

2007 > A4CF2 >

**Specifications**

Automatic transaxle model		A4CF2
Torque converter size		3 elements, 1 stage, 2 phases
Oil pump type		Parachoid type
T/M case type		Separated
Elements		Clutch : 3 EA
		Brake : 2 EA
		OWC : 1 EA
Planetary gear		2 EA
Gear ratio	1st	2.919
	2st	1.551
	3rd	1.000
	4th	0.713
	Reverse	2.480
Hydraulic balance piston		3EA
Engine stall speed		2,000~2,700rpm
Accumulator		4EA
Solenoid valve		6EA(PWM:5EA, VFS:1EA)

Service Standard

Item	in(mm)
Output shaft end play	0~0.0035L (0~ 0.09L)
Brake reaction plate end play	0~0.0063L (0 ~ 0.16L)
Low &reverse brake end play	0.045~0.057 (1.15 ~ 1.45)
Second brake end play	0.033~0.045 (0.85 ~ 1.15)
Underdrive sun gear end play	0.0098L~0.0177L (0.25L ~ 0.45L)
Input shaft end play	0.024L~0.057L (0.6L ~ 1.45L)
Differential case end play	0.0017T~0.0041T (0.045T ~ 0.105T)
Differential side gear and pinion gear backlash	0.00098~0.0059L (0.025L ~ 0.150L)

Tightening Torques

Item	Nm	kgf.cm	lb-ft
Control cable bracket	19~23	190 ~ 230	14~17
Eye bolt	28~34	280 ~ 340	19~24
Oil cooler feed tube	19~23	190~ 230	14~17
Oil filter	10~12	100 ~ 120	7~8
Input shaft speed sensor	10~12	100 ~ 120	7~8
Output shaft speed sensor	10~12	100 ~ 120	7~8
Manual control lever	17~21	170 ~ 210	13~15

Inhibitor switch	10~12	100 ~ 120	7~8
Valve body cover	10~12	100 ~ 120	7~8
Valve body mounting bolt	10~12	100 ~ 120	7~8
Manual control shaft detent	8~10	80 ~ 100	6~7
Manual valve lever	9~12	90 ~ 120	6.5~8
Parking rod guide	8~10	80 ~ 100	6~7
Rear cover	20~27	200 ~ 270	14~19
Torque converter housing	43~55	430 ~ 550	32~41
Oil pump	20~27	200 ~ 270	14~19
Transfer drive gear	8~12	80 ~ 120	6~8
Transfer drive gear lock nut	18~21	180~ 210	13~16
Oil drain plug	35~45	350 ~ 450	25~32
Differential drive gear	130~140	1300 ~ 1400	94~101
Pressure check plug	8~10	80 ~ 100	6~7

Lubricant

Items	Specified lubricant	Quantity
Transaxle fluid liter(US qt, limp. qt)	GENUINE DIAMOND ATF SP-III or S ATF SP -III	6.2(6.5, 5.4)

Sealants

Items	Specified sealant
Rear cover Torque converter housing Valve body cover	LOCTITE FMD-546
Transmission case side cover	Threebond TB1389 or LOCTITE 518

Snap Ring, Spacer, Thrust Washer And Pressure Plate

Part name	Thickness [in(mm)]	Identification symbol
Thrust washer (For adjustment of underdrive sun gear end play)	0.051(1.3)	45853-23013
	0.055(1.4)	45853-23014
	0.059(1.5)	45853-23015
	0.063(1.6)	45853-23016
	0.067(1.7)	45853-23017
	0.071(1.8)	45853-23018
	0.075(1.9)	45853-23019
	0.079(2.0)	45853-23020
	0.083(2.1)	45853-23021
Pressure plate (For adjustment of low and reverse brake reaction plate end play)	0.067(1.7)	45635-23170
	0.075(1.9)	45635-23190
	0.083(2.1)	45635-23210
	0.091(2.3)	45635-23230

	0.098(2.5)	45635-23250
	0.106(2.7)	45635-23270
	0.114(2.9)	45635-23290
Thrust washer (For adjustment of underdrive sun gear end play)	0.071(1.8)	45544-39180
	0.079(2.0)	45544-39200
	0.087(2.2)	45544-39220
	0.094(2.4)	45544-39240
	0.106(2.6)	45544-39260
	0.110(2.8)	45544-39280
Pressure plate (For adjustment of 2ND brake reaction plate end play)	0.079(2.0)	45668-23200
	0.087(2.2)	45668-23220
	0.094(2.4)	45668-23240
	0.106(2.6)	45668-23260
	0.110(2.8)	45668-23280

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

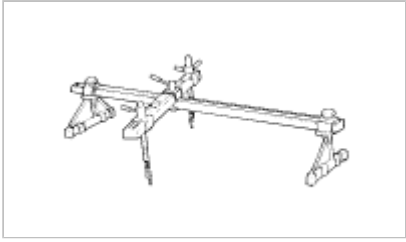
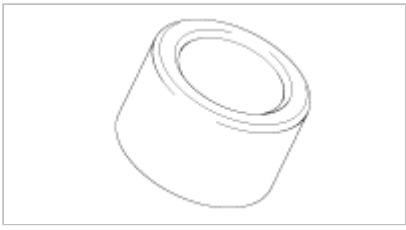
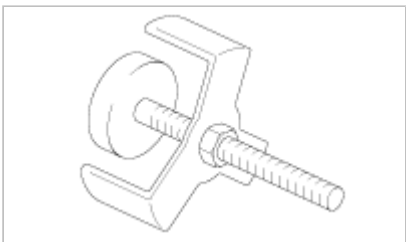
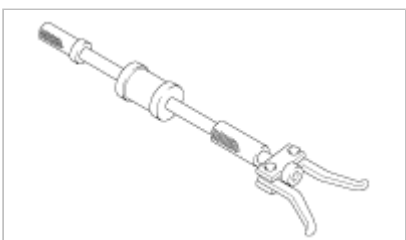
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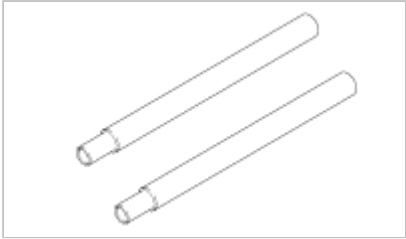


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Special Service Tools

Tool (Number and Name)	Illustration	Use
09200-38001 Engine support fixture		Removal and installation of transaxle
09453-2F100 Bearing installer		Installation of the driven gear taper roller bearing
09453-2F200 Bearing installer		Installation of the deferential taper roller bearing
09453-2F300 Oil seal installer		Installation of the differential oil seal
09453-2F400 Snap ring installer& remover		Removal and installation of the low&reverse snap ring
09453-2F500 Bearing outer race puller		Removal of the bearing outer race
09453-4C300 Spring compressor		Removal and installation of overdrive clutch snap ring Removal and installation of underdrive clutch snap ring

		
09453-2F600 Guide pin		Installation of the oil pump

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

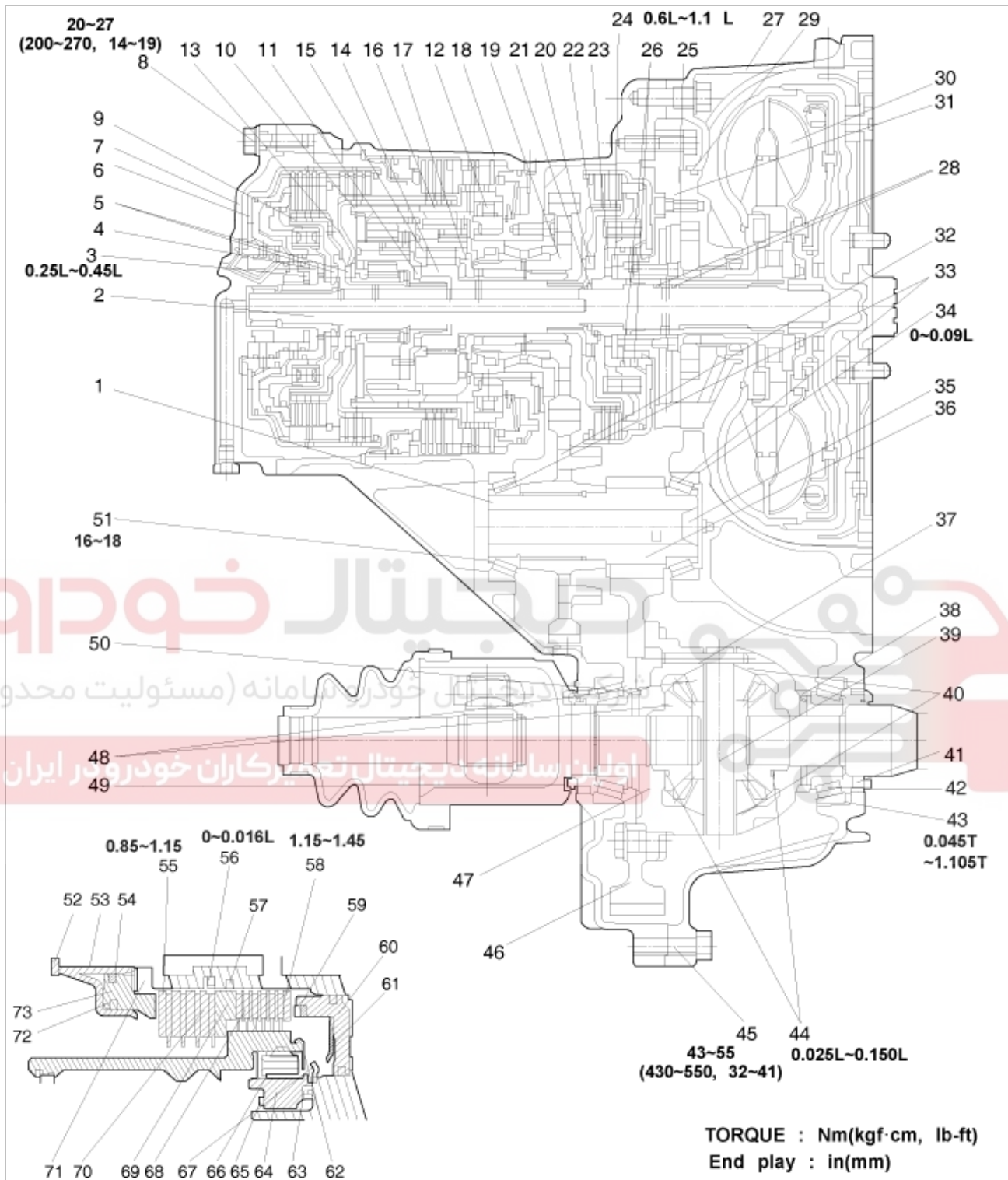
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Components(1)



1. Output shaft selection
2. Input shaft
3. Thrust race
4. Thrust bearing
5. Thrust bearing
6. Reverse & overdrive(REV. & O/D) clutch assembly
7. Rear cover assembly
8. Rear cover bolt
9. Overdrive(O/D) clutch hub

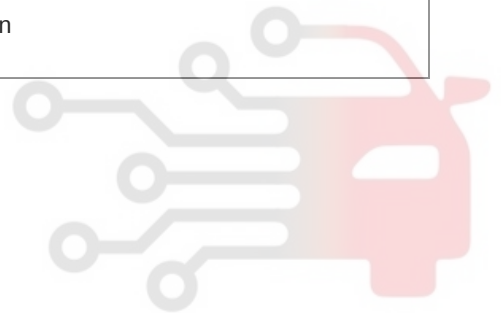
38. Speedometer gear
39. Pinion shaft
40. Washer
41. Oil seal
42. Taper roller bearing
43. Front differential spacer set
44. Differential gear spacer set
45. Lubricant pipe
46. Differential drive gear selection

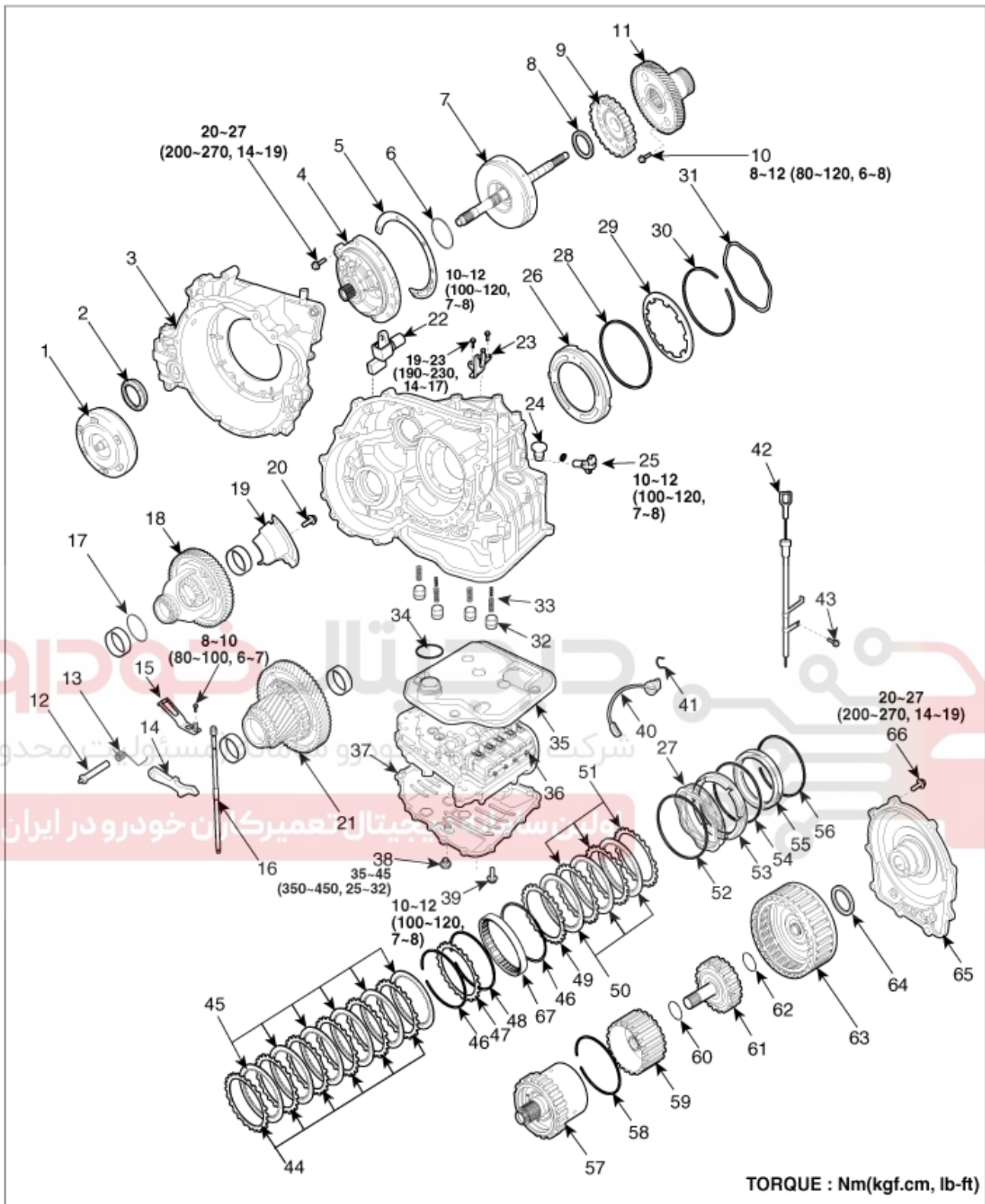
10. Snap ring	47. Differential case
11. Thrust bearing	48. Differential gear set
12. One way clutch	49. Oil seal
13. Reverse sun gear assembly	50. Taper roller bearing
14. Underdrive(U/D) sun gear assembly	51. Lock nut(M33)
15. Overdrive(O/D) sun gear assembly	52. Snap ring
16. Low & reverse annulus gear assembly	53. 2ND brake retainer
17. Out planetary carrier assembly	54. D-ring
18. Transmission case	55. Brake pressure plate set
19. Transfer drive gear set	56. Snap ring
20. Thrust bearing	57. Snap ring
21. Snap ring	58. Brake pressure plate set
22. Forward clutch hub	59. Wave spring
23. Forward clutch assembly	60. Low & reverse brake piston
24. Thrust washer set	61. Low & reverse return spring
25. Oil pump casket	62. Stopper plate
26. Sealing	63. O-ring
27. Converter housing	64. One way clutch inner race
28. Sealing	65. Snap ring
29. O-ring	66. One way clutch
30. Torque converter assembly	67. Brake spring retainer
31. Oil pump assembly	68. Brake disc set
32. Transfer driven gear set	69. Brake reaction set
33. Taper roller bearing	70. Brake disc set
34. Output spacer set	71. 2ND brake return spring
35. Sealing cap	72. D-ring
36. Sealing cap	73. 2ND brake piston
37. Lock pin	

