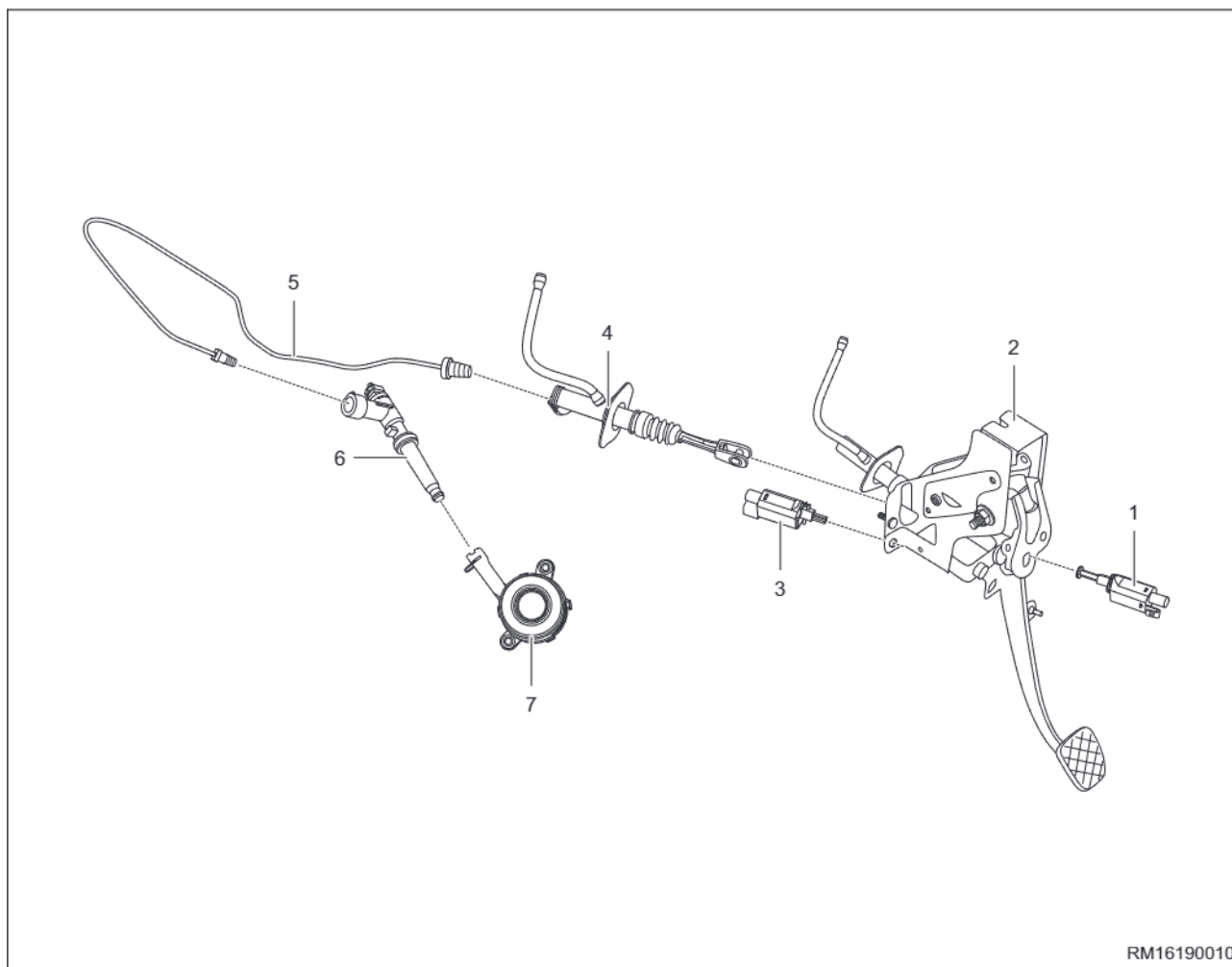

CLUTCH

GENERAL INFORMATION	19-3	Clutch Master Cylinder Assembly	19-9
Description	19-3	Removal	19-9
Operation	19-4	Installation	19-10
Specifications	19-5	Clutch Pedal	19-11
Tools	19-6	Removal	19-11
		Installation	19-12
DIAGNOSIS & TESTING	19-7	Clutch Unit	19-13
Problem Symptoms Table	19-7	Removal	19-13
ON-VEHICLE SERVICE	19-8	Inspection	19-14
Clutch Switch	19-8	Installation	19-14
Removal	19-8	Bleeding Hydraulic Clutch	19-16
Inspection	19-8		
Installation	19-8		

