CLUTCH

1130-13/3010-01/3020-01/3020-02/3030-00/3030-01/ 3110-08/3191-11/

CLUTCH

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T I V O L I

CLUTCH

GENERAL INFORMATION

1. SPECIFICATIONS

Item		Specifications		
	Item	G16DF	D16DTF	
Operation type		Hydraulic	←	
Clutch Pedal	Туре	Suspended	←	
	Max. actuation travel	125 ± 3mm	135 ± 3mm	
	Pedal free play	3 ~ 7mm	←	
	Lateral pedal free play	2.5 mm or less	←	
Clutch cover	Туре	Conventional	Self-adjusting type	
Clutch Disc	Туре	Torsional damper spring	Single dry diaphragm (Rigid Type)	
	Facing diameter	225mm	240mm	
	Facing quantity	2	2	
(مسئولیت م	Weight	1.33kg	1.16kg	
Flywheel	Type نه دیجیتال تعمیر	SMF (Single Mass Flywheel)	DMF(Dual Mass Flywheel)	
Clutch master	Actuation travel	31.8 ± 0.6mm	←	
cylinder	Inner diameter	15.875mm	←	
Concentric slave	Max. actuation travel	19.6mm	←	
cylinder	Operating pressure	Max. 40 bar	←	
Clutch fluid	Specification	DOT 4R	←	
	Capacity	Proper level	←	
Clutch switch	Air gap	2mm	←	

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	Affected VIN		
	Application basis		
	Modification basis		

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2. TIGHTENING TORQUE

ltem		Tightening torque	Quantity
Clutch housing mounting bolt	Upper side	85 to 100 Nm	2
	Front side	54 Nm + 20°	1
	Lower side	59 ± 3 Nm	4
Pressure plate assembly mounting bolt		24 ± 3 Nm	6
Concentric slave cylinder mounting bolt		9.8 to 15.68 Nm	2
Clutch pedal mounting bolt and nut		7.84 to 17.64 Nm	3



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OVERVIEW AND OPERATING PROCESS

1. OVERVIEW

The clutch system allows the shifting by shutting off the engine power transmitted to the M/T. The system consists of the following elements.

▶ Driving Element

The driving element consists of two flat surfaces machined to a smooth finish.

One is the rear surface of the engine flywheel and the other is clutch pressure plate. The clutch pressure plate is fitted to the clutch steel cover which is bolted down on the flywheel.

▶ Driven Element

The driven element is the clutch disc with a splined hub which is free to slide horizontally along the same spline of the input shaft.

The driving and driven elements are held in contact by spring pressure. This pressure is exerted by the diaphragm spring in the clutch pressure plate assembly.

▶ Operating Element

The clutch release system consists of clutch pedal and concentric slave cylinder.

This system directly releases the clutch by using hydraulic pressure while the conventional clutch system releases the clutch by using release lever and release fork.

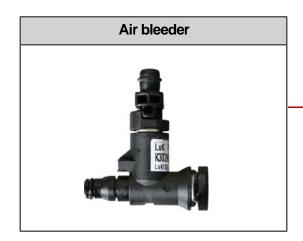
Therefore, this system provides higher efficiency and durability than the conventional clutch system.

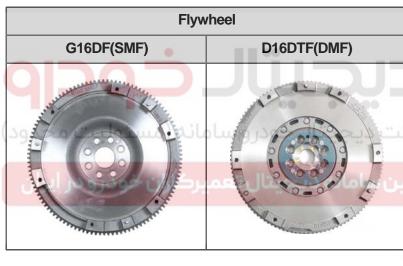
- Clutch master cylinder (with clutch pedal)
- Concentric slave cylinder (built in transmission)

	Modification basis		
	Application basis		
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2. COMPONENTS







Clutch cover and disc		
G16DF	D16DTF	

CLUTCH TIVOLI 2015.06 Modification basis
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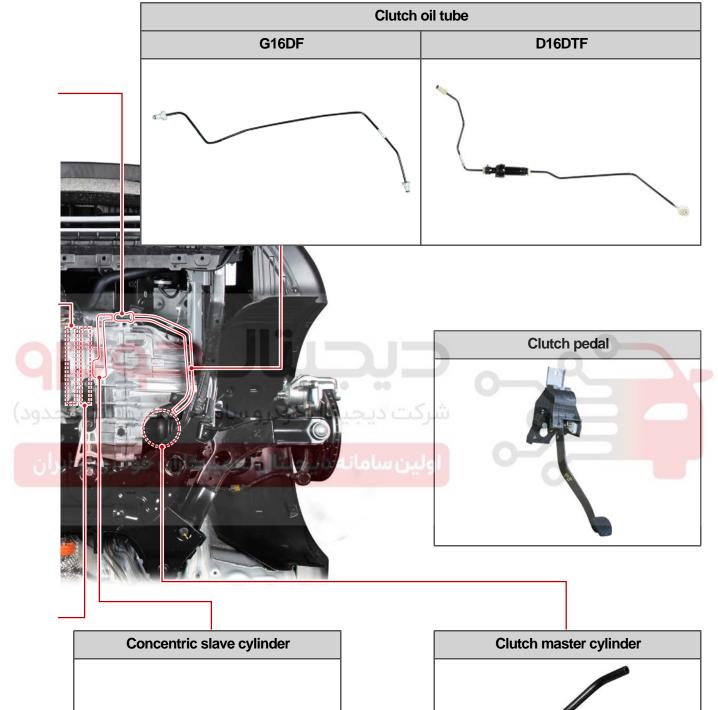
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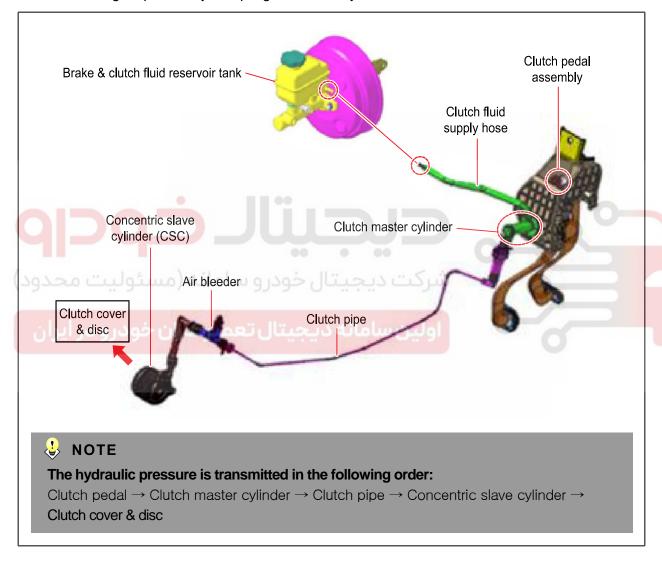
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3. OPERATING PROCESS

If the driver depresses the clutch pedal, the hydraulic pressure is generated in the master cylinder. It is transmitted to the concentric slave cylinder through the pipe, resulting in the cylinder being forced out. At this time, the clutch disc is pushed by the cylinder when the cover is pushed. This, in turn, separate the flywheel from the pressure plate. As a result, the power from the engine is cut off and the gear change can be carried out.

