

CHA-2

Clutch System

General Information

Specifications

Items	Specifications
Engine type	θ 2.0
Clutch operation method	Hydraulic type
Clutch disc Type	Single dry with diaphragm
Faling diameter(Outer × inner)	235 × 155mm(9.2520 × 6.1024 in.)
Clutch cover assembly Type	Diaphragm spring strap
Clutch release cylinder inner diameter	20.64mm(0.8126 in.)
Clutch master cylinder inner diameter	15.87mm(0.6248 in.)

Service Standard

Standard value	
Clutch disc thickness [When free]	8.0~8.6 mm (0.3150~0.3386 in.)
Distance between inner pad and clutch pedal	167 mm (6.5748 in.)
Clutch pedal free play	6~13 mm (0.2362~0.5118 in.)
Clutch pedal stroke	147~153 mm (5.7874~6.0236 in.)
Clutch pedal height	167 mm (6.5748 in.)
Limit	
Clutch disc rivet sink	0.3 mm (0.0118 in.)
Diaphragm spring end height difference	0.5 mm (0.0197 in.)
Clutch release cylinder clearance to piston	0.15 mm (0.0059 in.)
Clutch master cylinder clearance to piston	0.15 mm (0.0059 in.)

Tightening Torques

Item	N.m	kgf.m	lb-ft
Clutch tube to clutch oil regulator	12.7 ~ 16.7	1.3 ~ 1.7	9.4 ~ 12.3
Clutch tube to clutch hose	12.7 ~ 16.7	1.3 ~ 1.7	9.4 ~ 12.3
Clutch release cylinder to clutch hose	24.5 ~ 34.3	2.5 ~ 3.5	18.1 ~ 25.3
Clutch release cylinder bleeder screw	11.8 ~ 19.6	1.2 ~ 2.0	8.7 ~ 14.5
Clutch cover	24.5 ~ 35.3	2.5 ~ 3.6	18.1 ~ 26
Ignition lock switch	7.8 ~ 9.8	0.8 ~ 1.0	5.8 ~ 7.2
Clutch pedal mounting	16.7 ~ 25.5	1.7 ~ 2.6	12.3 ~ 18.8

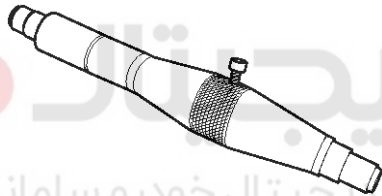
General Information

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Lubricants

Items	Specified lubricants	Quantity
Contact surface of release bearing and fulcrum of clutch release fork	CASMOLY L 9508	0.3~0.5g
Inner surface of clutch release cylinder and outer circumference of piston and cup	Brake fluid DOT 3 or DOT 4	As required
Inner surface of clutch disc spline	CASMOLY L 9508	0.2g
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.2	As required
Clutch pedal shaft and bushings	Chassis grease SAE J310a, NLGI No.1	As required
Contact portion of release fork to release cylinder push rod	CASMOLY L 9508	As required