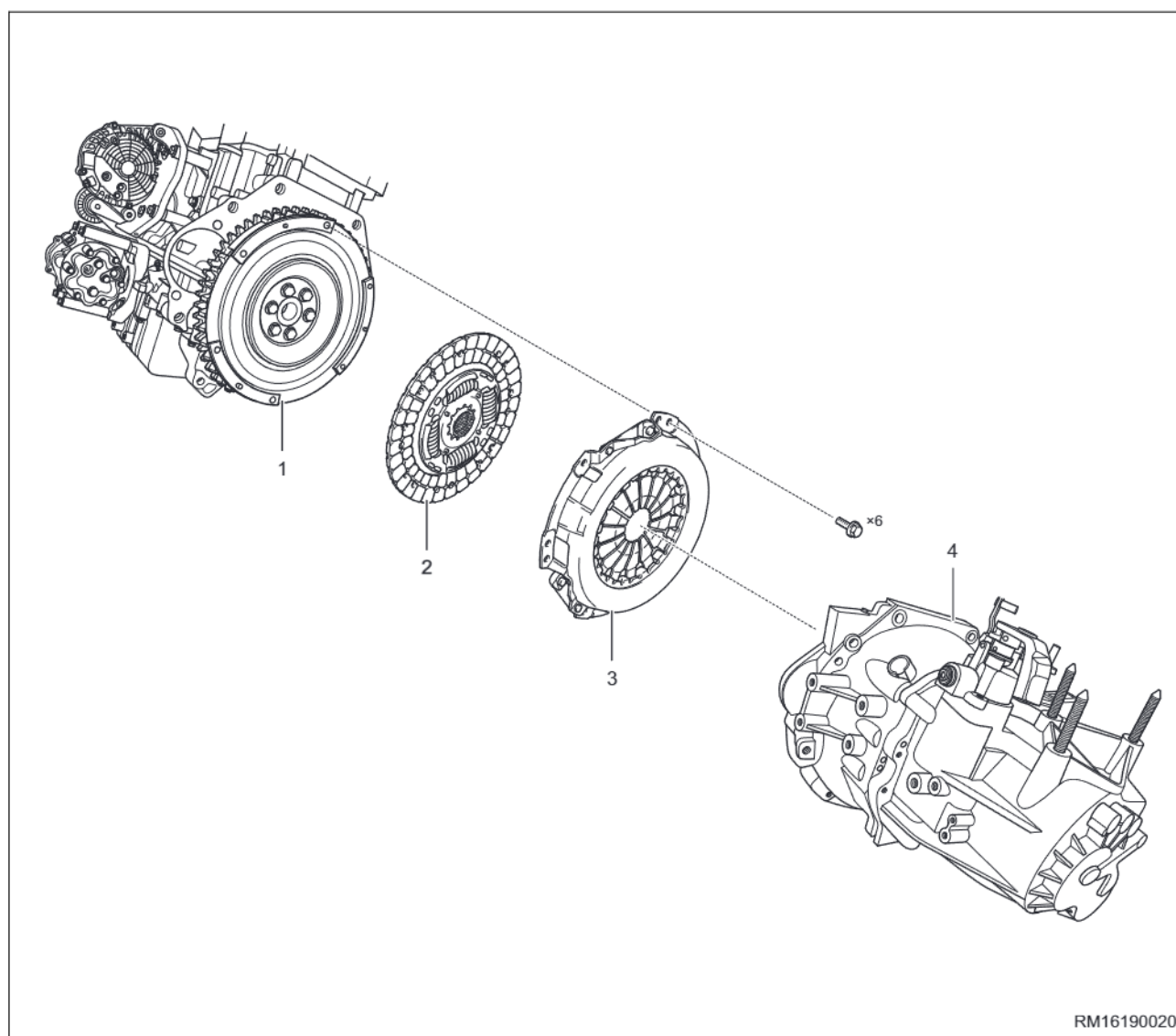
GENERAL INFORMATION

Description



RM16190010

1 - Front Clutch Switch	2 - Clutch Pedal Assembly
3 - Rear Clutch Switch	4 - Clutch Master Cylinder
5 - Clutch Line	6 - Release Bearing Joint
7 - Release Bearing	



RM16190020

1 - Flywheel	2 - Clutch Driven Disc
3 - Clutch Pressure Plate	4 - Transmission Assembly

19

Operation

Hydraulic Clutch System: Hydraulic clutch system mainly consists of clutch pedal, clutch master cylinder, clutch release cylinder, clutch hydraulic line, etc. When depressing clutch pedal, clutch master cylinder generates pressure, and transmits it to the release bearing which is fitted with pressure plate diaphragm spring. As external force is applied, release bearing presses in diaphragm spring release finger until it reaches fulcrum. This operation moves pressure plate backward, thus releasing the clamping force from clutch driven disc.

Clutch Master Cylinder Assembly: Clutch master cylinder consists of piston, cylinder block, push rod and hydraulic line. When depressing pedal, push rod pushes the piston in master cylinder and fluid in the hydraulic line is drained into release cylinder.

Specifications

Torque Specifications

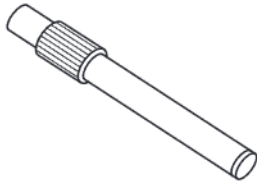
Description	Torque (N·m)
Clutch Pedal Fixing Nut	23 ± 2
Clutch Pressure Plate	25 ± 2
Release Bearing Fixing Bolt	24.7 - 30.9
Clutch Master Cylinder Fixing Nut	10 ± 1.5

Clutch Driven Disc Specifications