When the clutch pedal is released, the clutch function is deactivated and the concentric slave cylinder returns to its original position by the spring force in the cylinder.



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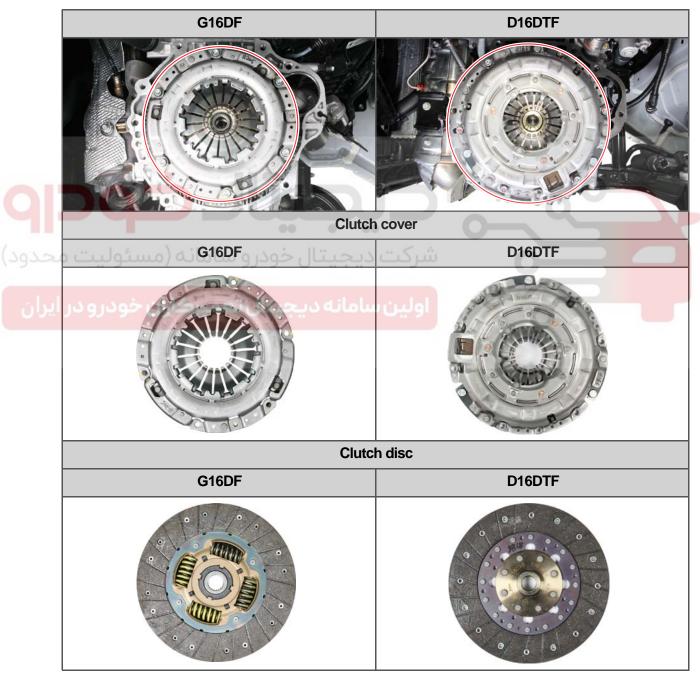
CONFIGURATION AND FUNCTIONS

3010-01 CLUTCH ASSEMBLY

1) Overview

Clutch assembly consists of clutch cover (diaphragm spring, pressure plate) and clutch disc.

2) Mounting Location and Components

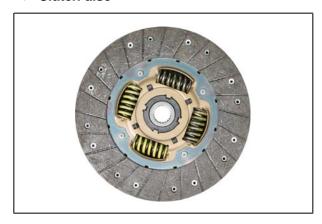


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(1) G16DF

► Clutch disc

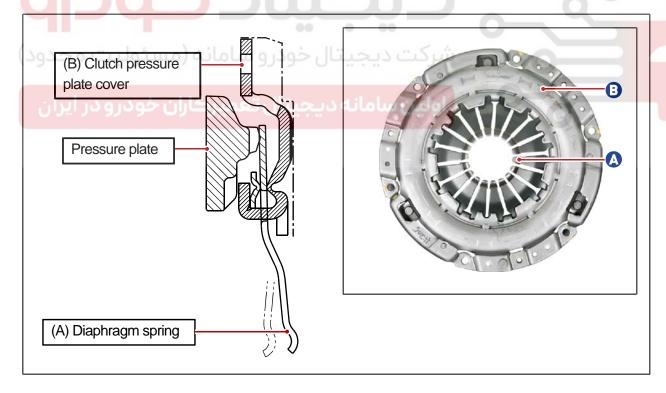


The clutch disk is installed between the engine flywheel and pressure plate and delivers the power from engine flywheel to the transmission through the spline at the center of the disc. The input shaft of the transmission is fitted to the spline. The clutch disc has friction material on both sides and the cushion springs which are used to cut the power from the engine.

► Clutch cover

Depressing the clutch pedal makes the concentric slave cylinder push the diaphragm spring of the pressure plate, resulting in separation of the pressure plate from the clutch disc.

The diaphragm spring type is simple and requires less physical effort. Also, the change in the pressure applied is small even if the facing of the clutch disc is worn.



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(2) D16DTF

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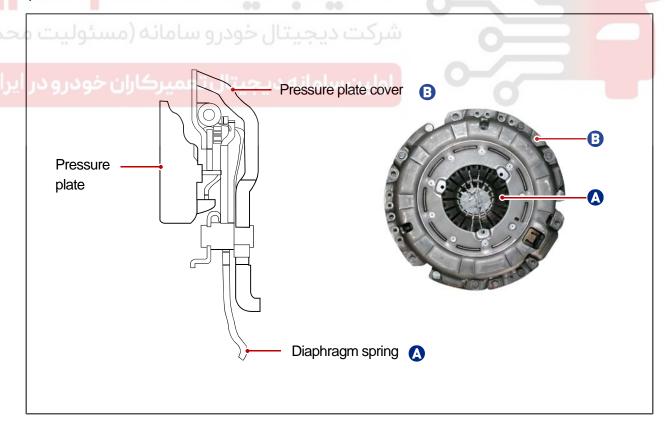
► Clutch disc



The clutch disc is installed between the engine flywheel and the pressure plate. The spline part is installed in the center of the disc and transmits the engine's electric power to the transmission. The transmission input shaft can be inserted into the spline part. The clutch disc has friction materials on its edges, where the engine power can be interrupted, and the cushion spring is installed to prevent friction materials (facing) from unevenly wearing out.

▶ Clutch cover

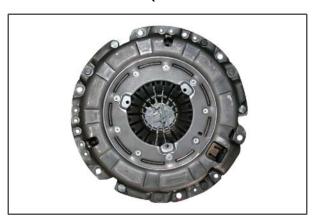
When depressing the clutch pedal, the concentric slave cylinder pushes the pressure plate diaphragm and separates the pressure plate. The advantages of using the diaphragm spring: the pressure varies only a little even when the clutch disc facing is considerably worn out, its structure is simple, and the pedal effort is small.



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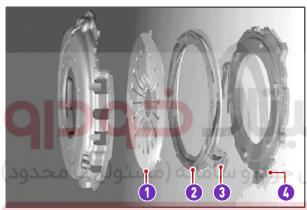
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► Function of SATIC(SELF ADJUSTING TECHNOLOGY WITH INTEGRATED CASSETTE) clutch



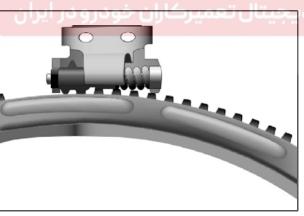
On the conventional clutch, the pedal force tends to increase in proportion to the degree of disc run-out. However, the SATIC clutch has the adjusting function which activates the cassette system inserted to the clutch cover to maintain a constant pedal force and clearance when the disc runs out. (Unlike SAT type, SATIC type does not need SST for clutch cover removal.)

▶ Operation



Diaphragm spring rotates the adjusting equipment as clutch disc is wearing and so, pressure plate is pushed to clutch disc side at the amount of wear.