Components(2)

شرکت دیجیتال خودرو (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران





1. Torque converter
2. Differential oil seal
3. Transmission housing
4. Oil pump
5. Oil pump casket
6. Thrust washer
7. Underdrive(U/D) clutch
8. Thrust bearing
9. Underdrive(U/D) clutch hub
10. Transfer drive gear mounting bolt

35. Oil filter
36. Valve body
37. Oil pan
38. Drain plug
39. Valve body cover bolt
40. Valve body connector
41. Valve body connector mounting clip
42. Oil level gauge
43. Oil level gauge bracket bolt

11. Transfer drive gear	44. Low & reverse pressure plates
12. Parking sprag shaft	45. Low & reverse brake discs
13. Sprag spring	46. Snap ring
14. Parking sprag	47. Reaction plate
15. Detent spring	48. Snap ring
16. Manual control shaft	49. Reaction plate
17. Spacer	50. 2ND brake discs
18. Differential	51. 2ND brake pressure plates
19. Oil separate	52. Snap ring
20. Oil separate mounting bolt	53. 2ND brake retainer
21. Transfer driven gear	54. D-ring
22. Output shaft speed sensor	55. 2ND brake piston
23. Shift cable bracket	56. D-ring
24. Plug	57. Low & reverse planetary gear set
25. Input shaft speed sensor	58. Snap ring
26. Low & reverse brake piston	59. Reverse sun gear
27. Low & reverse brake return spring	60. Thrust bearing
28. Low & reverse brake spring retainer	61. Overdrive(O/D) hub
29. Return spring	62. Thrust bearing
30. Snap ring	63. Reverse & Overdrive(O/D) clutch
31. Wave spring	64. Thrust bearing
32. Accumulator piston	65. Rear cover
33. Coil spring	66. Rear cover bolt
34. O-ring	67. One way clutch inner race

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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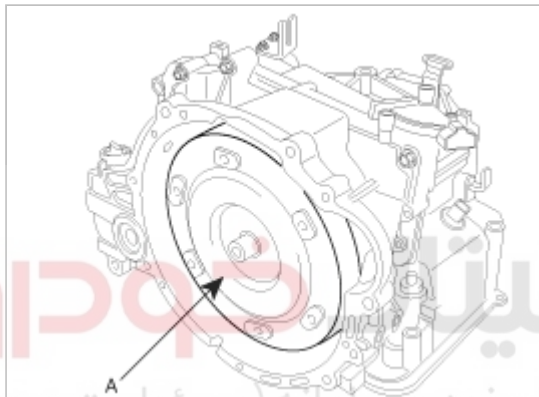


Disassembly

CAUTION

- Automatic transaxles consist of delicate parts. Be careful not to damage them in disassembly and assembly.
- Spread a rubber mat on a workbench and keep it clean.
- Do not use cotton or muslin fiber. Use nylon fabric or paper towel.
- Cleanse the disassembled components. Clean metal parts with a general cleaning agent or dry them with a blower.
- Clean clutch discs, thrust plates made of resin, and rubber parts with automatic transaxle fluid and keep them dust free.
- If transaxle body has been damaged, disassemble and clean cooler system.

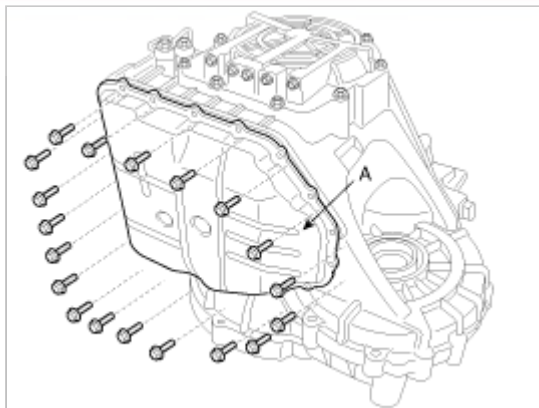
1. Remove the torque converter(A).



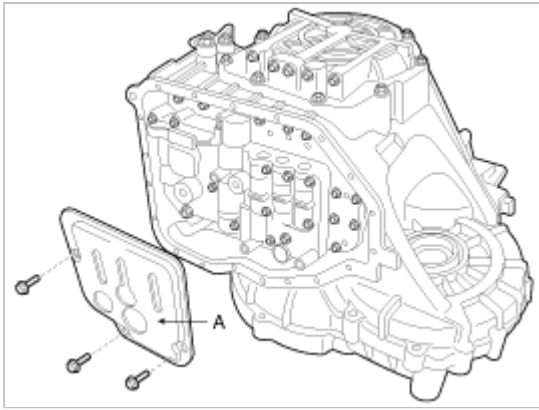
2. Remove each bracket.

3. Remove the wiring harness bracket.

4. Remove the oil pan(A)(Bolt:19 EA).



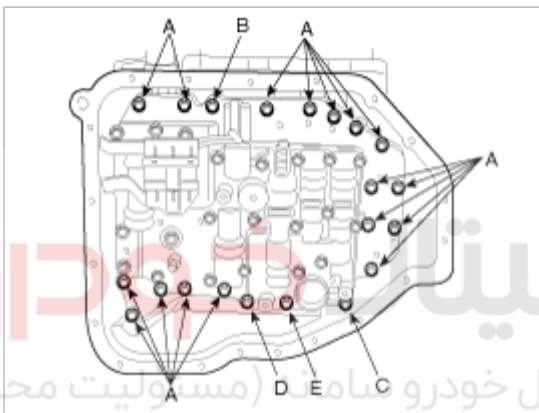
5. Remove the oil filter(A)(Bolt:3 EA).



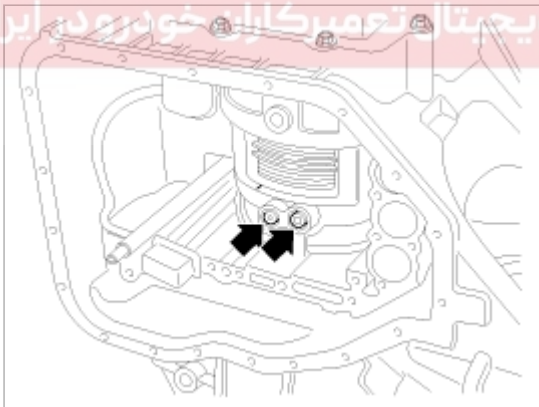
6. Remove the valve body(Bolt:21 EA).

NOTICE

6×30mm(A): 17EA, 6×35mm(B): 1EA, 6×40mm(C): 1EA, 6X55mm(D):1EA, 6×60mm(E): 1EA



7. Remove the two O-rings from low & reverse brake and transfer drive gear hole.

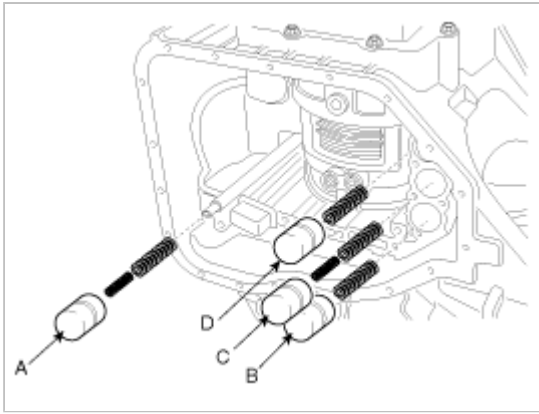


8. Remove each accumulator piston, a new seal ring and the springs.

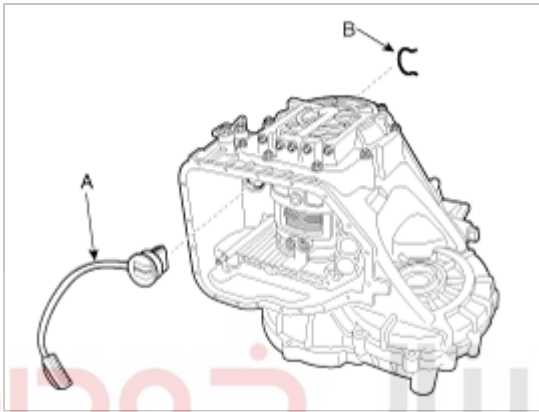
NOTICE

Accumulator spring identification

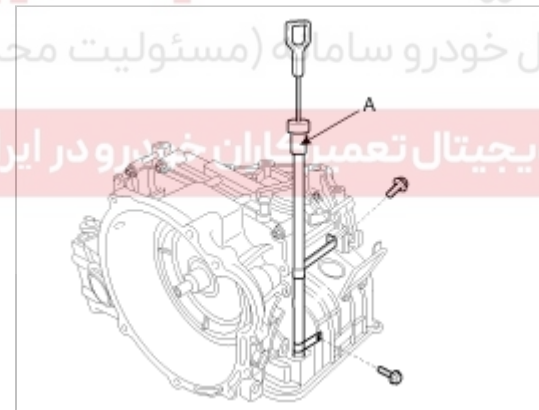
NO.	Use	I.D. Color	Spring number
A	U/D clutch	White/ White	2
B	O/D clutch	Yellow	1
C	2ND brake	White	2
D	L/R brake	Yellow	1



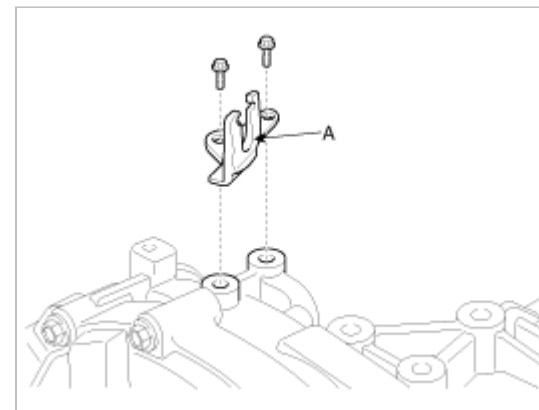
9. Remove the control valve connector(A) and mounting clip(B).



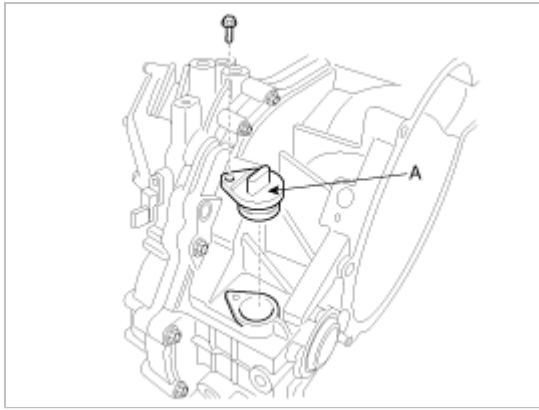
10. Remove the oil level gauge(A) and bracket(Bolt:2EA).



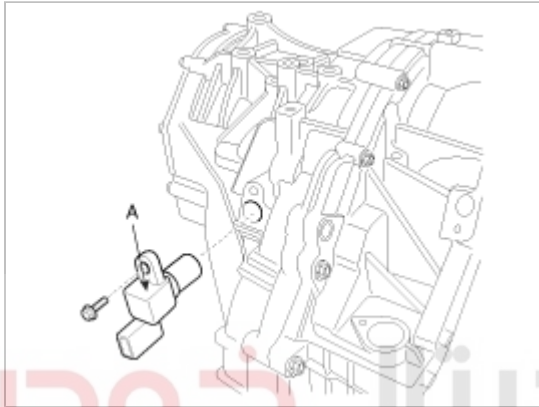
11. Remove the shift cable bracket(A)(Bolt:2EA).



