master cylinder.



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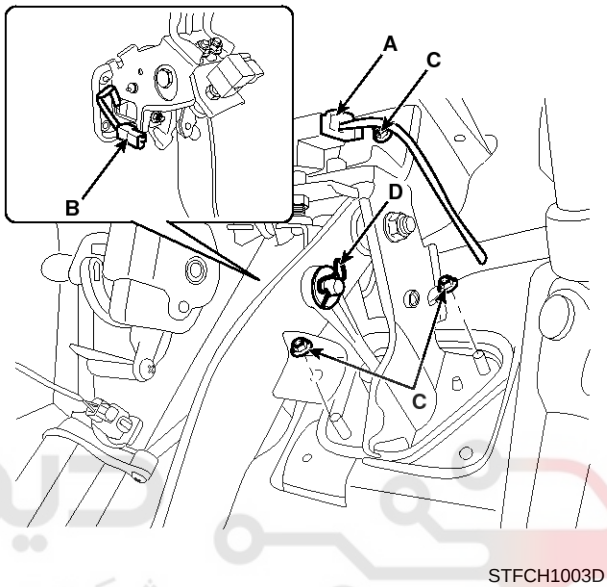
4. Disconnect the ignition lock switch connector (B) and clutch switch (A).
5. Remove the clutch pedal assembly mounting nut (C-3ea) and bolts (D).

Tightening torque:
9.8 ~ 14.7 N.m (1.0 ~ 1.5 kgf.m, 7.2 ~ 10.8 lb-ft)

6. Remove the clutch pedal and the master cylinder assembly together.



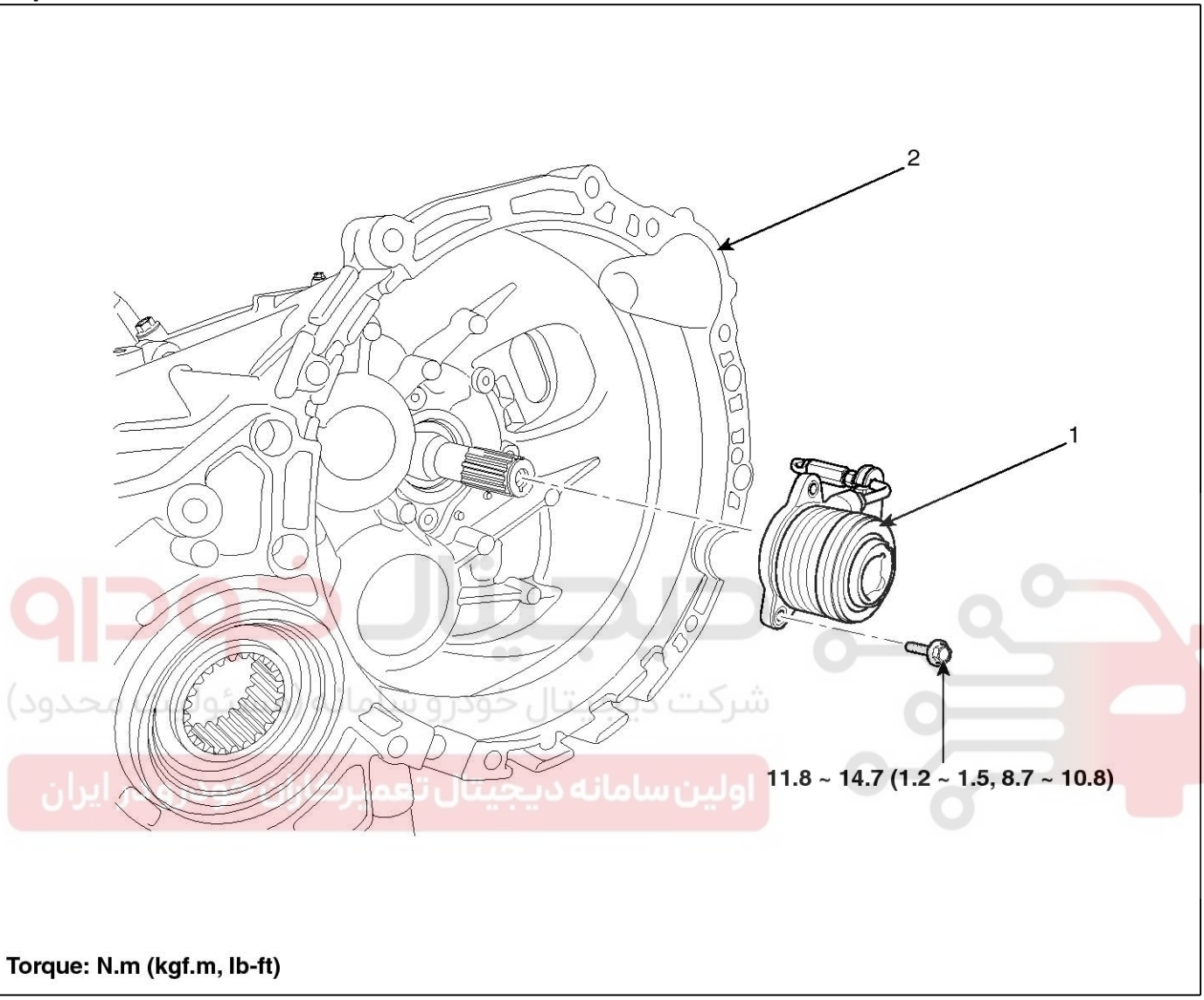
STFCH1003D

Installation

1. Installation is in reverse order of removal.
   - Perform bleeding air procedure in concentric slave cylinder after pouring the brake fluid. (Refer to "Concentric slave cylinder" in CH group.)