Disc wear (Free play) → Diaphragm spring (1) → Adjusting equipment (2, 3) → Pressure plate (4)



Modification basis	
Application basis	
Affected VIN	

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3191-11 CONCENTRIC SLAVE CYLINDER

1) Overview

The concentric slave cylinder is mounted to the input shaft in the M/T clutch housing. When the clutch pedal is depressed, the hydraulic pressure is generated. This hydraulic pressure makes the cylinder push the clutch diaphragm to cut the power from the engine.

2) Mounting Location and Components







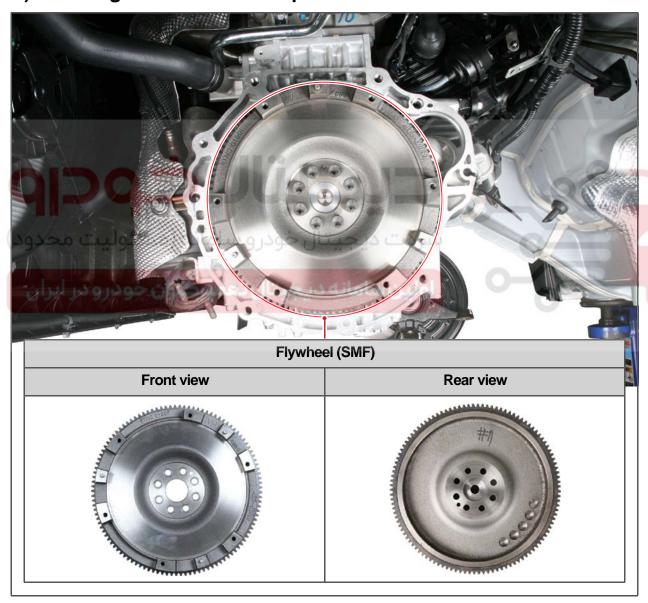
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1130-13 SINGLE MASS FLYWHEEL(SMF)(G16DF)

1) Overview

The flywheel is a single mass flywheel (SMF). It is installed to the crankshaft and connected to the clutch disc. The flywheel transfers the torque from the engine to the drive system. Before transferring the torque to the drive system, the flywheel reduces the fluctuations of rotation speed and torque generated from combustion in the engine. Thus, the rattling noise of the transmission and the vibration of the vehicle can be greatly reduced.

2) Mounting Location and Components



♣ NOTE

The SMF reduces the crankshaft revolution irregularities.

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Application basis	
Affected VIN	

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1130-13 DUAL MASS FLYWHEEL(DMF)(D16DTF)

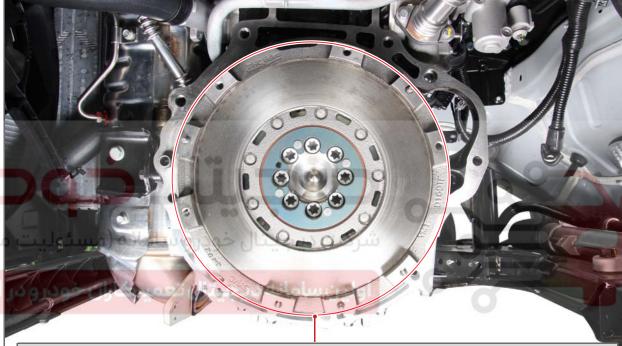
1) Overview

The dual mass flywheel (DMF) is of having a mass divided into two halves.

While one mass is connected to the engine crankshaft, which is affected by the mass moment of inertia of the engine, the other mass is affected by one of the transmission.

The divided dual masses are connected to the coil spring and damping system internally.

2) Mounting Location and Components

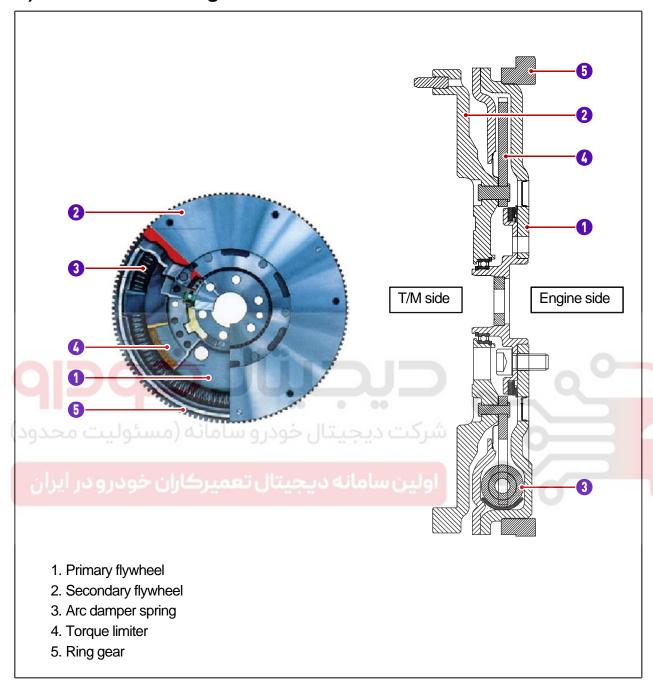


Flywheel (DMF)		
Front view	Rear view	
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3) DMF Internal Configuration



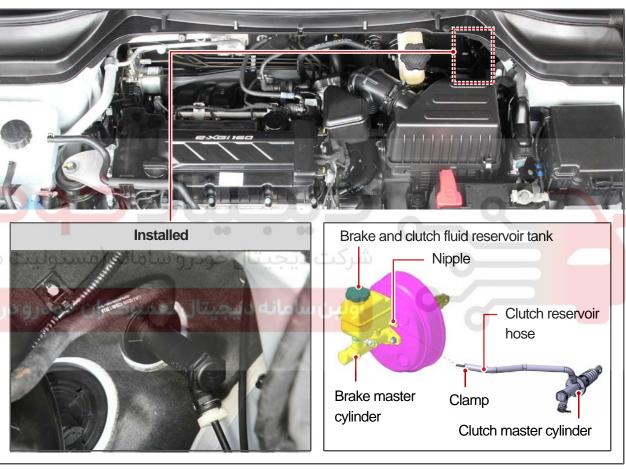
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3020-01 CLUTCH MASTER CYLINDER

1) Overview

The clutch master cylinder generates hydraulic pressure by moving the piston in the cylinder. It consists of oil tank, cylinder, piston, piston cup, spring, push rod. The clutch fluid is supplied from the brake and clutch fluid reservoir tank.