Special Service Tools

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

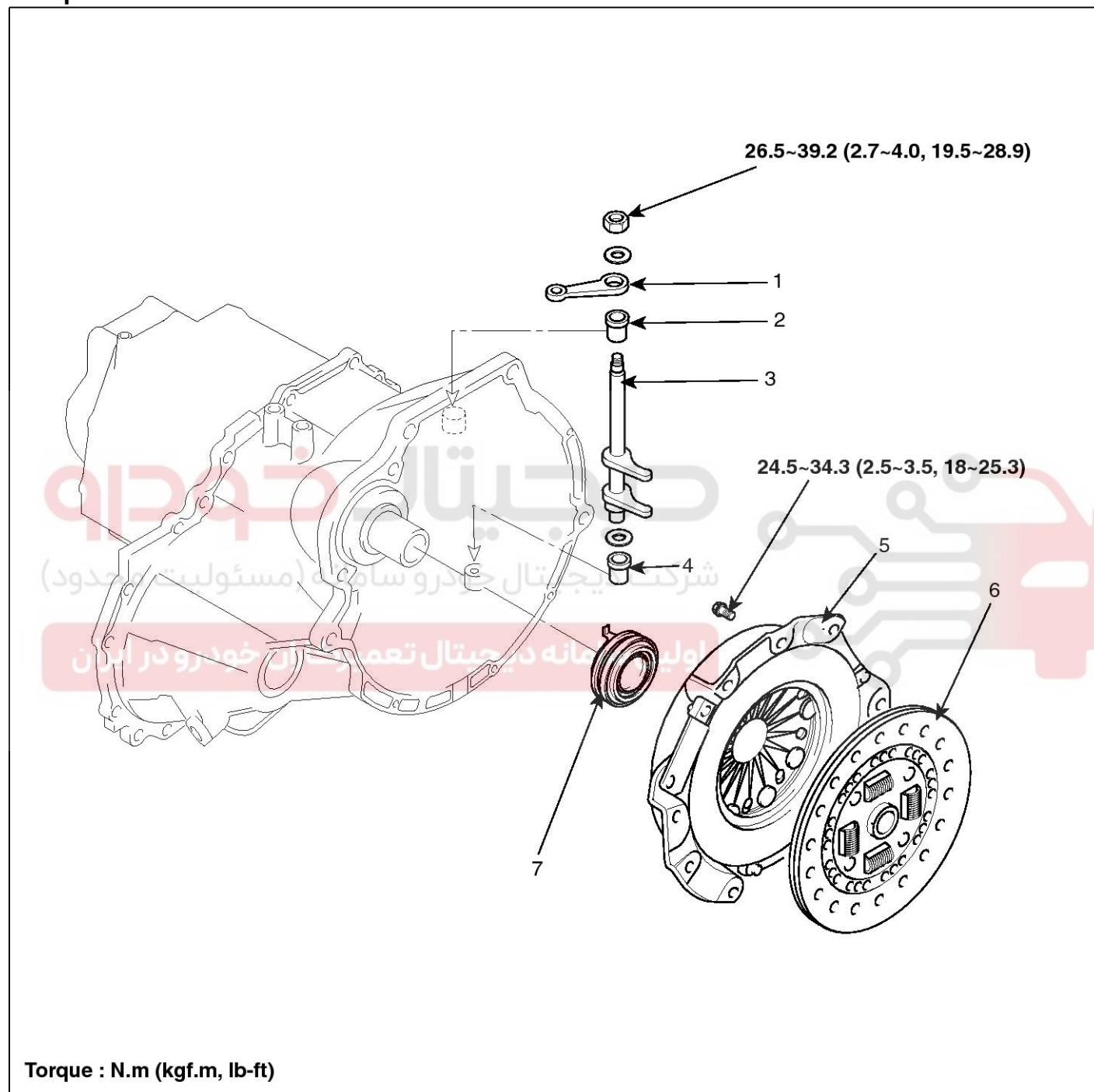
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Clutch System

Clutch System

Clutch Cover And Disc

Componenets



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1. Clutch release lever
2. Bushing
3. Clutch release fork
4. Bushing

5. Clutch cover assembly
6. Clutch disc
7. Clutch release bearing

Clutch System

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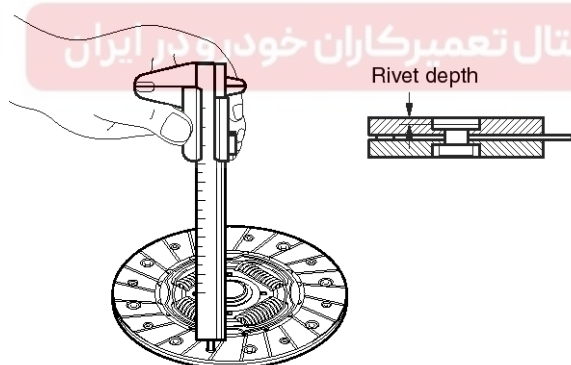
Inspection

Clutch cover assembly

1. Clean the dust from the clutch housing using a vacuum or cloth. Do not use compressed air.
Check for oil leakage from the engine rear bearing oil seal and transaxle front oil seal. If leaky, repair them.
2. The friction surface of the pressure plate must be uniform over the entire disc surface.
If any part shows excessive wear, the pressure plate is installed badly.
3. Check the friction surface of the flywheel for color change, partial damage, small cracks, and wear.
4. Clean the friction surface of the pressure plate with cleaning solvent.
5. Check that the three-dowel on the flywheel is installed completely.

Clutch Disc

1. Don't touch the clutch disc with contaminated hands or gloves. Replace the clutch disc if the facing is stained with oil or grease. Measure the rivet depth. Replace the clutch disc if the rivet depth is less than 0.3 mm.
2. Check the hub spline and torsion spring of the clutch disc for excessive wear.



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Clutch Release Bearing

⚠ CAUTION

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

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

Removal

1. Remove the transaxle assembly. (Refer to "Manual Transaxle" in MT group)
2. Remove the release bearing.
3. Remove the clutch cover and the disk from the engine.

📌 NOTICE

- Insert the special tool (09411-1P000) into the spline hole to support the clutch disk when removing the clutch cover.
 - Do not use solvent to clean the clutch disk and the release bearing.
4. Remove the bushing and the release fork assembly.

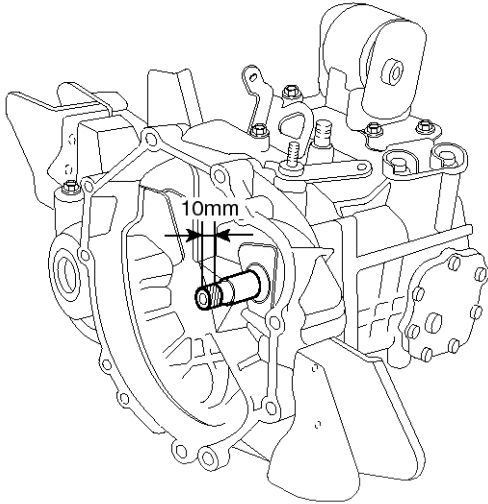
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Clutch System

Installation

1. Grease where is 10mm from the end of the transaxle's input shaft, before installing the clutch disk and cover assembly.

