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اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

Catalogued By
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This manual is only applicable to HFC DTF630 Dual Clutch Transmission product.

Before repairing or handling failures of this transmission, please read this manual first in order to avoid the prejudices of traditional transmissions failures handling ways.

The failures handling or repairing shall be conducted by the professional workman.

2 HFC DTF630 PRODUCT INSTRUCTION

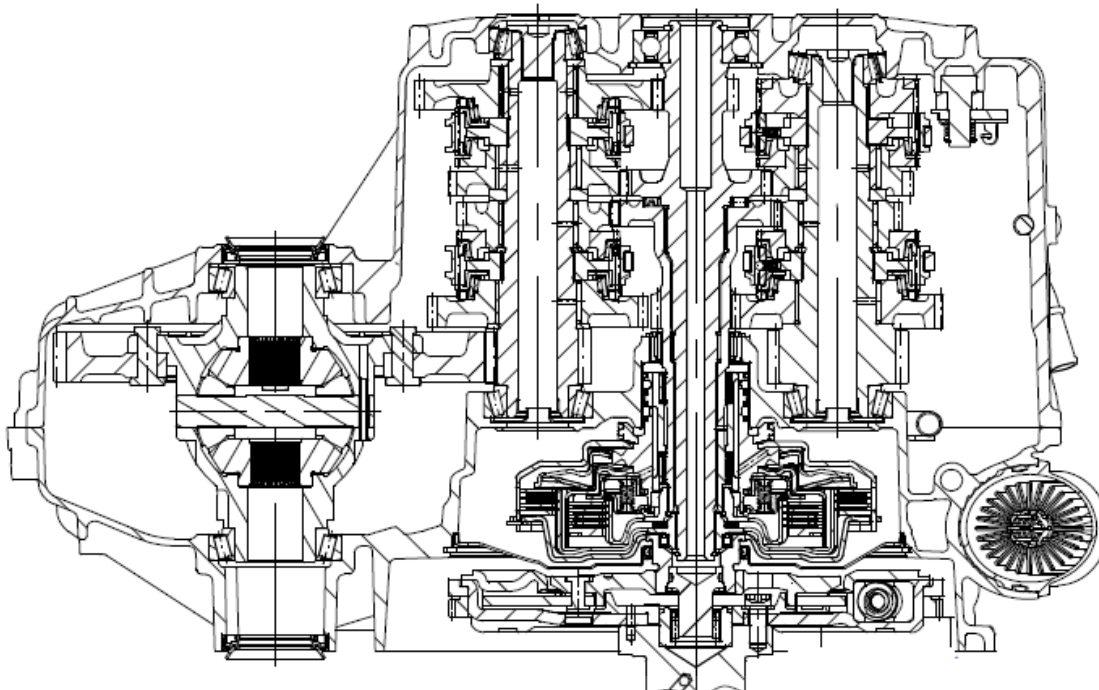
2.1 HFC DTF630 DCT SPECIFICATION

Name	DUAL CLUTCH AUTOMATIC TRANSMISSION	
Model	HFCDTF630	
Code name	DT000	
Drive model	Front transverse front wheel drive (FF)	
Basic structure	Dual mass flywheel+ wet dual clutch+ hydraulic module+ oil pump (front)+ TCU(Independent),double input shafts+ double output shafts	
Gears NO	6 forward gear+ 1 reverse gear	
Control way	Electro-hydraulic way	
Operation/control model	P,R,N,D,S,M, +/- (Normal/Sport)	
Rated input torque	270 Nm	
Center distance from input shaft to differential	205 mm	
Height difference between input shaft to differential center	53 mm	
Outside dimensions(L*W*H)	365mm×576mm×440mm	
Net weight	Around 72.5Kg (Not include DCT oil)	
Normal working temperature	90±10℃	
Limits working oil temperature	-40℃、140℃	
Noise	Forward gears≤78dB(A), Reverse gear≤80dB(A)	
Transmission efficiency	1/2/3/6≥93%,4/5≥95%,R≥90%	
System working pressure range	3~23 bar	
Ratio	1 st gear	3.313
	2 nd gear	2.619
	3 rd gear	1.243
	4 th gear	0.915
	5 th gear	0.973
	6 th gear	0.745
	R gear	2.714
	Final drive 1	4.833
	Final drive 2	3.480
Lifetime in design	15 years or 300,000KMS	
Applicable engines	2.0TCI、1.5T GDI、1.9CTI	

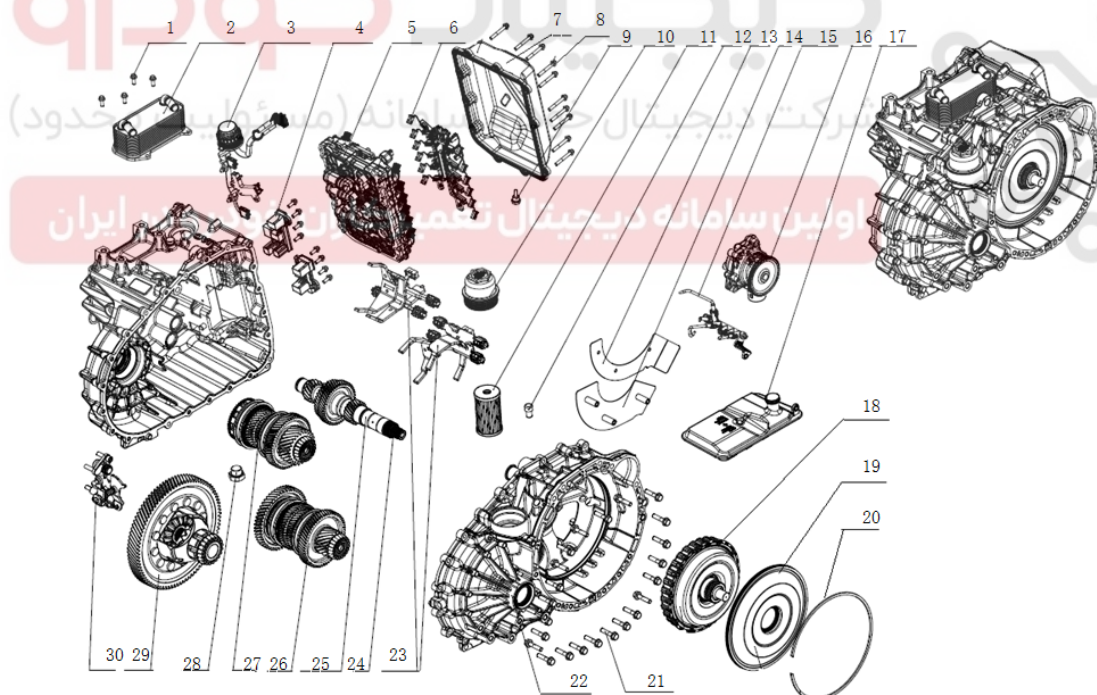
2.2 HFC DTF630 DCT CAR MODELS

Model	Engine	Transmission
Refine.S5	2.0T	6DCT
	1.5TGDI	6DCT
CII	1.5TGDI	6DCT
Refine M6	2.0T	6DCT

2.3.1 Cutaway view drawing

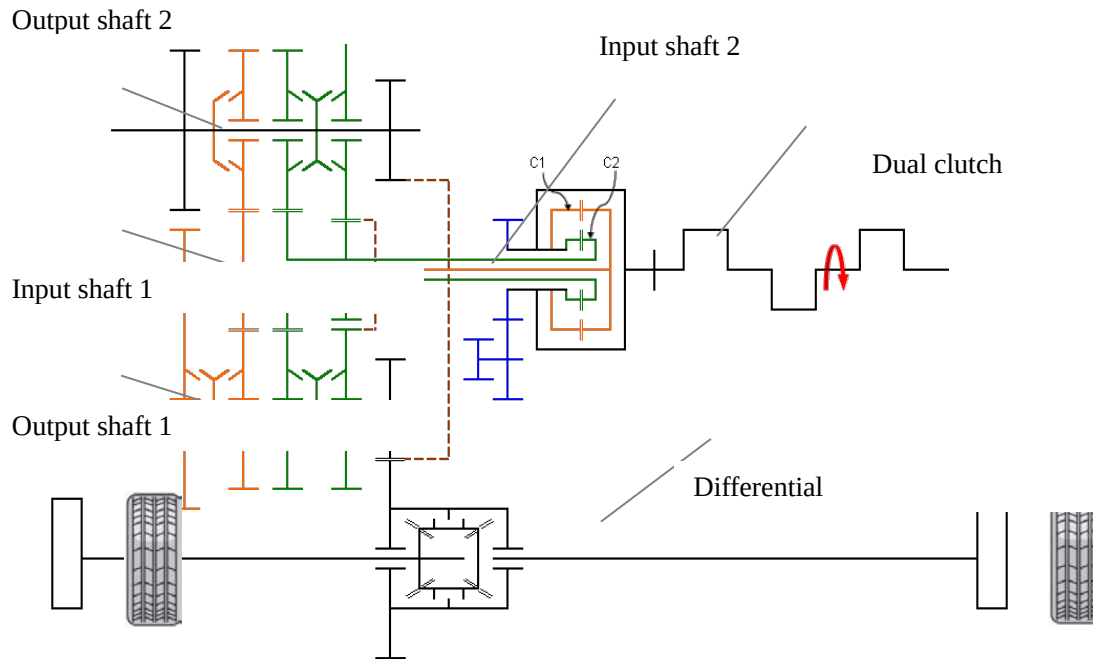


2.3.2 Breakdown diagram



- | | | |
|-----------------------------------|-------------------------------------|------------------------------|
| 1、 Bolt M6×16, | 2、 Condenser, | 3、 Through-cylinder wires, |
| 4、 Sensor, | 5、 Hydraulic module, | 6、 Magnetic valve wires |
| 7、 Crankcase oil tray, | 8、 Bolt M6×16, | 9、 Oil release bolt |
| 10、 Pressure filter cap, | 11、 Pressure filter core, | 12、 Ventilation valve assy, |
| 13、 Oil baffle plate(2), | 14、 Oil baffle plate (1), | 15、 Oil injection tube assy, |
| 16、 Oil pump assy, | 17、 Nutsch filter assy, | 18、 Clutch assy, |
| 19、 Sealing cover assy of clutch, | 20、 Sealing cover's ring of clutch, | 21、 Bolt 8X35, |
| 22、 Clutch shell, | 23、 Gears shift control mechanism, | 24、 Inner input shaft, |
| 25、 Outside input shaft, | 26、 Output shaft 1(1/3/4/R), | 27、 Output shaft 2 (5/6/2), |
| 28、 Oil release bolt M22, | 29、 Differential assy, | 30、 Parking brake equipment. |

2.3.3 Structure sketch



3 Operation instruction

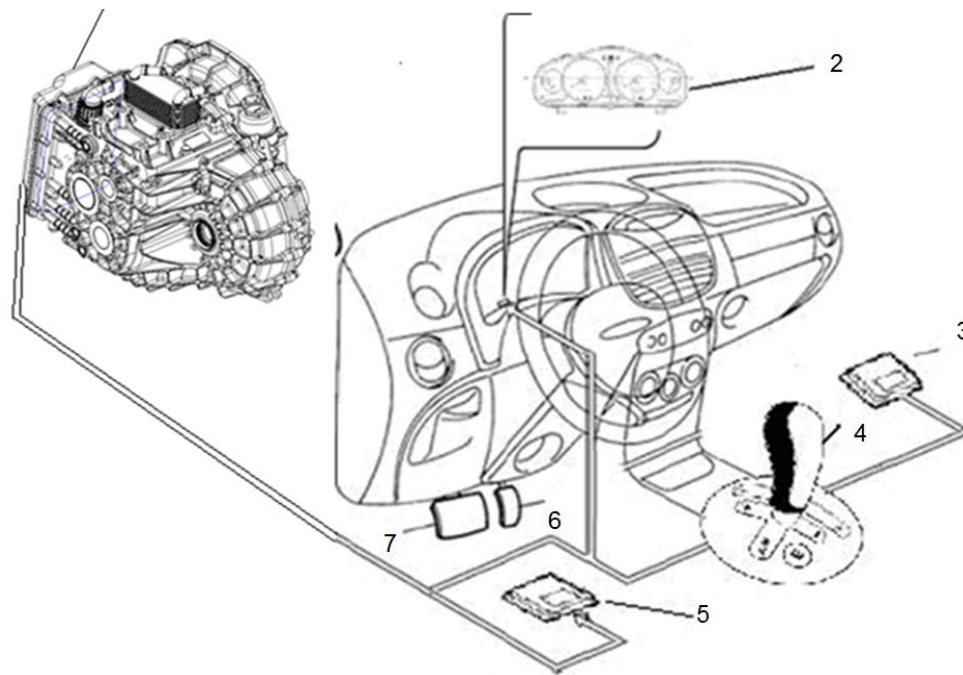
3.1 Overview

HFCDTF630 Dual Clutch Transmission (shortened as DCT) works equally with 2 normal manual transmissions combined, it transmits engine's power to 2 input shafts, in-out nesting arranged through 2 sets coaxial nesting arranged multidisc wet clutch, as inner input shaft transits power to 1/3/5 gear, out input shaft to 2/4/6/Reverse gear. Meanwhile, with the help of multiple synchros arranged on 2 output shafts, it realizes the selection of numbers of gears between different gears, eventually through output shaft and differential complete the power output.

The external hung TCU send out the gears-shift signal automatically as receive information like speed, throttle openness, gear NO, oil temperature, brake from ECU, ESC modules connected by CAN wires, the magnetic and mechanic valve, integrated in hydraulic module will control pressure level, on-off of different oil routines to realize flexible-change and gears-selection between 2 clutches, realizing smarter gears-shifting.

Framework of main components of this system

- | | |
|---|-----------------------------------|
| 1. HCU; | 4. Gears-shift operating rod |
| 2. Dashboard displaying gears NO and driving model; | 5. TCU; |
| 3. ECU; | 6. Electric accelerator pedal; |
| | 7. Brake padal (with dual switch) |



HFC DTF630 transmission framework

3.2 Gears shift rod position

The rod of DCT transmission has straight-line 8 positions, same as the traditional automatic gears

Parking(P): At parking, the transmission is locked. Only as car starts, step on brake pedal and knob down rod-head's button, it can be moved out

Reversing (R): Cars in reversing, only step on brake pedal and speed around 0km/h, the reverse request can be accepted by the system

Neutral(N): When stay at N gear for a while, the rod is locked, only as car starts, step on brake pedal and knob down rod-head's button, it can be moved out

Forward(D): It realizes gears-shift automatically by the pre-set gears-shift curve

Sport(S): It realizes gears-shift automatically by the pre-set gears-shift sport curve

Manual: Move rod to the right side from D gear, it shifts to manual gears-shift model, the driver can make the gear-up or down according to his own driving habit

Gear up (+): Meeting with the system set condition, push rod to +, it increases one gear

Gear down(-): Meeting with the system set condition, push rod to -, it decreases one gear

Attention:

➤ Starting the engine, keep stepping on the brake pedal and the rod must stay at P or N gear

➤ Even at manual model, when the rotating speed is too high or low, in order to protect engine, the system will make gears up or down automatically



3.3 Driving model

Cars with DCT provide 3 driving models, Normal, Sports and Manual

Driving model		Dashboard display
Automatic gears-shift	Normal	D + Current gear
	Sports	S + Current gear
Manual gears-shift		Current gear

3.3.1 Shift between manual and automatic model

- Move rod from D gear to the right side in the middle of +/-, realize the shift

- At auto-model, car will shift gear according to the preset program
- By moving rod, it can choose normal or sports driving model with display in dashboard
- If choose normal driving model(D), the transmission will make gear up earlier and gear down later for a better fuel economy.
- If choose sports model(S), the transmission will squeeze engine's back-up power fully by delaying the gear up.