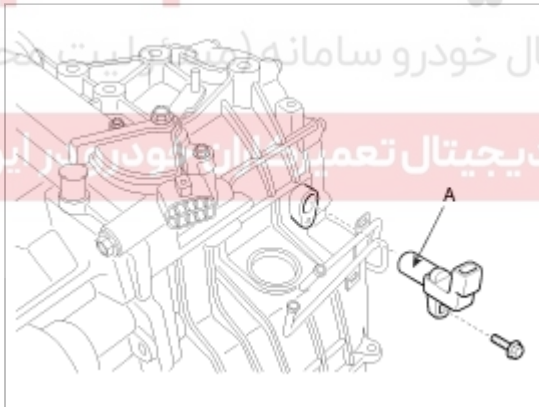
12. Remove the plug(A)(Bolt:1EA).



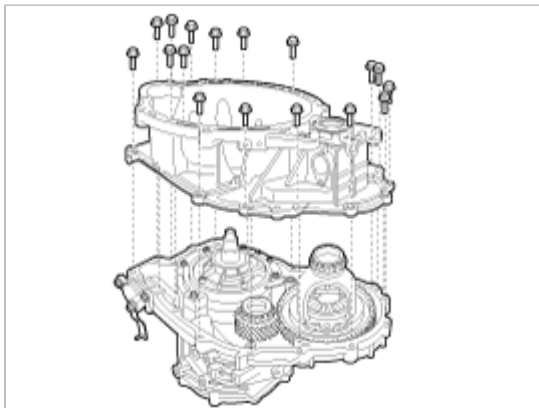
13. Remove the output shaft speed sensor(A)(Bolt:1EA).



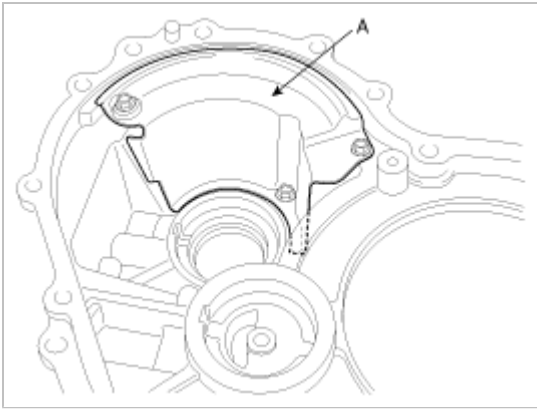
14. Remove the input shaft speed sensor(A)(Bolt:1EA).



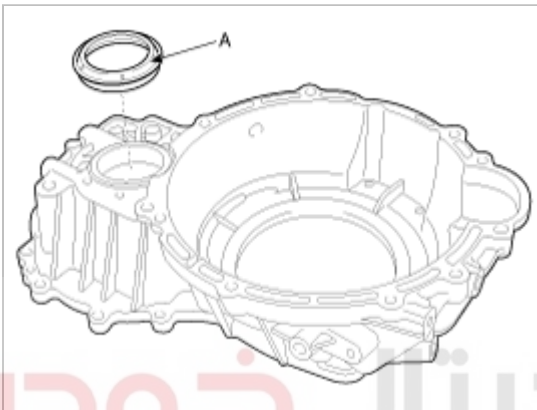
15. Remove the torque converter housing(Bolt:17EA).



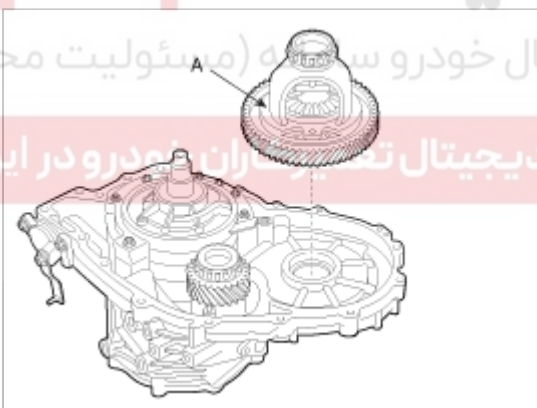
16. Remove the oil separate(A)(Bolt:3EA).



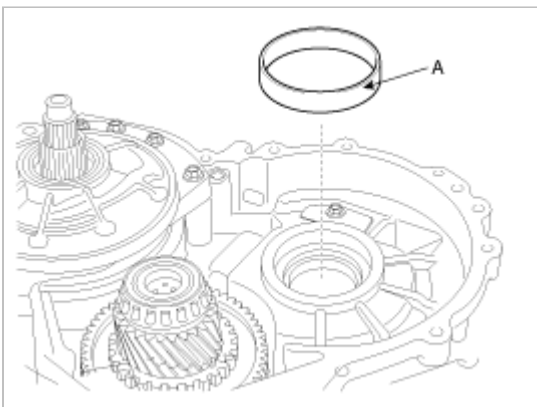
17. Remove the oil seal(A) from the torque converter housing.



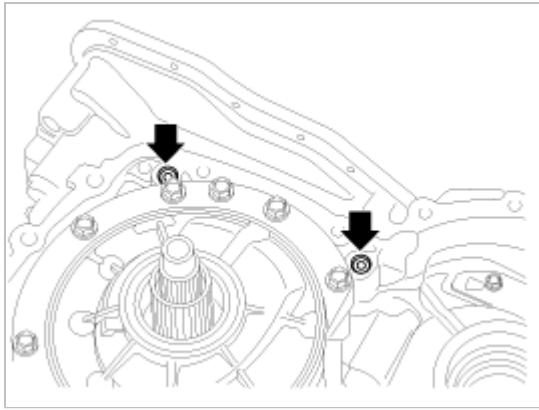
18. Remove the differential gear assembly(A).



19. Using the special tool(09453-2F500), remove the differential outer race(A).



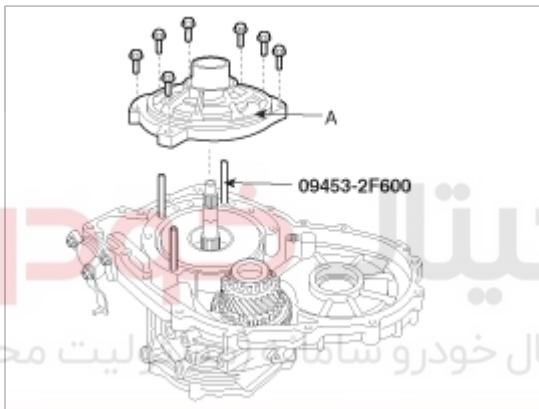
20. Remove the two O-rings.



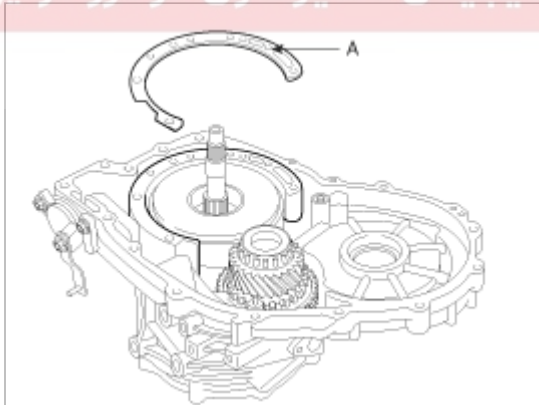
21. Remove the oil pump(A) (Bolt:7EA).

CAUTION

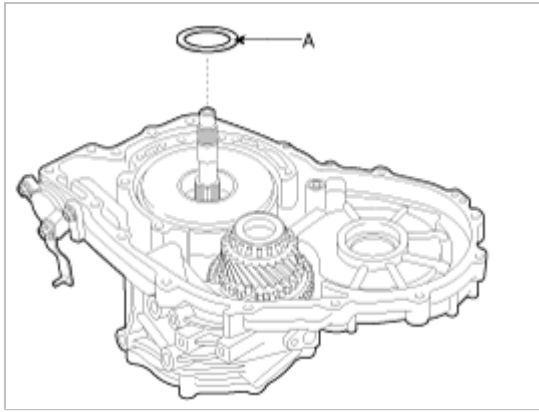
Do not disassemble the oil pump. Misalignment during assembly may damage the pump and the transaxle.



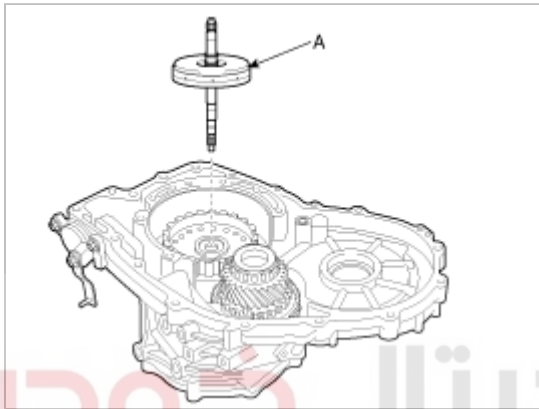
22. Remove the oil pump gasket(A).



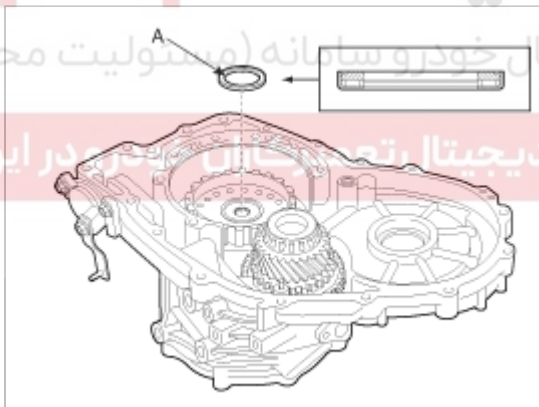
23. Remove the thrust washer(A).



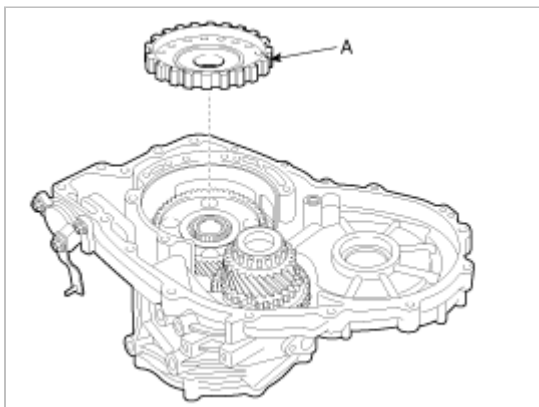
24. Remove the underdrive clutch(A).



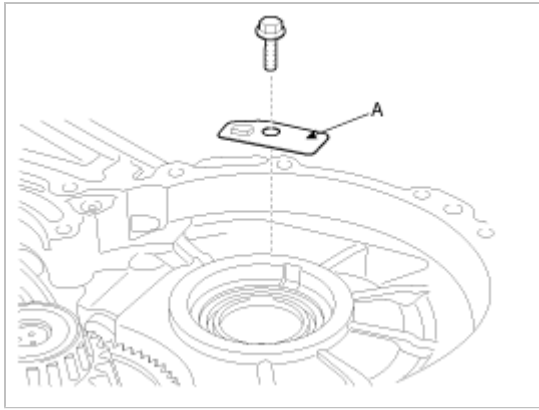
25. Remove the thrust bearing(A).



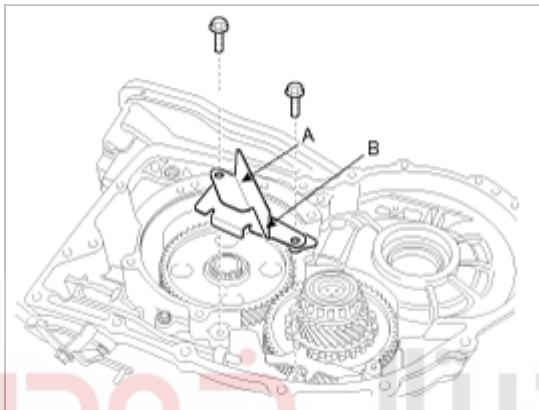
26. Remove the underdrive clutch hub(A).



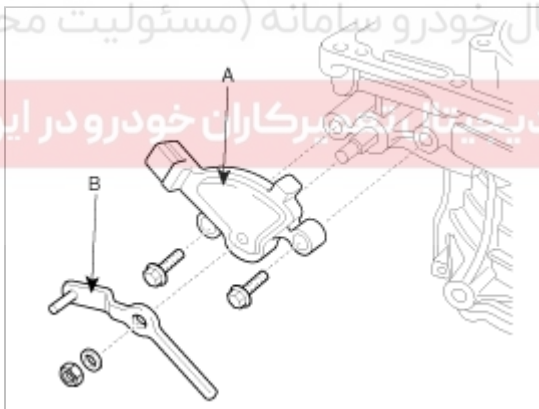
27. Remove the oil guide plate(A).



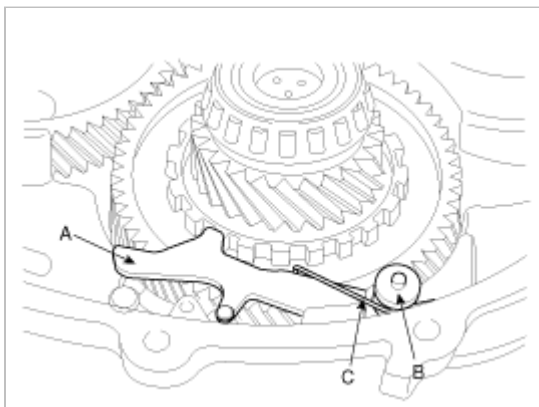
28. Remove the parking rod guide(A) and the oil plate(B)(Bolt:2EA).



29. Remove the inhibitor switch(A) and the manual control lever(B).
(Inhibitor switch – Bolt:2EA, control lever shaft- Nut:1EA).

