03 - transmission

Clutch
Technical specifications

General specification

Name	Specification
The height from clutch pedalto the floor	mm
Clutch driven plate wear limit value	mm
Clutch pedal free stroke	mm

Torque Specifications

Name	Torque range	
	Metric (Nm)	British (lb-ft)
Bolt connecting clutch pedal and bracket		
Clutch wheel cylinder fixing bolt		
Clutch master cylinder fixing nut		
Clutch plate fixing bolt		
Clutch wheel cylinder fuel line terminal nut		
Clutch outlet hard pipe nut		

Precautions

1. The recommended clutch hydraulic oil is brake fluid "DOT4". Do not use gasoline or kerosene and other mineral oil, or it will corrode the rubber parts of hydraulic system.
2. Do not reuse the discharged clutch hydraulic oil.
3. Do not splash the clutch hydraulic oil onto the paint face.
4. Clutch platen can not be cleaned with gasoline.
5. In the release bearing fills the lubricating oil. Do not wash it with oil or other liquids.
6. When installing the clutch, heat-and-pressure-resistant lubricating oil should be properly used to lubricate the driven plate spline and transmission 1 shaft spline to ensure the free move of driven plate on the transmission 1 shaft spline. Excessive lubrication will cause the friction plate to slip.
7. When the friction plate is worn to a specified wear limit, the driven plate assembly should be timely replaced to avoid the slip of the clutch which may scratch the plate and the flywheel.

Note:

Clean the clutch friction plate with a vacuum cleaner rather than compressed air.