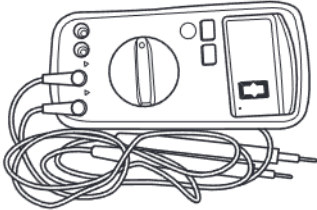
Measurement Item	Specification (mm)
Clutch Driven Disc Standard Thickness	7.6 ± 0.2
Minimum Rivet Depth	1.2

Tools

Special Tool

Clutch Pressure Plate Installer	 RCH0000018
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General Tools

Vernier Caliper	 RCH0000019
Digital Multimeter	 RCH0000002

DIAGNOSIS & TESTING

Problem Symptoms Table

HINT:

Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair or adjust faulty components, or replace as necessary.

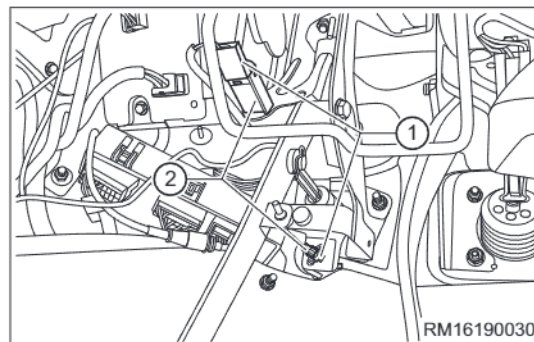
Symptom	Suspected Area	See page
Clutch chatters	Engine mounting (loose)	07-62
	Clutch driven disc (oily)	19-13
	Clutch driven disc (worn)	19-13
	Clutch driven disc torsion spring (damaged)	19-13
	Clutch driven disc (glazed)	19-13
	Diaphragm spring tip (out of alignment)	19-13
Clutch is noisy	Clutch release bearing (worn, dirty or damaged)	19-13
	Clutch driven disc torsion spring (damaged)	19-13
Clutch slips	Clutch pedal free play (out of adjustment)	19-11
	Clutch driven disc (oily)	19-13
	Clutch driven disc (worn)	19-13
	Diaphragm spring (damaged)	19-13
	Pressure plate (distorted)	19-13
	Flywheel (distorted)	-
Clutch disengages incompletely	Clutch driven disc (improperly installed)	19-13
	Clutch driven disc runout (excessive)	19-13
	Clutch driven disc lining (broken)	19-13
	Clutch driven disc (dirty or burned)	19-13
	Clutch driven disc (oily)	19-13
	Clutch pedal free play (out of adjustment)	19-11