3.3.3 Driving at manual model

- At manual model, you can make gear up or down by push rod to +/-
- Attention
- When your gear-shift request doesn't meet the preset condition, it will be ignored and the dashboard will still display the current real gear
 - When the RP(rotation speed of engine) reaches the max speed set by system, it will upgrade and lower the RP automatically by the system for protecting engine, and vice versa, when the RP reaches the min speed set by system, it will downgrade automatically by the system in case of engine stop.

3.4 Driving

3.4.1 Engine start

- Push rod to P or N gear
- Step on brake pedal and keep still
- Turn key to "START" and engine on

3.4.2 Wriggling

- Stepping on brake pedal and keep still, start the engine, then push rod to D or S gear, release the brake pedal, car will move at a low speed. Push rod to R gear, release the brake pedal, car will move reversely at a low speed.

3.4.3 Starting

- Stepping on brake pedal and keep still, start the engine
 - Move rod to R, D, S or the middle of +/-
 - Release brake pedal and step on accelerator pedal
- Attention:
- The system only allow to start at 1 or 2 or R gear
 - Starting at gear 2 will probably cause clutch at semi detached of long time, which will cause overheating and abrasion of the clutch, therefore please only starting at gear 2 at snow-icy road or other conditions of less adhesive attraction
 - The system only allow to move into R gear at 0km/h or closing to 0 km/h in order to protect transmission

3.4.4 Driving

- After starting, by stepping on accelerator pedal, it can drive the car

3.4.5 Stop and Parking

- As speed goes down to 0 km/h
- Step on brake pedal and keep still
- Push rod to P gear

3.4.6 Reversing

- Stepping on brake pedal and keep still, starting the engine and push rod to R gear, release the brake pedal, then car can reverse at a low speed
- Or push rod to R gear, stepping on accelerator pedal, the car will reverse at a certain speed

3.4.7 Parking at slope

- Step on brake pedal and push rod to P gear, pull tightly hand break or press electric parking button, then release brake pedal

Attention:

- Under any circumstance, it's required to pull tightly hand brake or press down electric parking button in case of car sliding
- Under driving gears, do not try to stop car sliding by increasing engine's RP

3.4.8 Starting at ascent

- Step on brake pedal and push rod to starting gear
- Release brake pedal and step on accelerator pedal slightly and then release handle brake or electric parking

3.4.9 Driving at down slope

- In down slope driving, it is meant to use manual model, pushing rod to – gear, driving at low gear.

Attention:

- The steeper of the slope, the lower gear needed to select, to increase engine's braking and traction effect
- When engine braking is insufficient and speed relatively high at a down slope, to avoid engine over speeding, the system will upgrade one gear, at that time, you must step on brake pedal to decrease the speed and push rod to – gear, back to 3rd gear again.

3.4.10 Forcibly downshift function

- If the accelerator pedal is stepped down to the bottom quickly, the control system of transmission will make the downshift to a certain gear based on current speed and ROTATION SPEED in order to realize acceleration ability of engine fully

- Once reach the max pre-set ROTATION SPEED, it will shift to next high gear automatically as when pedal stay at forcibly downshift position.

3.4.11 Neutral gear request during driving

- During driving, releasing acceleration pedal, push rod to N gear, sending the request

Attention:

- During driving, pushing into N gear, it will lose engine brake effect, which will undermine whole car's braking effect, which may cause accident or human injuries.

3.4.12 Turn off engine and system

- Stop the car completely
- Turn key to ACC or LOCK position

Attention:

- Accidental movement of car may cause traffic accident or human injury.
- The drive shall not leave the car when engine is ON or at driving gear, if have to leave, make sure pull up handle brake or activate electric parking
- If stop at the slope, it's must pull up handle brake or activate the electric parking system in case of sliding.
- No matter engine is ON or OFF, never let car slide down slope in N gear.
- Before car stop completely, don't turn off engine or pull out the key, otherwise it may cause lose control of the car to cause accident and/or human injury.

3.4.13 Trailing

- Only at N gear, the car can be trailed by the trailer
- As trailer's speed is high, it shall uplift the front wheels out of the earth

4.4.14 Hobble home

- When transmission gets broken, TCU will start hobble home model to protect transmission from damage
- In hobble home model, the high gears are restricted
- The speed can't over 50km/h

4 Models with HFC DTF630 DCT failures diagnosis

4.1 Common failures and clearing ways

4.1.1 Oil leakage check and clearing

Firstly, open engine hood to check if there is any gear oil at the surface of transmission, if has, to check from where it gets leakage and according to the place, to draw out the solution, see table 1 for specific information. After solving leakage, refill the gear oil.

Only fill in gear oil without clearing the failure is not allowed.

Normally there are some cases as below

Table 1

Failures	Solution
Oil leakage at transmission sump gasket	Check the joint bolt of sump to see if meet the torque requirement, if meeting torque requirement, change the gasket, change the sump assy

	checking both are fine
Oil leakage at shell drain plug	Check if drain plug with sealing washer, then check the tightening torque, if both are OK, to change drain plug and gasket
Oil leakage of pressure filter	Check the pressure filter's cap meet with the regulated tightening torque, if yes, check gasket intactness, to replace camp and gasket of pressure filter
Oil leakage of differential oil seal	To replace the oil seal
Oil leakage of oil cooler	Check if the tightening bolts meet regulated torque, if yes, replace cooler's gasket
Connection place of transmission and engine	Replace oil seal cover of clutch

4.1.2 Transmission abnormal noise judge and treatment

Phenomenon	Causes	Treatment
Abnormal noise: 1) With periodic "DONG-DONG" sound, it gets more frequent as RMP goes up 2) Noise volume gets up obviously 3) Metal clash sound during gears shifting	Tooth broken of gears	Replace broken gear, clear the metal residue, investigate other parts failure caused by metal residue, to replace transmission oil if necessary
	Corrosive pitting, peel-off, agglutination, severe abrasion	Replace broken gear, clear metal residue, and replace transmission oil if necessary
	ball track and roller has corrosive pitting	Replace broken bearing
	Axial clearance too large caused by gears end wear	Replace broken parts
	parts connection loose or running conflicts	Replace broken parts, check and tighten loosen parts

4.2 Transmission control system maintenance diagnosis and clearing

4.2.1 Common maintenance notes

- Only allow to use DMM to check electric parts of control system
- Please use original parts during maintenance otherwise it can't guarantee function well
- Please follow maintenance/diagnosis procedures and standards
- Prohibit to break or dismantle control system's parts during maintenance
- Be careful of holding electric parts like TCU, sensors ect, don't fall into the ground during maintenance
- Consider environment protection, please make sure waste disposal properly during maintenance

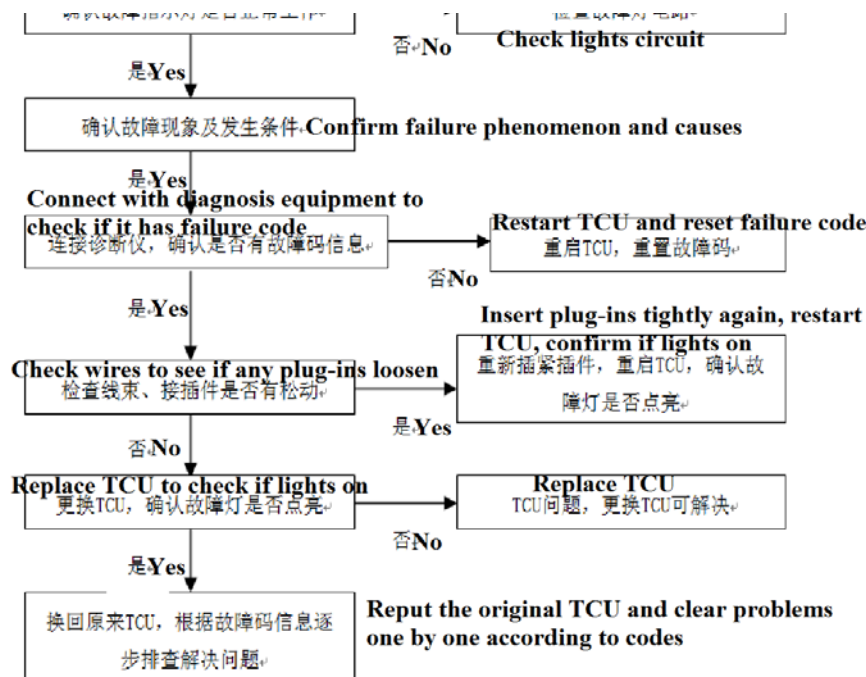
4.2.2 Maintenance attentions

- Due to human body's static, please touch something on ground like tube or lifter to erase the static when touch electric parts and gears shifting mechanism, which may lose function caused by the static. Do not touch plug's touch spot directly.
- During maintenance, make sure in P or N gear, prohibit in D or R gear
- The refresh TCU program and data can only be done during engine off, car stillness, and in P/N gear
- Don't pull down any parts or plug-in parts of control system arbitrary in case of malfunction or damage of control system caused by water, oil stain getting into plug-ins.
- Put keys at "LOCK(OFF)" position when disconnect or connect plug-ins
- Put keys at "LOCK(OFF)" position when disconnect or connect diagnostic equipment
- Prohibit to dismantle battery wires when transmission is in operation
- Must take apart battery's wires of positive and negative pole and TCU before starting welding on the car
- Prohibit to detect input/output electrical signal of parts by piercing outside cover of wires

4.2.3 Failure code fixing and diagnosis procedures

4.2.3.1 Failures diagnosis procedures

Upon receiving of the breakdown car or failure description, the diagnosis and operation procedures as below



Repeat the above steps until failure codes cleared and problem solved

4.2.3.2 Attentions of failures diagnosis procedures

- Do not ignore the maintenance of automatic transmission and car's influence on system during overhaul
- Only allow to use DDM to check transmission's control system circuits, pointer multimeter is prohibited.
- If the failure code read as low voltage of some circuit, it means probably line-to-ground short circuit or open circuit; if read as high voltage, it means probably short circuit to power or open circuit; if read as breakdown of some circuit, it means probably open circuit or multi circuit failure

4.2.3.3 Failure code and meaning

See appendix 1

4.2 Failures of transmission diagnosis and clearing

Below use "Unable to drive forward" for example, to illustrate failures diagnosis and clearing procedures in detail:

- Check if the trouble light of transmission is ON firstly
- Check trouble light circuit, making sure the light ON caused by failures instead of short circuit
- Check failures phenomenon and happening conditions
- Connect with diagnostic equipment to check failure codes information



- Check if wires have abrasion, plug-ins get loosen, restart engine to see if trouble light still ON
- Replace TCU and restart engine to see if trouble light still ON. If light off, means TCU problem, just replace TCU; if light ON, means failure caused by other reasons, put the previous TCU back and continue to check
- According to code information, refer to appendix 1 to find solution;
- Repeat above steps until to shoot the trouble

Besides, the trouble light will not be ON when car can't get started, as for other failures of the car (like unable to move forward/backward), only as trouble light of transmission gets ON, it can be indicated that the transmission is broken, then go to shoot the trouble according to failure code in diagnosis equipment



Gear

Transmission

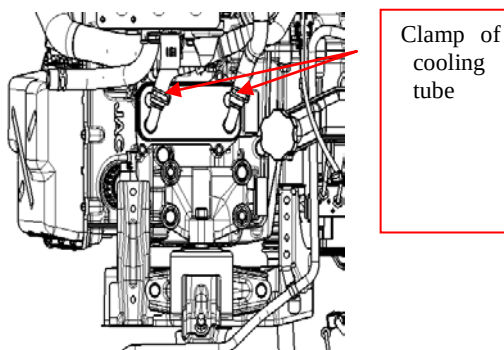
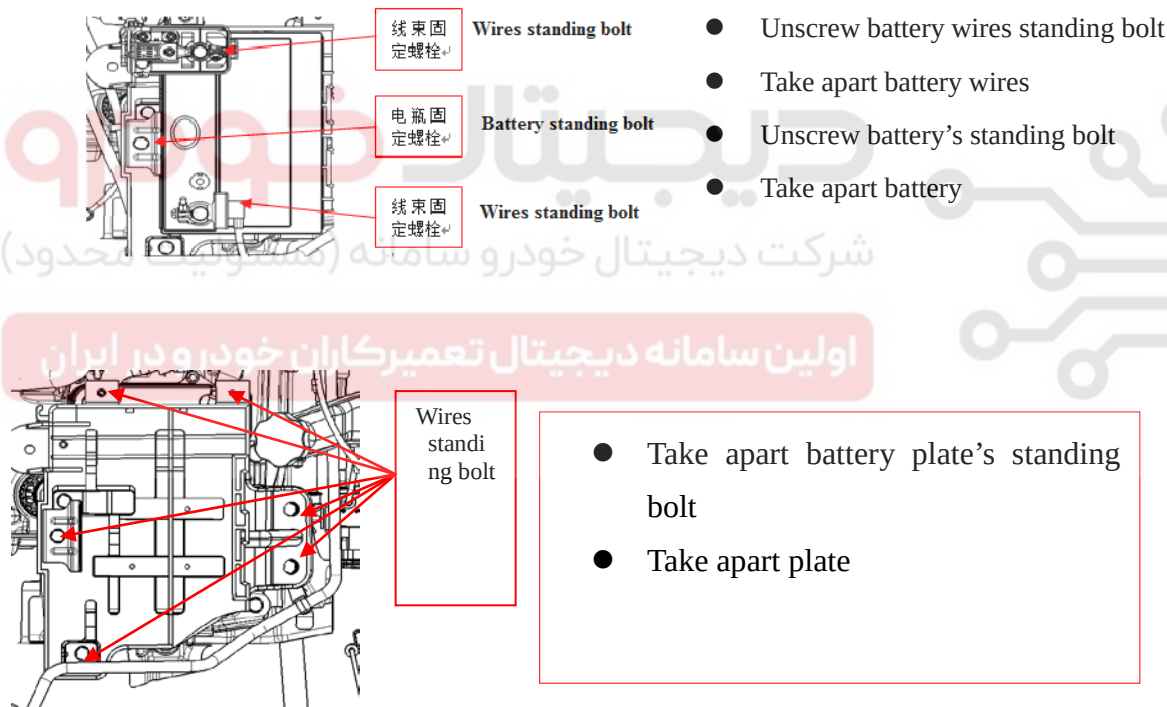
Solution for unable to start:

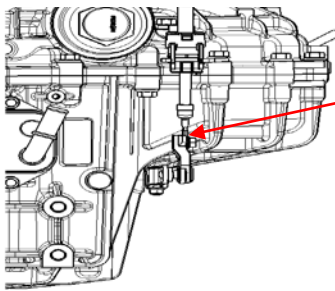
- Check if it's at P or N gear;
- Check if the gear information displayed in instrument is correct, if yes, means TCU no problem; if wrong, it's caused by TCU, just replace TCU

5 HFC DTF630 DCT repair

In some cases of transmission failures, it's needed to dismantle transmission to replace or repair some parts, below is the description of dismantling transmission:

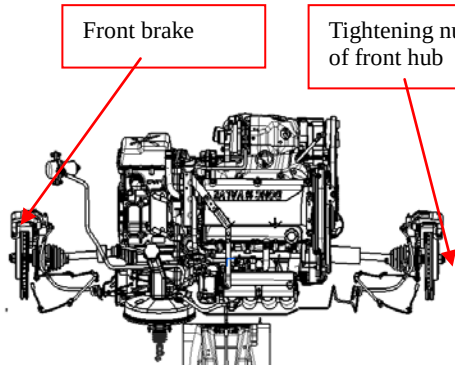
4.1 Dismantle transmission from car





P gear
draw
bench
joint

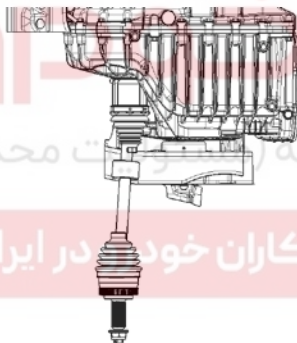
- Unscrew tightening bolt of P gear draw bench joint
- Disconnect draw bench and joint



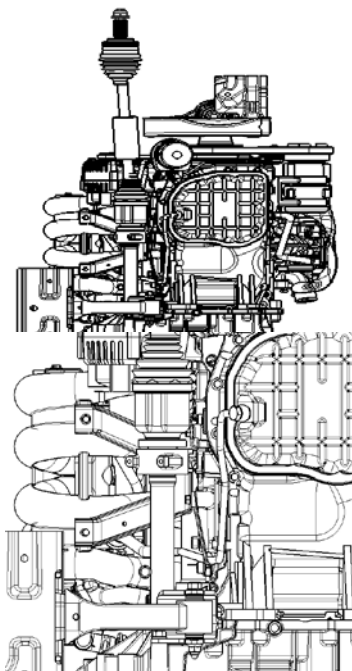
Front brake

Tightening nut
of front hub

- Take down front tire
- Use caliper to take down splitpin
- Unscrew tightening nut of front hub
- Disconnect brake and front hub

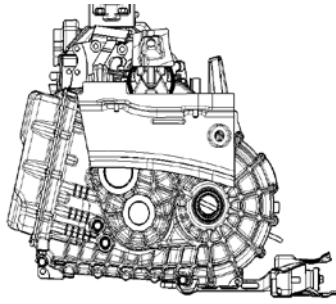


- Take down left driving axle

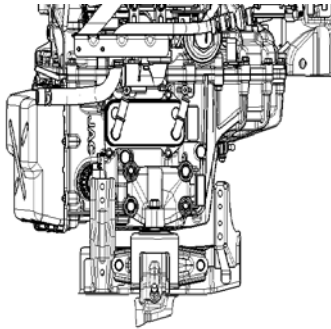


- Take down right driving axle

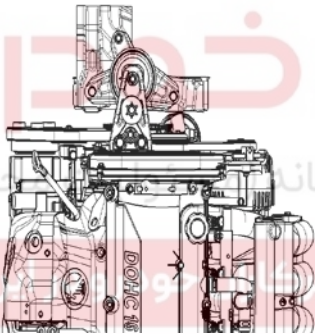
- Take down central axle bracket
- Take down central axle



- Take down rear suspension

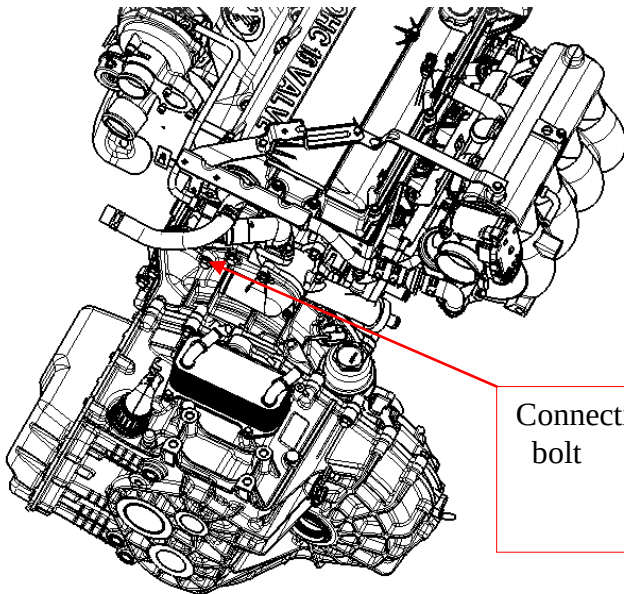


- Take down connection bolt of left suspension with transmission



- Take down connection bolt of right suspension with engine
- Take apart joint part of engine and transmission

5.2 Transmission and engine dismantle



- Unscrew 14 bolts that connect engine and transmission
- Take down transmission

Connection
bolt

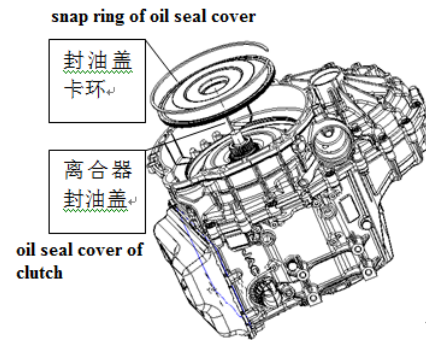
- 1、Take apart of clutch
 - 1) Take down snap ring of oil seal cover;
 - 2) Take down oil seal cover by special tool;
 - 3) Take down ring by clasp forceps;
 - 4) Take down direction hub;
 - 5) Assemble special boom in direction hub's assembly hole;
 - 6) Assemble snap ring by clasp forceps;
 - 7) Take out clutch by boom.

Attention: The dismantled parts need to be packed well to keep clean

2、Assemble clutch

The assembly of clutch is opposite with dismantle

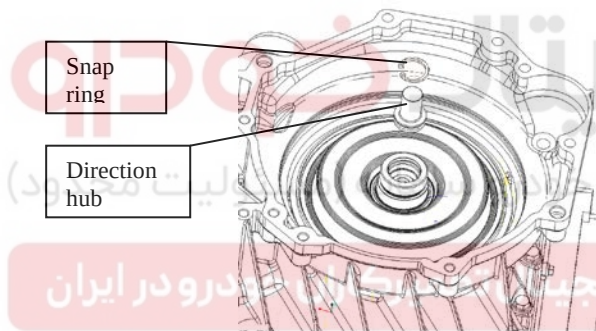
- 1) Install clutch;
- 2) Install oil seal cover;
- 3) Install snap ring;
- 4) Install direction hub;
- 5) Put snap ring on by clasp forceps



5.4 Dismantle of hydraulic module

1. Dismantle of hydraulic module

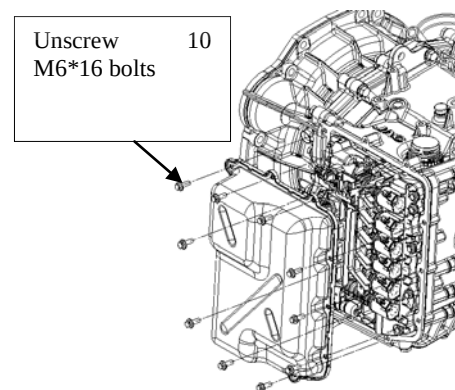
- 1) Take apart sump



- Unscrew 10 M6*16 bolts and put in a clean box
- Take down sump
- Put sump installation surface up with a clean packing bag cover

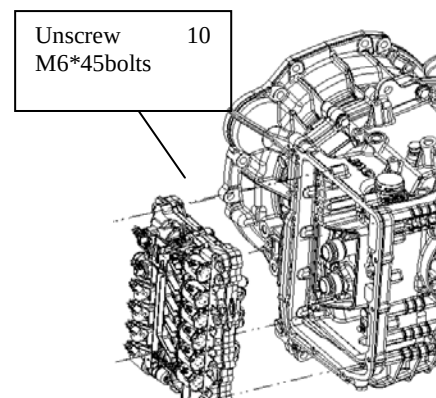
- 2) Take apart hydraulic module

- Unscrew 10 M6*16 bolts and put in a clean box
- Unplug magnetic valve's wires connectors
- Take apart hydraulic module and keep tidy and clean



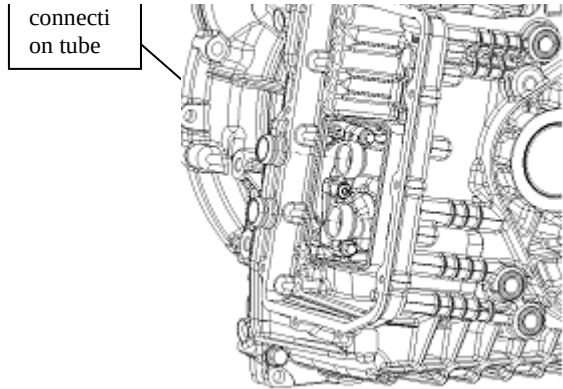
2. Assemble hydraulic module

- Check if pump connection tube has wearout, if yes, change a new tube
- Make sure hydraulic module intact and qualified before loading
- Make sure installation of connectors between cross-cylinder wires and magnetic valve wires correct



align oil pump connection tube and hydraulic module's corresponding open holes, press hydraulic module assembly gently until it's fit with shell even and seamlessly

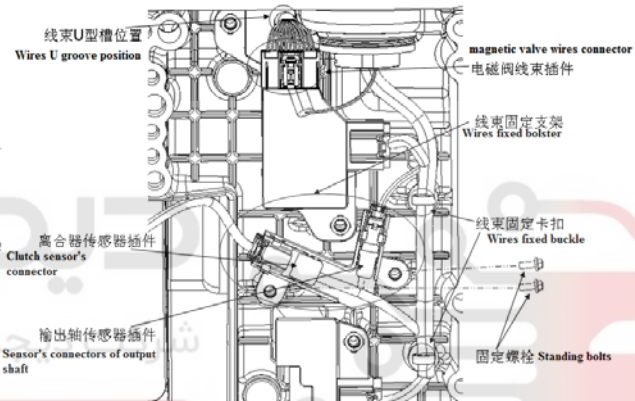
- Pre-tighten connection bolts(10, M6x45,Q1840645TF2) of hydraulic module, tighten bolts by diagonally, the requested torque is 12NM



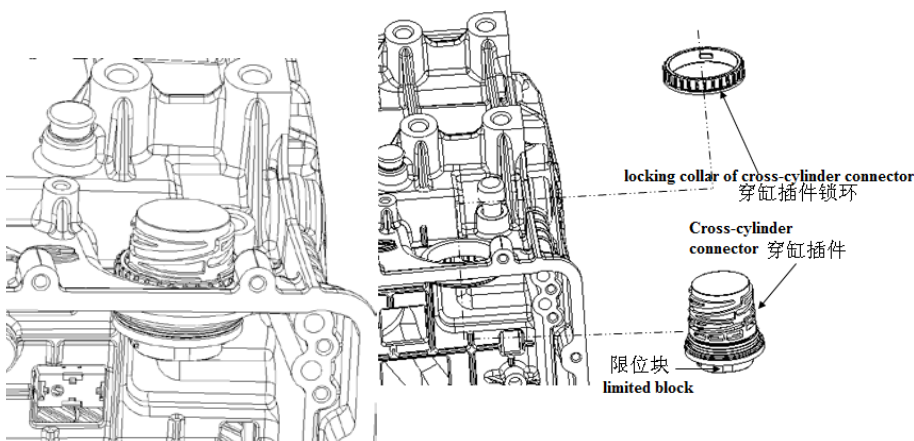
5.5 Sensor module and cross-cylinder wires in/out

- 1、 Disconnect
 - Unplug wires connectors
 - Unscrew standing bolt (Q1840616T1F32)
 - Take down sensor module
 - Unscrew locking collar of cross-cylinder connectors
 - Take down cross-cylinder connectors
 - Unplug fixing buckles of wires
 - Take down cross-cylinder wires
- 2、 Assembly

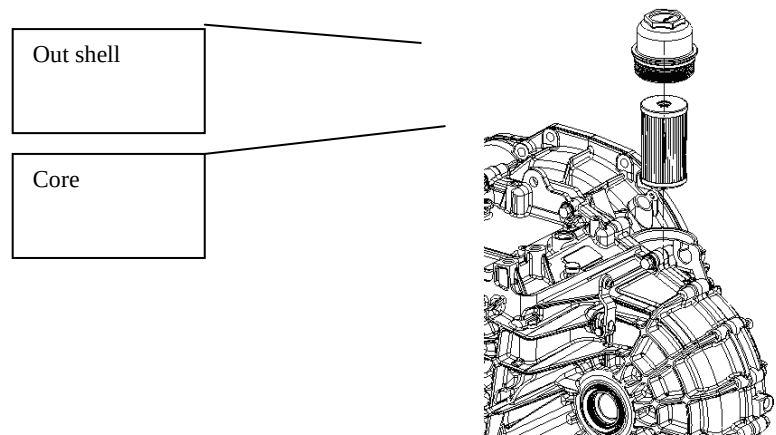
The assembly process is just opposite from disconnection.



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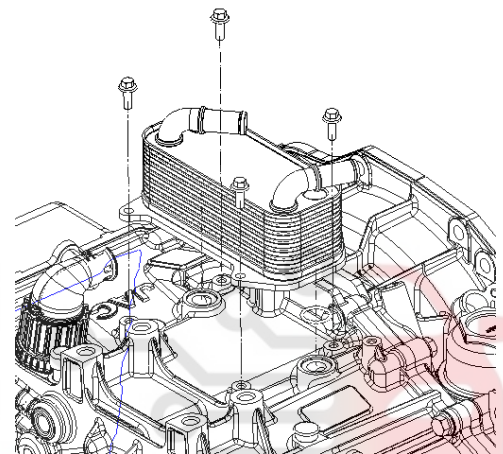


- 1、 Dismantle
 - Unscrew out shell of pressure filter by special sleeve, put in a clean box with cover
 - Take down core and clean the inside of core with special cleaning paper
- 2、 Assembly
 - 1) Replace a new pressure filter core
 - 2) Install out shell and tighten by special sleeve, the requested torque is 25NM.