Concentric Slave Cylinder Assembly

Components Location



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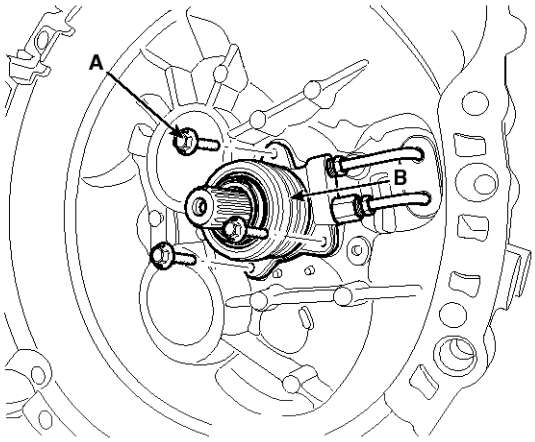
1. Concentric Slave Cylinder assembly
2. Manual transaxle case

Removal

1. Remove the transaxle assembly. (Refer to "Manual transaxle" in MT group)
2. Remove the concentric slave cylinder assembly (B) from the transaxle case by removing bolts (A-3ea).

Tightening torque:
11.8 ~ 14.7 N.m (1.2 ~ 1.5 kgf.m, 8.7 ~ 10.8 lb-ft)



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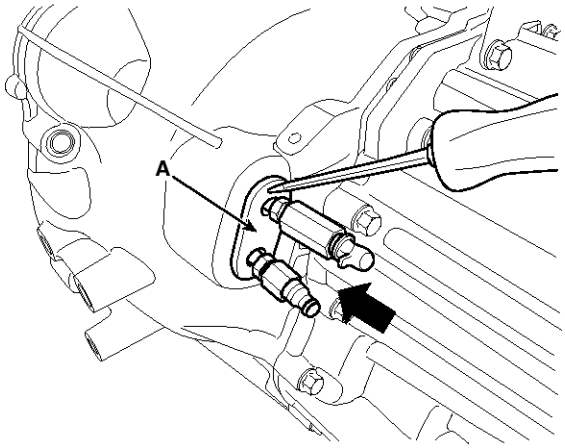
3. Remove the concentric slave cylinder assembly (B) by pushing the rubber (A) to forward.



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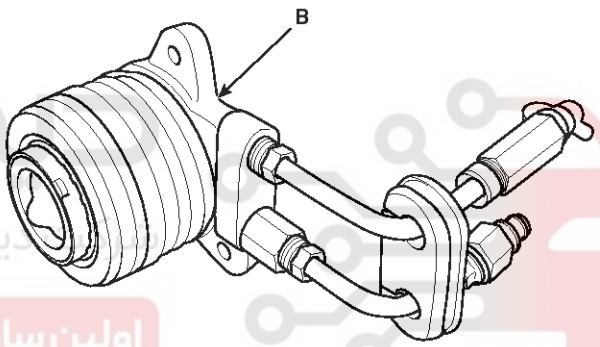


SSLCH1055D

Installation

1. Installation is in reverse order of removal.

⚠CAUTION

- **Install the concentric slave cylinder bolts. Not to be bent or twisted, Tighten them in diagonal directions.**
- **Cup, Inner surface of body and outer surface of tube guide must be free from flaws.**
- **When it is assembled, it must be free from invasive foreign matters and oil leakage.**

Adjustment

Concentric Slave Cylinder Air Bleeding Procedure

CAUTION

Use the specified fluid. Avoid mixing different brands of fluid.

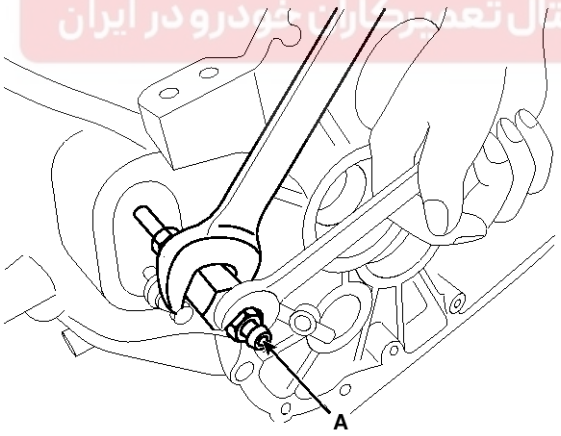
Specified fluid: SAE J1703 (DOT 3 or DOT 4)

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.

   NOTICE

   Using a flare nut wrench, hold the air bleeder body, being careful not to rotate it. Then use a second flare nut wrench on the plug screw to bleed the clutch master cylinder.
3. Tighten the plug (A) during the clutch pedal pressed. Afterwards, raise the pedal with a hand.
4. After pressing the clutch pedal 3 times more, loosen the plug (A) 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)

Tightening torque:
6.8 ~ 9.8 N.m (0.7 ~ 1.0 kgf.m, 9.2 ~ 13.3 lb-ft)



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6. Refill the clutch master cylinder with the specified fluid.

CAUTION

1. **Do not clamp the pipe of a concentric slave cylinder.**
2. **Be careful not to damage O-rings.**