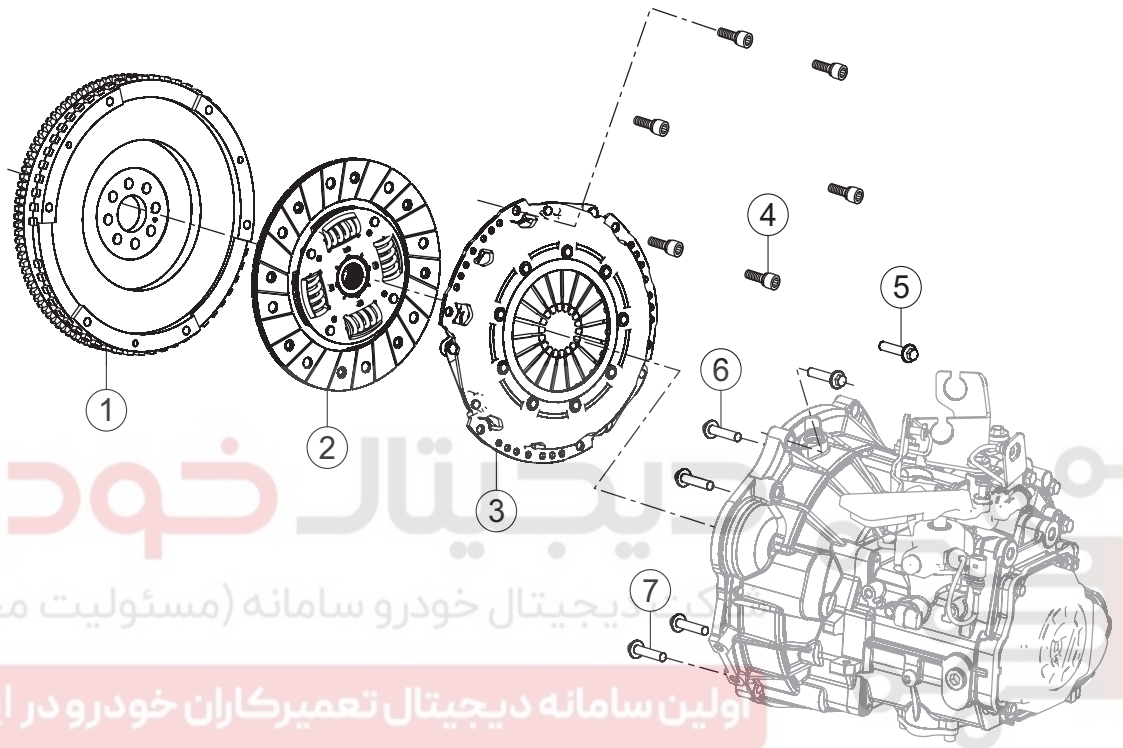
Preparation

Special maintenance tools

Structure and installation location

Part exploded view

Driven plate of clutch platen

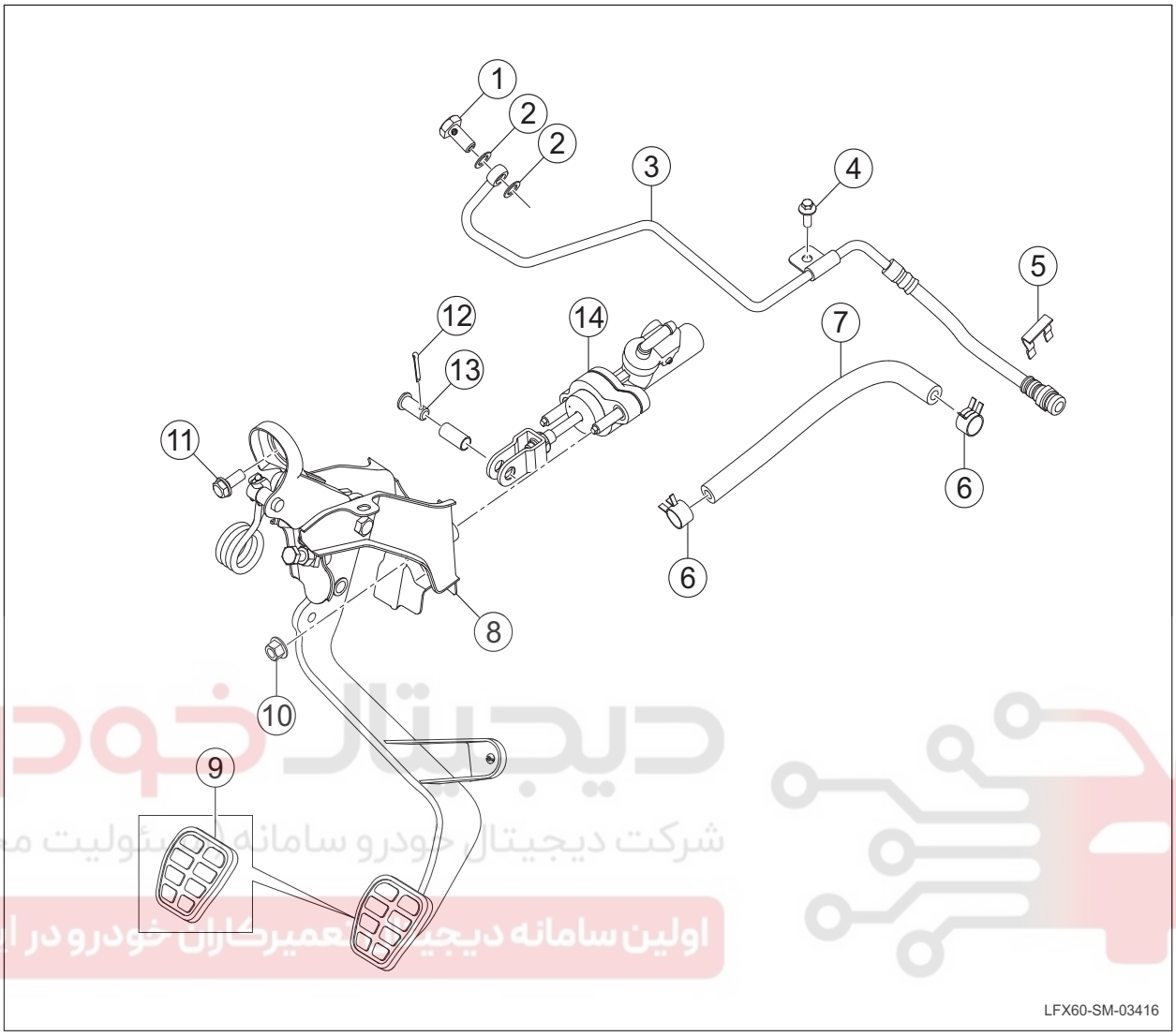


LFX60-SM-03407

No.	Part name
1	Flywheel assembly
2	Clutch driven plate assembly
3	Clutch plate assembly
4	Clutch platen bolts

No.	Part name
5	Transmission bolt III
6	Transmission bolt II
7	Transmission bolt I

Clutch control mechanism



LFX60-SM-03416

No.	Part name
1	Clutch hollow bolts
2	Gasket
3	Clutch control oil pipe
4	Hexagon flange bolts
5	U shaped ring
6	Steel strip type elastic hose clamp
7	Clutch control oil pipe II

No.	Part name
8	Clutch pedal assembly
9	Pedal pad
10	All-metal hexagon flange locknut
11	Hexagon bolts and taper spring washer assembly
12	Lock pin
13	Pin
14	clutch master cylinder assembly

General Inspection

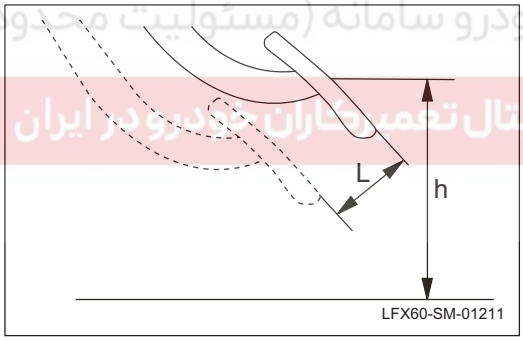
Clutch inspection

1. If you cannot cut off the clutch unless the clutch pedal is almost floored while the engine is idling, or when you step on the clutch pedal and feel it's hard to shift gears or hear harsh impact from the transmission gears, or the car starts moving while the clutch pedal is not released after engaging a gear, the clutch cannot be released completely.
2. Reasons for clutch slip: the free travel of clutch pedal is too small, and the release bearing is often pressed on the diaphragm spring, so the platen is always semi-separated; clutch platen spring is too soft or broken; the screws connecting clutch with flywheel get loose, etc.
3. If the clutch has abnormal sound in use, it is not normal. It is because of the serious wear of release bearing, weak or broken retracting spring, fault in diaphragm spring bracket, etc.

Clutch pedal inspection

1. Check that the height h of the clutch pedal is correct. Adjust it if not.

Height from pedal to floor: 160±15mm



2. Step on the pedal until you feel the resistance, and check that the free travel L of clutch pedal is correct. Adjust it if not.

Pedal free travel: ≤ 10mm

Inspection of clutch friction plate assembly

⚠ Warning:

It is strictly forbidden to use wax-based cleaning agents or solvents to clean the clutch friction plate assembly.

1. Clean the clutch friction plate assembly.
2. Check the clutch friction plate assembly for the following problems:

- Oil pollution.
- Scorch trace.
- Thickness.
- Spring damage.
- Replace the clutch friction plate assembly, if necessary.

Inspection of clutch platen assembly

1. Clean the clutch platen assembly.
2. Check the clutch platen assembly for the following problems:

- Damage or wear of diaphragm spring.
- Scorch trace.
- Distortion.
- Flat.
- Replace the clutch platen assembly, if necessary.

Inspection of clutch master cylinder

1. Check the clutch clutch master cylinder for the following problems:

- Master cylinder leak.
- Fasteners on the master cylinder get loose.