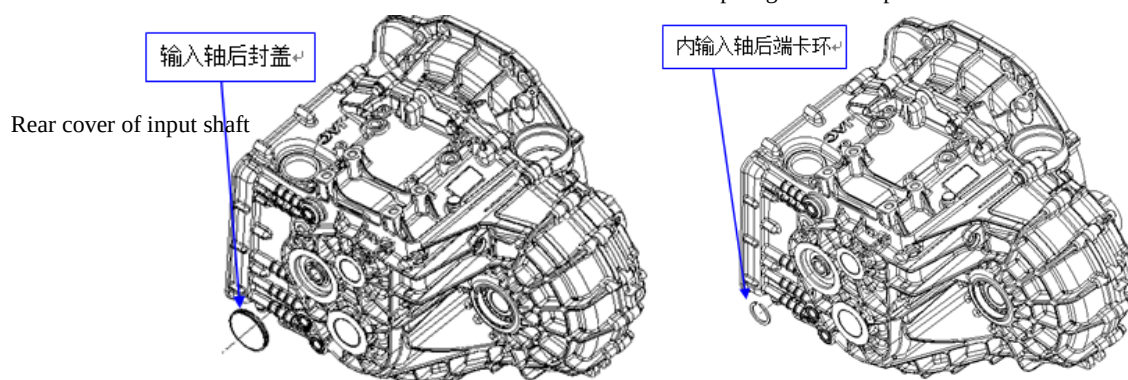
5.7 Condensor load/unload

- 1、 Disassemble
 - Unscrew 4 M6x16 flange bolts
 - Take down condenser, then check the sealing ring of oil conduit mouth intactness
- 2、 Assembly
 - Check sealing ring of oil conduit mouth intactness
 - 1) Check if condenser's fitting surface even
 - 2) Align condenser's fitting surface with transmission shell's fitting surface
 - Tighten 4 M6X16 bolts, requested torque 8NM

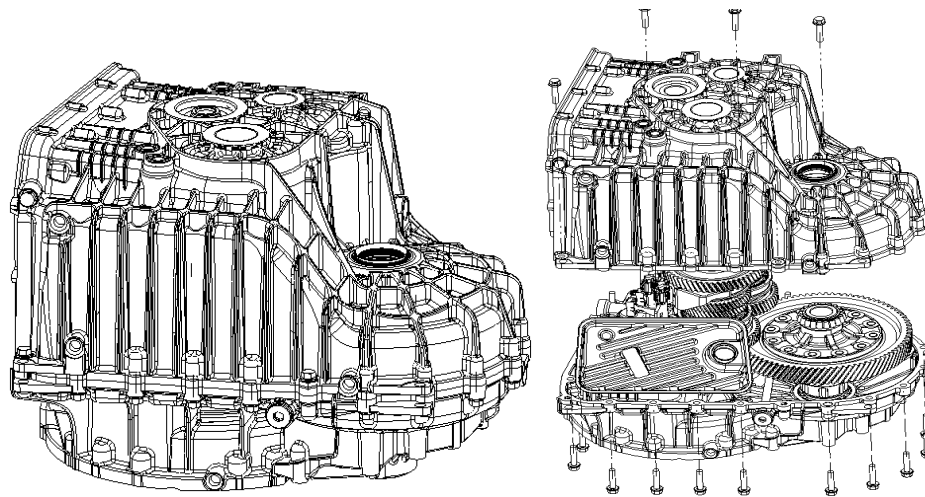


5.8 Rear cover of input shaft

Rear snap ring of inner input shaft



- 1、 Disassemble
 - Take down rear cover by special tools from shell's back
 - Take down rear snap ring of inner input shaft by caliper
- 2、 Assembly
 - Install snap ring by caliper
 - Press rear cover into shell's back by special tool, making sure fitting evenly, no deflection

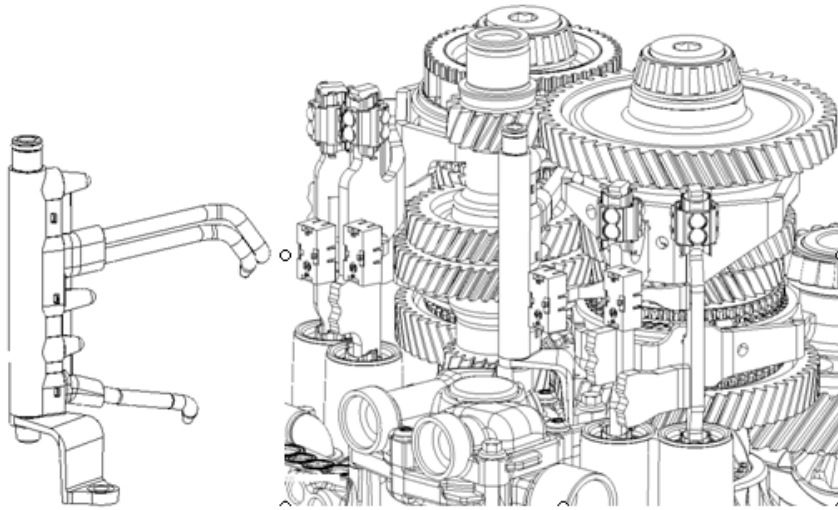


1、 Disassemble

- Unscrew 23 M8X35 bolts
- Lift shell's assembly platform by special tools
- Detach input shaft and main shell by special tools
- Take off main shell

2 Assembly

- Put main shell's connection surface with pre-assembly downward, align guide pin with pinhole, injection oil tube rear end (with O type gasket) with corresponding oil mouth in main shell, outside and inside ring of output shaft rear-end bearing aligned, align input shaft with inside ring of rear ball bearing, shifting fork guide bearing with corresponding cylinder sleeve in main shell. Use special tool to uphold main shell's rear non-finish surface maintain main shell at vertical condition, then press gently until guide pin into pinholes, then use rubber hammer to knock on main shell's rear end. Be careful with exercising an even force to avoid with deflection, stuck of guide pin, until main shell fitting with clutch shell's connection surface completely, evenly and seamless.
- Put 23 M8X35 bolts into corresponding hole(main shell 5 bolts, clutch shell side 18), tighten 2 bolts diagonally near guide pin, the tighten the rest bolts, the requested torque is 20NM, then use set-twisting wrench to check the torque with marks on.
- After finishing main shell's fitting, then blow high-pressure air through oil-conduit mouth in the mating face of hydraulic module and shell to stir the fork bank and forth, 2 times per each gear, gears shifting piston diameter Φ 25mm.



1、Dismantle

- Unscrew M6X45 bolts that connects oil injection tube and pump shell
- Take down oil injection tube

2、Assembly

Pass oil injection tube through input shaft assy and output shaft 1 assy, align location pinhole and bolt hole with corresponding clutch shell's holes (with O type ring side upward), press oil injection tube by hand gently fitting evenly, tighten M6X45 standing bolts, requested torque 9~11Nm. Attention: The above operations have to avoid oil injection tube distortion caused by collisions

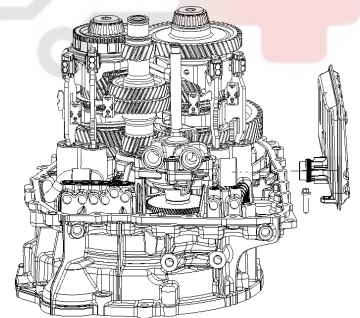
5.11 Nutsch filter assy and clutch shell load/unload

1、Dismantle

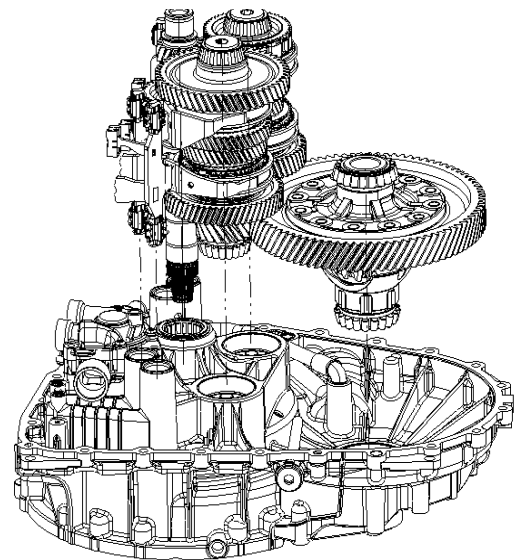
- Unscrew 1 M6X25 bolt
- Detach Nutsch filter assy with oil pump

2、Assemble

- Check if seal ring intact
- Smear little DTF lubricant in seal lip of Nutsch filter firstly, align Nutsch filter with oil suction mouth of pump and press tightly, rotate slightly Nutsch filter if necessary, until location step fitting completely. Insert down line of Nutsch filter into location slot of shell, tighten M6X25, requested torque 8NM



- 3、 Dismantle
 - Take down differential assy put in a clean box or bag
 - Take down shifting fork put in a clean box or bag
 - Take down output shaft 1 and 2 and input shaft put in a clean box or bag
- 4、 Assembly
 - On special equipment, fit gears teeth of pre-assembled input shaft assy, output shaft 1 assy, output shaft 2 assy and differential assy



- Install shifting fork and corresponding synchronizer clutch in a correct order, put gear shaft and shifting fork on special equipment. The above operation are request to under a clean environment

- Attention:

② Clean shifting fork before installation

② After installing gear shaft and shifting fork into clutch shell, it needs to take down all synchronizers at gear 2-5-3-R position

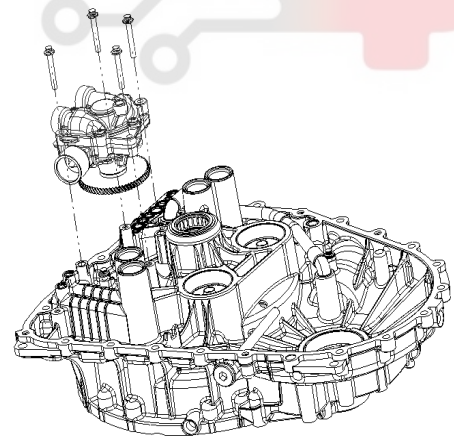
5.13 Oil pump and clutch shell load/unload

1、 Dismantle

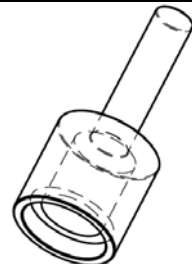
- Unscrew 4 M6X50 bolts of condenser put in a clean box
- Take down oil pump assy put in a clean box

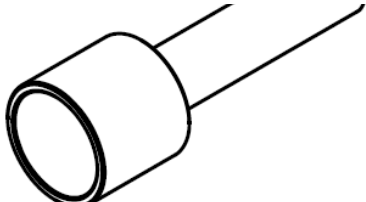
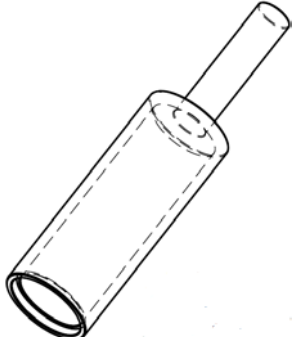
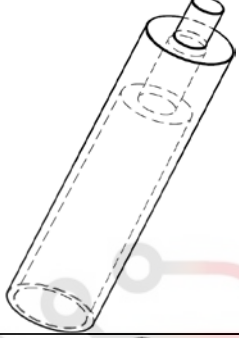
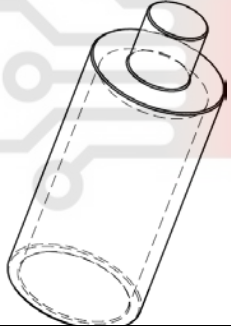
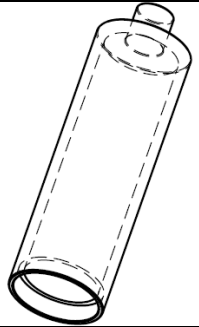
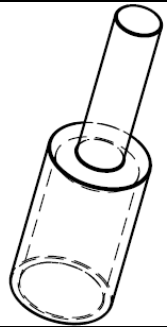
2、 Assembly

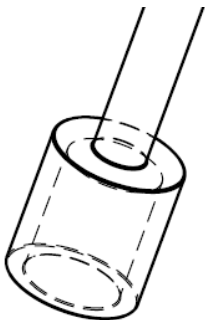
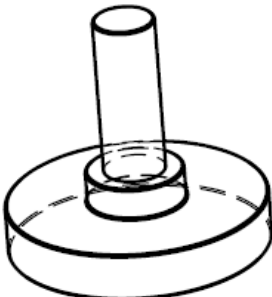
- Align 2 guide pins of pump with corresponding pinhole of clutch shell, keep vertical, press pump assy softly
- Knock pump rear shell softly by rubber hammer to fit pump's fitting surface with lug boss completely and evenly
- 安装油泵固定螺栓（4 个 M6×50 图号 Q1840645TF2）并拧紧，拧紧力矩 12Nm。

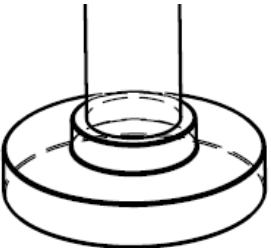


5.14 DCT SPECIAL TOOLS LIST DCT

SN	NAME	CODE	APPLICATION	PICTURE
1	1st/3nd gear hub pressing tool	DCT-L-003	Auxiliary tool for pressing 1st/3nd gear hub	

2	1 st gear needle bearing inner ring pressing tool	DCT-L-001	Auxiliary tool for pressing 1 st gear needle bearing inner ring	
3	2nd/6 th gear hub pressing tool	DCT-H-002	Auxiliary tool for pressing 2nd/6 th gear hub	
4	3rd/5 th gear common tooth pressing tool	DCT-I-002	Auxiliary tool for pressing 3rd/5 th gear common tooth	
5	3 rd gear needle bearing inner ring pressing tool	DCT-L-002	Auxiliary tool for pressing 3 rd gear needle bearing inner ring	
6	4th/R gear hub pressing tool	DCT-L-004	Auxiliary tool for pressing 4th/R gear hub	
7	5 th gear needle bearing sleeve pressing tool	DCT-H-001	Auxiliary tool for pressing 5 th gear needle bearing sleeve	

8	5 th gear synchronizer gear hub pressing tool	DCT-H-003	Auxiliary tool for pressing 5 th gear synchronizer gear hub	
9	Clutch/ low bearing inner ring pressing tool	DCT-C-002	Auxiliary tool for pressing Clutch/ low bearing inner ring	
10	Main/low bearing inner ring pressing tool	DCT-C-001	Auxiliary tool for pressing Main/low bearing inner ring	
11	Differential bearing inner ring pressing tool	DCT-G-002	Auxiliary tool for pressing Differential bearing inner ring	
12	Differential bearing out ring pressing tool	DCT-G-001	Auxiliary tool for pressing Differential bearing out ring	
13	Pad 1 pressing auxiliary tool(Front)	DCT-C-003		

14	Pad 2 pressing auxiliary tool(Rear)	DCT-C-004		
15	Clutch oil cylinder liner pressing tool	DCT-G-003		
16	Clutch shell side bearing out ring pressing tool	DCT-C-006		
17	Ball bearing inner ring pressing tool	DCT-I-001		
18	Out input shaft front-end roller bearing pressing tool	DCT-G-004		
19	Main shell side bearing out-ring pressing tool	DCT-C-005		

20	Parking gears pressing tool	DCT-H-004	Auxiliary tool for pressing parking gears	
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5.15Bolts specification and tighten torque table

Request the tighten torque accuracy within $\pm 7.5\%$

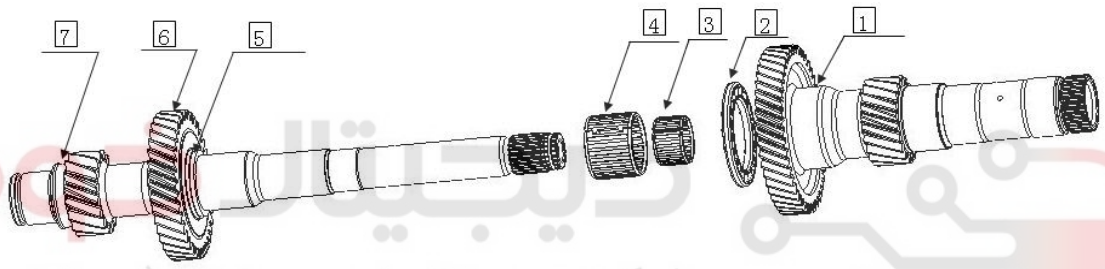
SN	NAME	PART NO	QTY /UNIT	SPECS	Torque /Nm
1	Shell connection bolt Parking draw bench bracket standing bolt	Q1860835T1F32	24	M8*35	20
2	Filter's standing bolt	Q1840625T1F32	1	M6*25	8
3	Drain plug	1705107DT000	1	M22*1.5*14	45
4	Drain plug	1705129DT000	1	M14*1.5*14	30
5	Pre-tightened bolt of output shaft rear-end bearing	1706318DT000	2	M18*1*22.5	50Nm +90°
6	Standing bolt of rail bracket	Q218B0840T1F31	2	M8*40	25
7	Standing bolt of ratchet bracket	Q218B0830T1F31	1	M8*30	25
8	Zipper bolt	Q150B0625T1F32	1	M6*25	10
9	Zipper nut	Q32006T2F32	1	M6	10
10	Valve connection bolt	Q2150650T1F31	9	M6*50	10
11	Valve connection bolt	Q2150630T1F31	22	M6*30	10
12	Standing bolt of magnetic valve protection bracket Standing bolt of magnetic valve wires tray	Q218B0510T1F31	20	M5*10	5
13	Standing bolt of oil pump Standing bolt of hydraulic module	Q1840645TF2	14	M6*45	12