Grease: CASMOLY L9508



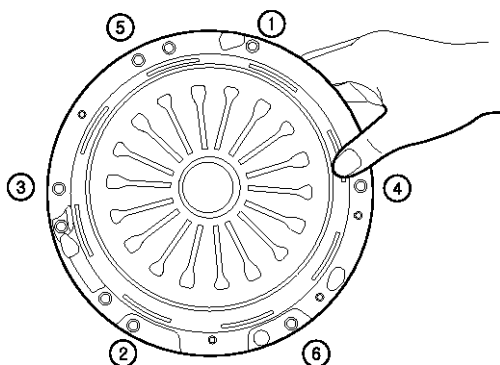
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2. Install the clutch disc assembly to the flywheel using the special tool (09411-1P000).
3. Install the clutch cover assembly to the flywheel and temporarily tighten the bolts three steps at a time in a star pattern.

Tightening torque :

Clutch cover bolt:

24.5~35.3 N.m (2.5~3.6 kgf.m, 18.1~26 lb-ft)



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4. Align the bearing (A) to the release fork (B) and then install it to the sleeve of the housing.

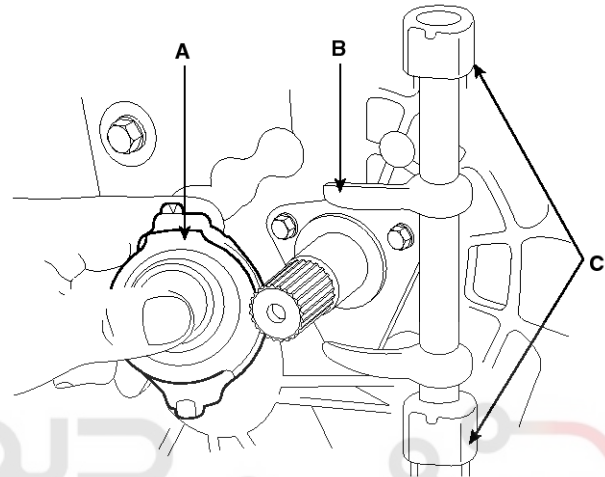
⚠ CAUTION

Apply multipurpose grease (CASMOLY L9508) to the bearing sleeve, contact point of the release fork (B) and the bushing inner surface (C).

Groove of bearing sleeve : 0.5~1.0g

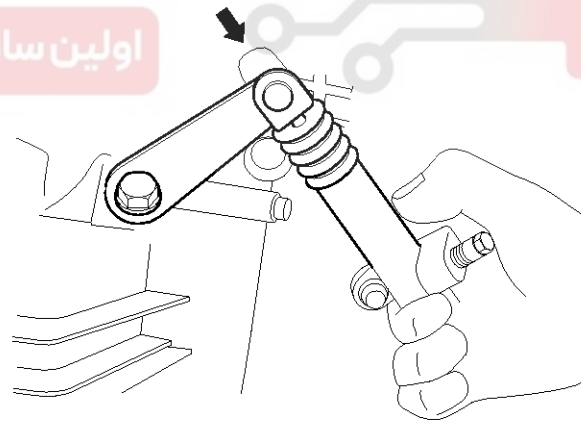
Contacting part of release fork : 0.3~0.5g

Bushing's neck : 0.8~1.2g



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5. Install the release lever to the release fork.



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6. Install the transaxle assembly to the engine.