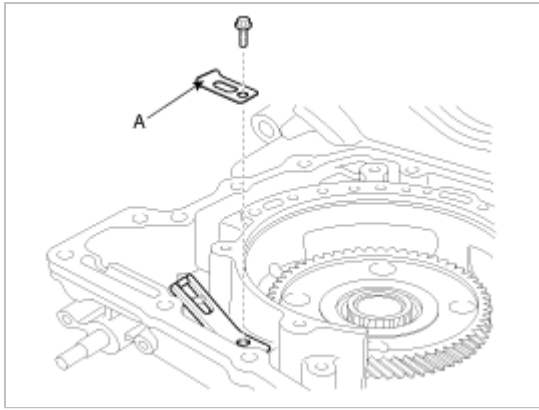


30. Remove the parking sprag(A), shaft(B) and sprag spring(C).

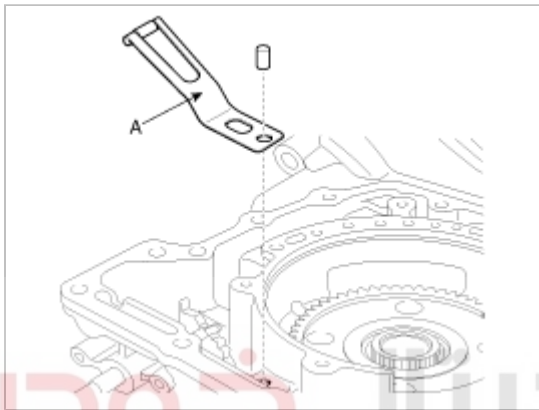


31. Install the driven gear and the outer race.

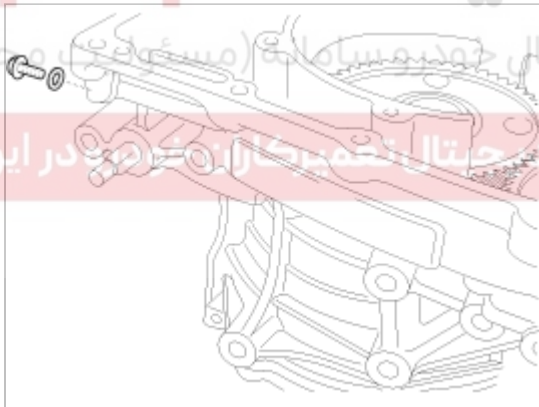
32. Remove the plate(A)(1 reamer bolt).



33. Remove the detent spring(A).

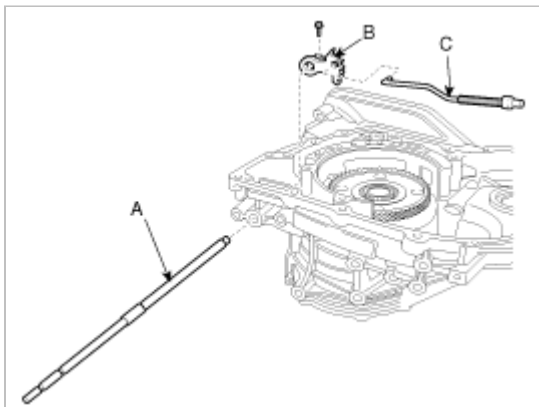


34. Remove the manual shaft mounting groove bolt.

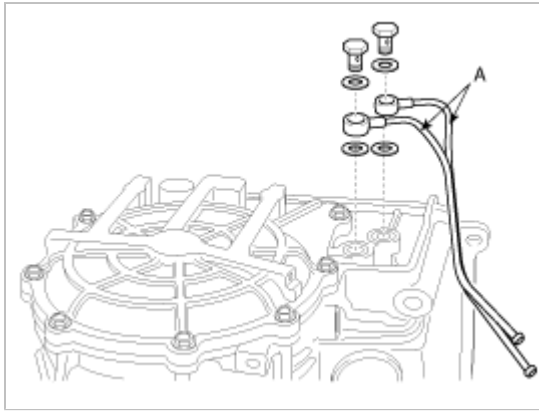


35. Remove the reamer bolt from the detent lever.

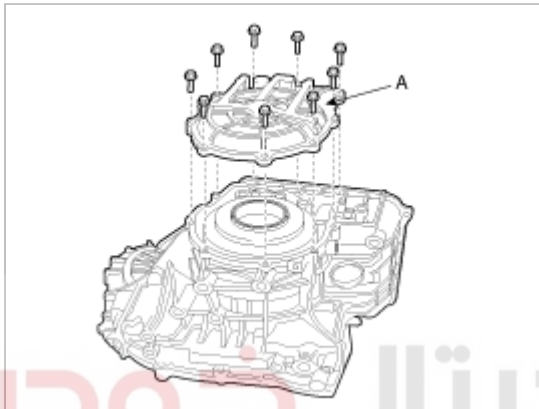
36. Remove the manual control shaft(A)(including the two O-rings), the detent lever(B) and the parking rod(C).



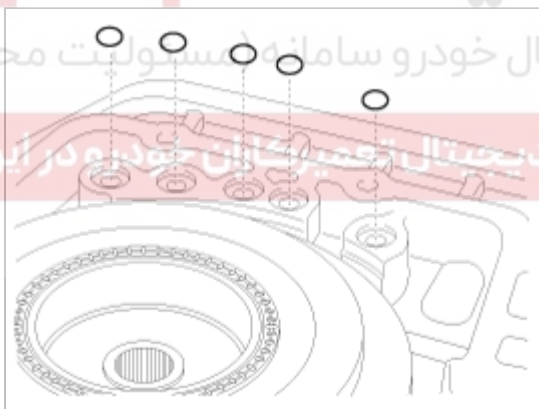
37. Remove the feed tube(A)(4 gaskets, 2 eye bolts).



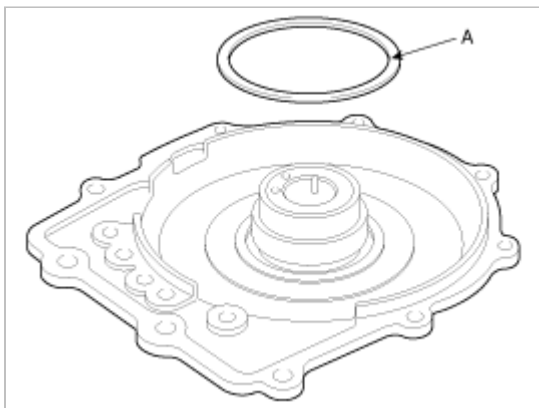
38. Remove the rear cover(A)(Bolt:9EA).



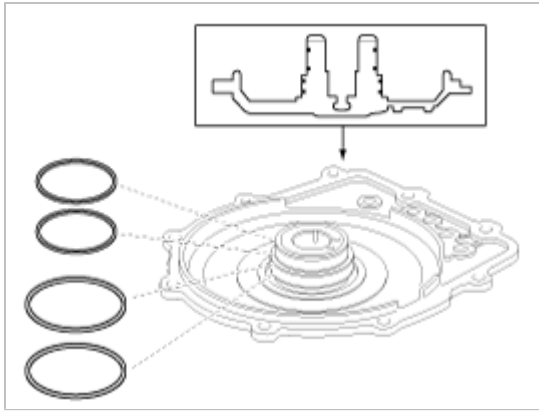
39. Remove the five O-rings from the transaxle.



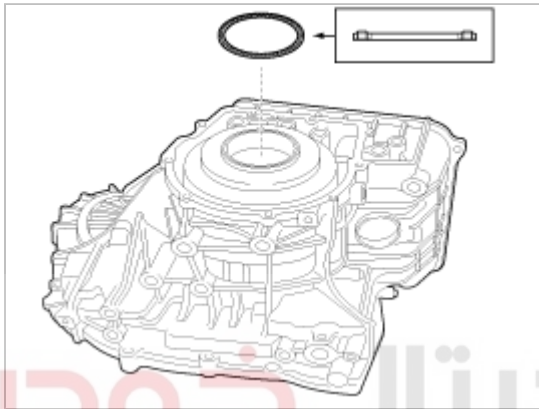
40. Remove the thrust race(A) from the rear cover.



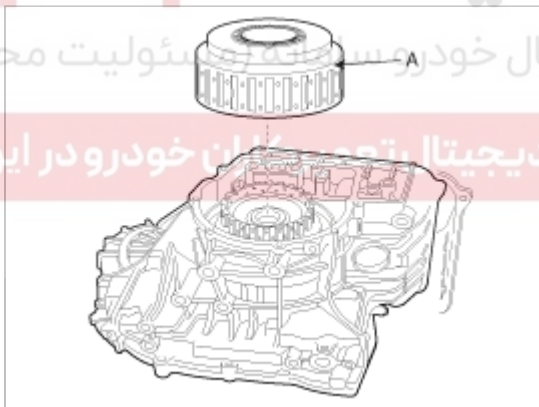
41. Remove the four seal rings from the rear cover.



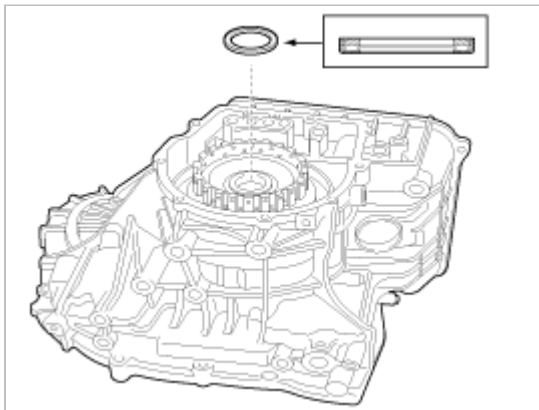
42. Remove the thrust bearing(45851-23000).



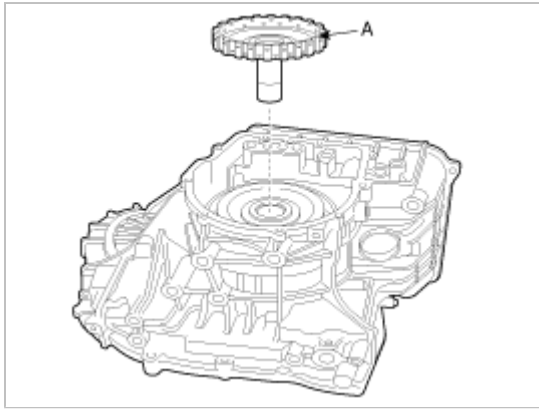
43. Remove the reverse & overdrive clutch(A).



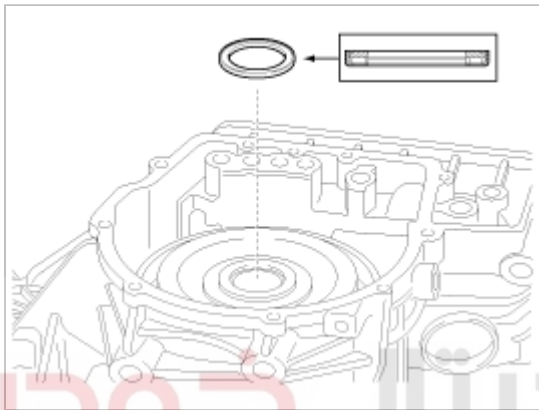
44. Remove the thrust bearing(45798-39060).



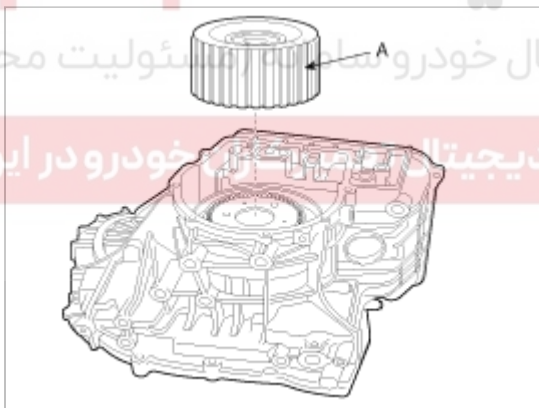
45. Remove the overdrive hub(A).



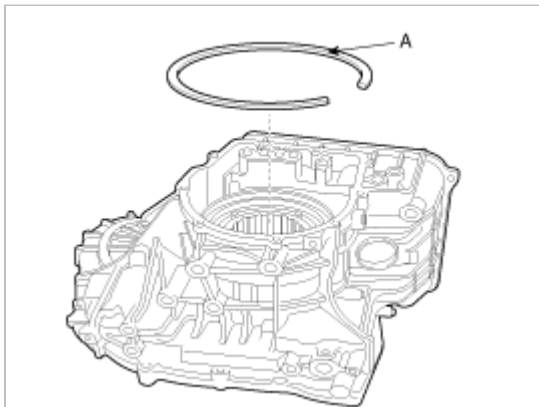
46. Remove the thrust bearing(45798-39060).



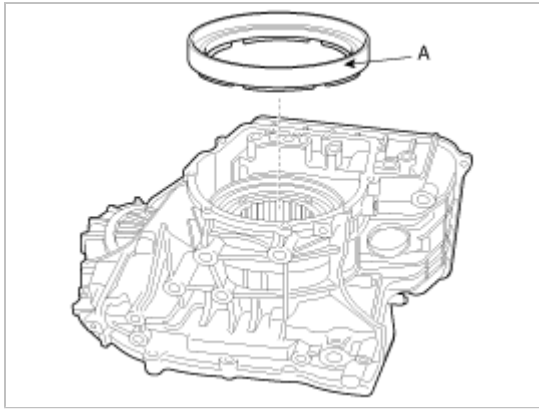
47. Remove the reverse sun gear(A).



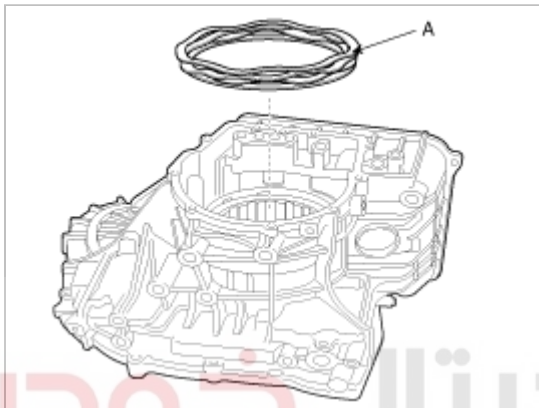
48. Remove the piston mounting snap ring(A).



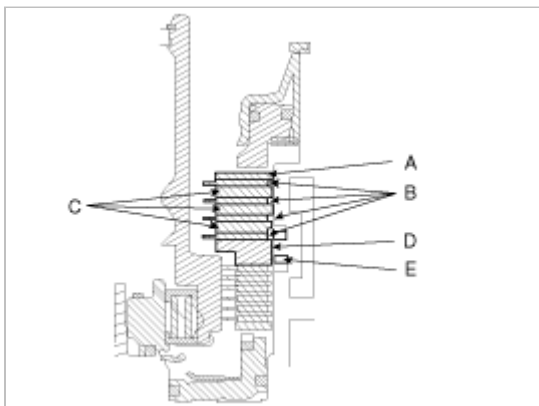
49. Remove the 2ND brake piston(A).