Inspection of clutch slave cylinder

1. Check the clutch slave cylinder for the following problems:

- Slave cylinder leak.
- Fasteners on the slave cylinder get loose.

Inspection of clutch high switch

1. Keep the clutch pedal in a free status (not pressed).
2. Install the clutch pedal switch and make the clutch pedal switch post rod fully retract and then tighten the clutch switch fixing nut.

Clutch low level switch inspection

1. Keep the clutch pedal in a totally pressed status.
2. Install the clutch pedal switch and make the clutch pedal switch post rod fully retract and then tighten the clutch switch fixing nut.

Operating Principle

System overview

The clutch system consists of a clutch and clutch control mechanism where the clutch is composed of a clutch friction plate assembly and a clutch platen assembly connected to the flywheel. The clutch control mechanism is mainly composed of clutch pedal bracket assembly, clutch master cylinder, clutch tubing, clutch slave cylinder, clutch release fork, and release bearing. In the normal working condition, the clutch friction plate assembly is connected to the flywheel under the pressure of the clutch platen assembly to transmit the engine power to the transmission assembly. When the clutch pedal is pressed, the clutch pedal pressure is passed to the clutch slave cylinder through the clutch master cylinder and the clutch tubing, then the putter of clutch slave cylinder pushes the release fork. The clutch release moves the release bearing forward to push the clutch platen assembly to separate the clutch friction plate assembly from the flywheel, thus interrupting the power transfer between the engine and the transmission. When the clutch pedal is released, the spring pressure in the clutch platen assembly pushes the platen forward towards the clutch friction plate assembly to recombine the clutch friction plate assembly with the flywheel.

Clutch master cylinder

The clutch master cylinder is equipped with a clutch oil reservoir and outlet pipe, and the clutch master pump will transfer the pressure acting on the clutch pedal to the clutch slave cylinder in a hydraulic manner.

Clutch wheel cylinder

The clutch slave cylinder is mounted on the left side of the transmission, and the slave cylinder has an inlet pipe connected through hollow nuts and also a bleed screw. Hydraulic oil pushes the clutch slave cylinder putter which then controls the release fork.

Release fork

The release fork drives the release bearings so as to achieve the purpose of separation control.

Release bearing

Clutch release bearings are used to reduce the friction between the clutch platen assembly and the clutch fork.

Diagnostic Information and Procedures

Diagnosis Instructions

Before starting to diagnose a fault in the clutch system, familiarize yourself with the operating principle of the clutch system, and then start the system diagnostics, which helps to determine the correct troubleshooting steps in the event of a failure. More importantly, this also helps to determine whether the customer's situation belongs to normal operation.

Any troubleshooting of the clutch system should begin with the clutch system check, so as to instruct the service personnel to take the next logical step to troubleshoot. Understanding and using the clutch diagnostic flowchart correctly can reduce the diagnosis time and avoid misjudgment of components.

Visual Inspection

1. Confirm the problem raised by the customer.
2. Check the evident mechanical faults.

Visual check list

Mechanical	Electrical
• Clutch oil pot • Clutch master cylinder • Clutch wheel cylinder • Clutch release fork • Clutch release bearing • Clutch plate assembly • Clutch friction plate assembly • Clutch pedal bracket assembly	• Clutch switch • Harness plug • Line

3. Solve the problem finding before the next step inspection.
4. If the observed or raised problem is the evident and the cause has been found, ensure to fix this fault before proceeding with the next step.
5. If no problem is found through the visual check, confirm the fault and refer to the fault symptom list.

Fault symptom list

Symptom	Possible point of failure	Recommended measures
Clutch fluid leakage	• Clutch oil pot • Clutch master cylinder • Clutch wheel cylinder • Clutch line	**Refer to: Diagnostic process for brake fluid leakage**
Clutch slip	• Clutch pedal free stroke • Clutch pedal bonding • Clutch plate assembly • Clutch friction plate assembly • Flywheel	**Refer to: Diagnostic process for clutch slip**
Clutch delay	• Clutch fluid shortage • Air in clutch fluid • Clutch pedal free stroke • Clutch plate assembly • Clutch friction plate assembly • Release bearing • Transmission main shaft	**Refer to: Diagnostic process for clutch delay**
Clutch clamping (hard to push the pedal)	• Clutch pedal bracket assembly	• Check if the clutch pedal shaft is rusted, deformed and damaged
	• Incorrect brake fluid	• Check if the fluid in the master cylinder is correct. If the brake fluid is found incorrect, replace the clutch master cylinder and slave cylinder, flush the hydraulic pipeline and add correct fluid.
	• Brake fluid polluted	• Check the brake fluid for water • Check the brake fluid for dust or debris • Check if the brake fluid is polluted. If the brake fluid is polluted, replace the clutch master cylinder and slave cylinder, flush the hydraulic pipeline and add correct fluid.
	• Clutch hydraulic pipeline twisted or deformed	• Check if the hydraulic hose is kinked or damaged, and repair or replace the clutch hydraulic hose if damaged.
	• Hydraulic pipeline rusted	• Clean or replace the hydraulic pipeline
Clutch pedal pulsates	• Clutch pedal and clutch pedal shaft poorly lubricated • Clutch friction plate assembly unevenly worn • Pressure plate spring fatigue with uneven clearance • Flywheel	**Refer to: Diagnostic process for clutch pedal pulsating**