⚠ CAUTION

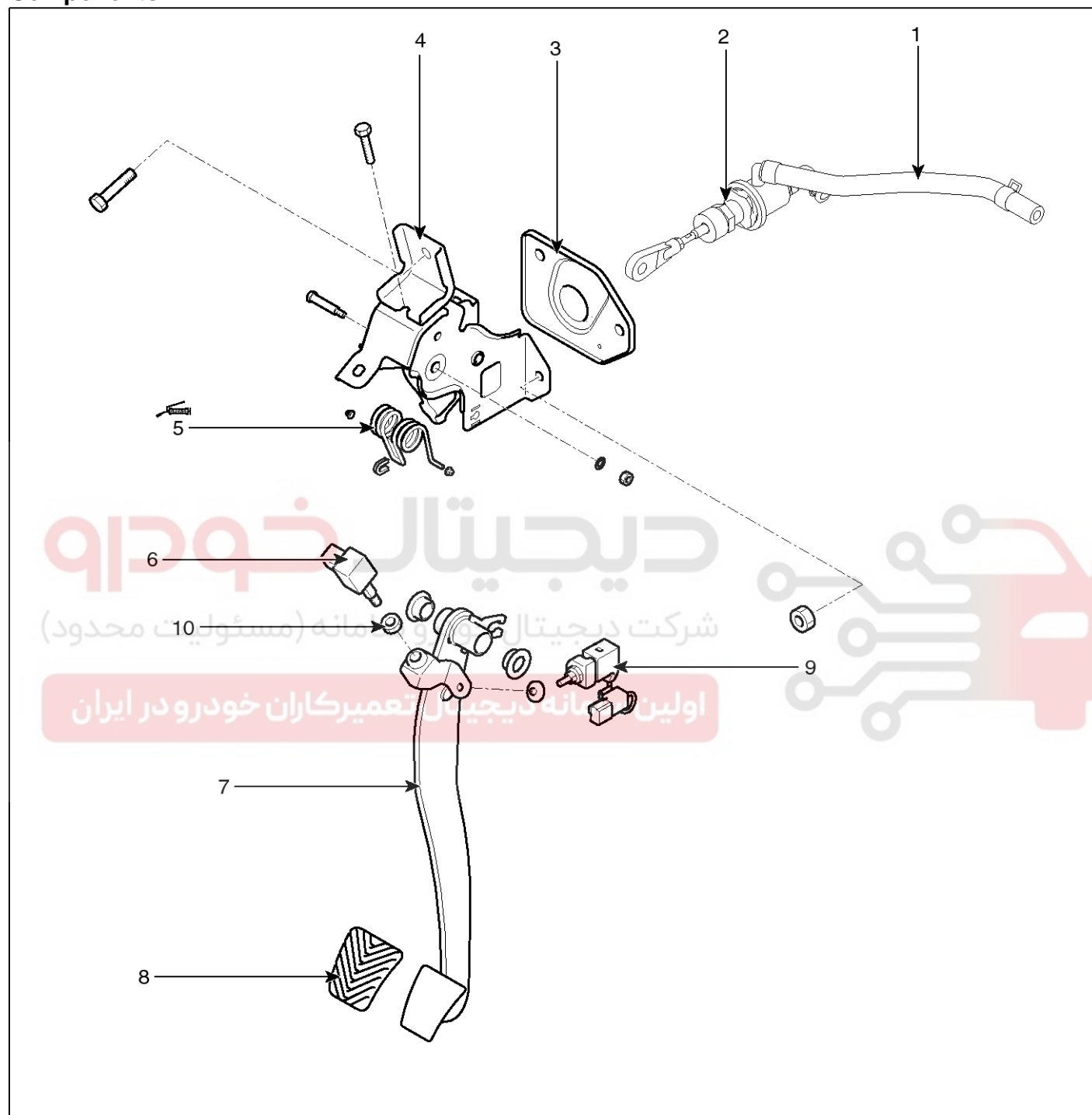
If the transaxle assembly is installed to the engine without performing this step, the release bearing can be separated, as the release fork rotates freely.

Clutch System

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Clutch Pedal

Components



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- | | |
|---------------------|-------------------------|
| 1. Reverse hose | 6. Clutch switch |
| 2. Master cylinder | 7. Clutch arm |
| 3. Siller | 8. Pedal pad |
| 4. Member assembly | 9. Ignition lock switch |
| 5. Turn over spring | 10. Stopper |

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Clutch System

Inspection

Clutch Pedal Inspection

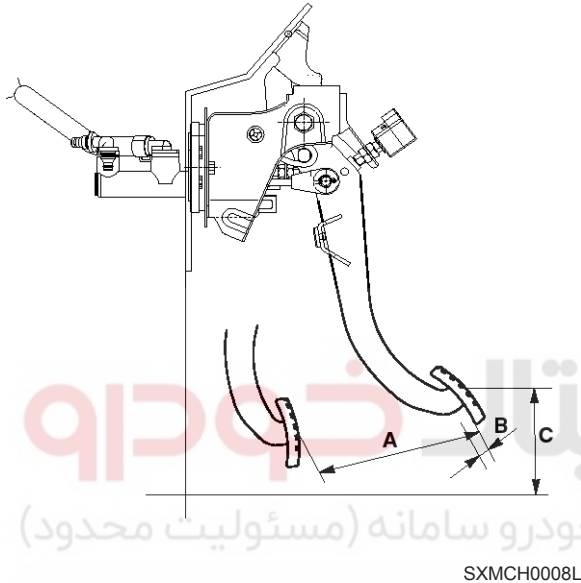
1. Measure the clutch pedal height (from the face of the pedal pad to the floorboard) and the clutch pedal clevis pin play (measured at the face of the pedal pad.)

Standard value

Stroke (A) : $150 \pm 3\text{mm}$ ($5.9055 \pm 0.1181\text{ in.}$)

Free play (B) : $6 \sim 13\text{ mm}$ ($0.2362 \sim 0.5118\text{ in.}$)

Height (C) : 167mm (6.5748 in.)