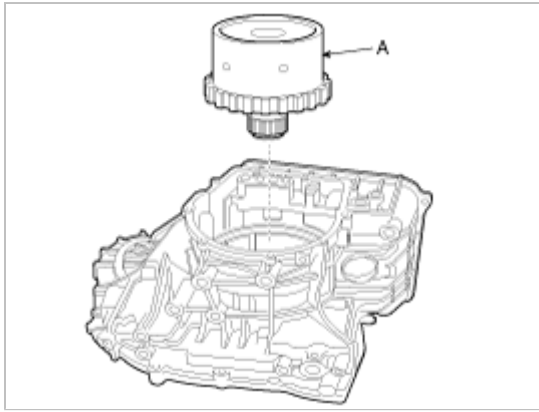
50. Remove the 2ND brake return spring(A).



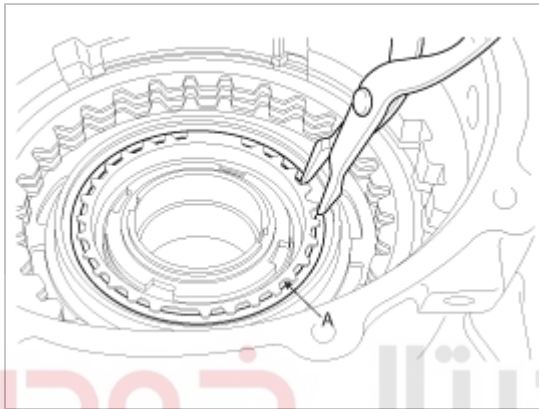
51. Remove the 2ND brake pressure plate(A), the brake discs(B), the brake plates(C), the brake reaction plate (D) and the snap ring(E).



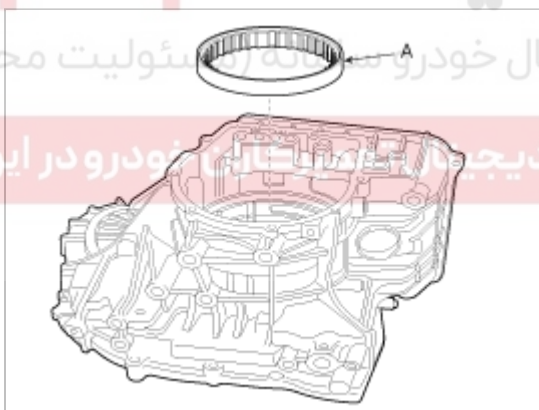
52. Remove the Low& reverse planetary gear set (A).



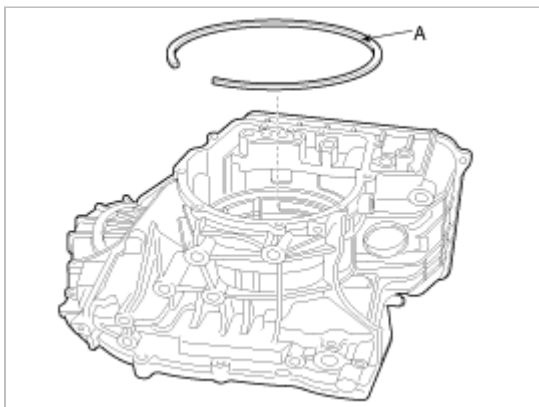
53. Remove the inner race mounting snap ring(A).



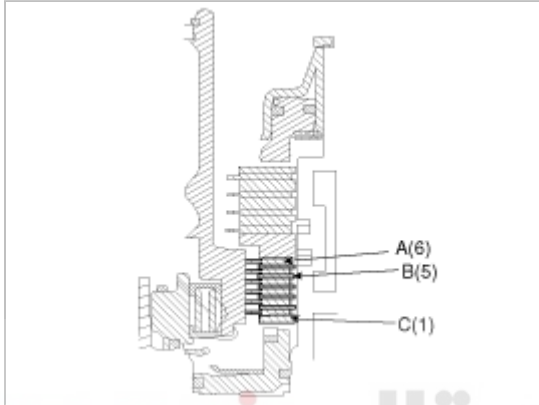
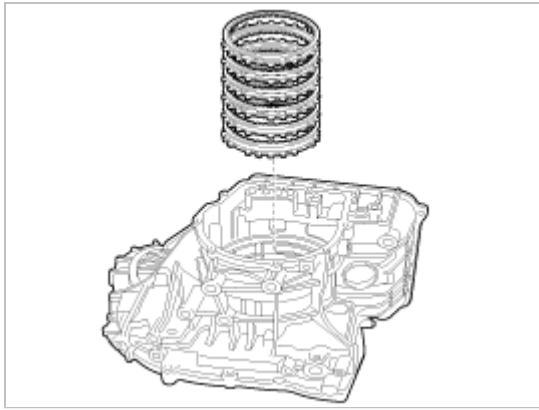
54. Remove the one way clutch inner race(A).



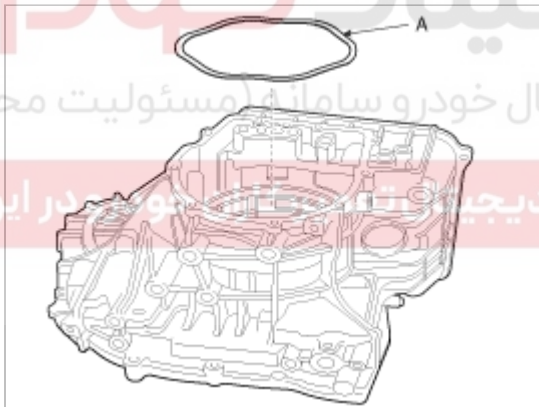
55. Remove the snap ring(A).



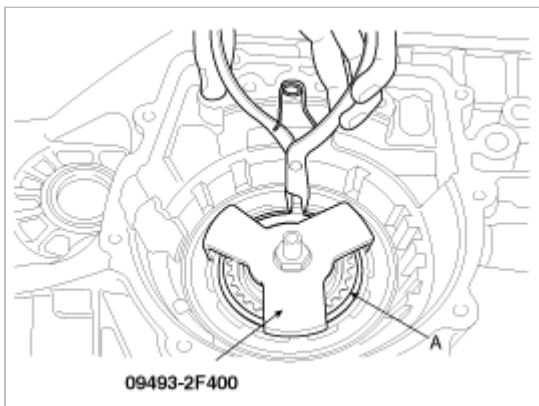
56. Remove the low & reverse brake discs(A), plates(B) and pressure plate(C).



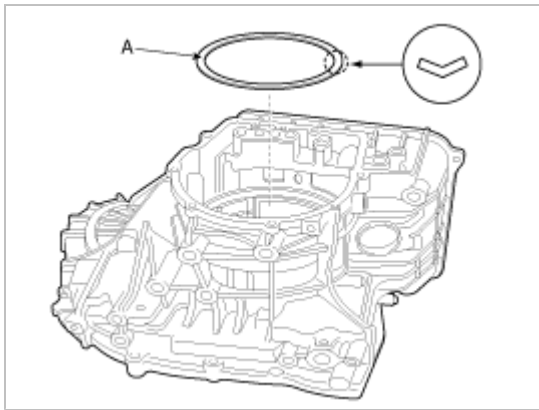
57. Remove the wave spring(A).



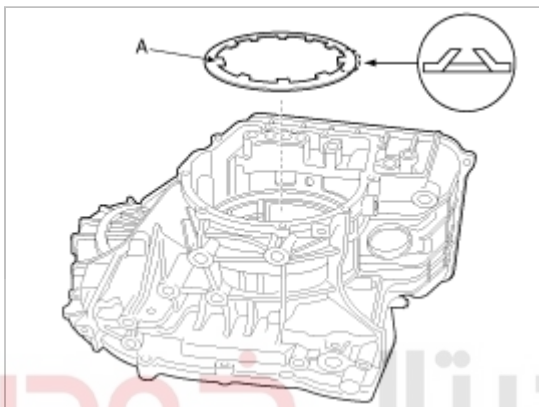
58. Using the special tool(09493-2F400), remove the snap ring(A).



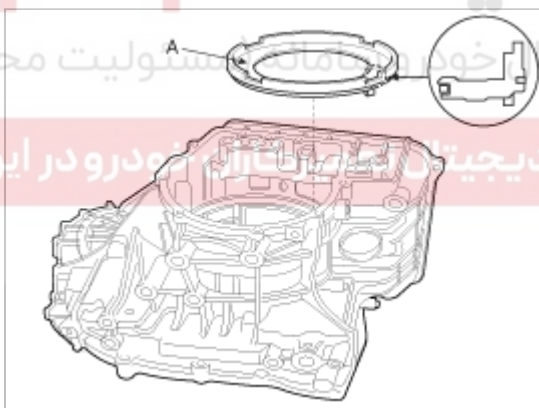
59. Remove the low & reverse brake spring retainer(A).



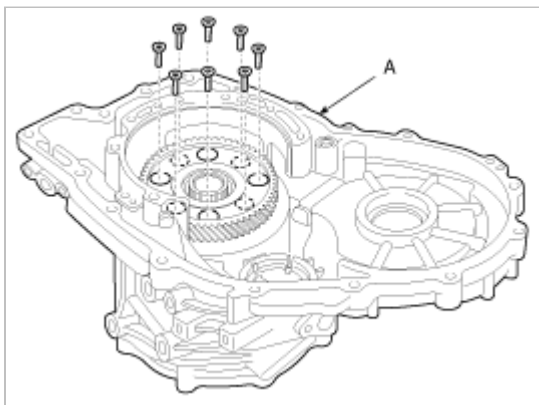
60. Remove the return spring(A).



61. Remove the low & reverse brake piston(A).



62. Remove the transfer drive gear(A) (Screw: 8 EA).



63. Using the special tool(09453-2F100), remove the outer race and spacer of differential bearing from converter housing.

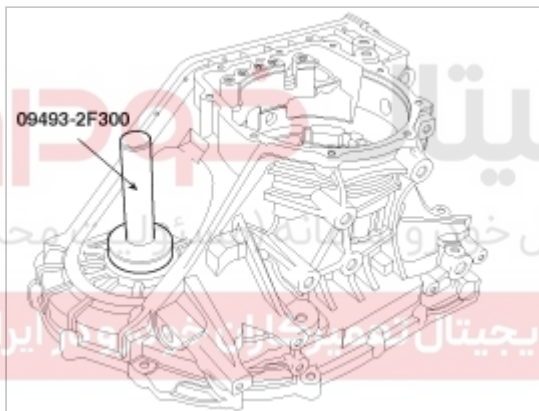
64. Using the special tool(09453-2F100), remove the outer race of differential bearing from converter housing.

Reassembly

CAUTION

- Keep the workbench and parts always clean and dirt free.
- Do not use cotton gloves. Use paper towel and nylon rag. Do not use nappy fabric.
- Do not use grease at any place otherwise specified. Use white vaseline or blue mineral oil if necessary.
- Insert each snap ring firmly into the seat. Do not use deformed rings.
- Do not allow dirt to remain on the surface to apply liquid gasket during reassembly.
- Oil pump gasket, valve body mounting bolts(6X25) and oil seals shall not be used again, and use the new ones in assembly.
- New clutch and brake discs shall be dipped in ATF for 2 hours or more before use.
- In reassembly, replace ATF and cleanse its filter thoroughly. Replace the damaged filter element with a new one.
- Apply required minimum quantity of white vaseline, blue mineral oil, or ATF on each of the bearing part, the thrust face moving part, the oil pump moving part, the seal ring, and the O-ring.
- Do not replace the ATF in the fluid cooler.
- Be careful not to allow dirt to come through the transaxle openings before transaxle mounting onto the vehicle. (including electronic part connector).

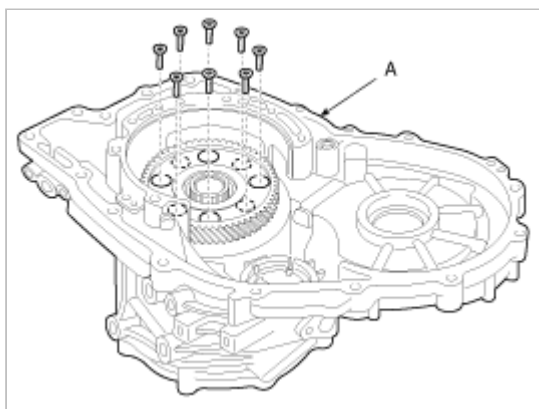
1. Using SST(09493-2F300), install the differential oil seal on the transaxle case(B).



2. After applying grease, install the transfer drive gear(A)(8 screws).

Tightening torque :

8~12Nm(80~120Kgf.cm, 6~8lb-ft)

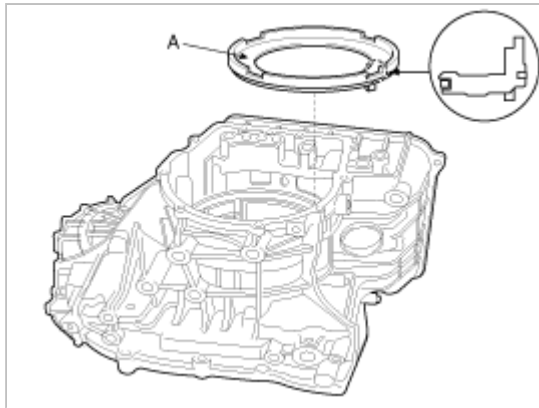


3. Install the Low & reverse brake piston(A).

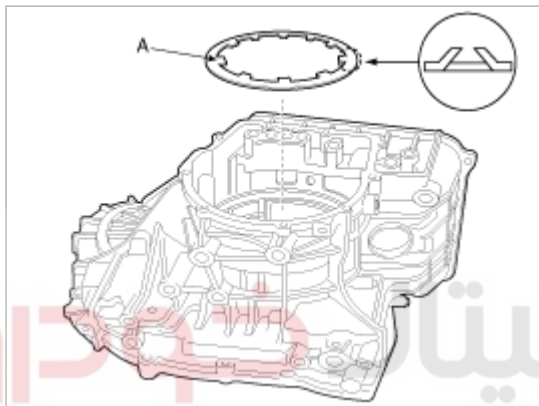
CAUTION

When installing, make sure that the finger of Low and reverse brake piston is seated correctly in groove

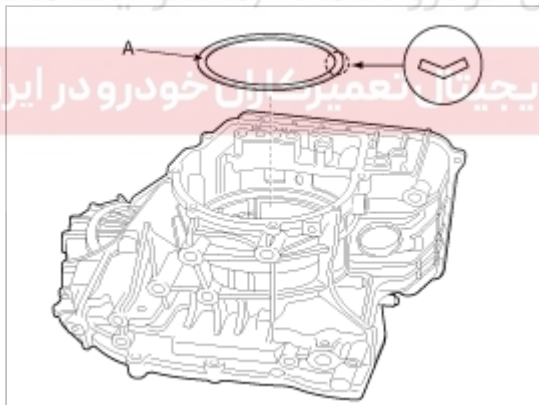
on the transaxle case.