2) Mounting Location and Components

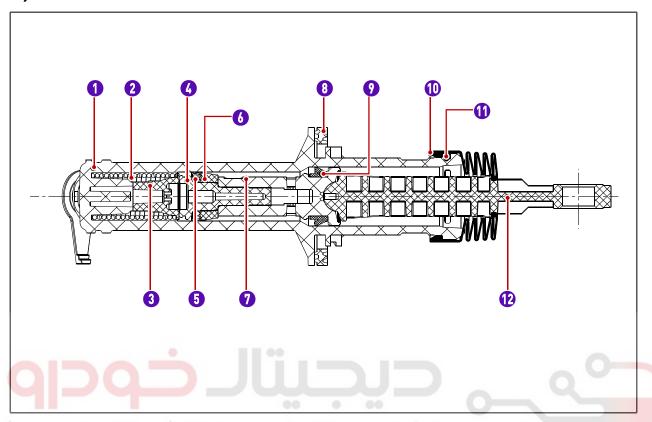




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3) Structure



- Master cylinder housing
 7. Piston
- 2. Coil spring
- 3. Valve retainer
- 4. Seal retainer
- 5. Energizer
- 6. Primary seal

- 8. Rubber seal
- 9. Secondary seal
- 10.Boot
- 11.Up stop clip
- 12.Push rod

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3030-01 CLUTCH PEDAL

1) Overview

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The clutch pedal used in this system is a pendant type clutch pedal (leverage effect is applied to reduce the effort to the feet). The pedal should be depressed for some time until actual hydraulic pressure is generated. This free play of the clutch pedal is to prevent the clutch disc and pressure plate from being overheated and damaged. If this free play is too much, it is hard to cut off the engine power and may cause noise during shifting or gear damage. The clutch pedal has a clutch interlock switch which prevents an abrupt start or unexpected incidents by allowing the engine to start only when the clutch pedal is depressed.

2) Mounting Location and Components



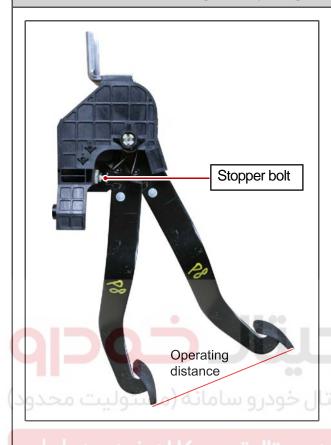
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3) Checking and Adjusting Clutch Pedal

Checking and adjusting actuation travel of clutch pedal



► Checking and adjusting

Set the pedal travel to the reference value by fastening or loosening the stopper bolt (11 mm) when adjusting the actuation travel.

Direction of rotation	Actuation travel	
Counterclockwise	Increased	
Clockwise	Decreased	

Max. actuation	125 + 3 mm
travel	,



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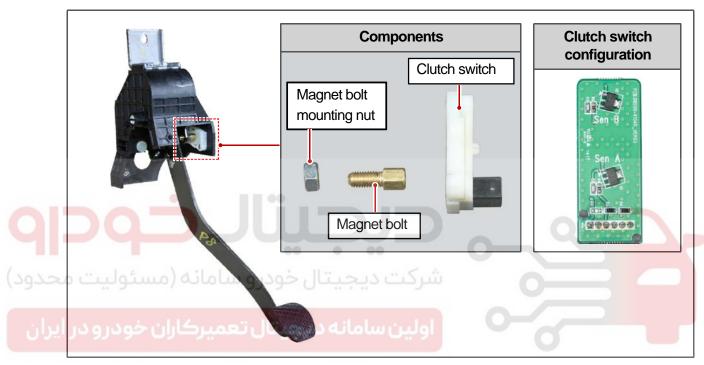
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3030-00 CLUTCH SWITCH

1) Overview

The clutch switch is installed to the clutch pedal assembly. The 2 sensors in the clutch switch are turned ON or OFF depending on the position of the magnet bolt on the clutch pedal.

2) Mounting Location and Components



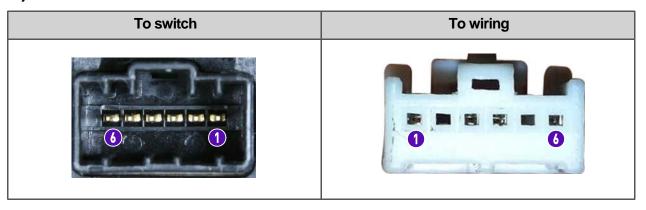
3) Control Logic

Clutch pedal	Clutch pedal position	Conditions		Output voltage (V)
	Upper	Sensor A	Sensor ON	0 V
	(0 to 20%)	Sensor B	Sensor OFF	10 V
Middle	Sensor A	Sensor OFF	10 V	
	(20 to 80%)	Sensor B	Sensor OFF	10 V
Lower (80 to 100%)	Sensor A	Sensor OFF	10 V	
	Sensor B	Sensor ON	0 V	

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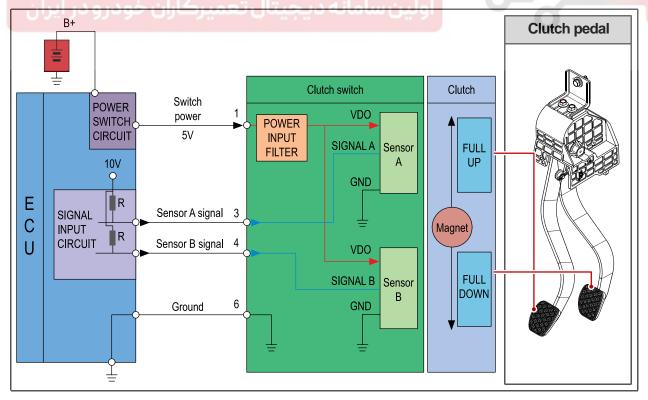
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4) Connector



Pin No.	Function
1	Switch power supply (5V)
2	-
3	Sensor A signal (UP)
4	Sensor B signal (DOWN)
5	
6	Ground

5) Circuit Diagram



CLUTCH TIVOLI 2015.06

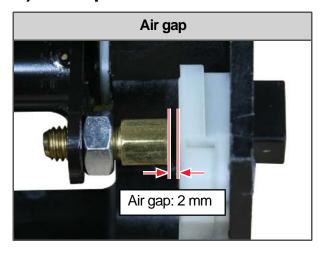
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5) Air Gap

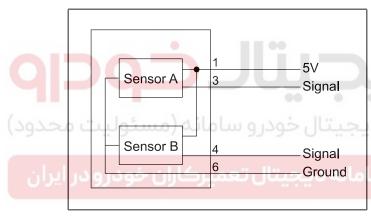
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A CAUTION

Do not adjust the magnet bolt. If the clutch switch is faulty, replace the clutch pedal assembly.

6) Check Method



If a voltage of 5 V is applied to the clutch switch and the magnet is close to the sensor, the normal sensor will output 0 V, provided that the switch is grounded.