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

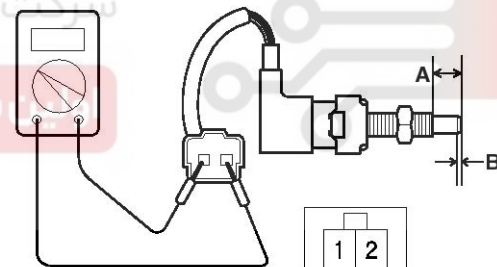
- If there is difference between what tested and the table above, replace the ignition lock switch with a new one.

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

Standard value

Full stroke(A) : $12.0 \pm 0.3\text{mm}$ ($0.4724 \pm 0.0118\text{ in.}$)

ON-OFF point (B) : $2.0 \pm 0.3\text{mm}$ ($0.0787 \pm 0.0118\text{ in.}$)



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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.

Clutch System

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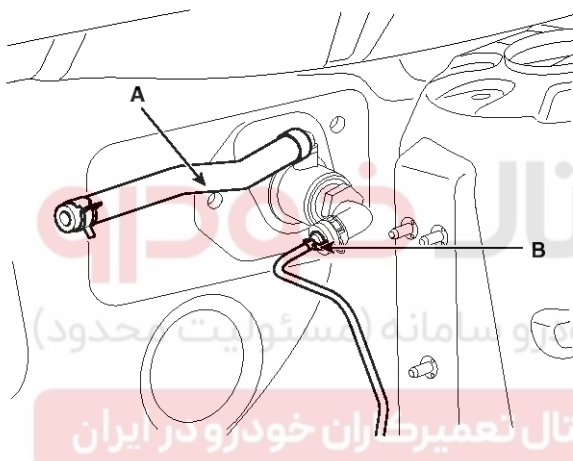
Removal

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.

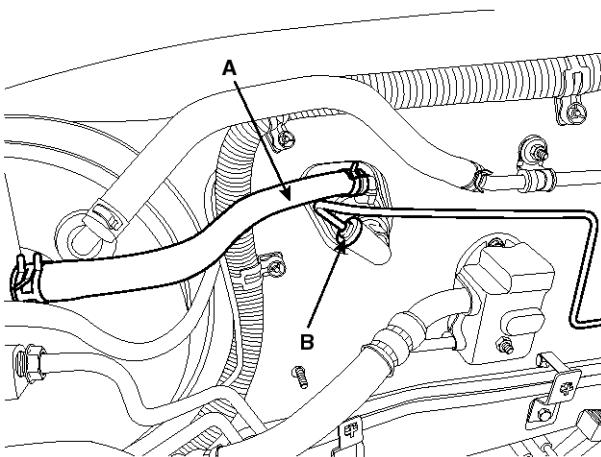
1. Remove the brake fluid from the clutch master cylinder reservoir with a syringe.
2. Remove the ECM. (Refer to "Engine Control Module" in FL group).
3. Clamp the clutch master cylinder hose(A). If there is not enough room for clamping, you can also clamp the hose from the brake master cylinder side.
4. Disconnect the clutch master tube line (B) after removing the nut on the clutch master cylinder.

[LHD]



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[RHD]



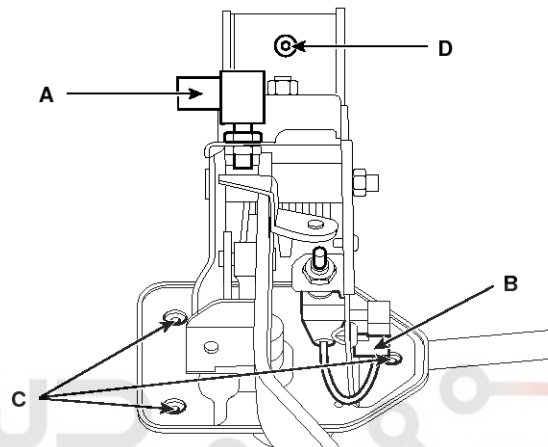
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5. Remove the crash pad lower panel. (Refer to "Interior(Crash pad)" in BD group).
6. Disconnect the ignition lock switch connector(B) and clutch switch(A).
7. Remove the clutch pedal assembly mounting nut(C-3ea) and bolts(D-1ea).