ON-VEHICLE SERVICE

Clutch Switch

Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the clutch switch.
 - a. Disconnect the clutch switch connector (1) and remove the clutch switch (2).

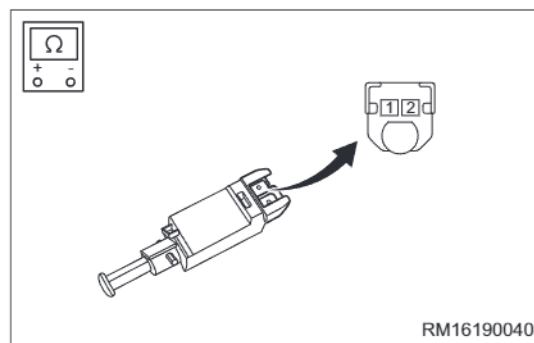


RM16190030

Inspection

Check for continuity between terminals when the front clutch switch is turned on or off.

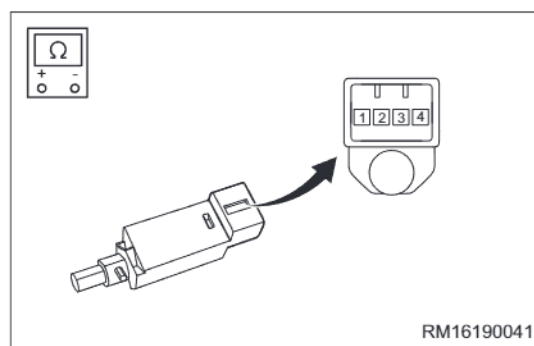
Switch Position	Specified Condition
ON (not pushed)	Continuity
OFF (pushed)	No continuity



RM16190040

Check for continuity between terminals when the rear clutch switch is turned on or off.

Switch Position	Specified Condition
ON (not pushed)	1 - 2 Continuity
OFF (pushed)	3 - 4 Continuity



RM16190041

Installation

Installation is in the reverse order of removal.

Clutch Master Cylinder Assembly

Removal

WARNING

- Brake fluid in master cylinder is harmful to your skin, so be sure to wear protective gloves before operation.
- Once brake fluid contacts with your skin, wash it off with water immediately.

CAUTION

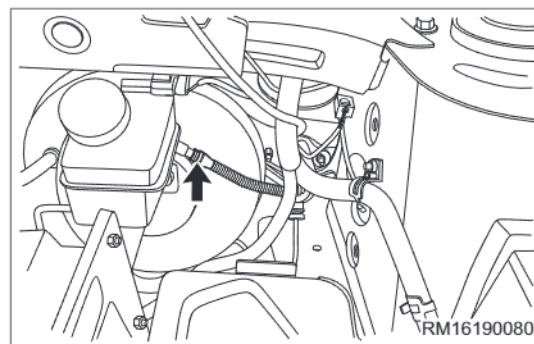
- Be careful when removing clutch master cylinder from engine compartment. Incorrect operation may damage hydraulic line, also cause clutch to separate improperly.
- DO NOT allow brake fluid to spray onto body surface. Brake fluid may damage the painted surfaces. If any brake fluid is get onto the painted surfaces, wash it off with water immediately.