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REMOVAL AND INSTALLATION

0000-00 TROUBLESHOOTING

Check		Possible Cause	Action	
Clutch slip		Excessive wear of facing	Replace	
		Hard or oily facing	Adjust or replace	
		Damaged diaphragm or flywheel	Replace	
		Damaged or burnt diaphragm spring	Replace	
		Insufficient clutch pedal free play	Adjust	
		Faulty operation of clutch pedal	Repair or replace	
		Worn or damaged clutch disc	Replace	
Poor di	sengagement	Vibration or excessive run-out of disc	Replace	
		Rust or wear of clutch disc spline	Repair or replace	
		Oily facing	Adjust or replace	
		Burnt diaphragm spring	Replace	
		Excessive clutch pedal free play	Adjust	
Hard to	shift or will not shift	Excessive clutch pedal free play	Adjust pedal freeplay	
		Faulty clutch release cylinder	Repair release cylinder	
		Worn disc, excessive run-out, damaged lining	Repair or replace	
		Dirty or burred splines on input shaft or clutch disc	Repair as necessary	
		Damaged clutch pressure plate	Replace	
Clutch chatters when starting		Oily facing	Repair or replace	
		Hard or faulty facing	Replace	
بران		Burnt cushion spring	Replace	
0 5		Faulty pressure plate	Replace	
		Bent clutch diaphragm spring	Replace	
		Hard or bent flywheel	Adjust or replace	
		Engine mounts loose or burnt lever	Tighten or replace	
Difficult	pedal operation	Poor bleeding in hydraulic system	Bleed or replace	
		Poor lubrication on pedal shaft		
		Poor lubrication on clutch pedal	Repair	
	Not using the clutch	Insufficient clutch pedal free play	Adjust	
		Excessive wear of clutch disc facing	Replace	
	After disengagement	Worn or damaged concentric slave cylinder	Replace	
Clutch	When disengaging Faulty installation of clutch assembly or bearing		Repair	
	Clutch pedal is partially depressed and vehicle speed is reduced	Damaged pilot bushing	Replace	

CLUTCH

TIVOLI 2015.06

Modification basis Application basis Affected VIN

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3010-01 CHECK AND INSPECTION



► Clutch cover assembly

- Check the diaphragm spring tip for wear and uneven heights.

Wear	limit
reai	

0.6 mm

- Check the pressure plate surface for wear, cracks and discoloration.
- Check the strap plate rivet for looseness and replace the clutch cover, if necessary.

▶ Pressure plate

- Check the pressure plate spring for wear.

A CAUTION

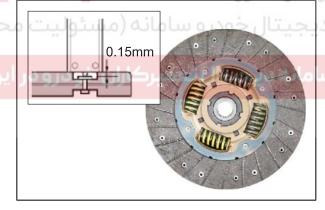
The excessively worn components should be replaced.

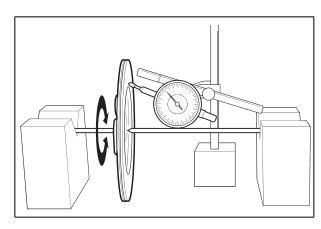


- Check the facing for rivet looseness, uneven contacts, deterioration due to sticking, oil and grease stains.
- Measure the rivet depth. If the measurement exceeds the limit, replace the clutch disc.

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0.15 mm





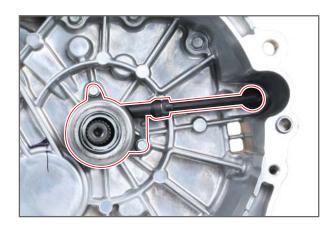
► Clutch disc run-out

- Measure the clutch disc run-out and replace if necessary.

Limit	below 1.0 mm

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► Concentric slave cylinder

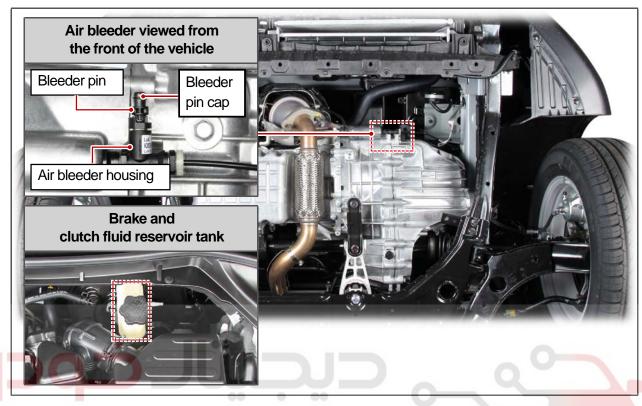
- Check the concentric slave cylinder bearing for any heat damage, abnormal noise, poor rotation, and wear.

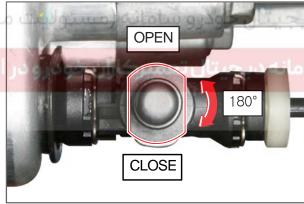




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3110-08 AIR BLEEDING





► How to bleed the air

- Remove the air bleeder pin cap, insert the transparent hose into the bleeder pin and soak the other end of the hose into the empty container.
- 2. Open the bleeder pin.
- 3. Fill the brake and clutch fluid reservoir tank with the brake fluid. Wait for 2 or 3 minutes until no air bubbles are shown in the brake fluid which flows out of the air bleeder. Do not depress the clutch pedal.
- 4. Depress the clutch pedal fully and rapidly.
- 5. Close the bleeder pin.
- 6. Return the clutch pedal to the starting point quickly. (wait for 1 sec. after returning)
- 7. Repeat the steps 2, 4, 5 and 6 around 15 times. Depress the clutch pedal quickly 20 times and
- 8. depress at normal speed (wait for 1 sec. after returning pedal) 50 times. (with D16DTF)

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♣ NOTE

- Two persons are required to carry out this work.
- After completing air bleeding, check the clutch system for operation and noise.
- Use only Ssangyong genuine clutch fluid (DOT 4R), and check if the fluid level is within the specified range marked on the reservoir tank.



A CAUTION

- Keep the fluid level over MAX on the reservoir tank during air bleeding.
- Do not allow the fluid to come in contact with the painted surfaces.





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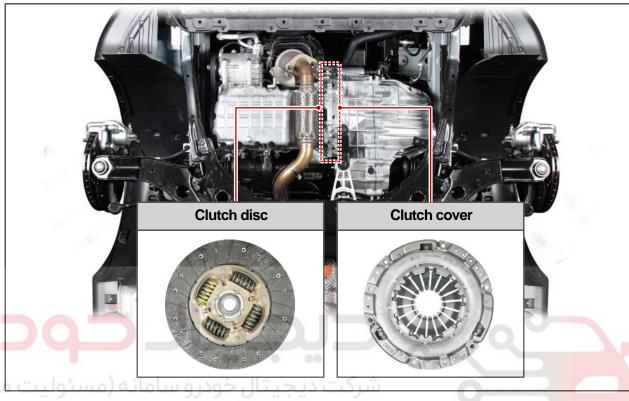
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Affected VIN	

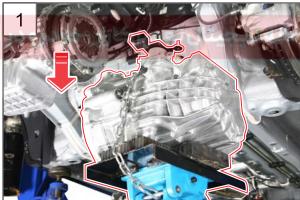
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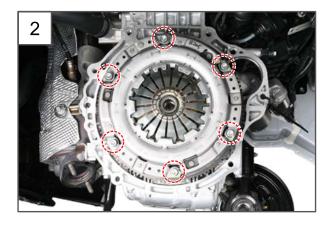
3010-01 CLUTCH DISC AND COVER ASSEMBLY (G16DF)

Preceding work

- Disconnect the negative cable from the battery.