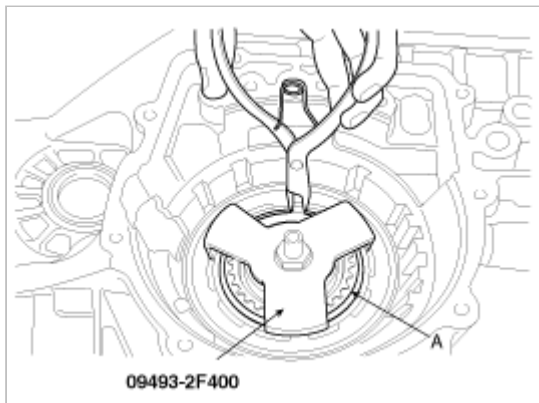
4. Install the return spring(A).



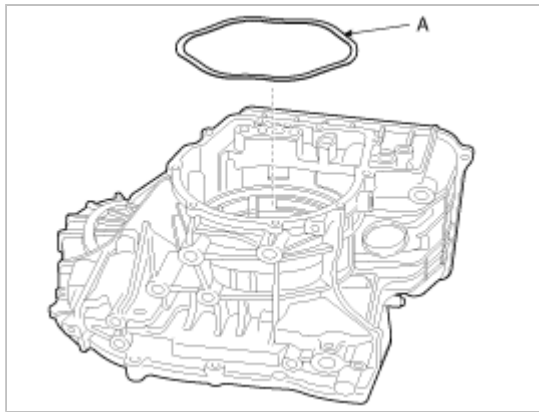
5. Install the Low & reverse brake spring retainer(A).



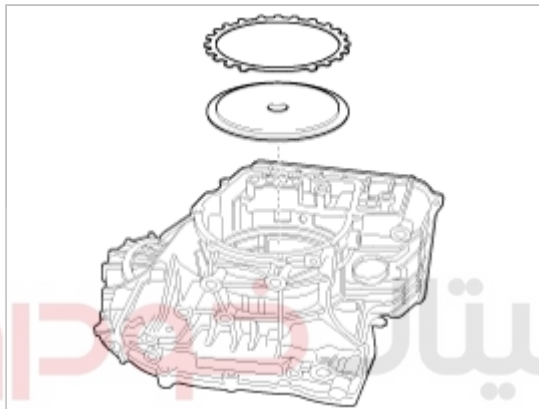
6. Using the special tool(09493-2F400), install the snap ring(A).



7. Install the wave spring(A).

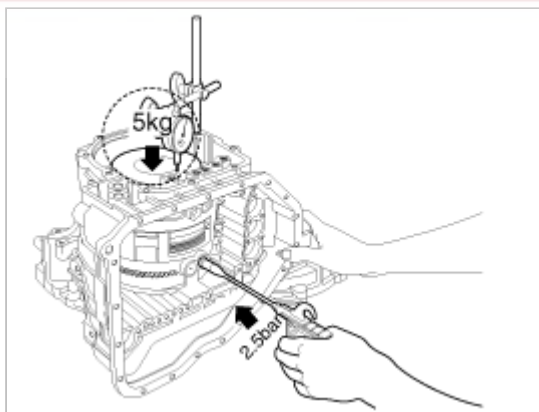


8. In order to measure the Low & reverse brake end play, install the Low & reverse brake plates(5), discs(6), special service tool, reaction plate(1) and snap ring with the special service tool(0.079in(2mm)) instead of the selected plate.



9. Applying 49N(5kgf, 11lbf) weight and 245.17kPa(2.5 Bar, 35.56psi) air pressure on the plates and discs, measure the end play. At that time, measure the actual gap when releasing the clutch.

Standard value : 0.045~0.057in(1.15 ~1.45mm)



NOTICE

Choose the proper plate as followed.

For keeping accuracy, measure at least 3 places and calculate the average value.

Pressure plate = [A(travel) + special service tool(0.079in(2.0mm)) - Standard value(0.070in(1.8mm))]

Pressure plate

Identification symbol	Thickness [in(mm)]
45635-23170	0.067(1.7)

45635-23190	0.075(1.9)
45635-23210	0.083(2.1)
45635-23230	0.091(2.3)
45635-23250	0.098(2.5)
45635-23270	0.106(2.7)
45635-23290	0.114(2.9)

10. Select the proper plate. After disassembling the snap ring, reassemble the selected plate(C) instead of the special service tool(0.079in(2.0mm)), snap ring, low & reverse brake discs(A) and plates(B) and then install the snap ring.

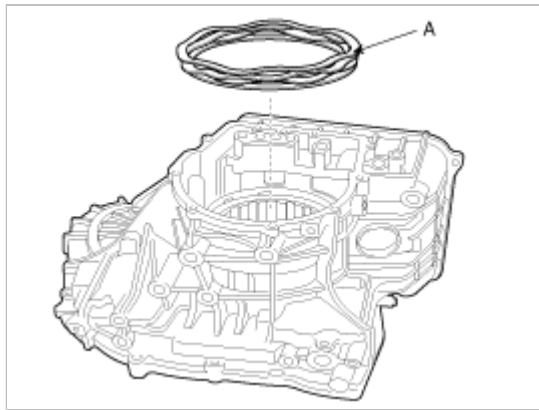


11. In order to measure the 2ND brake end play, install the special service tool(0.079in(2.0mm)) instead of the selected plate.

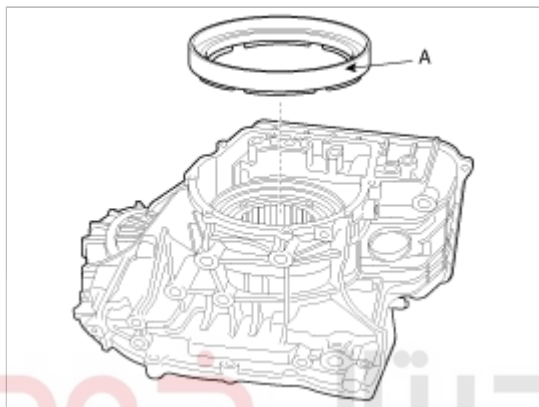
- (1) Install the 2ND brake plate(3), disc(4) and the special service tool(0.079in(2.0mm)).
- (2) Install the 2ND brake return spring(A).

CAUTION

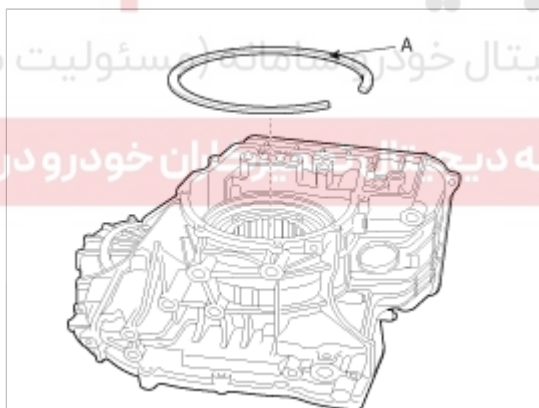
Make sure that the flat face of the return spring should be located to the downward.



(3) Install the 2ND brake piston(A).

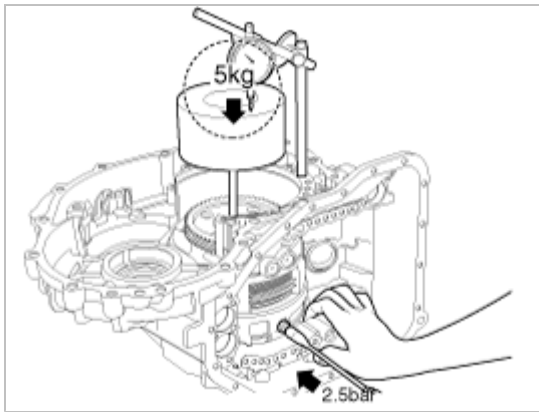


(4) Install the piston fixing snap ring(A).



12. Applying 49N(5kgf, 11lbf) weight and 245.17kPa(2.5 Bar, 35.56psi) air pressure on the plates and discs, measure the end play. At that time, measure the actual gap when releasing the clutch.

Standard value : 0.03~0.045in(0.85 ~ 1.15mm)

**NOTICE**

Choose the proper plate as followed.

For keeping accuracy, measure at least 3 places and calculate the average value.

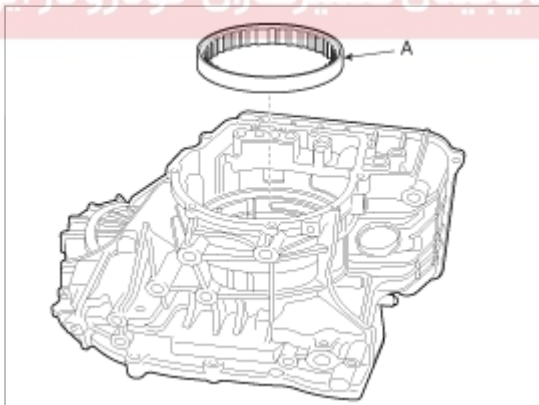
Pressure plate = [A(travel) + special service tool(0.079in(2.0mm)) - Standard value(0.047in(1.2mm))]

Pressure plate

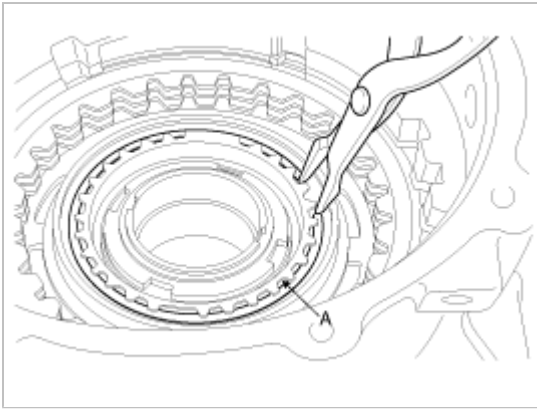
Identification symbol	Thickness [in(mm)]
45668-23200	0.079(2.0)
45668-23220	0.087(2.2)
45668-23240	0.094(2.4)
45668-23260	0.106(2.6)
45635-23280	0.110(2.8)

13. After selecting the proper plate, disassemble the snap ring, piston, return spring, disc and plate.

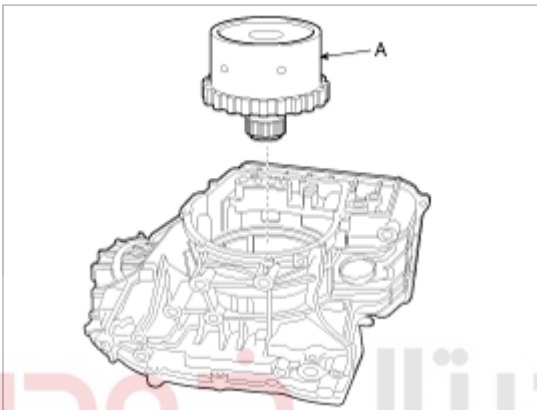
14. Install the one way clutch inner race(A).



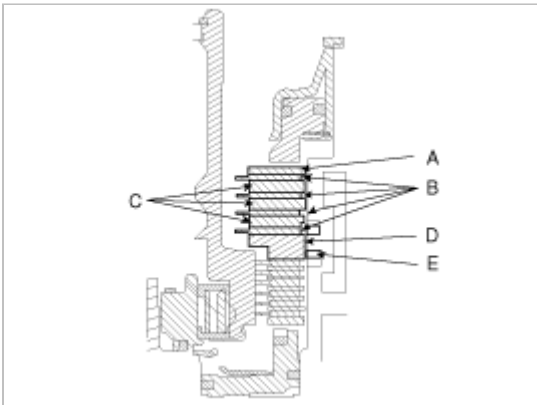
15. Install the inner race fixing snap(A).



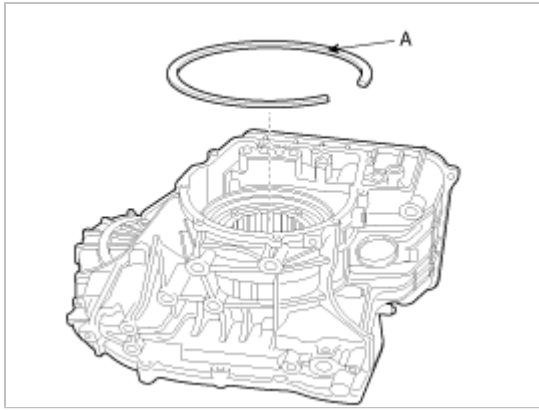
16. Install the Low & reverse planetary gear set(A).



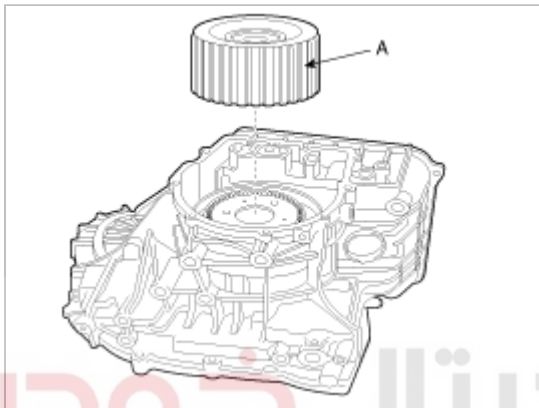
17. Install the snap ring(E), 2ND brake, pressure plate(A), return spring, plates(C-3EA), discs(B-4EA), reaction plate(D), return spring and 2ND brake piston.



18. Install the snap ring(A).



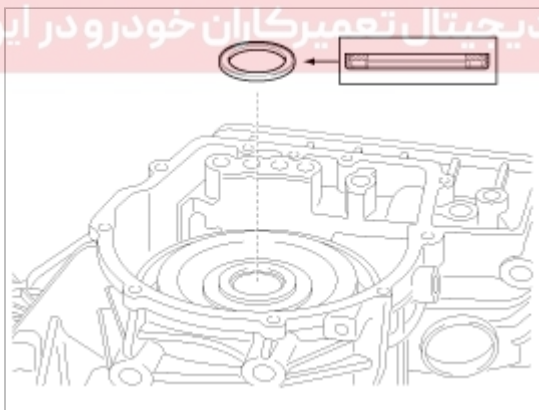
19. Install the reverse sun gear(A).