1. Disconnect the negative battery cable.
2. Drain the brake fluid ([See page 26-13](#)).

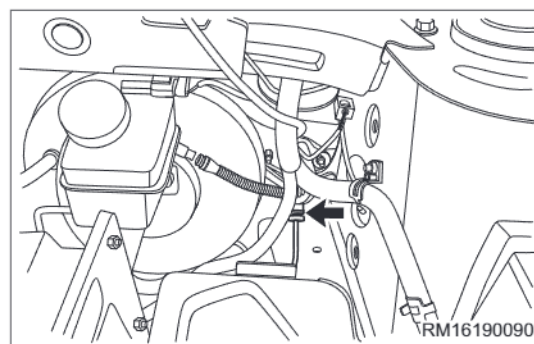
HINT:

Collect brake fluid with a container.

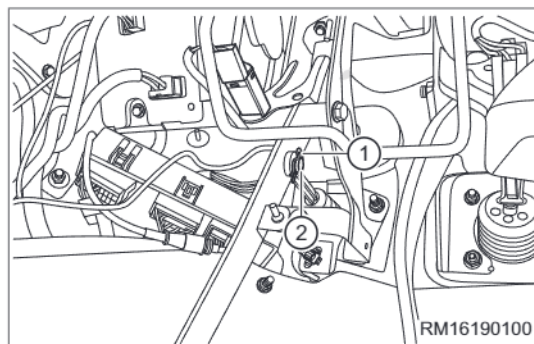
3. Remove the battery ([See page 16-7](#)).
4. Remove the clutch master cylinder.
 - a. Disconnect the master cylinder inlet hose.



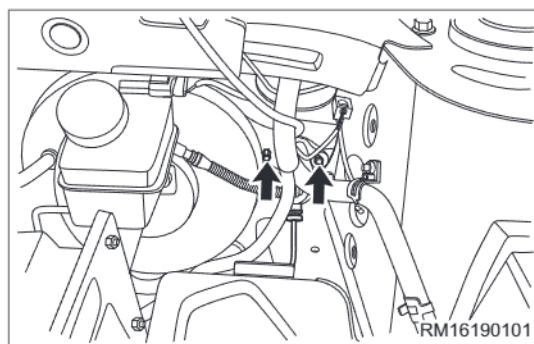
- b. Push the locating clip in direction of arrow, and pull out the pipe from clutch master cylinder.



- c. Remove the cotter pin (1) and pull out center pin (2).



- d. Remove 2 fixing nuts from clutch master cylinder.
(Tightening torque: $10 \pm 1.5 \text{ N}\cdot\text{m}$)



Installation

Installation is in the reverse order of removal.

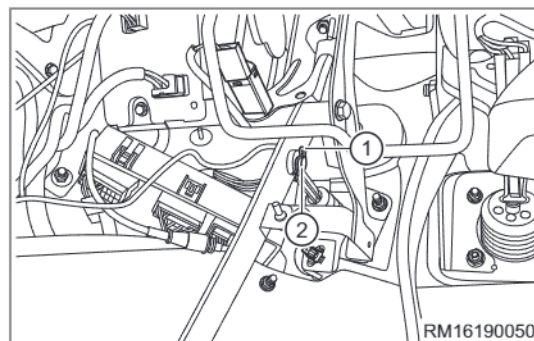
CAUTION

- Add brake fluid to "MAX".
- Perform bleeding procedure for hydraulic clutch and check brake fluid for leakage after installation.