Symptom	Possible point of failure	Recommended measures
The clutch is rattling	• Platen diaphragm spring is too soft	• Replace the clutch platen assembly **Refer to: replacement of clutch plate assembly**
	• Release bearing damaged	• Replace the release bearing **Refer to: replacement of clutch release bearing**
	• Clutch friction plate assembly polluted by oil	• Solve the oil leakage problem and replace the clutch friction plate assembly, if necessary.
	• Friction plate damping spring damaged	• Replace the clutch friction plate assembly **Refer to: replacement of clutch plate assembly**
Clutch clatters or shakes	• Engine support • Surface of clutch friction plate assembly polluted by oil • Diaphragm spring • Clutch plate assembly • Surface of clutch friction plate assembly • Flywheel	**Refer to: Diagnostic process for clutch clattering or shaking**
Clutch vibration	• Engine parts in contact with the frame • Accessories belt • Flywheel bolt • Flywheel • Clutch platen unbalanced	**Refer to: Diagnostic process for clutch vibration**
The noise is excessive	• Clutch pedal free stroke • Clutch release bearing • Clutch release bearing poorly lubricated • Guide bearing • Excessive crankshaft axial clearance	**Refer to: Diagnostic process for significant noise**
Difficulty in gears shift	• Brake fluid shortage • Air in clutch line • Clutch pedal free stroke • Manual transmission fault	**Refer to: Diagnosis process for difficulty in gears shift**

Diagnostic process for brake fluid leakage

Test condition	Details/results/measures
1. Check the clutch oil pot.	
	A. Check the clutch oil pot for damage. B. Check the sealing element for aging. C. Check whether the installation is correct. Is it OK after checking? →**Yes** To step 2. →**No** Repair or replace the damaged components.
2. Check the clutch master cylinder.	
	A. Check the clutch master cylinder for leak. Is it OK after checking? →**Yes** To step 3. →**No** Replace the master cylinder. **Refer to: Replacement of the clutch master cylinder.**
3. Check the clutch wheel cylinder.	
	A. Check the clutch wheel cylinder for leak. Is it OK after checking? →**Yes** To step 4. →**No** Replace the clutch wheel cylinder. **Refer to: Replacement of the clutch wheel cylinder.**
4. Replace the clutch line.	
	A. Replace the clutch line. B. Fill the brake fluid and bleed the clutch system. Confirm that the fault has been ruled out.

Diagnostic process for clutch slip

Test condition	Details/results/measures
1. Confirm the fault phenomenon.	
	A. Fix the wheels, apply the parking brake and depress the brake pedal. B. Start the engine and engage the 4th gear. C. Run the engine at the speed of 2,000rpm and slowly release the clutch pedal. Does the engine stall when the clutch pedal completely releases? →**Yes** The clutch is normal. →**No** To step 2.
2. Check the clutch pedal free stroke.	
	A. Check the clutch pedal free stroke, which should be more than 7mm and less than 10mm. Is it OK after checking? →**Yes** To step 3. →**No** Adjust the clutch pedal free stroke.
3. Check the clutch pedal control ability.	
	A. Check whether the clutch pedal shaft lubrication is normal. Is it OK after checking? →**Yes** To step 4. →**No** Lubricate the clutch pedal shaft.
4. Check the clutch master cylinder.	
	A. Release the clutch master cylinder and check whether the master cylinder return is normal. Is it OK after checking? →**Yes** To step 5. →**No** Replace the clutch master cylinder. Refer to: Replacement of the clutch master cylinder.

Test condition	Details/results/measures
5. Check the clutch wheel cylinder.	
	A. Check whether the clutch wheel cylinder can automatically return. Is it OK after checking? →**Yes** To step 6. →**No** Replace the clutch wheel cylinder. **Refer to: Replacement of the clutch wheel cylinder.**
6. Check the clutch.	
	A. Remove the transmission. **Refer to: Replacement of the transmission assembly.** B. Check the clutch for oil leak and contamination. Is it OK after checking? →**Yes** To step 7. →**No** Repair the oil leak fault.
7. Check the clutch friction plate assembly.	
	A. Check the clutch friction plate assembly for oil stain, overhardening or damage. B. Check the thickness of clutch friction plate assembly. Is it OK after checking? →**Yes** To step 8. →**No** Replace the clutch friction plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
8. Check the clutch plate assembly.	
	A. Check the clutch plate assembly for excessive wear, buckling and fracture. B. Check the plate diaphragm spring for damage. Is it OK after checking? →**Yes** To step 9. →**No** Replace the clutch plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
9. Replace the flywheel.	
	A. Replace the flywheel. **Refer to: Replacement of the flywheel.** B.Carry out trial run. Confirm that the fault has been ruled out.

Diagnostic process for clutch delay

Test condition	Details/results/measures
1. Check the brake fluid.	
	A. Check the brake fluid level, color and taste. B. Check the clutch line for leak. Is it OK after checking? →**Yes** To step 2. →**No** Repair the fault, fill or replace the brake fluid.
2. Check the brake fluid for air admission.	
	A. Check the brake fluid for air admission. Is it OK after checking? →**Yes** To step 3. →**No** Bleed the clutch. **Refer to: Clutch bleed procedures**
3. Check the clutch pedal free stroke.	
	A. Check the clutch pedal free stroke, which should be more than 7mm and less than 10mm. Is it OK after checking? →**Yes** To step 4. →**No** Adjust the free stroke of clutch pedal bracket assembly.
4. Check the clutch plate assembly.	
	A. Check the clutch plate assembly for excessive wear, buckling and fracture. B. Check the plate diaphragm spring for damage. Is it OK after checking? →**Yes** To step 5. →**No** Replace the clutch plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**

Test condition	Details/results/measures
5. Check the clutch friction plate assembly.	
	A. Check the clutch friction plate assembly for deformation. B. Check the clutch friction plate assembly spline groove for corrosion or damage. Is it OK after checking? →**Yes** To step 6. →**No** Replace the clutch friction plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
6. Check the release bearing.	
	A. Check the release bearing for damage. Is it OK after checking? →**Yes** To step 7. →**No** Replace the release bearing. **Refer to: Replacement of the release bearing.**
7. Replace the transmission main shaft.	
	A. Replace the transmission main shaft. **Refer to: Disassembly and assembly of transmission** B. Carry out trial run. Confirm that the fault has been ruled out.