14	Standing bolt of sensors module	Q1840616T1F32	26	M6*16	8
	Standing bolt of condenser				
	Standing bolt of sensors				
	Standing bolt of oil duct				
	Standing bolt of control wires bracket				

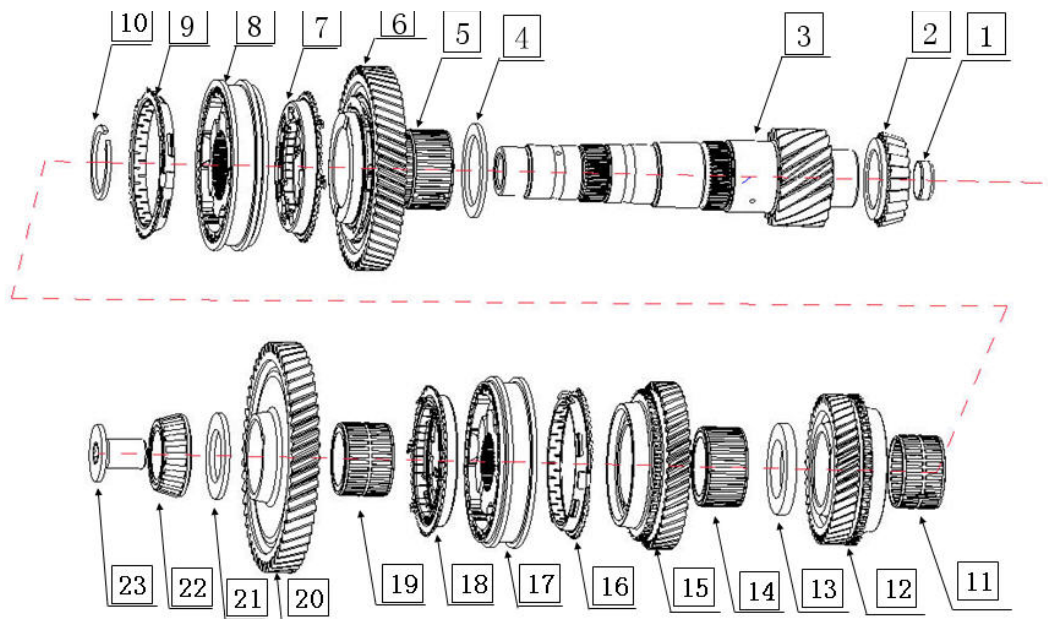
6 HFC DTF630 transmission breakdown diagram

6.2 Breakdown diagram

6.2.1 Input shaft assy

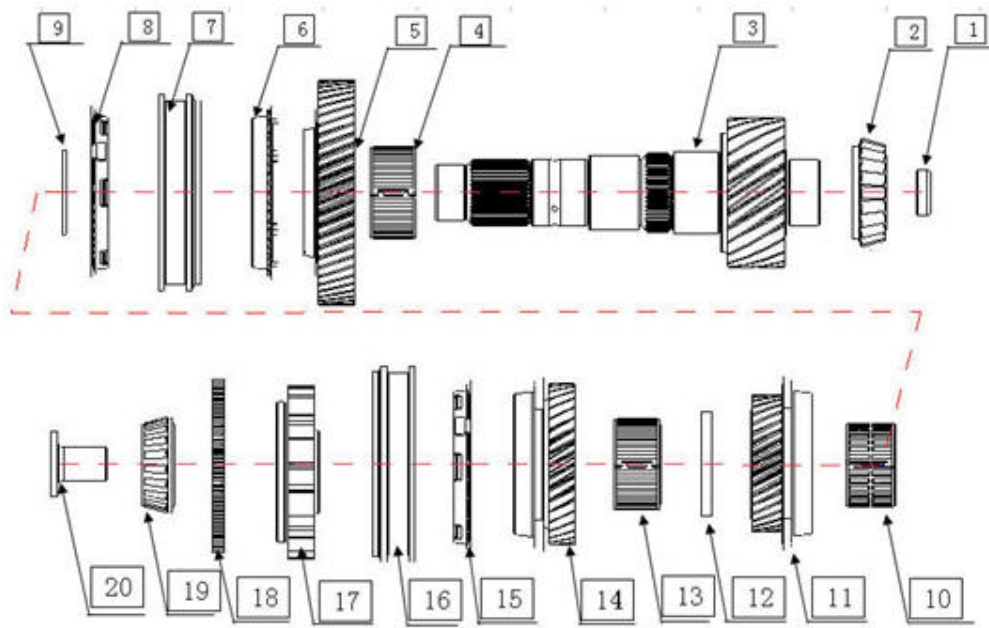


SN	Part No	Part Name	Qty
1	1706201DT000	Out input shaft	1
2	1706204DT000	Thrust needle bearing of input shaft	1
3	1706104DT000	Front needle bearing of inner input shaft	1
4	1706105DT000	Rear needle bearing of inner input shaft	1
5	1706106DT000	3rd/5th gear snap ring	1
6	1706107DT000	3rd/5th gear	1
7	1706101DT000	Inner input shaft	1

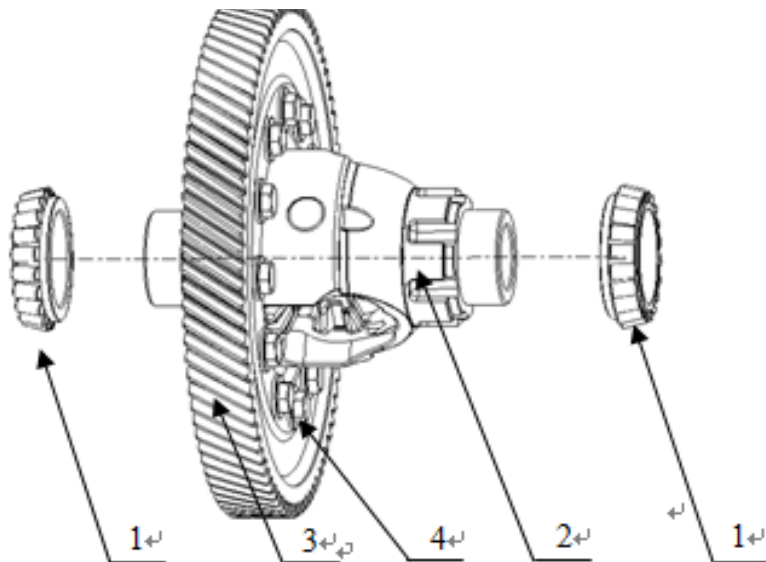


SN	Part No	Part Name	Qty
1	1706319DT000	oil collection ring of output shaft front-end	1
2	1706303DT000	Tapered roller bearing of output shaft front-end	1
3	1706301DT000	Output shaft 1	1
4	1706304DT000	R driven gear check ring	1
5	1706404DT000	2 nd /R gear needle bearing	1
6	1706320DT000	R driven gear components	1
7	1708110DT000	Tri-cone friction system(1 st 2 nd \R gear)	1
8	1708130DT000	4 th /R gear synchronizer gear hub system	1
9	1708120DT000	Single cone synchronous ring	1
10	1706308DT000	2/4/6/R gear synchronous ring	1
11	1706405DT000	4/6 th gear needle bearing	1
12	1706330DT000	4 th gear driven gear components	1
13	1706309DT000	3/4/5/6 th gear check ring	1
14	1706307DT000	3/5 th gear needle inner bearing components	1
15	1706340DT000	3 rd driven gear components	1
16	1708120DT000	Single cone synchronous ring	1
17	1708210DT000	1/3 rd gear synchronizer gear hub system	1
18	1708110DT000	Tri-cone friction system(1\2\R gear)	1
19	1706306DT000	1 st gear needle inner bearing components	1
20	1706350DT000	1 st driven gear components	1
21	1706313DT000	1 st driven gear check ring	1
22	1706415DT000	Tapered roller bearing of output shaft rear-end	1

6.2.3 Output shaft 2 assembly

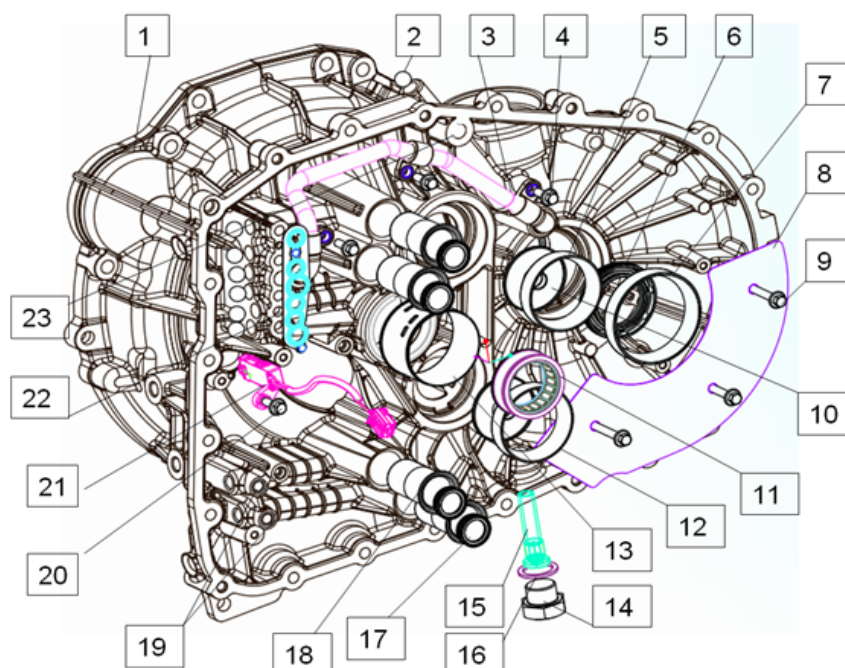


SN	Part No	Part Name	Qty
1	1706319DT000	Oil collection ring of output shaft front-end	1
2	1706303DT000	Tapered roller bearing of output shaft front-end	1
3	1706401DT000	Output shaft 2	1
4	1706404DT000	2nd/R gear needle bearing	1
5	1706420DT000	2nd driven gear components	1
6	1708110DT000	Tri-cone friction system(1/2/R gear)	1
7	1708130DT000	2/6th gear synchronizer gear hub system	1
8	1708120DT000	Single cone synchronous ring	1
9	1706308DT000	2/6th gear synchronizer snap ring	1
10	1706405DT000	6th gear needle bearing	1
11	1706430DT000	6th driven gear components	1
12	1706309DT000	5/6th gears check ring	1
13	1706307DT000	3/5th gear needle inner bearing components	1
14	1706440DT000	5th driven gear components	1
15	1708120DT000	Single cone synchronous ring	1
16	1708210DT000	5th gear synchronizer gear hub system	1
17	1706451DT000	Parking gears	1
18	1706414DT000	Rotation signal wheel of output shaft 2	1
19	1706415DT000	Tapered roller bearing of output shaft rear-end	1
20	1706318DT000	Pre-tightened bolt of output shaft rear-end	1



SN	Part No	Part Name	Qty
1	1707101DT000	Tapered roller bearing of differential	2
2	1707200DT000	differential	1
3	1707103DT000	Final driven gears	1
4	1707104DT000	Connection bolt of final driven gears	12

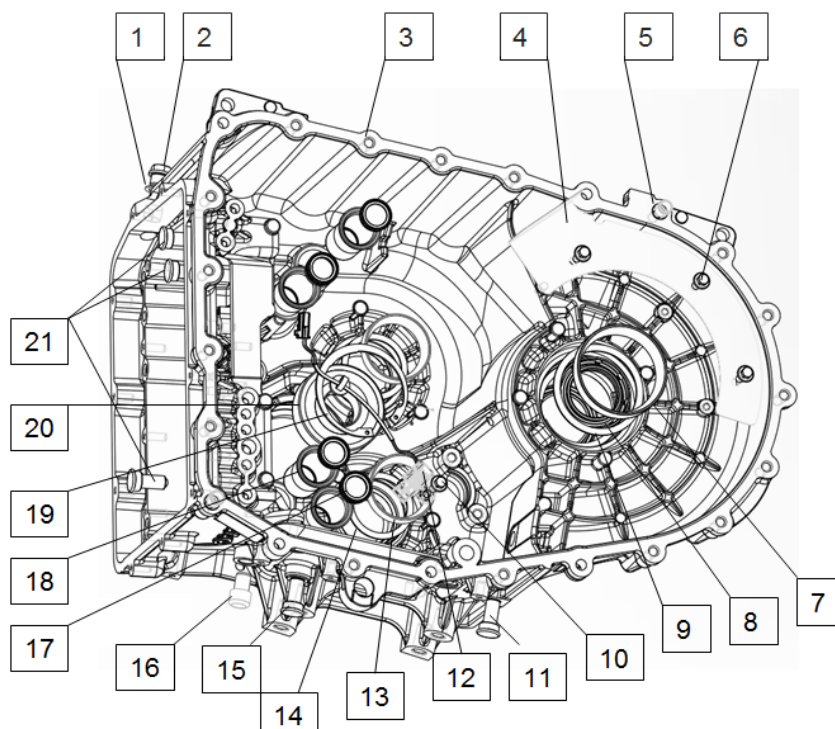
6.2.5 Clutch shell



SN	Part No	Part Name	Qty
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2	GB308_12	Steel ball of oil conduit $\Phi 12$	9
3	1705140DT000	Oil duct connection tube	1
4	Q1840616T1F32	bolt M6 $\times$ 16 GB5787	3
5	1706303DT000	Tapered roller bearing of output shaft front-end	1
6	1705118DT000	Differential oil seal	1
7	1707101DT000	Tapered roller bearing of differential	1
8	1705151DT000	Oil cover plate 1(shell side)	1
9	Q1840645TF2	螺栓 Bolt M6 $\times$ 45_GB5787	3
10	1705117DT000	Oil collection cover of output shaft front-end	2
11	1706202DT000	Front bearing of outside input shaft	1
12	1706303DT000	Tapered roller bearing of output shaft front-end	1
13	1705109DT000	Clutch oil sleeve	1
14	1705107DT000	drain plug M22	1
15	1705132DT000	Overflow tube	1
16	1705114DT000	Drain plug gasket M22	1
17	1705112DT000	Oil seal of driven piston	4
18	1705111DT000	Cylinder liner of shifting piston	4
19	1705122DT000	O type ring of oil injection tube	2
20	Q1840616T1F32	Standing bolt of sensors M6X16	1
21	1735108DT000	DC rotation/oil tempt sensor	1
22	1705128DT000	Clutch oil duct seal gasket	1
23	1705123DT000	O type ring of cooling oil duct	1