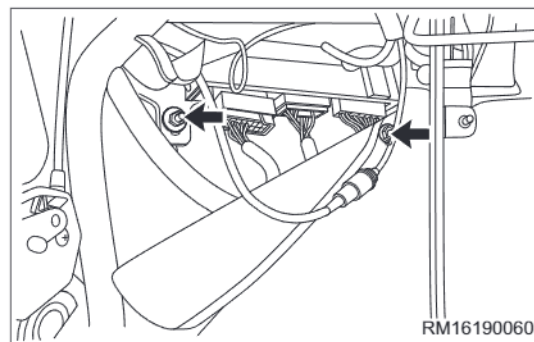
Clutch Pedal

Removal

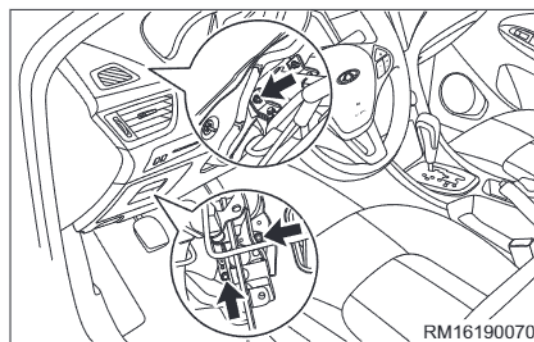
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the clutch switch (See page 19-8).
4. Remove the clutch master cylinder (See page 19-9).
5. Remove the clutch pedal.
 - a. Remove the cotter pin (1) and pull out center pin (2), and remove the clutch master cylinder push rod from clutch pedal.



- b. Remove two fixing nuts from wire harness connector retaining plate and move away the wire harness connector retaining plate.



- c. Remove 3 nuts from clutch.
(Tightening torque for nut: 23 ± 2 N·m)



6. Remove the clutch pedal.

Installation

Installation is in the reverse order of removal.

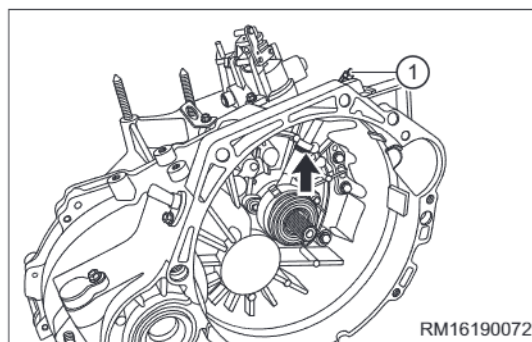
CAUTION

- Make sure to adjust clutch pedal to standard height before installation.
- Be sure to tighten bolts and nuts to specified value.
- Check fluid level in reservoir after installation.

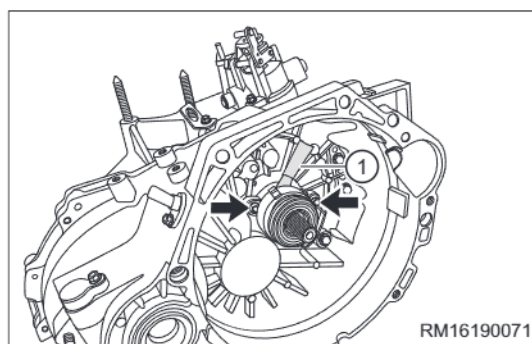
Clutch Unit

Removal

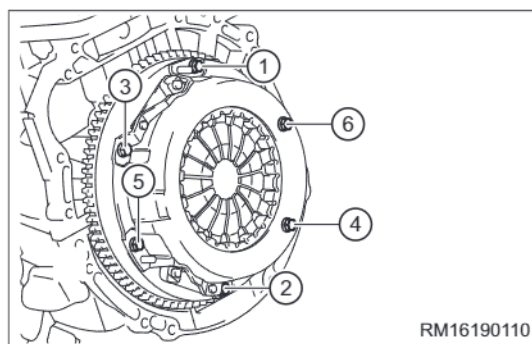
1. Remove the transmission assembly ([See page 17-20](#)).
2. Remove the clutch release bearing.
 - a. Pry out the clip (arrow) and remove the clutch release bearing joint (1).



- b. Remove the clutch release bearing fixing bolts (arrow) and clutch release bearing (1).



3. Remove the clutch pressure plate bolts in the order shown in the illustration.



4. Remove the clutch pressure plate and clutch driven disc.

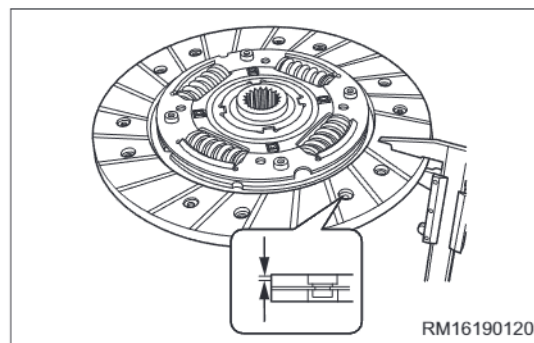
Inspection

1. Check the clutch driven disc.
 - a. Visually check clutch driven disc for dirt or glazing. Clean or replace the clutch driven disc as necessary.
 - b. Use a vernier caliper to measure the thickness of clutch driven disc.