1. Remove the M/T transmission from the vehicle.

♣ NOTE

Refer to "M/T ASSEMBLY" under "REMOVAL AND INSTALLATION" subsection of "6-SPEED M/T" section in "CHASSIS" chapter.

2. Unscrew the 6 hexagon mounting bolts (6 mm) for the clutch cover 1/2 turn in sequence diagonally to release the tension.

Tightening torque $21 \sim 27 \text{Nm}$

A CAUTION

Do not remove the bolts completely. Otherwise, the clutch cover may be distorted or other components may be damaged.

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3. Unscrew the mounting bolts completely and remove the clutch cover assembly and clutch disc.

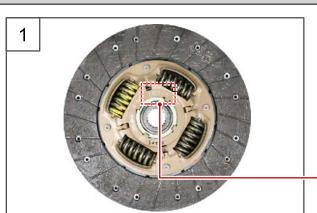


4. Installation in the reverse order of removal.

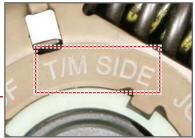


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Installation of clutch assembly



1. Make sure that the name mark of the clutch disc faces the transmission when installing the clutch disc.

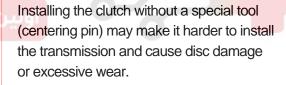


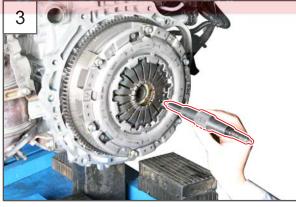
2. Use a clutch centering pin to install the clutch.











3. Tighten the 6 hexagon mounting bolts (6 mm) for the clutch to the specified torque in sequence diagonally to mount the clutch before removing the jigs.

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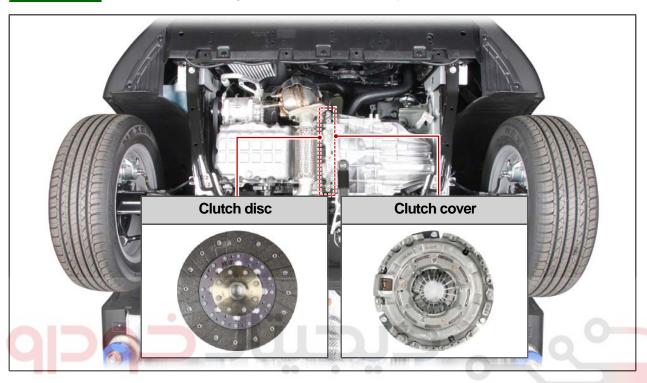
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0000-00 CLUTCH DISC AND COVER ASSEMBLY (D16DTF)

Preceding work

- Disconnect the negative cable from the battery.







1. Remove the M/T transmission from the vehicle.



♣ NOTE

Refer to "M/T ASSEMBLY" under "REMOVAL AND INSTALLATION" (D16DTF) subsection of "6-SPEED M/T" section in "CHASSIS" chapter.

2. Unscrew the 6 hexagon mounting bolts (6 mm) for the clutch cover 1/2 turn in sequence diagonally to release the tension.

Tightening torque 21 ∼ 27Nm



A CAUTION

Do not remove the bolts completely. Otherwise, the clutch cover may be distorted or other components may be damaged.

Modification basis	
Application basis	
Affected VIN	

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AISIN 6 SPEED

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3. Remove the clutch cover and clutch disc.



4. Installation in the reverse order of removal.

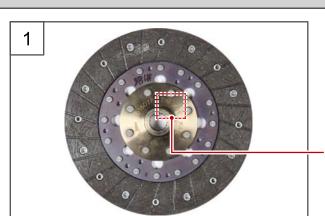
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Modification basis
Application basis
Affected VIN
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Installation of clutch assembly



 Make sure that the name mark of the clutch disc faces the transmission when installing the clutch disc.



Tighten the all 6 hexagon mounting bolts (6 mm) for the clutch cover in sequence diagonally.





A CAUTION

Installing the clutch without a special tool (centering pin) may make it harder to install the transmission and cause disc damage or excessive wear.

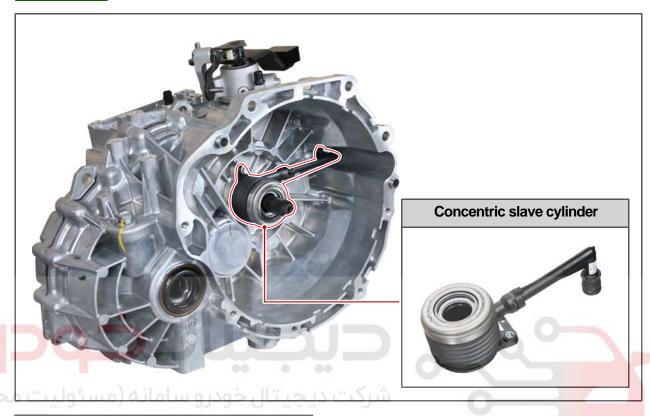
3. Remove the centering pin.

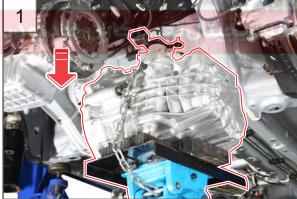
I V O L I

3191-11 CONCENTRIC SLAVE CYLINDER

Preceding work

- Disconnect the negative cable from the battery.





1. Remove the M/T transmission from the vehicle.



Refer to "M/T ASSEMBLY" under "REMOVAL AND INSTALLATION" subsection of "6-SPEED M/T" section in "CHASSIS" chapter.



2. Unscrew the 2 mounting bolts (10 mm) for the concentric slave cylinder from the clutch housing of the removed M/T transmission.

Tightening torque 9.8 to 15.68 Nm

03-36 3191-11 T I V O L

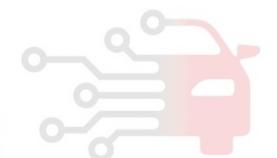


3. Remove the concentric slave cylinder from the transmission input shaft. Also, disconnect the oil pipe connected to the cylinder, at this time.



Installation in the reverse order of removal.
 Perform air bleeding and check the clutch for operation after installing.