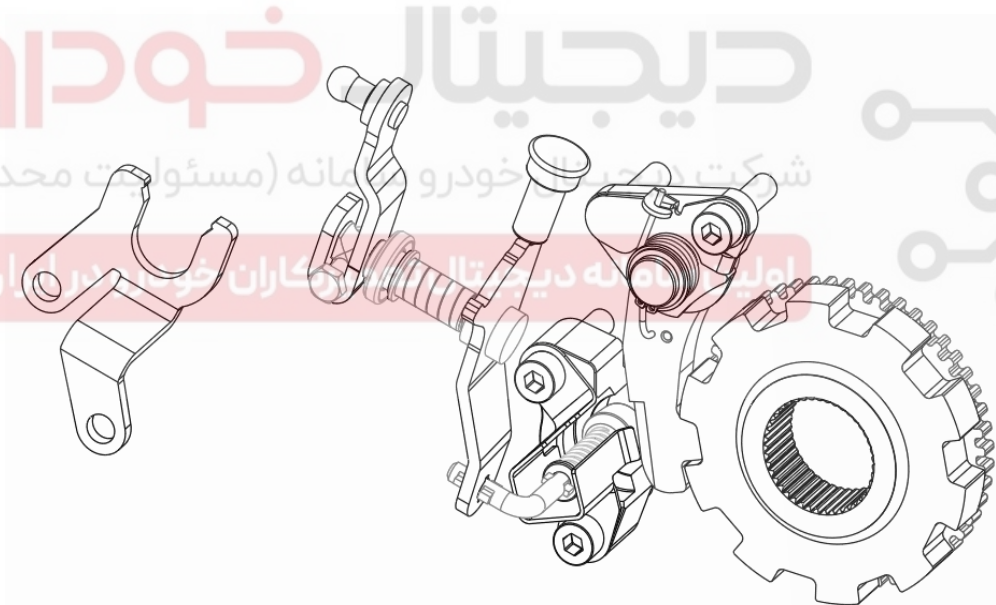
6.2.6 Main shell body

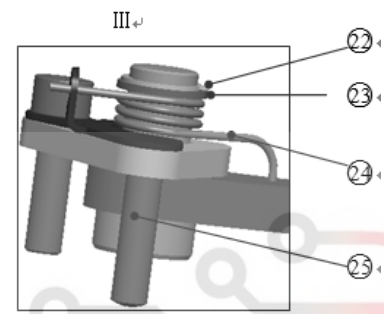
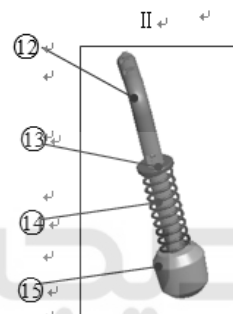
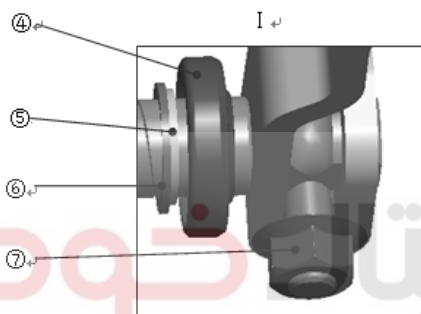
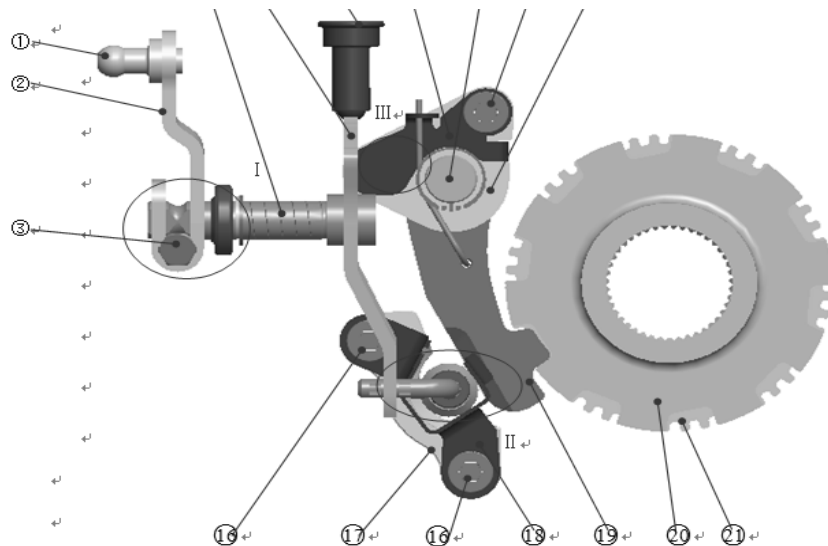


SN	PART NO	PART NAME	QTY
1	1705131DT000	Drain plug gasket M14	1

3	1705101DT000	Main shell body	1
4	1705152DT000	Oil baffle plate 2(main shell side)	1
5	1705103DT000	Guide pin of shell body	2
6	Q1840616T1F32	Standing bolt M6×16 GB5787	4
7	1707101DT000	Tapered roller bearing of differential	1
8	1705118DT000	Oil seal of differential	2
9	1707102DT000	Adjustable gasket of differential bearing	1
10	Q1840616T1F32	Sensor standing bolts M6×16	1
11	1709501DT000	Fork/parking guide pin	1
12	1735111DT000	Output shaft rotation sensor	1
13	1706415DT000	Tapered roller bearing of output shaft rear-end	1
14	1706315DT000	Adjustable gasket of output shaft rear-end bearing	1
15	1709501DT000	Fork/parking guide pin	1
16	1705124DT000	Ventilation valve assy	1
17	1705112DT000	Driven piston oil seal	4
18	1705111DT000	Shifting piston cylinder sleeve	4
19	1706111DT000	Snap ring of inner input shaft rear-end bearing	1
20	1706109DT000	Inner input shaft rear-end bearing	1
21	1709501DT000	Fork/parking guide pin	1

6.2.7 parking equipment





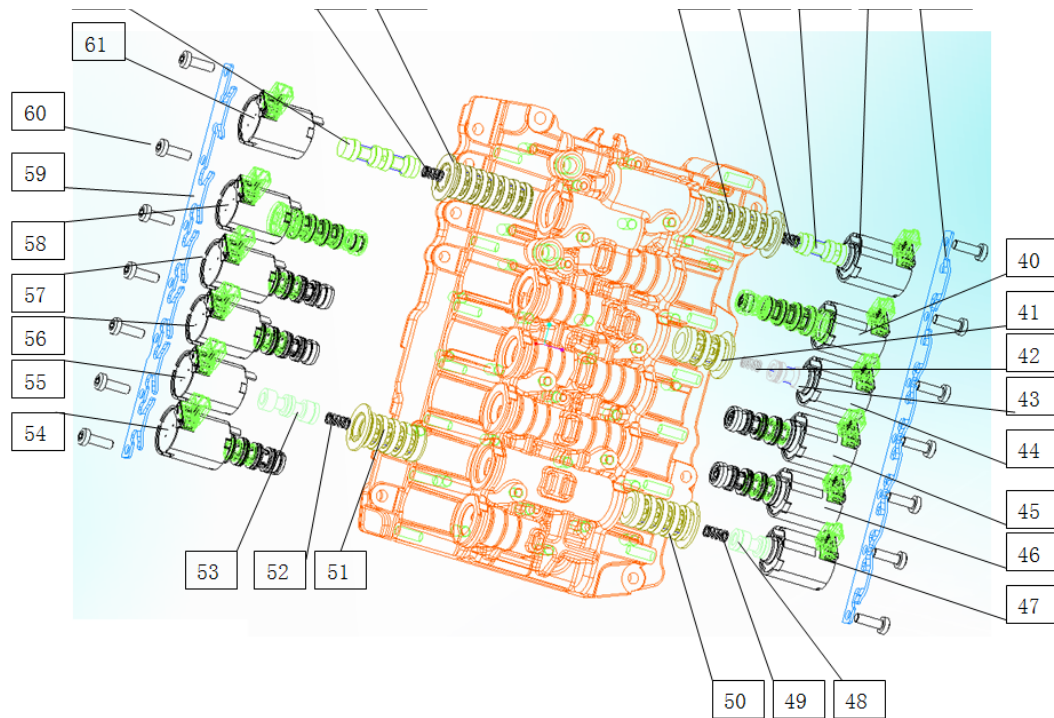
SN	Part No	Part Name	Qty
1	1710202DT000	Dragline ball	1
2	1710201DT000	Dragline plate	1
3	Q150B0625T1F32	Dragline bolt	1
4	1710123DT000	Oil seal of rocker arm	1
5	1710103DT000	Snap ring of rocker arm	1
6	1710104DT000	Rocker arm gasket	1
7	Q32006T2F32	拉索螺母	1
8	1710301DT000	Rocker arm axis	1
9	1710302DT000	Rocker arm plate	1
10	1709501DT000	Fork/parking guide pin	1
11	1710125DT000	Return spring bracket	1
12	1710401DT000	Push rod	1
13	1710402DT000	Pre-tighten spring gasket	1
14	1710403DT000	Pre-tighten spring	1
15	1710404DT000	Operation pin	1
16	Q218B0840T1F31	Parking base bolt	2
17	1710117DT000	Parking base	1
18	1710126DT000	Guidance plate	1
19	1710121DT000	ratchet	1
20	1706451DT000	Parking gears	1
21	1706414DT000	Signal gear	1
22	1710112DT000	Snap ring of return spring	1
23	1710113DT000	Return spring gasket	1
24	1710111DT000	Return spring	1
25	Q5220835	Ratchetting guide pin	1
26	1710124DT000	Ratchet base	1
27	Q218B0830T1F31	Ratchet base bolt	1
28	1710122DT000	Ratchet pin	1



دیجیتال خودرو

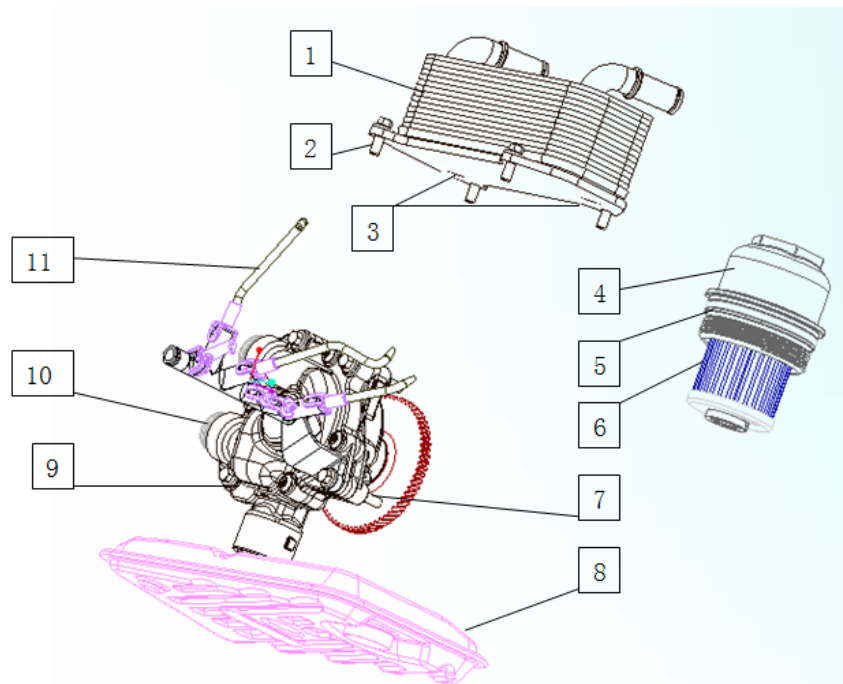
خودرو سامانه (مسئولیت محدود)

تعمیرکاران خودرو در ایران

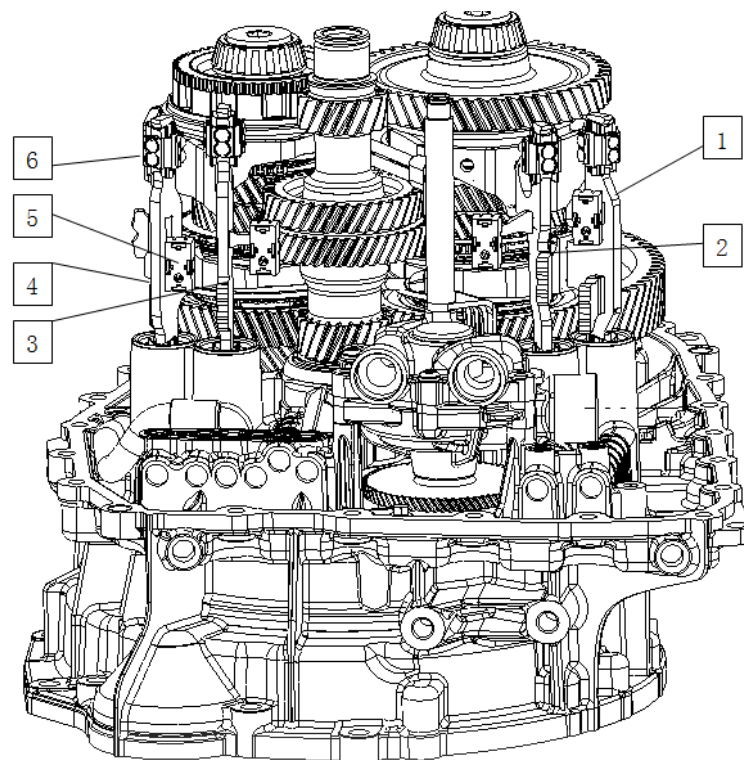


SN	Part No	Part Name	Qty
1	Q2150645T1F31	Connection bolt M6X43	9
2	Q2150633T1F31	Connection bolt M6X33	21
3	1723111DT000	down valve	1
4	1723011DT000	baffle plate	1
5	1735112DT000	clutch pressure sensor	1
6	1735112DT000	clutch pressure sensor	1
7	Q218B0510T1F31	magnetic valve wires fixing bolt M5×10	1
8	1735105DT000	magnetic valve wires	1
9	1723211DT000	upper valve	1
10	1723154DT000	pressure-release valve (PRV)separation blade	1
11	GB308_9	pressure-release valve (PRV)steel ball	1
12	1723152DT000	pressure-release valve(PRV) spring	1
13	1723155DT000	PRV plug's O type ring	1
14	1723153DT000	PRV spring base	1
15	1723161DT000	Energy accumulator piston	2
16	1723162DT000	Energy accumulator spring	2
17	1723134DT000	Lubricating &cooling valve separation blade	1
18	1723134DT000	Lubricating &cooling valve separation blade	1
19	1723112DT000	Guide pin	4
20	1723132DT000	Lubricating &cooling guiding valve separation blade	1
21	1723142DT000	Cooling guiding valve spring	1
22	1723141DT000	Cooling guiding valve plug	1
23	1705122DT000	O type ring	1
24	1723131DT000	Lubricating guiding valve	1
25	1705122DT000	O type ring	1
26	1723133DT000	Lubricating guiding valve spring	1
27	1723132DT000	Lubricating & cooling guiding valve core	1
28	1705125DT000	Main pressure guiding valve plug's O type ring	1