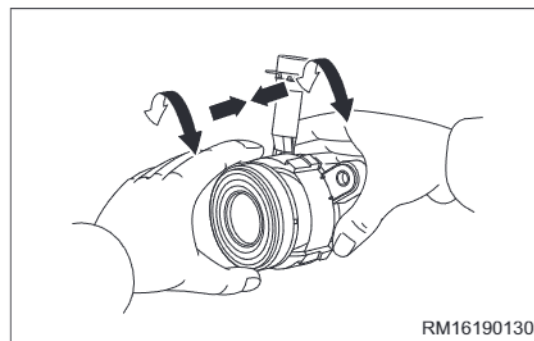
Standard thickness: 7.6 ± 0.2 mm

Minimum rivet depth: 1.2 mm

If result is not as specified, replace the clutch driven disc.

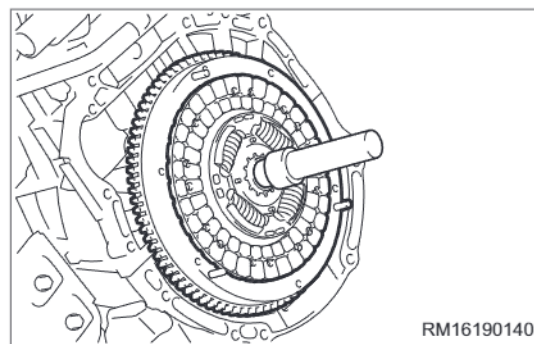


2. Check the clutch release bearing assembly.
 - a. Visually check surface of release bearing for dirt, glazing or damage. Clean or replace the release bearing assembly as necessary.
 - b. Check that bearing operates smoothly by rotating the sliding part of bearing (the side contacting with clutch). Replace the release bearing assembly if necessary.

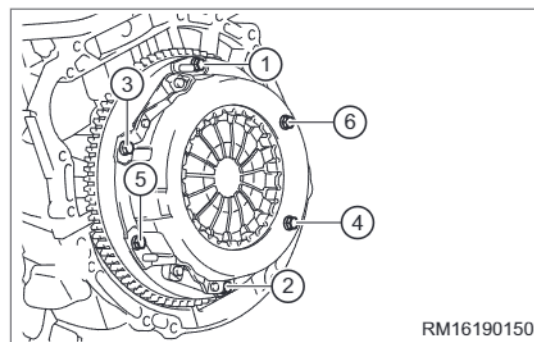


Installation

1. Insert the special tool into the clutch driven disc, and insert it into the flywheel.

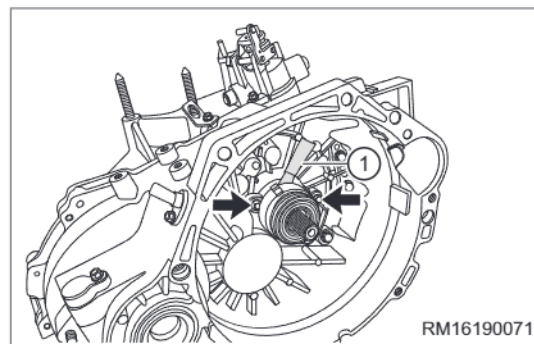


2. Install the clutch pressure plate and tighten the bolts in the order shown in the illustration. (Tightening torque: 25 ± 2 N·m)

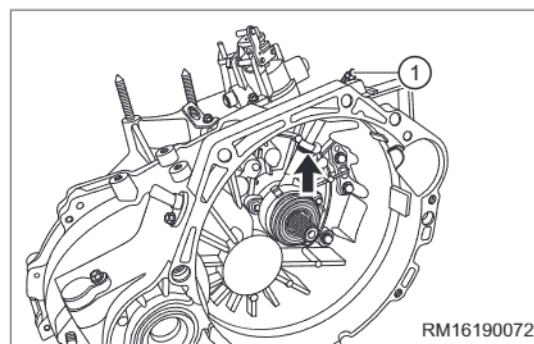


3. Install the clutch release bearing.

- a. Install the clutch release bearing (1) and clutch release bearing fixing bolts (arrow).
(Tightening torque: 24.7 - 30.9 N·m)



- b. Install the clutch release bearing joint (1) and press the clip (arrow).