Tightening torque :

16.7~25.5 N.m (1.7~2.6 kgf.m, 12.3~18.8 lb-ft)

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



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Installation

1. Installation is in reverse order of removal.

NOTICE

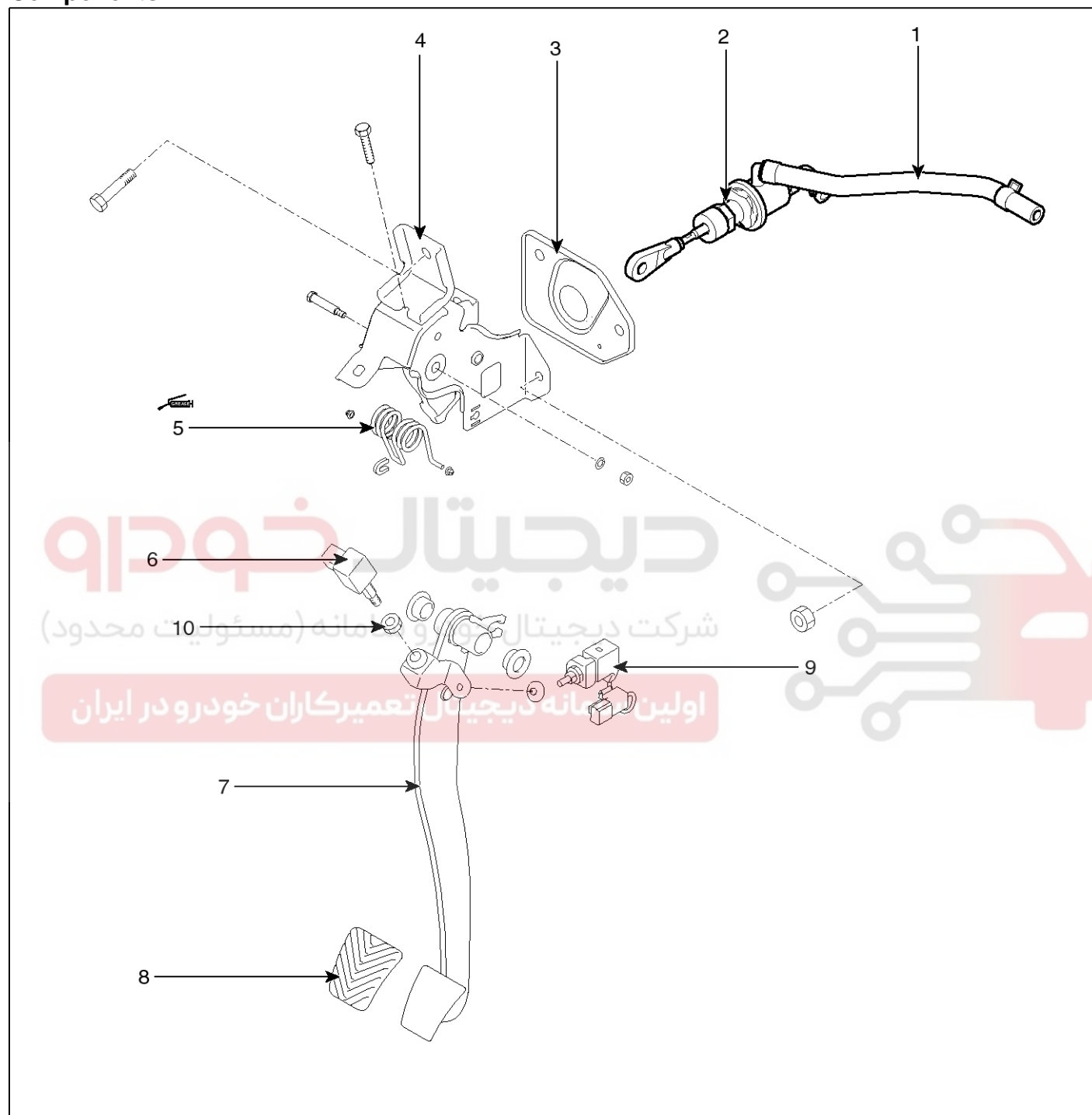
- Inspect the continuity of the ignition lock switch and clutch pedal. (Refer to "Repair procedure" in CH group.)
- Perform bleeding air procedure in concentric slave cylinder after pouring the brake fluid.(Refer to "Concentric slave cylinder" in CH group.)

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Clutch System

Clutch Master Cylinder

Components



SLMCH0002C

- | | |
|---------------------|-------------------------|
| 1. Reverse hose | 6. Clutch switch |
| 2. Master cylinder | 7. Clutch arm |
| 3. Siller | 8. Pedal pad |
| 4. Member assembly | 9. Ignition lock switch |
| 5. Turn over spring | 10. Stopper |

Clutch System

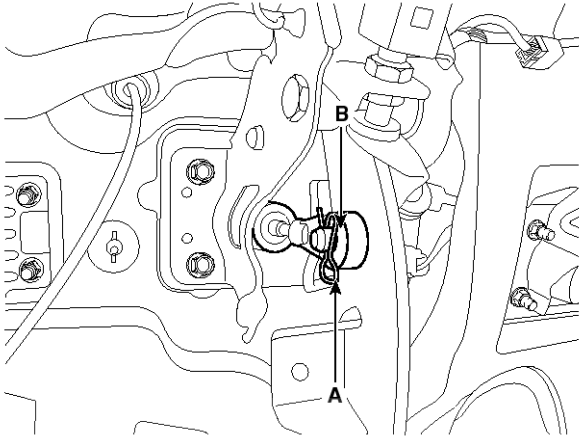
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Removal

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).