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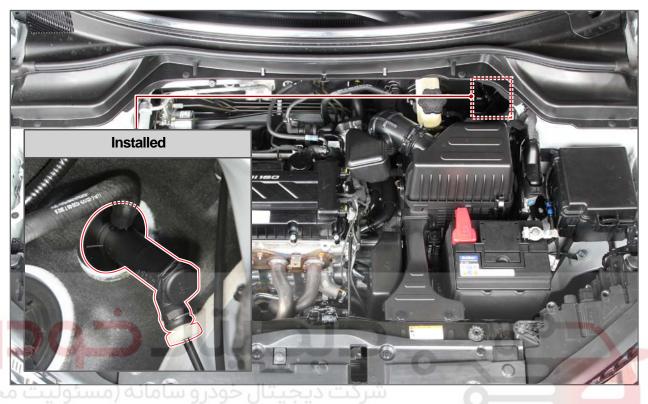


3020-01 03-37

3020-01 CLUTCH MASTER CYLINDER

Preceding work

- Drain the brake and clutch fluid.

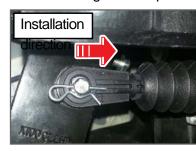




1. Remove the twist pin (A) and remove the clutch master cylinder push rod (B) from the clutch pedal.

A CAUTION

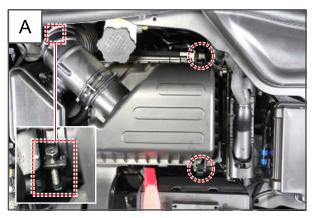
Pay attention to the installation direction when installing the twist pin.



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T I V O L

With G16DF



A. Unscrew the intake hose clamp bolt (10 mm) and disengage the 2 mounting clips on top of the air cleaner housing.



B. Remove the air cleaner upper housing.

With D16DTF



A. Remove the fuel filter assembly.

🕹 NOTE

Refer to "FUEL FILTER ASSEMBLY" under "REMOVAL AND INSTALLATION" subsection of "FUEL SYSTEM" section in "G16DF ENGINE" chapter.

A CAUTION

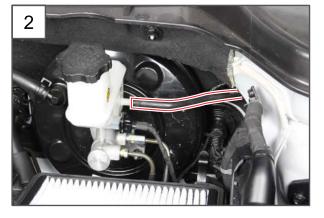
- Check the grommet for the fuel filter bracket and replace it if damaged. Always bleed the low-pressure fuel system by carrying out the forced operation of the low-
- pressure pump using a diagnostic device after installing the fuel filter.

CLUTCH

TIVOLI 2015.06

Modification basis	
Application basis	
Affected VIN	

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2. Disconnect the clutch fluid supply hose from the brake and clutch fluid reservoir tank.



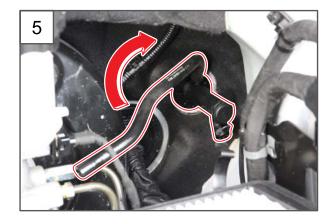
A CAUTION

Do not allow the clutch fluid to come in contact with the painted surfaces or the floors.

3. Detach the oil tube mounting pin.







5. Turn the clutch master cylinder clockwise.

4. Remove the oil tube from the clutch master

cylinder.

Modification basis Application basis Affected VIN WWW.DIGITALKHODRO.COM

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6. Remove the clutch master cylinder.



7. Installation in the reverse order of removal. Perform air bleeding and check the clutch for operation after installing.



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6-SPEED M/T

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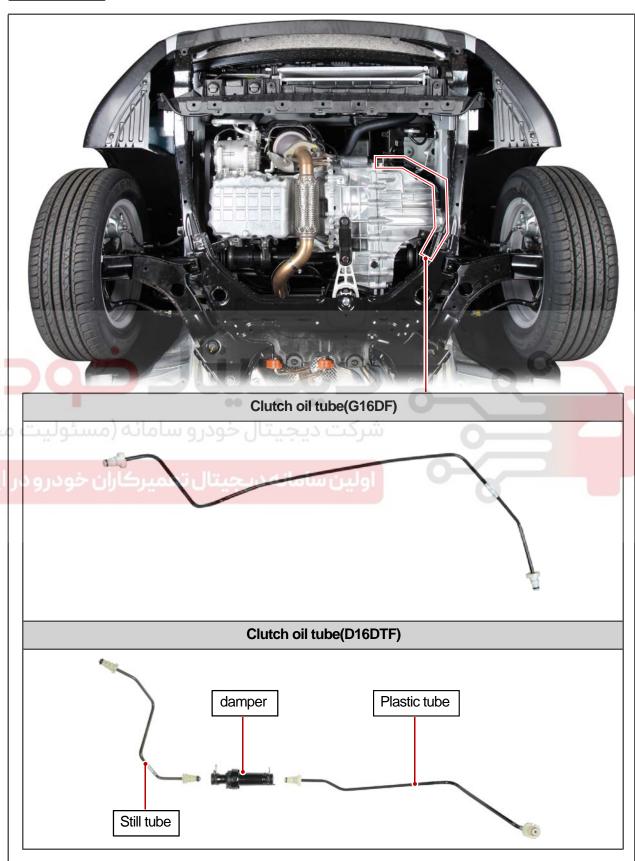
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3020-02 CLUTCH OIL TUBE

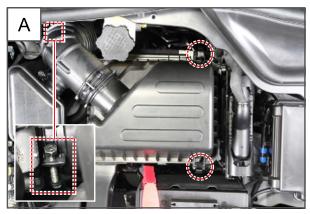


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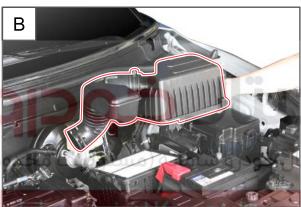
03-42 3020-02

T I V O L

With G16DF



A. Unscrew the intake hose clamp bolt (10 mm) and disengage the 2 mounting clips on top of the air cleaner housing.



B. Remove the air cleaner upper housing.

With D16DTF



A. Remove the fuel filter assembly.

NOTE

Refer to "FUEL FILTER ASSEMBLY" under "REMOVAL AND INSTALLATION" subsection of "FUEL SYSTEM" section in "G16DF ENGINE" chapter.

A CAUTION

- Check the grommet for the fuel filter bracket and replace it if damaged. Always bleed the low-pressure fuel system by carrying out the forced operation of the low-
- pressure pump using a diagnostic device after installing the fuel filter.

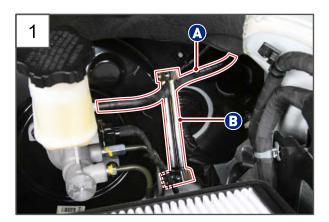
CLUTCH

TIVOLI 2015.06

Modification basis	
Application basis	
Affected VIN	

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1. Fit a hydraulic shut-off clamp (B) on the clutch oil feed hose (A) to cut off the oil supply.



2. Detach the oil tube mounting pin.



3. Remove the oil tube from the clutch master cylinder.





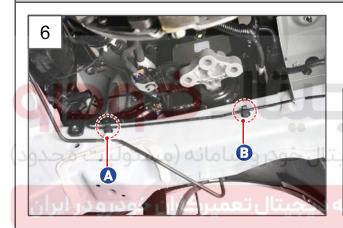
4. Remove the oil tube mounting pin from the air bleeder on the transmission side.