30	1723123DT000	main pressure guiding valve spring	1
31	1723122DT000	Main pressure guiding valve core	1
32	1723124DT000	Main pressure guiding valve separation blade	1
33	1723223DT000	Switch valve spring	1
34	1723225DT000	Valve housing (GASV)	1
35	1723225DT000	Valve housing (GASV)	1
36	1723223DT000	Switch valve spring	1
37	1723222DT000	Gears selection valve core	1
38	1723221DT000	Switch magnetic valve	1
39	1723213DT000	Magnetic valve bracket(left)	1
40	1723217DT000	Gears shifting flow control valve	1
41	1723243DT000	Valve housing (COFCV)	1
42	1723242DT001	Lubricating valve core spring	1
43	1723241DT000	Lubricating valve core	1
44	1723221DT000	Switch magnetic valve	1
45	1723216DT000	Pressure control valve	1
46	1723216DT000	Pressure control valve	1
47	1723221DT000	Switch magnetic valve	1
48	1723231DT000	Safety valve core	1
49	1723223DT000	Switch valve spring	1
50	1723232DT000	Valve housing (COV)	1
51	1723232DT000	Valve housing (COV)	1
52	1723223DT000	Switch valve spring	1
53	1723231DT000	Safety valve core	1
54	1723215DT000	Main oil duct pressure magnetic valve	1
55	1723221DT000	Switch magnetic valve	1
56	1723216DT000	Pressure control valve	1
57	1723216DT000	Pressure control valve	1
58	1723217DT000	Gears shifting flow control valve	1
59	1723214DT000	Magnetic valve bracket (right)	1
60	Q2150516T1F31	magnetic valve bracket standing bolt M5X16	14
61	1723221DT000	Switch magnetic valve	1
62	1723222DT000	Gears selection valve core	1

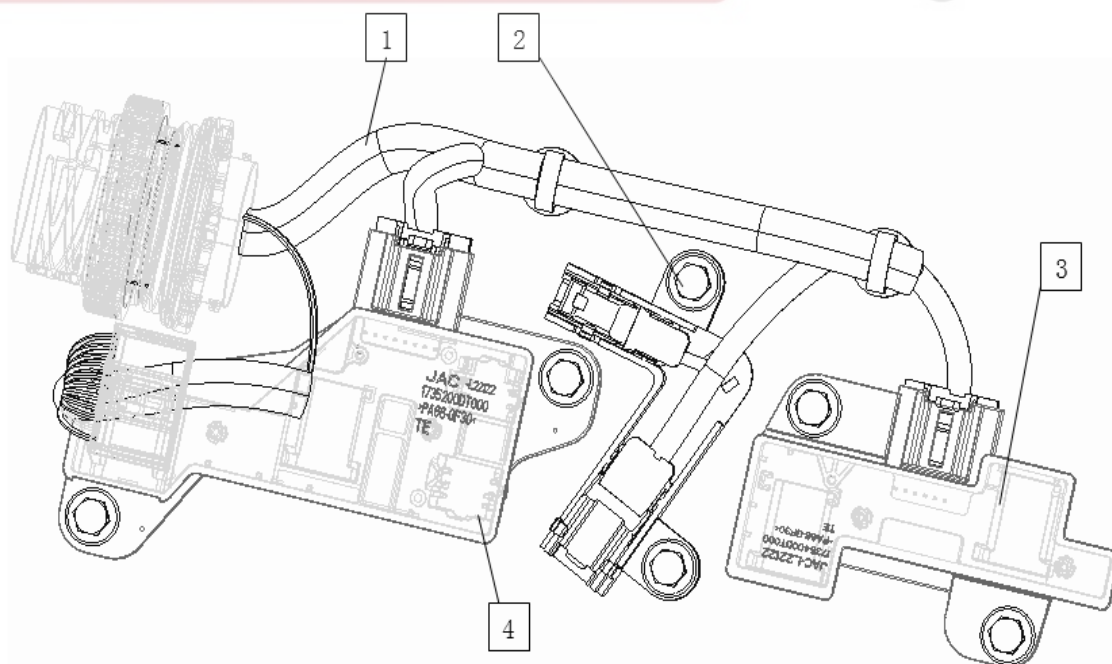


SN	Part No	Part Name	Qty
1	1726101DT000	Condenser	1
2	Q1840616T1F32	standing bolt M6×16 GB5787	4
3	1726103DT000	O type ring of condenser	2
4	1726112DT000	Pressure oil filter outer shell	1
5	1726111DT000	O type ring of pressure filter	1
6	1726106DT000	Pressure oil filter core	1
7	Q1840645TF2	standing bolt M6×45_GB5787	4
8	1726302DT000	filter	1
9	1725001DT000	Oil pump assy	1
10	1726100DT000	Oil pump connection tube	2
11	1726400DT000	Oil injection tube assy	1



SN	Part No	Part Name	Qty
1	1709110DT000	4/R gear fork component	1
2	1709210DT000	1/3rd gear fork component	1
3	1709410DT000	5 gear fork component	1
4	1709310DT000	2/6th gear fork component	1
5	1709120DT000	Sensor at fork place magnet assy	4
6	1709104DT000	Straight line bearing	8

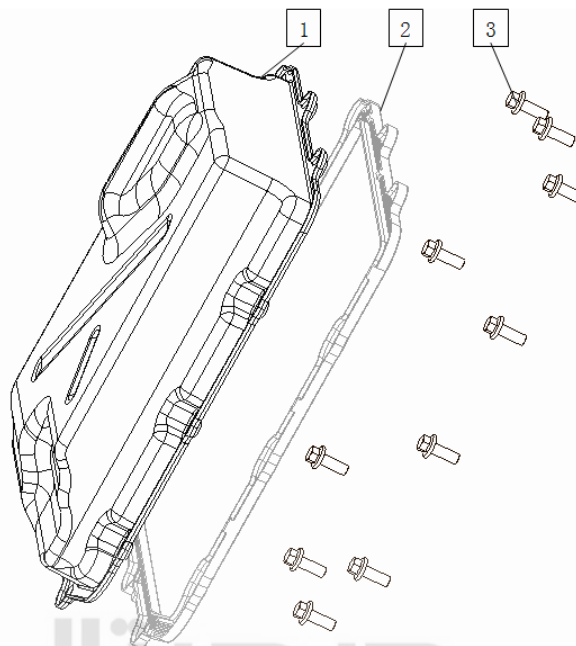
6.2.11 Wires and sensors



SN	Part No	Part Name	Qty
1	1735104DT000	Cross-cylinder wires	1

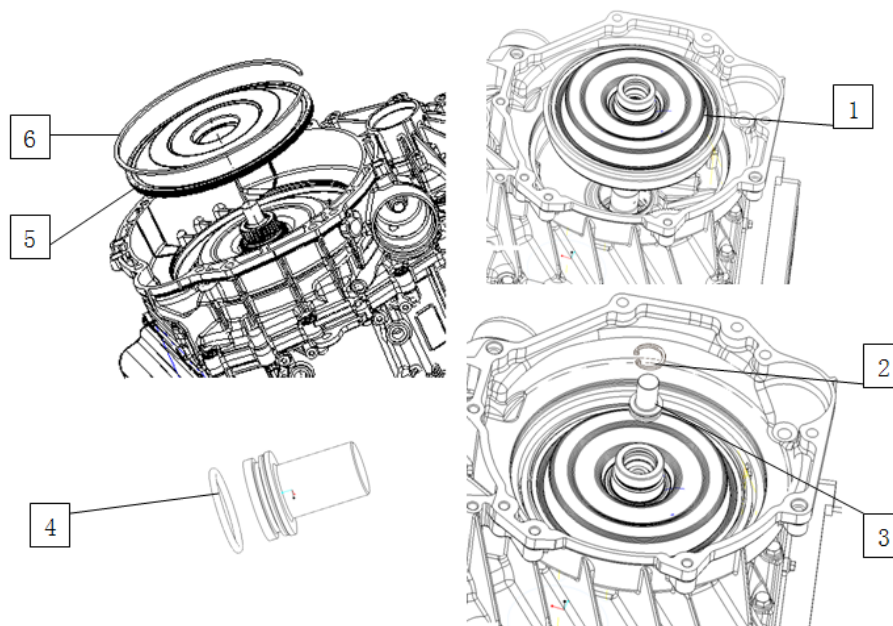
3	1735400DT000	Sensor module B	1
4	1735200DT000	Sensor module A	1

6.2.12 Oil sump assy



SN	Part No	Part Name	Qty
1	1705106DT000	Oil sump	1
2	1705135DT000	Sump seal ring	1
3	Q1840616T1F32	sump standing bolt M6×16	10

6.2.13 Clutch assy and sealing parts



SN	Part No	Part Name	Qty
1	1724110DT000	Double clutch	1
2	1724102DT000	Snap ring of guidance hub	1

4	1724102DT000	Snap ring of guidance hub	1
5	1724103DT000	O type seal ring of guidance hub	1
6	1705500DT000	Clutch seal cover assy	1
7	1705116DT000	Snap ring of clutch oil seal cover	1

6.2.14 Lubricant and shell sealant

SN	Part No	Part Name	Specs
1	1726501DT000	Lubricant	Pentosin FFL-2
2	1726502DT000	Shell sealant	Loctite 5460

7. Maintenance Instructions

7.1 Transmission oil-filling volume and method

7.1.1 Oil specification

(1) Oil specification

Pentosin FFL-2

(2) Volume

First time lubricants filling volume: $7.1L \pm 0.1L$.

(3) Oil change mileage

- First time maintenance recommend 60000KM/ 2 years to change the oil;
- Recommend to change oil once at every 60000KM;
- Must change the oil at every 150,000KM.

(4) Special request

- If the clutch disc get changed, the oil also need to be changed
- Anti-freezing liquid or coolant get into DCT oil, the oil must be changed

7.1.2 Oil release and filling method

(1) Oil filling volume

- Transmission maintenance oil filling volume about 5L

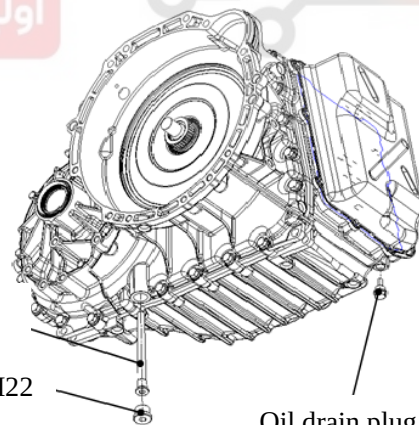
(2) Oil release way

- Lift the car by lifting machine
- Loosen and unscrew 1705129DT000 M14 bolt, release hydraulic module oil
- Loosen and unscrew 1705107DT000 M22 and 1705132DT000 overflow pipe, release the oil in the DCT shell
- Releasing until no more oil out

Overflow tube

Oil drain plug M22

Oil drain plug M14



(3) Transmission maintenance oil filling

- After oil releasing finished, tighten drain plug M14 (1705129DT000), requested torque 30NM
- Screw in and tighten overflow pipe (1705132DT000), requested torque 3NM.
- Fill in transmission oil until gets overflow
- Screw in oil drain plug M22
- Running engine idle for about 15 minutes, making sure sump full of oil, at the same time use diagnosis equipment running TCU for self-learning once(including gears and clutch), monitor oil temperature to keep $40^{\circ}C \pm 5^{\circ}C$.
- As above procedures finished, push rod to P gear, let engine running idle
- Unscrew drain plug M22 (1705107DT000), fill oil again through overflow pipe until it over flow out
- Screw in and tighten drain plug M22 1705107DT000, requested torque 45NM
- Stop the engine, oil filling ends

- Please shake the oil can before filling the oil

7.1.3 Special notices for DCT

- HFC DTF630 lubricant is Pentosin FFL-2, other brands can't be used in maintenance
- Prohibit to mix using DCT oil produced by different manufacturer, even the same specification
- Prohibit to mix using new and old DCT oil produced by the same manufacturer, even the same specification

7.2 Replace pressure filter

Under below circumstances, the pressure filter must be changed

- Maintenance mileage reach 60000KMs
- Metal particles founded in gear oil
- Clutch burned or mechanical down
- Coolant gets into gear oil
- Clutch burned or mechanical breakdown

Change pressure filter procedures:

- Unscrew pressure filter cover by special tools and put it upward to keep clean and free of dusts
- Take out core by special caliper
- Replace the new core and install
- Put on the cover and tighten torque 25NM

7.3 Ventilation plug maintenance

Transmission oil tempt gets high during driving. The in-and-out air pressure difference is eliminated by ventilation plug, therefore it's important to keep ventilation plug smooth and clean, to prevent sealing parts damage and oil leakage caused by air pressure difference

It shall routinely check if it has impurities and fouls in ventilation plug to keep it clean and smooth

7.4 Attentions

- The dismantle of inside parts and hydraulic system of DCT requires special training and qualification, prohibit to dismantling it without professional training
- For car's breakdown of being unable to move, it shall uplift the driven wheel for trailing

Appendix 1 Failure codes and description

Failure code meaning

SN	DTC Code	OBD Code	DTC Name	ISO Name
1	P0712	P0712	too low current of tempt sensor of sump	too low current of transmission oil fluid tempt sensor A
2	P0713	P0713	too high current of tempt sensor of sump	too high current of transmission oil fluid tempt sensor A
3	P0714	P0714	Inconsistent current of tempt sensor of sump	Inconsistent current of transmission oil fluid tempt sensor A
4	P1700	---	Sump's tempt reach the 1 st threshold limit value	-----
5	P0218	P0218	Sump's tempt reach the 2 nd threshold limit value	Transmission oil fluid tempt out-of-range
6	P2742	P2742	Too low current of clutch tempt sensor	Too low current of transmission oil fluid tempt sensor B
7	P2743	P2743	Too high current of clutch tempt sensor	Too high current of transmission oil fluid tempt sensor B
8	P2744	P2744	Inconsistent current of clutch tempt sensor	Inconsistent current of transmission oil fluid tempt sensor B
9	P1701	---	Clutch tempt reach the 1 st threshold value	-----
10	P2787	P2787	Clutch tempt reach the 2 nd threshold value	Too high of transmission oil fluid tempt
11	P1702	---	Abnormal characteristics of clutch tempt sensor	-----
12	P1703	---	Abnormal characteristic slope of clutch tempt sensor	-----
13	P1704	---	Too low current of 1-3 rd gear's fork sensor	-----
14	P1705	---	Too high current of 1-3 rd gear's fork sensor	-----
15	P1706	---	Too low current of 2-6th gear's fork sensor	-----
16	P1707	---	Too high current of 2-6th gear's fork sensor	-----
17	P1708	---	Too low current of 5-N gear's fork sensor	-----
18	P1709	---	Too high current of 5-N gear's fork sensor	-----
19	P1710	---	Too low current of R-4th gear's fork sensor	-----
20	P1711	---	Too high current of R-4th gear's fork sensor	-----
21	P0842	P0842	Too low current of Clutch 1 pressure sensor	Too low current of transmission oil fluid pressure sensor/switch A
22	P0843	P0843	Too high current of Clutch 1 pressure sensor	Too high current of transmission oil fluid pressure sensor/switch A
23	P0841	P0841	Abnormal characteristics of clutch 1 pressure sensor	Abnormal current-range and characteristics of transmission oil fluid pressure sensor/switch A
24	P0847	P0847	Too low current of Clutch 2 pressure sensor	Too low current of transmission oil fluid pressure sensor/switch B
25	P0848	P0848	Too high current of Clutch 2 pressure sensor	Too high current of transmission oil fluid pressure sensor/switch B
26	P0846	P0846	Abnormal characteristics of clutch 2 pressure sensor	Abnormal current-range and characteristics of transmission oil fluid pressure sensor/switch B
27	P1712	---	2 clutches connection at the same	-----