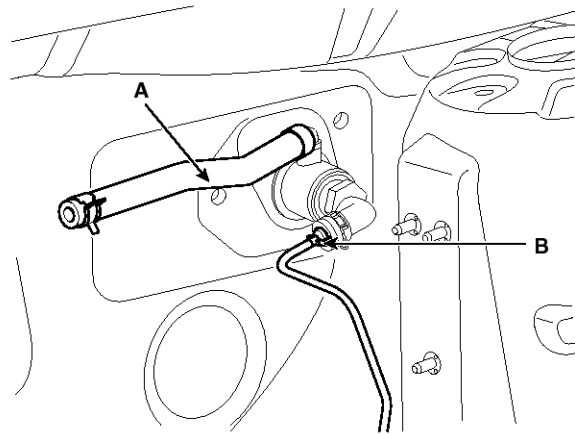


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2. Remove the ECM. (Refer to "Engine Control Module" in FL group).

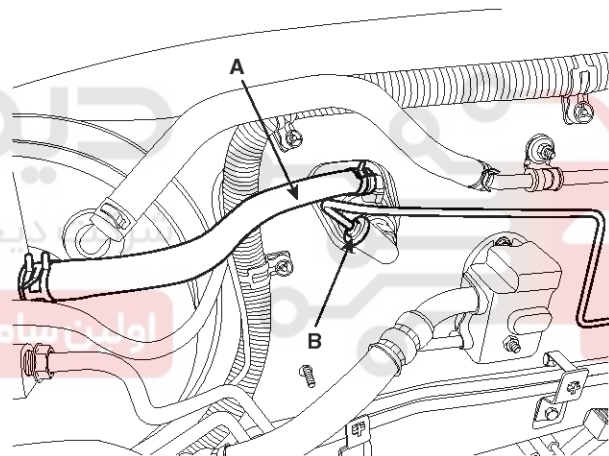
3. Disconnect the clutch tube (B) and reverse hose(A) from the clutch master cylinder.

[LHD]



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[RHD]



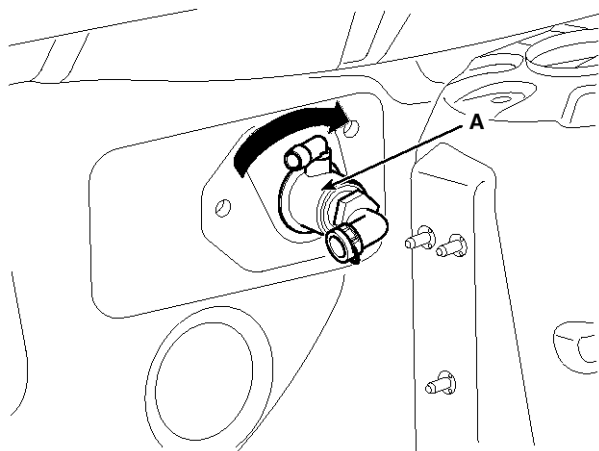
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Clutch System

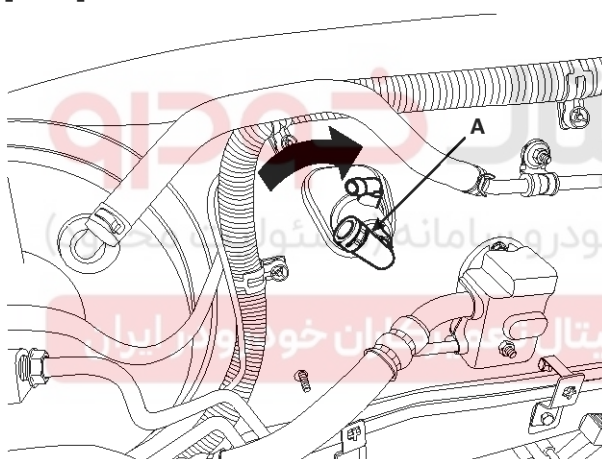
4. Remove the clutch master cylinder by turning it clockwise(A).