Bleeding Hydraulic Clutch

WARNING

- Brake fluid is harmful to your skin, so be sure to wear protective gloves before operation.
- Once brake fluid contacts with your skin, wash it off with water immediately.

CAUTION

- Collect brake fluid with a container.
- DO NOT allow brake fluid to spray onto body surface. Brake fluid may damage the painted surfaces. If any brake fluid is get onto the painted surfaces, wash it off with water immediately.
- Only use brake fluid recommended by Chery Automobile Co., Ltd, otherwise the lines may be subjected to a severe corrosion.
- Brake fluid type should be DOT4.

HINT:

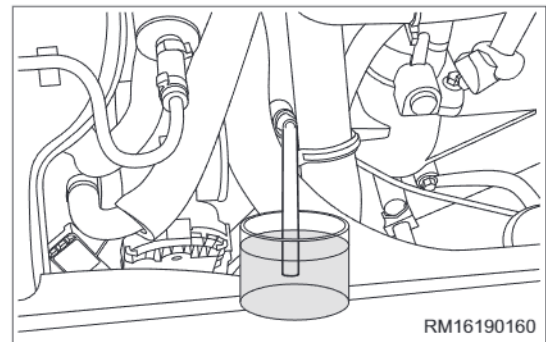
An assistant will be required to assist when bleeding hydraulic clutch.

1. Turn off all electrical equipment and the ignition switch.
2. Check the fluid level in brake master cylinder, add DOT4 brake fluid as necessary, and keep the cap open.

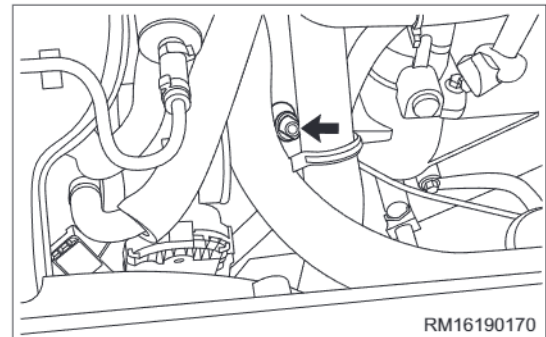
CAUTION

- Make sure that there is sufficient brake fluid in reservoir before bleeding.

3. Raise vehicle on a lift.
4. Remove the discharge port protective cap and connect a clear plastic hose to the bleeder screw, and submerge the end of hose into the clear container which is full of new brake fluid.



5. Release the discharge port.



6. Depress the clutch pedal until brake fluid is drained from discharge port.
7. Depress the clutch pedal and tighten the discharge port.
8. Depress the clutch pedal until there is pressure in the clutch system.
9. Depress the clutch pedal, then release the discharge port and bleed the air from fluid in brake master cylinder.
10. Repeat steps from 6 to 9 for several times, until there is no air in the hydraulic clutch system any more.

CAUTION

- Never drain brake fluid while bleeding hydraulic clutch.
- During bleeding, make sure brake fluid level is always at "MAX".

11. Tighten the discharge port, then remove the discharge hose and replace the discharge port dust cover.
12. Check the brake fluid, and add DOT4 brake fluid up to "MAX" as necessary, then tighten the reservoir cap.
13. Check clutch pedal stroke. If clutch pedal stroke is excessive, or the condition does not improve, it indicates that some air is still kept in the system. Bleed the clutch again as necessary.
14. Test the vehicle and make sure the clutch operates normally and depressing feel is good.