28	P1713	---	Too low current of transmission input ROTATION SPEED sensor	-----
29	P0715	P0715	Too high current of transmission input ROTATION SPEED sensor	Too high current of transmission input ROTATION SPEED sensor A
30	P1714	---	Open circuit of transmission input ROTATION SPEED sensor	-----
31	P0716	P0716	Abnormal characteristic of transmission rotation speed sensor's current	Abnormal current-range and characteristics of input ROTATION SPEED sensor A
32	P1715	---	Too low of transmission output shaft rotation speed sensor's current	-----
33	P0720	P0720	Too high of transmission output shaft rotation speed sensor's current	Rotation speed out-put sensor current
34	P1716	---	Open circuit of transmission out-put shaft rotation speed sensor's current	-----
35	P0721	P0721	Abnormal characteristics of transmission out-put shaft rotation speed sensor's current	Abnormal current-range and characteristics of input rotation speed sensor
36	P1717	---	Too low current of input shaft 1 rotation speed sensor	-----
37	P0791	P0791	Too high current of input shaft 1 rotation speed sensor	Central shaft rotation speed sensor A current
38	P1718	---	Open circuit of input shaft 1 rotation speed sensor current	-----
39	P0792	P0792	Abnormal characteristics of input shaft 1 rotation speed sensor current	Central shaft rotation speed sensor A current-range and characteristics
40	P1719	---	Too low current of input shaft 2 rotation speed sensor	-----
41	P2745	P2745	Too high current of input shaft 2 rotation speed sensor	Central shaft rotation speed sensor B current
42	P1720	---	Open circuit of input shaft 2 rotation speed sensor	-----
43	P2746	P2746	Abnormal characteristics of input shaft 2 rotation speed sensor	Central shaft rotation speed sensor B current-range and characteristics
44	P1721	---	Too low current of magnetic valve low-line circuit 1	-----
45	P1722	---	Too high current of magnetic valve low-line circuit 1	-----
46	P1723	---	Open circuit current of magnetic valve low-line circuit 1	-----
47	P1724	---	Too low current of magnetic valve low-line circuit 2	-----
48	P1725	---	Too high current of magnetic valve low-line circuit 2	-----
49	P1726	---	Open circuit current of magnetic valve low-line circuit 2	-----
50	P1727	---	Too low current of magnetic valve low-line circuit 3	-----
51	P1728	---	Too high current of magnetic valve low-line circuit 3	-----
52	P1729	---	Open circuit current of magnetic valve low-line circuit 3	-----
53	P1721	---	Too low current of magnetic valve low-line circuit 4	-----
54	P1731	---	Too high current of magnetic valve low-line circuit 4	-----

56	P0962	---	Too low current of clutch pressure control valve 1	Too low of control current of pressure control magnetic valve A
57	P0963	P0963	Too high current of clutch pressure control valve 1	Too high control current of pressure control magnetic valve A
58	P0960	P0960	Open circuit of clutch pressure control valve 1	Open circuit current of pressure control magnetic valve A
59	P1733	---	Too high current or open circuit of clutch pressure control valve 1	-----
60	P0970	P0970	Too low current of clutch pressure control valve 2	Too low of control current of pressure control magnetic valve C
61	P0971	P0971	Too high current of clutch pressure control valve 2	Too high of control current of pressure control magnetic valve C
62	P0968	P0968	Open circuit of clutch pressure control valve 2	Open circuit current of pressure control magnetic valve C
63	P1734	---	Too high current or open circuit of clutch pressure control valve 2	-----
64	P0966	P0966	Too low current of switch control valve 1	Too low control current of pressure control magnetic valve B
65	P0967	P0967	Too high current or open circuit of switch control valve 1	Too high control current of pressure control magnetic valve B
66	P2720	P2720	Too low current of switch valve 2	Too low control current of pressure control magnetic valve D
67	P2721	P2721	Too high current or open circuit of switch valve 2	Too high control current of pressure control magnetic valve D
68	P0973	P0973	Too low current of gears shifting pressure control valve 1 换挡压力控制阀 1 电流过低	Too low control current of gears magnetic valve A
69	P0974	P0974	Too high current of gears shifting pressure control valve 1	Too high control current of gears magnetic valve A
70	P0753	P0753	Open circuit current of gears shifting pressure control valve 1	Electrical function of gears magnetic valve A
71	P1735	---	Too high current or open circuit of gears shifting pressure control valve 1	-----
72	P0976	P0976	Too low current of gears shifting pressure control valve 2	Too low control current of gears magnetic valve B
73	P0977	P0977	Too high current of gears shifting pressure control valve 2	Too high control current of gears magnetic valve B
74	P0758	P0758	Open circuit current of gears shifting pressure control valve 2	Electrical function of gears magnetic valve B
75	P1736	---	Too high current or open circuit of gears shifting pressure control valve 2	-----
76	P0979	P0979	Too low current of gears shifting actuator slide valve 1	Too low control current of gears magnetic valve C
77	P0980	P0980	Too high current or open circuit of gears shifting actuator slide valve 1	Too high control current of gears magnetic valve C
78	P0982	P0982	Too low current or open circuit of gears shifting actuator slide valve 2	Too low control current of gears magnetic valve D
79	P0983	P0983	Too high current or open circuit of gears shifting actuator slide valve 2	Too high control current of gears magnetic valve D
80	P0985	P0985	Too low current of gears selection control valve 1	Too low control current of gears magnetic valve E
81	P0986	P0986	Too high current of gears selection control valve 1	Too high control current of gears magnetic valve E
82	P0773	P0773	Open circuit current of gears	Electrical function of gears magnetic

83	P1737	---	Too high current or open circuit of gears selection control valve1	-----
84	P0998	P0998	Too low current of gears selection control valve 2	Too low control current of gears magnetic valve F
85	P0999	P0999	Too high current of gears selection control valve 2	Too high control current of gears magnetic valve F
86	P2709	P2709	Open circuit current of gears selection control valve 2	Electrical function of gears magnetic valve F
87	P1738	---	Too high current or open circuit of gears selection control valve 2	-----
88	P1739	---	Too low current of cooling flow control valve	-----
89	P1740	---	Too high current of cooling flow control valve	-----
90	P1741	---	Open circuit current of cooling flow control valve	-----
91	P1742	---	Too high current or open circuit of cooling flow control valve	-----
92	P2729	P2729	Too low current of pressure control valve of main oil duct	Too low control current of pressure control magnetic valve
93	P2730	P2730	Too high current of pressure control valve of main oil duct	Too high control current of pressure control magnetic valve
94	P2727	P2727	Open circuit current of pressure control valve of main oil duct	Open circuit current of pressure control magnetic valve
95	P1743	---	Too high current or open circuit of pressure control valve of main oil duct	-----
96	P1744	---	Engine output rotation speed signal invalid	-----
97	P1745	---	Engine output torque signal invalid	-----
98	P1746	---	Engine free of outside influence torque signal invalid	-----
99	P1747	---	Engine torque limitation signal invalid	-----
100	P1748	---	Engine mechanical loss torque signal invalid	-----
101	P1749	---	Engine throttle valve openness signal invalid	-----
102	P1750	---	Actual acceleration pedal position signal invalid	-----
103	P1751	---	Acceleration pedal position original figure invalid	-----
104	P1752	---	Atmosphere pressure signal invalid	-----
105	P1753	---	Brake pedal position signal invalid	-----
106	P1754	---	Break pressure signal invalid	-----
107	P1755	---	Driver expected torque signal invalid	-----
108	P1756	---	Engine coolant tempt signal invalid	-----
109	P1757	---	Engine intake air tempt signal invalid	-----
110	P1758	---	Transmission to engine idling signal invalid	-----
111	P1759	---	Transmission to engine rotation speed control lasting time signal invalid	-----
112	P1760	---	Gears shifting position signal invalid	-----
113	P1761	---	Speed signal invalid	-----

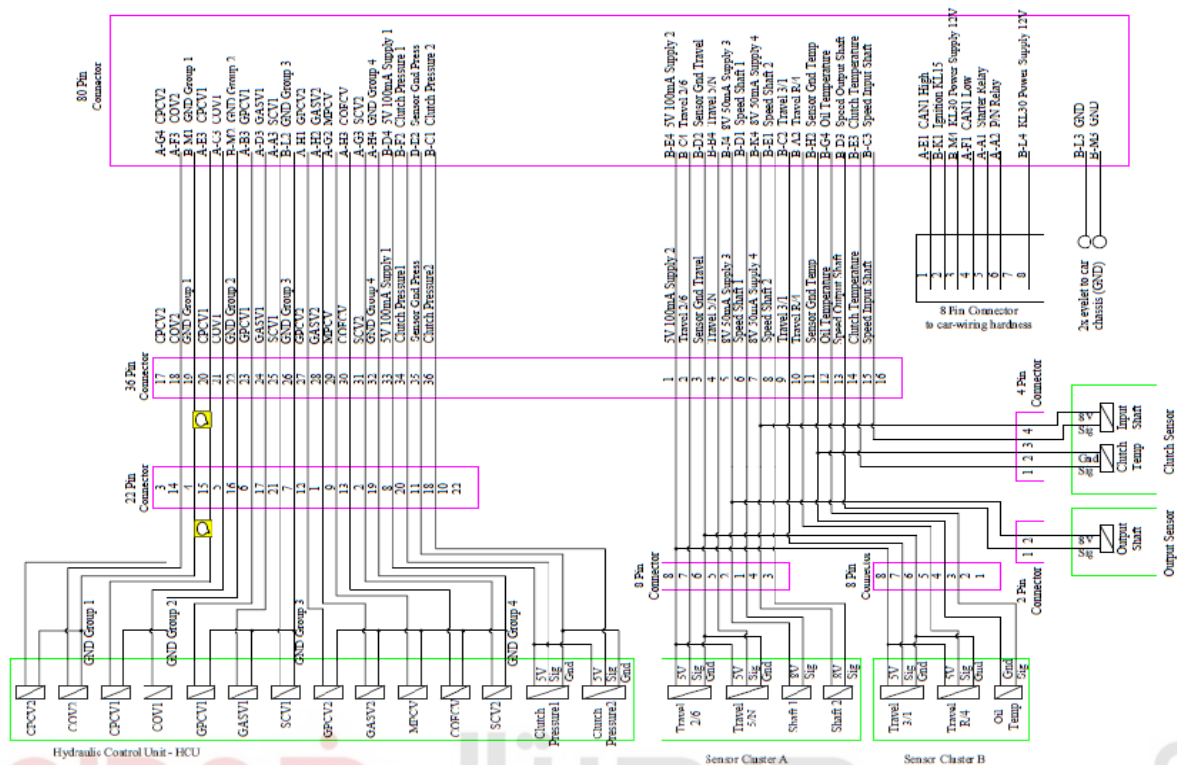
115	P1763	---	Left front wheel speed signal invalid	-----
116	P1764	---	Right front wheel speed signal invalid	-----
117	P1765	---	Left rear wheel speed signal invalid	-----
118	P1766	---	Right rear wheel speed signal invalid	-----
119	P1767	---	Engine control unit failure signal invalid	-----
120	P1768	---	Shifting rod failure signal invalid	-----
121	P1769	---	Engine control unit circulation counting signal invalid	-----
122	P1770	---	Gears shifting rod circulation counting signal invalid	-----
123	P1771	---	Gears shifting rod locked signal invalid	-----
124	P1772	---	Engine torque responding signal invalid	-----
125	P1773	---	Engine rotation speed control invalid	-----
126	P1774	---	Engine type signal invalid	-----
126	P1774	---	Engine type signal invalid	-----
127	P1775	---	Abnormal characteristics of oil sump tempt sensor	-----
128	P1776	---	Displaying overheat of sump sensor in low tempt	-----
129	P1777	---	1-3 rd gear synchronizer offset middle point	-----
130	P1778	---	5-N gear synchronizer offset middle point 5-N 档同步器偏移中间位置	-----
131	P1779	---	2-6 th gear synchronizer offset middle point	-----
132	P1780	---	R-4 th gear synchronizer offset middle point	-----
133	P1781	---	1 st gear offset in-gear position	-----
134	P1782	---	2 nd gear offset in-gear position	-----
135	P1783	---	3 rd gear offset in-gear position	-----
136	P1784	---	4 th gear offset in-gear position	-----
137	P1785	---	5 th gear offset in-gear position	-----
138	P1786	---	6 th gear offset in-gear position	-----
139	P1787	---	R gear offset in-gear position	-----
140	P1788	---	1 st gear in failure	-----
141	P1789	---	2 nd gear in failure	-----
142	P1790	---	3 rd gear in failure	-----
143	P1791	---	4 th gear in failure	-----
144	P1792	---	5 th gear in failure	-----
145	P1793	---	6 th gear in failure	-----
146	P1794	---	R gear in failure	-----
147	P1795	---	1 st gear out failure	-----
148	P1796	---	2 nd gear out failure	-----
149	P1797	---	3 rd gear out failure	-----
150	P1798	---	4 th gear out failure	-----
151	P1799	---	5 th gear out failure	-----

153	P17A1	---	R gear out failure	----
154	P17A2	---	Shaft 1 multi-gears pre-engage	----
155	P17A3	---	Shaft 2 multi-gears pre-engage	----
156	P0866	P0866	Too high voltage of TCU power	Too high current of TCM
157	P0865	P0865	Too low voltage of TCU power	Too low current of TCM
158	P17A4	---	Too high voltage of sensor power supply 1	----
159	P17A5	---	Too low voltage of sensor power supply 1	----
160	P17A6	---	Too low current of sensor power supply 1	----
161	P17A7	---	Too high voltage of sensor power supply 2	----
162	P17A8	---	Too low voltage of sensor power supply 2	----
163	P17A9	---	Too low current of sensor power supply 1	----
164	U0073	---	CAN main wires disconnect	----
165	U0100	---	Communication with ECU disconnect	----
166	U0103	---	Communication with rod SLC disconnect	----
167	U0121	---	Communication with ABS or ESC disconnect	----
168	U0155	---	Communication with ICU disconnect	----

شرکت دیجیتال خودرو (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

SN	Name	Part No	Qty	Remarks
1	O type ring of clutch seal cover	1705114DT000		
2	Clutch oil seal cover	1705115DT000		
3	Differential oil seal	1705118DT000		
4	O type ring of shell's oil duct	1705122DT000		
5	O type ring of cooling oil duct	1705123DT000		
6	O type ring of input shaft rear-end seal cover	1705126DT000		
7	Sealing gasket of shell's oil duct	1705128DT000		
8	Parking rocker arm oil seal	1710123DT000		
9	Seal ring of sump	1705135DT000		
10	Hydraulic piston of gears shifting	1705112DT000		
11	O type seal ring of guidance hub	1724103DT000		
12	O type seal ring of condenser	1726103DT000		
13	O type ring of connection tube	1726108DT000		
14	O type ring of oil injection tube	1705122DT000		
15	Front snap ring of input shaft	1706102DT000		
16	Rear snap ring of input shaft	1706103DT000		
17	Gears snap ring of 3/5 th gear	1706106DT000		
18	2/4/6/R gear synchronizer snap ring	1706308DT000		
19	Rear bearing snap ring of output shaft	1706316DT000		
20	Planetary gears gasket	1707205DT000		
21	Tri-cone synchronizer inner ring(1\2\R gear)	1708111DT000		
22	Double cone synchronizer inner ring(3\4\5\6 gear)	1708121DT000		
23	Pre-tighten spring	1710108DT000		
24	Return spring	1710111DT000		
25	Rocker arm check ring	1710103DT000		
26	Locating bearing of guidance hub	1724104DT000		
27	Pressure filter core	1726106DT000		
28	Filter	1726302DT000		



Hydraulic Control Unit - HCU

Sensor Cluster A

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)