[LHD]



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[RHD]



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Installation

1. Installation is in reverse order of removal.

NOTICE

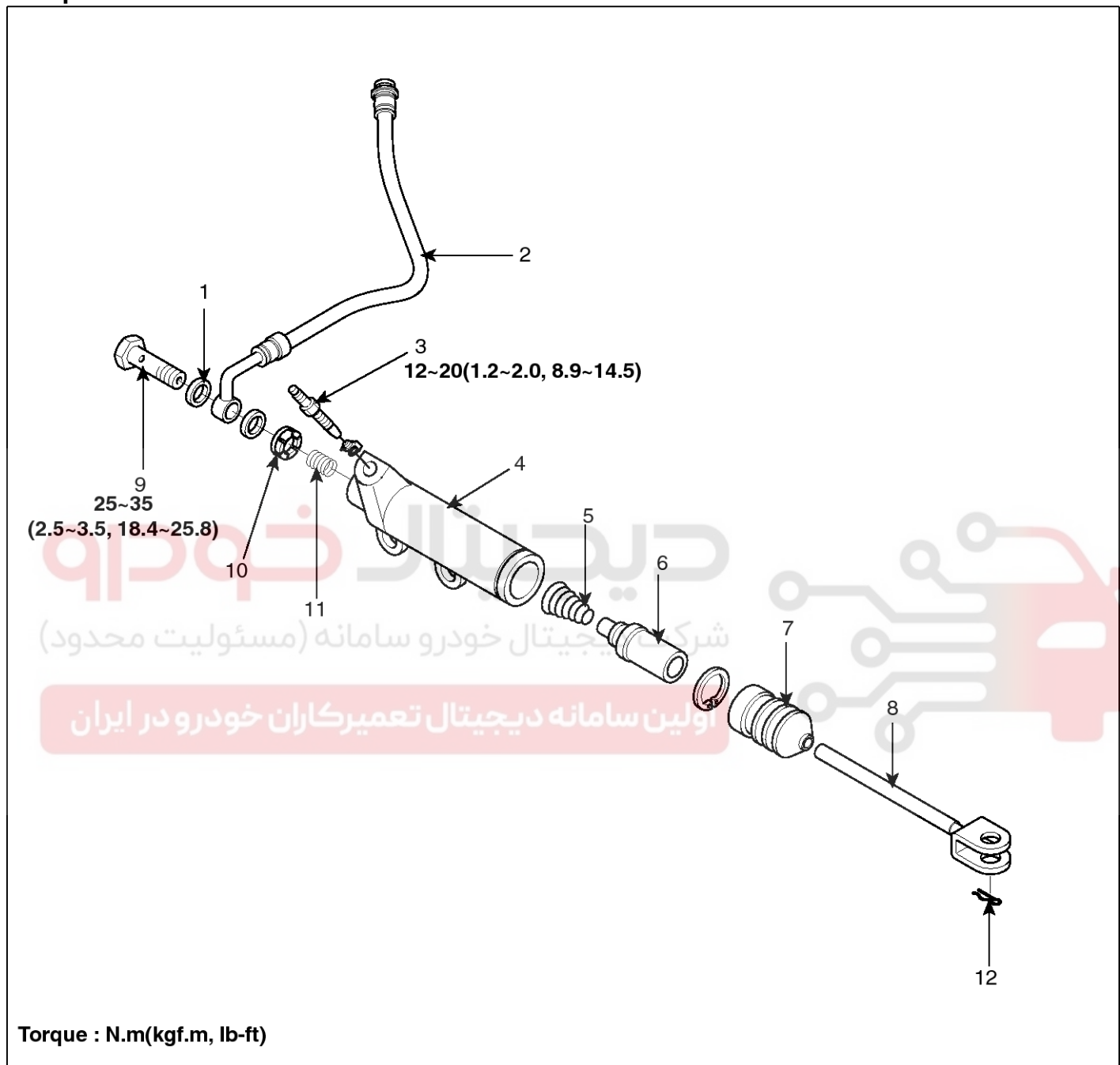
- Perform bleeding air procedure in concentric slave cylinder after pouring the brake fluid.(Refer to "Clutch release cylinder" in CH group.)

Clutch System

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Clutch Release Cylinder

Components



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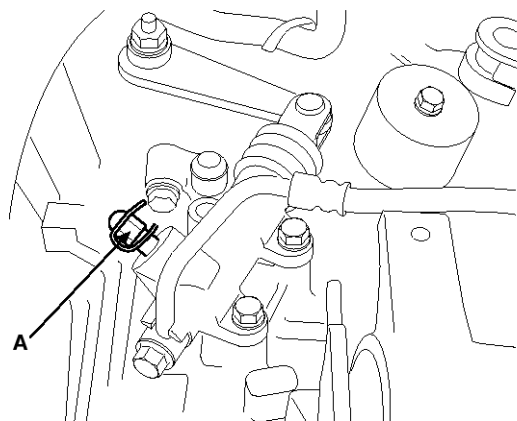
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|---------------------|------------------|
| 1. Gasket | 7. Boot |
| 2. Clutch hose | 8. Push rod |
| 3. Bleeder screw | 9. Union bolt |
| 4. Release cylinder | 10. Valve plate |
| 5. Return spring | 11. Valve spring |
| 6. Piston | 12. Cotter pin |

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Clutch System

Removal

1. Drain the fluid from the bleeding plug(A).



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2. Clamp the clutch hose between the clutch release cylinder and the clutch tube.
3. Remove the clutch release cylinder loosening the mounting bolt.
4. Install a new clutch release cylinder.

دیجیتال خودرو
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