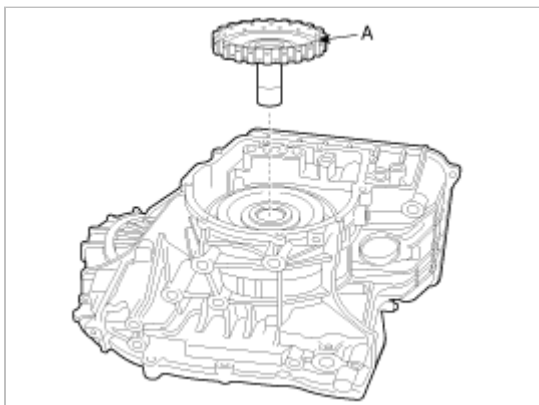
20. After applying the grease, install the thrust bearing(45798-39060).

CAUTION

Be careful not to reverse the direction of the thrust bearing.



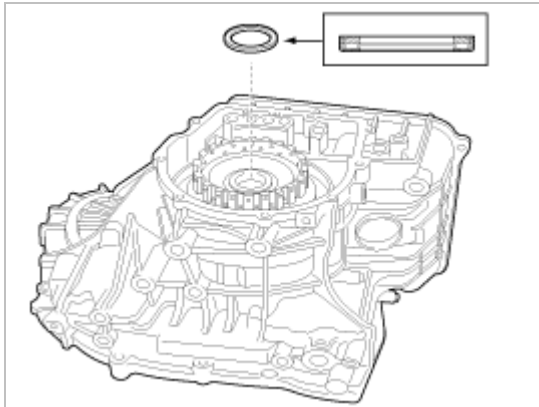
21. Install the overdrive hub(A).



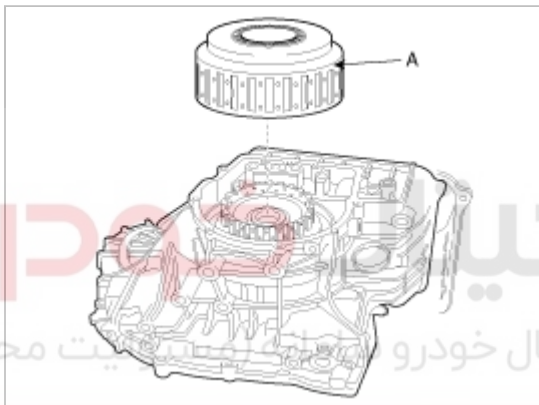
22. After applying the grease, install the thrust bearing(45798-39060).

CAUTION

Be careful not to reverse the direction of the thrust bearing.



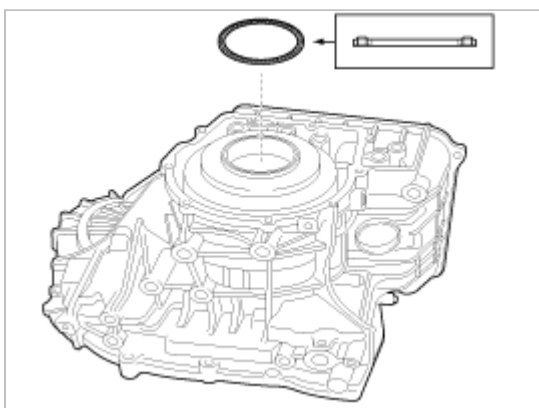
23. Install the reverse & overdrive clutch(A).



24. After applying the grease, install the thrust bearing(45851-23000).

CAUTION

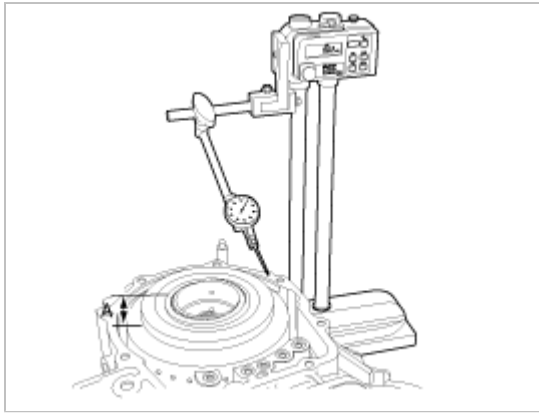
Be careful not to reverse the direction of the thrust bearing.



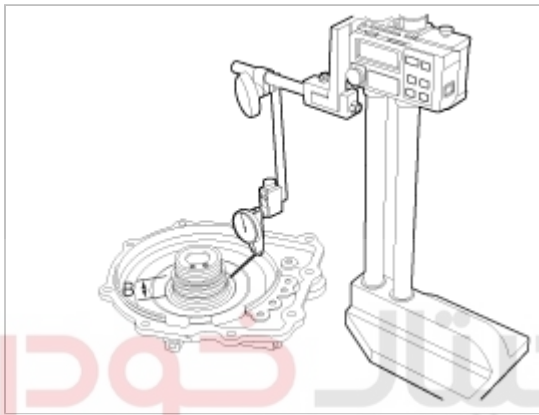
25. In order to select the thrust race, install the used thrust bearing. Applying 30N(3kgf, 6.61lb)(A) weight, measure the distance between the rear cover contacting surface of transaxle case and the thrust bearing.

NOTICE

Put the flat board or something on the transaxle case to keep accuracy when measuring.
For keeping accuracy, measure at least 3 places and calculate the average value.



26. Measure the distance between the contacting surface of the rear cover and the seating surface of thrust race.



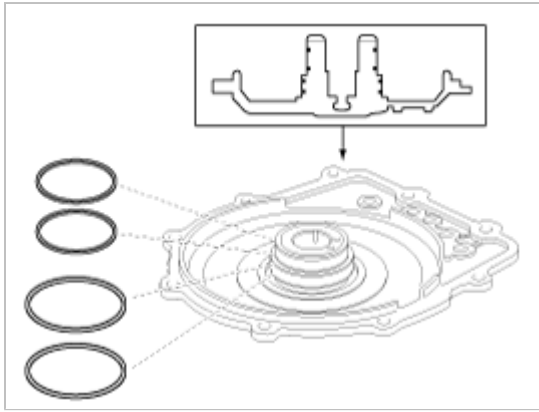
27. Choose the proper plate as followed.

Thrust race(in(mm)) = [(A-B) - end play(0.0098~0.0177in(0.25~0.45mm))].

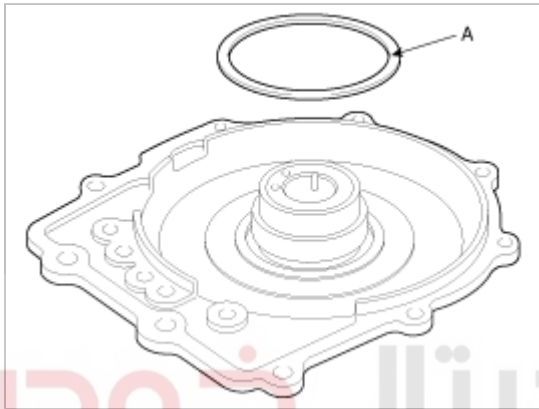
Thrust race

Identification symbol	Thickness [in(mm)]
45853-23013	0.051(1.3)
45853-23014	0.055(1.4)
45853-23015	0.059(1.5)
45853-23016	0.063(1.6)
45853-23017	0.067(1.7)
45853-23018	0.071(1.8)
45853-23019	0.075(1.9)
45853-23020	0.079(2.0)
45853-23021	0.083(2.1)

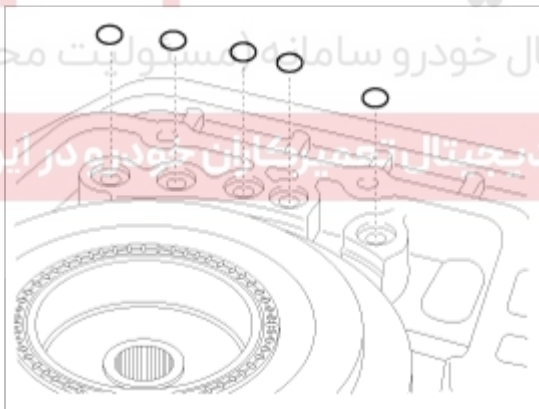
28. Install the four seal rings on the rear cover.



29. Install the thrust race(A) on the rear cover.

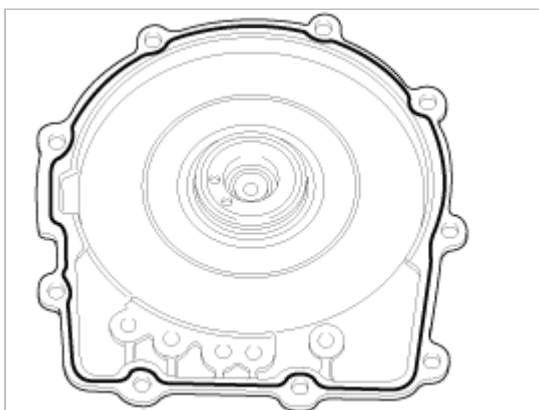


30. Install the five O-rings on the transmission case.



31. Apply liquid gasket with 0.063in(1.6mm) thickness on the rear cover surface without a pause.

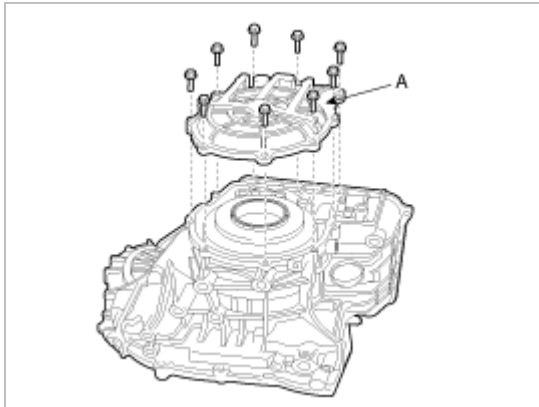
Liquid gasket : Threebond 1281B



32. Install the rear cover(A) (Bolts:9ea).

Tightening torque :

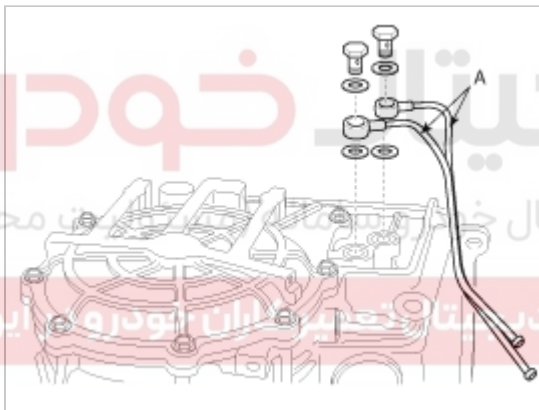
20~27Nm(200~270kgf.cm, 14~19lb-ft)



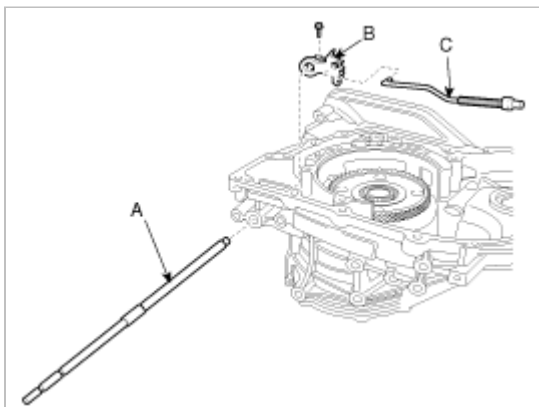
33. Insert the four gaskets into feed tube(A) and then install it to the transaxle case.

Tightening torque :

28~34Nm(280~340kgf.cm, 19~24lb-ft)



34. Install the manual control shaft(A, including the two O-ring), the detent lever(B) and the parking rod(C).



35. Install the reamer bolt on detent lever.

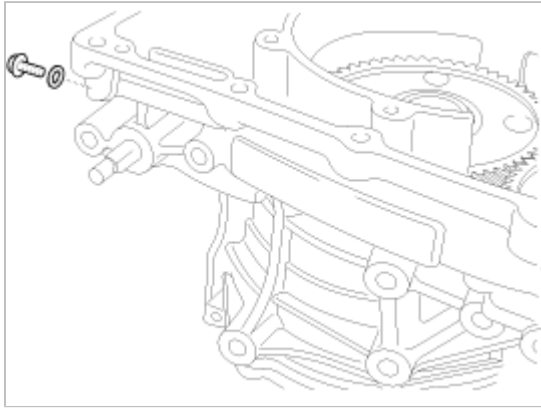
Tightening torque :

8~10Nm(80~100kgf.cm, 6~7lb-ft)

36. Install the manual control shaft fixing groove bolt.

Tightening torque :

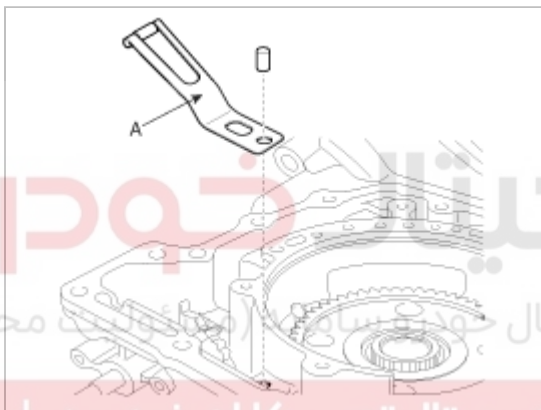
8~10Nm(80~100kgf.cm, 6~7lb-ft)



37. Install the detent spring(A).

Tightening torque :

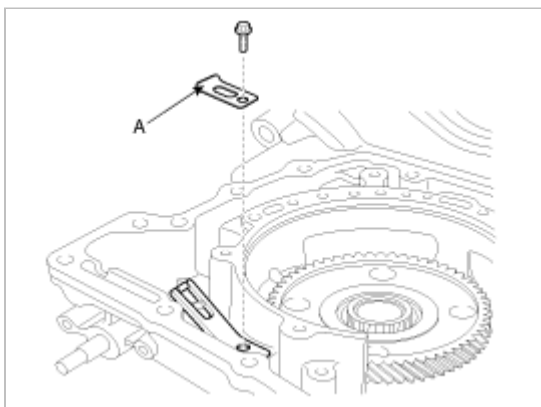
8~10Nm(80~100kgf.cm, 6~7lb-ft)



38. Install the plate(A) and then tighten the reamer bolt.

Tightening torque :

8~10Nm(80~100kgf.cm, 6~7lb-ft)



39. When installing the driven gear, measure the length(A) between both sides of the driven gear with outer races. Measure the length(A) between both sides of the differential gear with outer races. Calculate the sum of the case length and the housing length.