Clutch pedal bracket assembly pulse diagnosis flow

Test condition	Details/results/measures
1. Check the clutch pedal bracket assembly.	
	A. Check whether the installation of clutch pedal bracket assembly mechanism is normal. B. Check whether the clutch pedal rotation pivot lubrication is normal. Is it OK after checking? →**Yes** To step 2. →**No** Install the clutch pedal bracket assembly again and lubricate the rotation pivot.
2. Check the clutch friction plate assembly.	
	A. Remove the transmission. **Refer to: Replacement of the transmission assembly.** B. Check the clutch friction plate assembly for stiffening and deformation. C. Check the clutch friction plate assembly for uneven wear. D. Check the clutch friction plate assembly damping spring for uneven distribution. Is it OK after checking? →**Yes** To step 3. →**No** Replace the clutch friction plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
3. Check the clutch plate assembly.	
	A. Check the clutch plate surface for deformation. B. Check the clutch plate assembly diaphragm spring for fracture or absence. C. Check the clutch plate surface for uneven wear. Is it OK after checking? →**Yes** To step 4. →**No** Replace the clutch plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
4. Replace the flywheel.	
	A. Replace the flywheel. **Refer to: Replacement of the flywheel.** B. Carry out trial run. Confirm that the fault has been ruled out.

Diagnostic process for clutch clattering or shaking

Test condition	Details/results/measures
1. Check the clutch for click noise or dithering.	
	A. Start the engine, engage the first gear and run the engine at the speed of 1,200 ~ 1,500rpm. B. Slowly release the clutch pedal. C. Check clutch for dithering upon the vehicle start. Is it OK after checking? →**Yes** The clutch is normal. →**No** To step 2.
2. Check the engine/transmission mounting.	
	A. Check the engine/transmission mounting fixing bolt for looseness. B. Check the engine/transmission mounting for excessive wear and aging of rubber. Is it OK after checking? →**Yes** To step 3. →**No** Repair or replace the damaged components.
3. Check the clutch plate assembly.	
	A. Check the clutch plate assembly for the abnormal wear. Is it OK after checking? →**Yes** To step 4. →**No** Replace the clutch plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
4. Check the clutch friction plate assembly.	
	A. Check the clutch friction plate assembly for oil stain or burning. Is it OK after checking? →**Yes** To step 5. →**No** Replace the clutch friction plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**

5. Replace the flywheel.	
	A. Replace the flywheel. **Refer to: Replacement of the flywheel.** B. Carry out trial run. Confirm that the fault has been ruled out.

Diagnostic process for clutch vibration

Test condition	Details/results/measures
1. Check the engine components and bodywork for interference.	
	A. Lift the vehicle. **Refer to: Vehicle lift and support** B. Check the engine mounting linkage for interference with the bodywork or frame. C. Check the exhaust manifold or other engine components for interference with the bodywork or frame. Is it OK after checking? →**Yes** To step 2. →**No** Repair the fault position.
2. Check the accessory drive vibration.	
	A. In the case of engine torque variation, check the accessory for vibration while engaging or releasing the clutch. B. Loosen the accessory driving belt and check for vibration. C. Check whether the vibration stops when the accessory driving belt is removed. Is it OK after checking? →**Yes** To step 3. →**No** Repair or replace the damaged components.
3. Check the clutch plate assembly.	
	A. Remove the transmission assembly. **Refer to: Replacement of the transmission assembly.** B. Check the end face run-out of clutch plate assembly. C. Check the wear height of clutch plate assembly release lever. Is it OK after checking? →**Yes** To step 4. →**No** Replace the clutch plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**

Test condition	Details/results/measures
4. Check the clutch friction plate assembly.	
	A. Check the clutch friction plate assembly for stiffening, deformation and thickness limit. B. Check the end face run-out of clutch friction plate assembly. Is it OK after checking? →**Yes** To step 5. →**No** Replace the clutch friction plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
5. Replace the flywheel.	
	A. Remove the transmission. **Refer to: Replacement of the transmission assembly.** B. Check the clutch friction plate assembly for stiffening and deformation. C. Check the clutch friction plate assembly for uneven wear. D. Check the clutch friction plate assembly damping spring for uneven distribution. Is it OK after checking? →**Yes** To step 3. →**No** Replace the clutch friction plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**

Clutch noise high diagnosis flow

Test condition	Details/results/measures
1. General inspection.	
	A. Check the engine and transmission support for cracking, absence and damage. B. Check the transmission for interference with the exhaust pipe and bodywork and whether the transmission support includes the stone or other foreign matters. Is it OK after checking? →**Yes** To step 2. →**No** Repair the fault position.
2. Check the noise in the early stage of clutch release.	
	A. Start the engine and depress the clutch pedal gently without depressing to the end. Is there any noise? →**Yes** Replace the clutch release bearing. Refer to: Replacement of the release bearing. →**No** To step 3.
3. Check the noise upon clutch engagement.	
	A. Remove the transmission. **Refer to: Replacement of the transmission assembly.** B. Check the wear of clutch friction plate assembly torsional spring. Is it OK after checking? →**Yes** To step 4. →**No** Replace the clutch friction plate assembly. **Refer to: Replacement of the clutch friction plate assembly.**
4. Check the noise when a gear engaged and in neutral gear.	
	A. Start the engine and check the noise when a gear engaged and in neutral gear. Is there any transmission noise? →**Yes** Repair the transmission. →**No** To step 5.
6. Check the other noise.	
	A. Check the other noise. Confirm that the fault has been ruled out.