03-44 3020-02 T I V O L

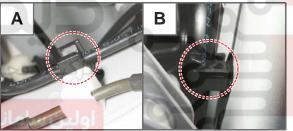


5. Disconnect the oil tube from the air bleeder.

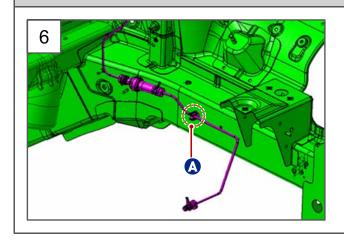




6. Separate the oil tube from the oil tube mounting clip(A, B).



With D16DTF



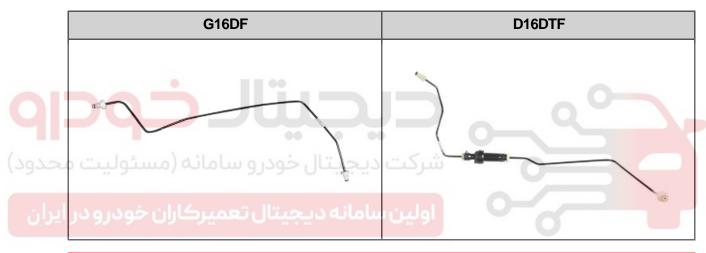
6. Separate the oil tube from the oil tube mounting clip(A).

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7. Remove the oil tube.

8. Install in the reverse order of removal.





A CAUTION

Always perform the bleeding and check the clutch pedal operation after fitting.

Additional work in vehicle	e with D16DTF	

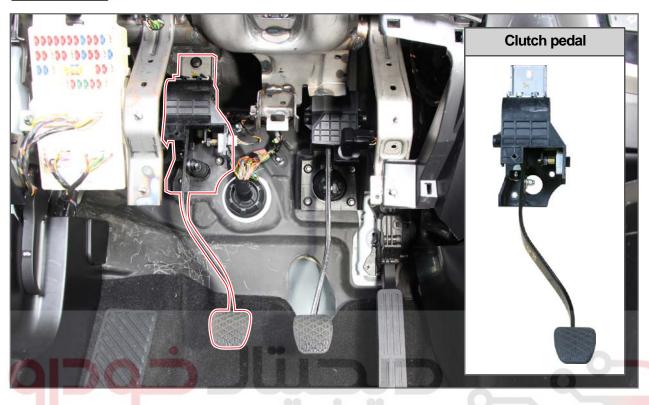
Pull the oil tube retaining pins (A) at each side of the damper to the arrow direction and remove the oil tube.

Modification basis	
Application basis	
Affected VIN	

03-46 3030-01

T I V O L I

3030-01 CLUTCH PEDAL





1. Tilt down the steering wheel as much as possible.



♣ NOTE

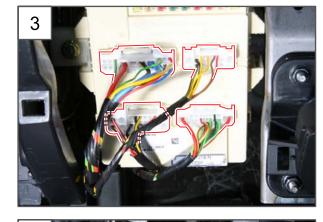
If the steering wheel is not tilted down sufficiently, the clutch pedal may not be removed because of the interference with the EPS motor.



2. Remove the lower main panel.

Modification basis	
Application basis	
Affected VIN	

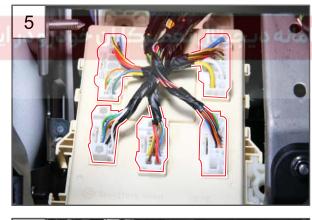
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3. Disconnect the 4 connectors from the front of the indoor fuse box.



4. Remove the 3 mounting nuts (10 mm) for the interior fuse box.



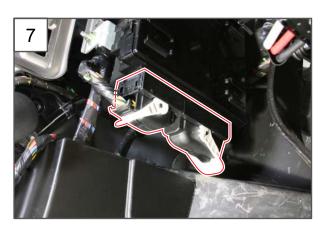
5. Disconnect the 5 connectors connected to the rear side of the fuse box.



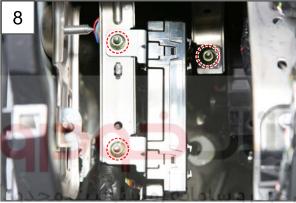
6. Remove the interior fuse box.

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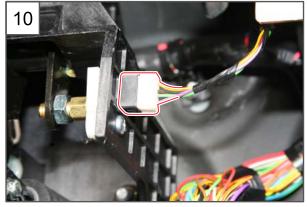
7. Disconnect the 2 connectors from the BCM.



8. Unscrew the 3 BCM mounting nuts (10 mm).



9. Remove the BCM.



10. Disconnect the clutch switch connector from the right side of the clutch pedal.

Modification basis	
Application basis	
Affected VIN	

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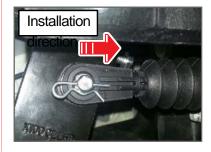




11.Remove the twist pin fitted to the clutch master cylinder push rod by pulling it out in the direction of the arrow.

A CAUTION

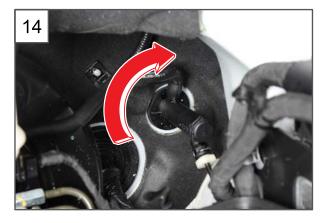
Pay attention to the installation direction when installing the twist pin.



12.Remove the clutch master cylinder push rod from the clutch pedal.



13.Remove the air cleaner upper housing.



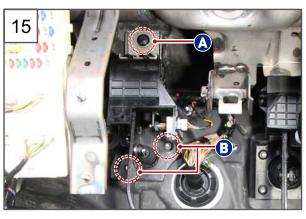
14. Turn the clutch master cylinder assembly in the direction of the arrow to remove it.



Modification basis	
Application basis	
Affected VIN	

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T I V O L I



15.Remove the mounting bolt (A, 12 mm) and 2 mounting nuts (B, 12 mm) for the clutch pedal.

Tightening torque 7.84 to 17.64 Nm

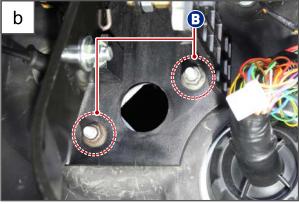


a. Remove the mounting bolt (A, 12 mm) for the clutch pedal.



A CAUTION

Do not remove the mounting bolts on the lower side of the clutch pedal bracket.



b. Remove the 2 mounting nuts (B, 12 mm) for the clutch pedal.

Modification basis	
Application basis	
Affected VIN	

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16.Remove the clutch pedal.

17.Install in the reverse order of removal.

Removal of clutch pedal



1. Lift up the clutch pedal by prising apart at the left bolt side (A).



2. Turn the clutch pedal in the direction of the arrow (B) to remove it, taking into account the interference with other parts.



CLUTCH

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اولین سامانه دیجیتال تعمیرکاران خودرو در ایران