Diagnosis process for difficulty in gears shift

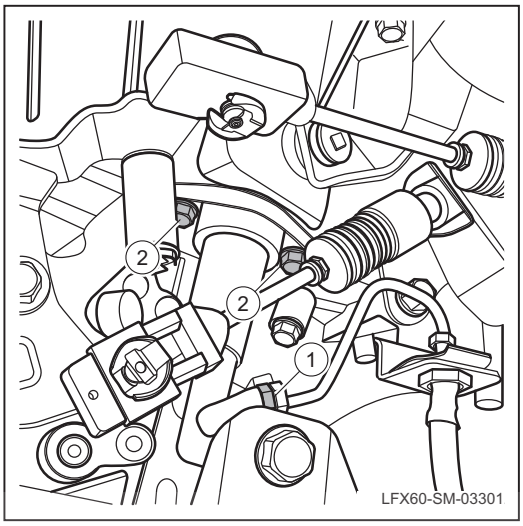
Test condition	Details/results/measures
1. Check the clutch system.	
	A. Check whether the clutch system release is complete and the engagement is reliable. **Refer to: Diagnosis for difficulty in gears shift** **Is it OK after checking?** **→Yes** To step 2. **→No** Repair or replace the damaged components.
2. Check the gear lever and gear lever positioning assembly.	
	A. Check the gear lever for deformation and abnormal installation. B. Check the gear lever positioning assembly for abnormal installation and excessive wear. Is it OK after checking? **→Yes** To step 3. **→No** Repair or replace the damaged components.
3. Check the transmission inside shift fork, fork shaft, synchronizer assembly and self-locking mechanism.	
	A. Remove the transmission. **Refer to: Replacement of transmission assembly (MT)** **Refer to: Disassembly and assembly of transmission (MT)** B. Check the shift fork and fork shaft for deformation and damage. C. Check whether the synchronizer assembly is normal. D. Check the fork shaft self-locking mechanism. Is it OK after checking? **→Yes** To step 4. **→No** Repair or replace the damaged components
4. Replace the transmission or engine support.	
	A. Replace the transmission or engine support. **Refer to: Replacement of mounting device** Confirm the fault is eliminated

Removal and Installation

Clutch bleed procedures

1. Bleed the clutch.

(a). Remove the air filter element assembly. **Refer to the replacement of air filter element assembly.**



(b). Loosen the bleed bolt.

(c). Connect the vinyl plastics hose to the wheel cylinder bleed bolt and depress the clutch pedal slowly for several times.Depress the clutch pedal to the end, loosen the bleed bolt until the brake fluid flows out and then tighten the bleed bolt.

(d). Repeat the above operation until no bubble occurs and then tighten the bleed bolt.

Note:

- **This procedure requires two persons to complete.**
- **The oil level in the clutch pot must be normal.**
- **Fill the brake fluid to MAX mark.**

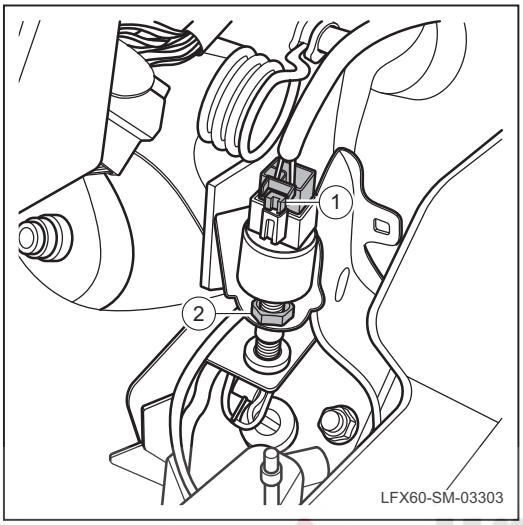
Replacement of clutch switch

Removal

1. Remove the clutch switch.

(a). Disconnect the battery negative connector.

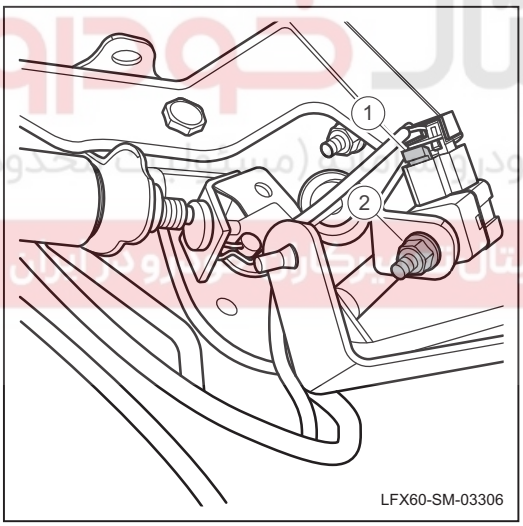
(b). Remove the dashboard lower left panel assembly. **Refer to the replacement of dashboard assembly.**



(c). Disconnect the clutch high-mounted switch harness plug 1.

(d). Unscrew the clutch high-mounted switch fixing nut 2.

(e). Rotate the clutch high-mounted switch counter-clockwise to take it out.



(f). Disconnect the clutch low-mounted switch harness plug 1.

(g). Remove the clutch low-mounted switch fixing nut 2.

(h). Take out the clutch low-mounted switch.

Installation

1. Install the clutch switch.

(a). The installation sequence is the reverse of the disassembly order.

ⓘ Note:

During the installation, adjust the clutch to the proper position.

Replacement of clutch pedal bracket assembly

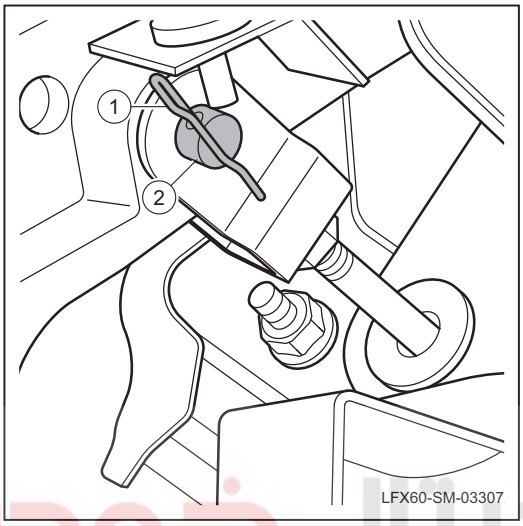
Removal

1. Remove the clutch pedal bracket assembly.

(a). Disconnect the battery negative connector.

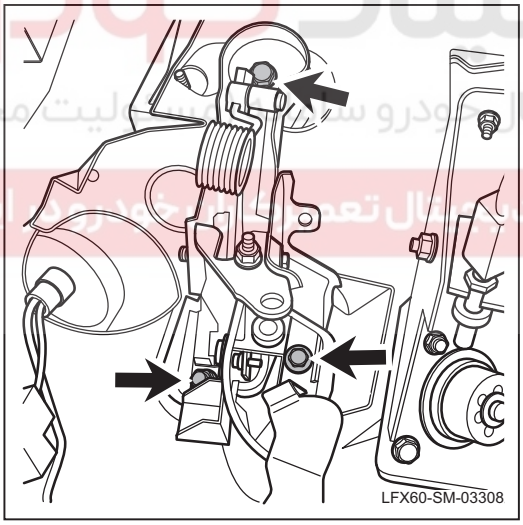
(b). Remove the dashboard lower left panel assembly. **Refer to the replacement of dashboard assembly.**

(c). Remove the clutch switch. **Refer to the replacement of clutch switch.**



(d). Remove the clutch master cylinder push rod fixing plunger detent 1.

(e). Remove the clutch master cylinder push rod fixing plunger 2.



(f). Remove the clutch pedal bracket fixing bolt.

(g). Take down the clutch pedal bracket assembly.

Installation

1. Install the clutch pedal bracket assembly.

(a). The installation sequence is the reverse of the disassembly order.

Replacement of clutch master cylinder

Removal

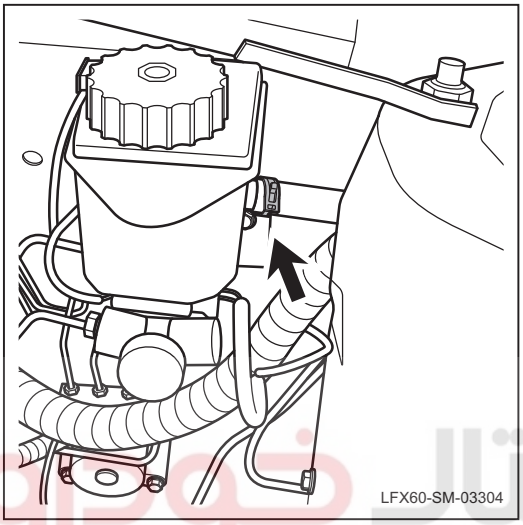
1. Remove the clutch master cylinder.

(a). Remove the battery negative terminal.

(b). Remove the brake master cylinder. **Refer to the replacement of brake master cylinder.**

(c). Remove the vacuum booster. **Refer to the replacement of vacuum booster.**

(d). Remove the dashboard lower left panel. **Refer to the replacement of dashboard assembly.**

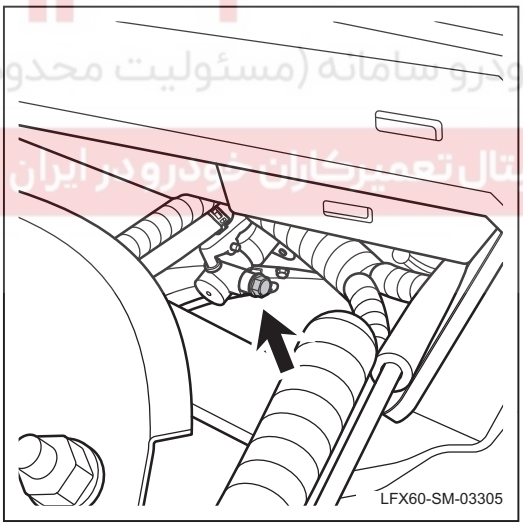


(e). Remove the clutch master cylinder oil inlet hose clamp and take down the hose.

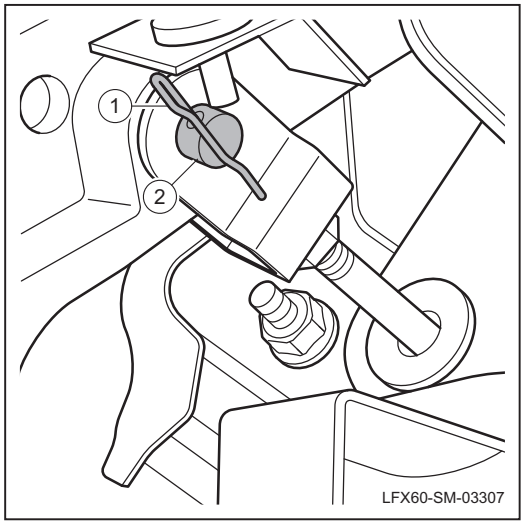
Note:

Seal the inlet pipe to prevent the oil lose and the ingress of dirt.

If the brake fluid splashes onto the paint face, immediately rinse it with the cool water.

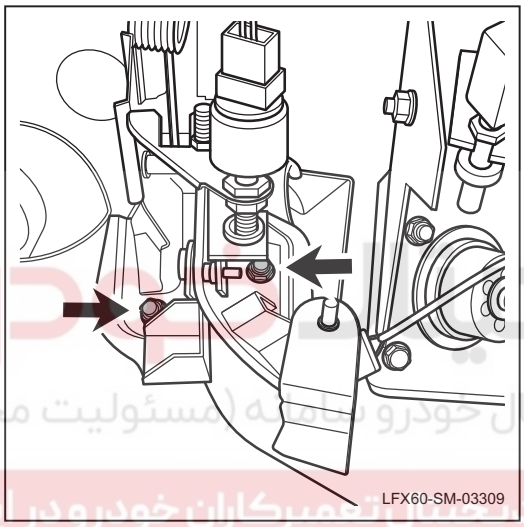


(f). Remove the clutch master cylinder oil outlet pipe fixing nut.



(g). Remove the clutch master cylinder push rod fixing plunger detent 1.

(h). Remove the clutch master cylinder push rod fixing plunger 2.



(i). Remove the clutch master cylinder fixing bolt.

(j). Take down the clutch master cylinder.

Installation

1. Install the clutch master cylinder.

(a). The installation sequence is the reverse of the disassembly order.

(b). Fill the brake fluid. **Refer to the brake fluid draining and filling procedures.**

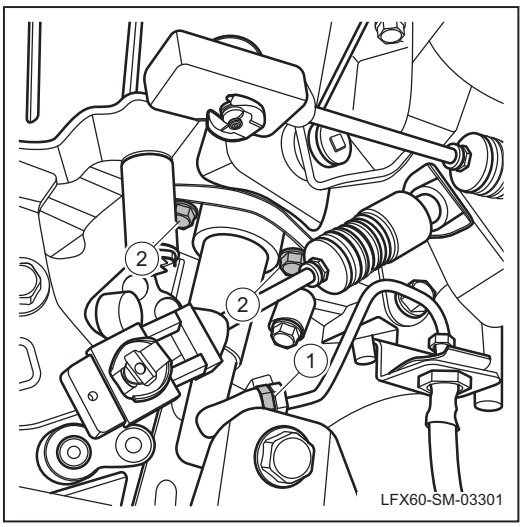
(c). Bleed the clutch. **Refer to the clutch bleed procedures.**

Replacement of clutch wheel cylinder

Removal

1. Remove the clutch wheel cylinder.

(a). Remove the air filter assembly. **Refer to the replacement of air filter assembly.**



(b). Remove the clutch wheel cylinder oil pipe clamp and disconnect the wheel cylinder oil pipe 1.

(c). Remove the clutch wheel cylinder fixing bolt 2.

(d). Take out the clutch wheel cylinder.

Note:

Seal the inlet pipe to prevent the oil lose and the ingress of dirt.

If the brake fluid splashes onto the paint face, immediately rinse it with the cool water.

Installation

1. Install the clutch wheel cylinder.

(a). The installation sequence is the reverse of the disassembly order.

(b). Fill the brake fluid. **Refer to the brake fluid draining and filling procedures.**

(c). Bleed the clutch. **Refer to the clutch bleed procedures.**

Replacement of release bearing

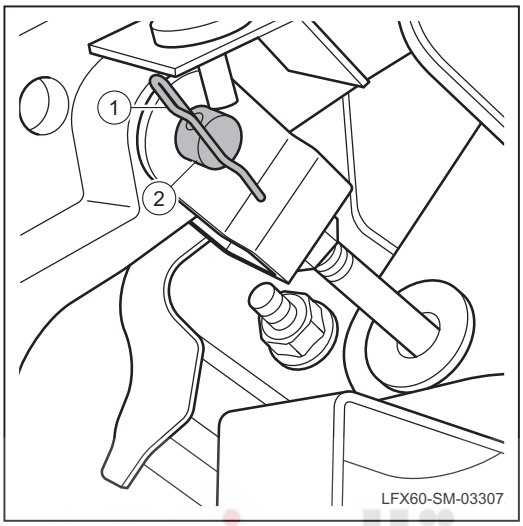
Removal

1. Remove the release bearing.

(a). Disconnect the battery negative connector.

(b). Lift the vehicle. **Refer to the vehicle lift and support.**

(c). Remove the transmission assembly. **Refer to the removal of transmission assembly.**



(d). Remove the release bearing.

Installation

1. Install the release bearing.

(a). The installation sequence is the reverse of the disassembly order.

Note:

Apply the right amount of grease to the release fork.

Replacement of clutch plate assembly

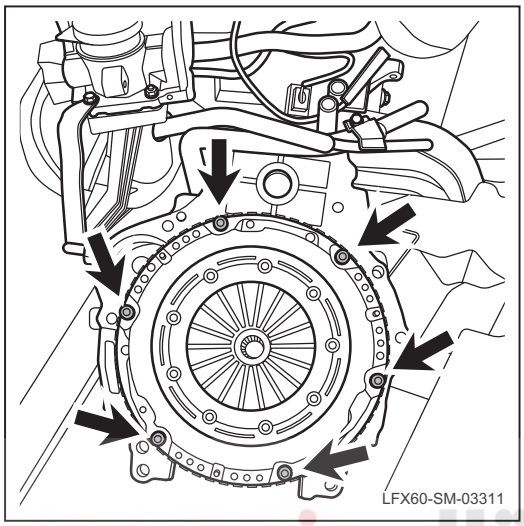
Removal

1. Remove the clutch plate assembly.

(a). Disconnect the battery negative connector.

(b). Lift the vehicle. Refer to the vehicle lift and support.

(c). Remove the transmission assembly. Refer to the removal of transmission assembly.



(d). Remove the clutch plate assembly fixing bolt.

(e). Take down the clutch plate assembly.

(f). Take down the clutch friction plate assembly.

Installation

1. Install the clutch plate assembly.

(a). The installation sequence is the reverse of the disassembly order.

ⓘ Note:

During the installation, adjust the clutch friction plate assembly to make it concentric with the flywheel center through the special tool.