Specified clearance of driven gear:

A-C=-0.0003~0.0035in(-0.01~0.09mm)

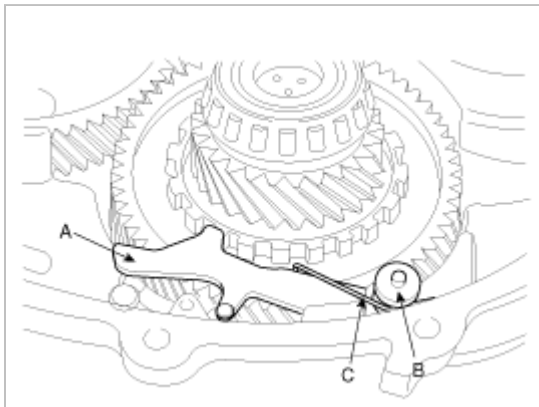
Specified clearance of differential gear:

A-C=-0.0017~0.0041in(-0.045~0.105mm)

If the calculated value is not within the specified clearance, install the suitable spacer.

40. Install the driven gear and the outer race.

41. Install the driven gear(A), the shaft(B) and the sprag spring(C).



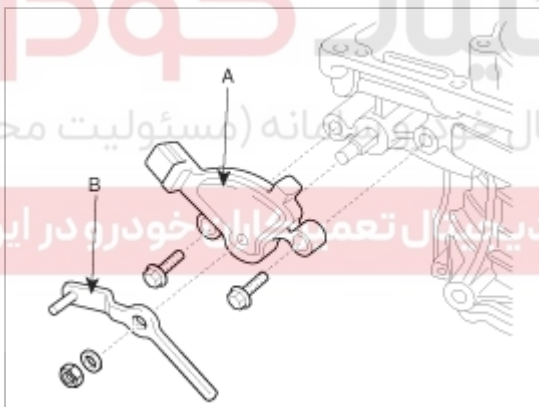
42. Install the inhibitor switch(A) and the manual control lever(B).

Tightening torque (shaft nut) :

17~21Nm(170~210kgf.cm, 13~15lb-ft)

Tightening torque (2bolts) :

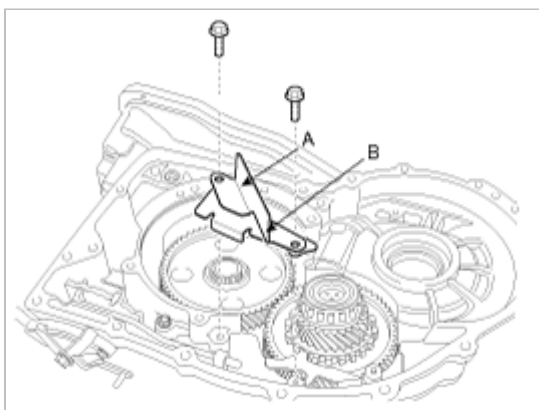
10~12Nm(100~120kgf.cm, 7~8lb-ft)



43. Install the parking rod guide(A) and oil plate(B)(Bolt:2EA).

Tightening torque :

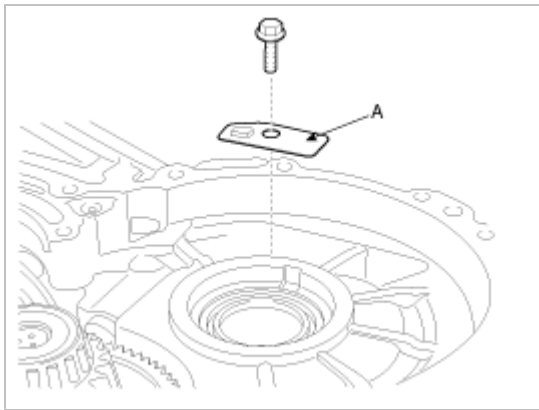
8~10Nm(80~100kgf.cm, 6~7lb-ft)



44. Install the oil guide plate(B).

Tightening torque :

8~10Nm(80~100kgf.cm, 6~7lb-ft)



45. Install the underdrive clutch hub(A).



46. Install the thrust bearing(A).

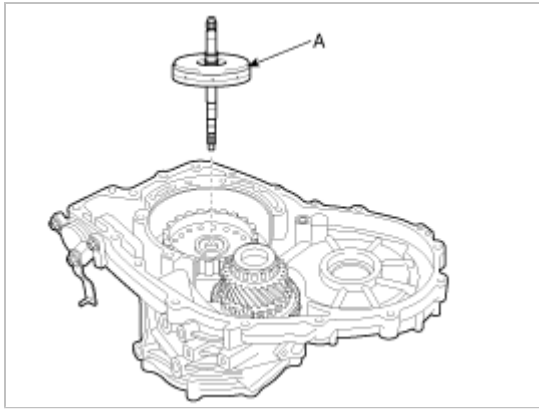
NOTICE

Be careful not to reverse the direction of the thrust bearing.

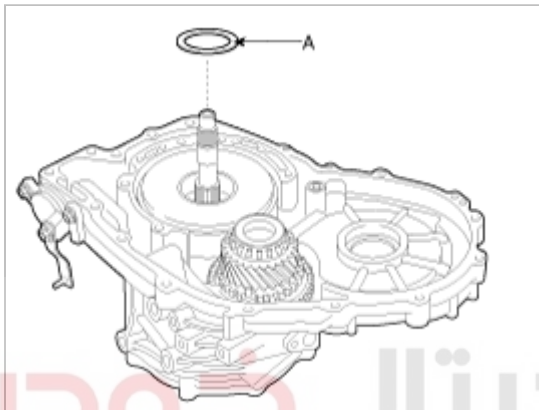
47. Install the underdrive clutch(A).

NOTICE

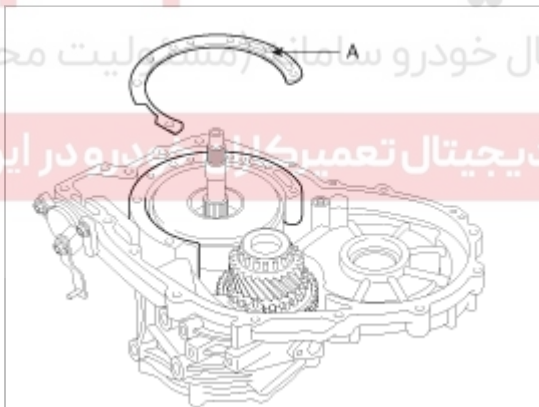
Check that the underdrive clutch is seated correctly.



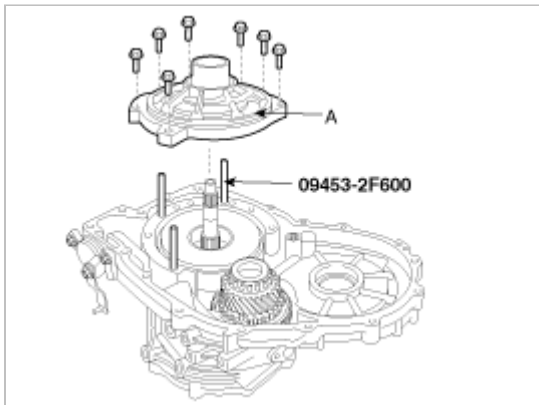
48. Install the used thrust washer(A).



49. Install the oil pump gasket(A).

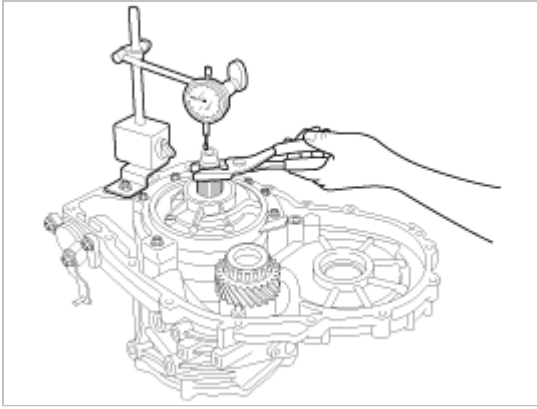


50. Using the guide pin(09493-2F600), install the oil pump(A)(Bolt:7 EA).

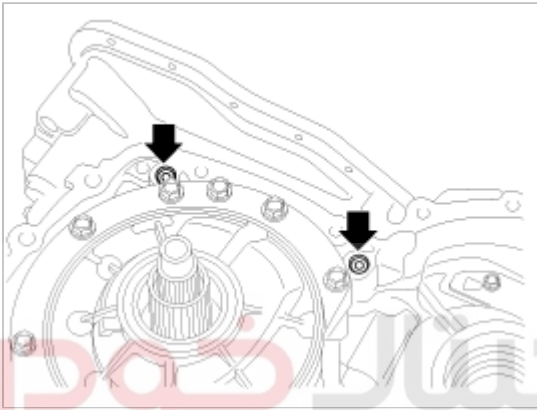


51. Measure the end play of input shaft and install the spacer if necessary.

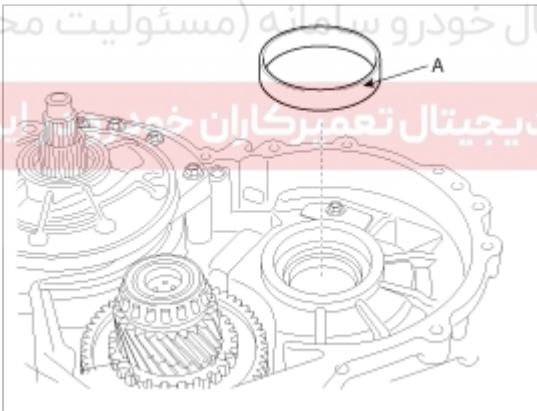
Standard value : 0.024~0.043in(0.6 ~ 1.1mm)



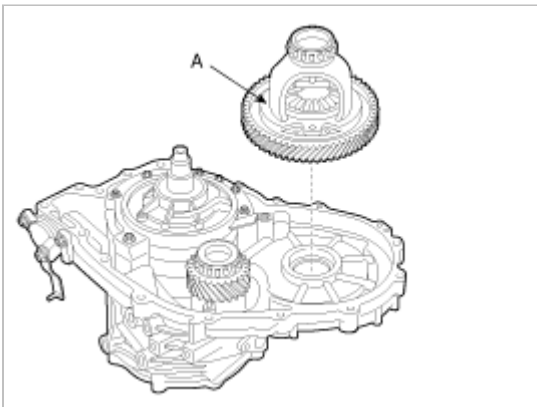
52. Install the two new O-rings.



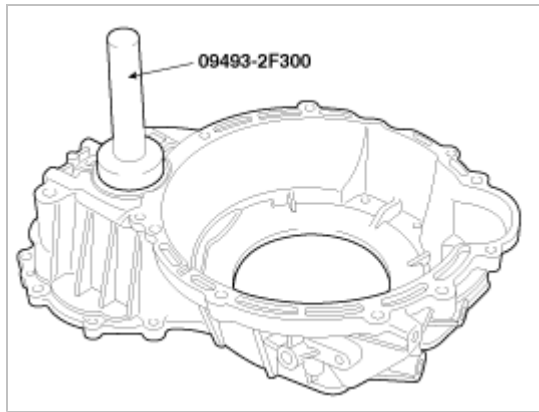
53. Install the differential outer race(A).



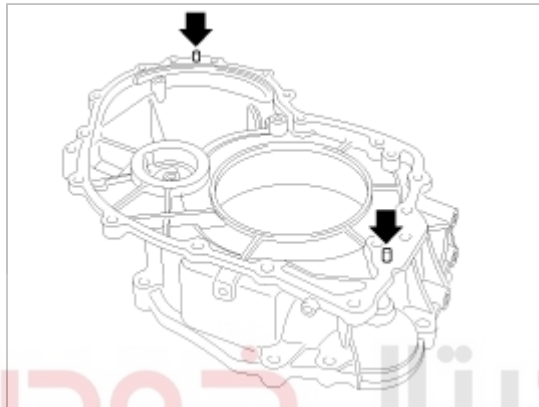
54. Install the differential gear assembly(A).



55. Using special service tool(09493-2F300), install the oil seal on the torque converter housing.

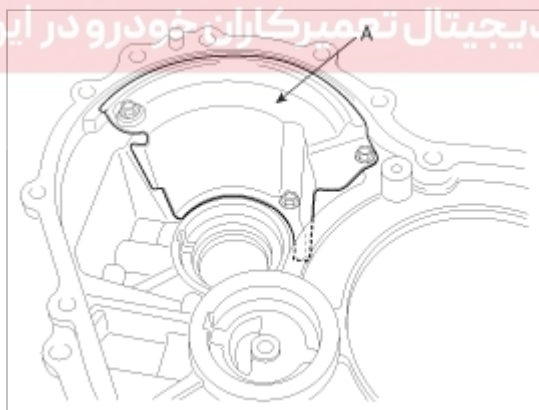


56. Install the two dowels pin on the torque converter housing.

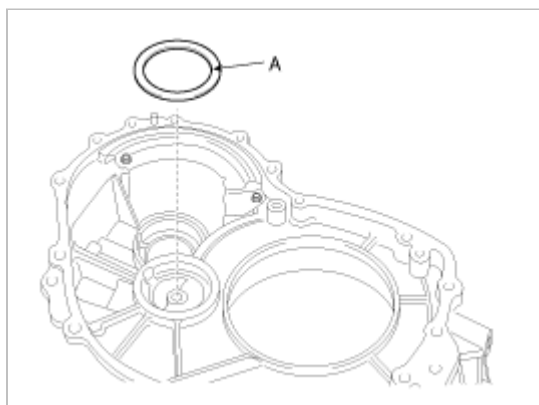


57. Install the oil separate(A)(Bolt:3EA).

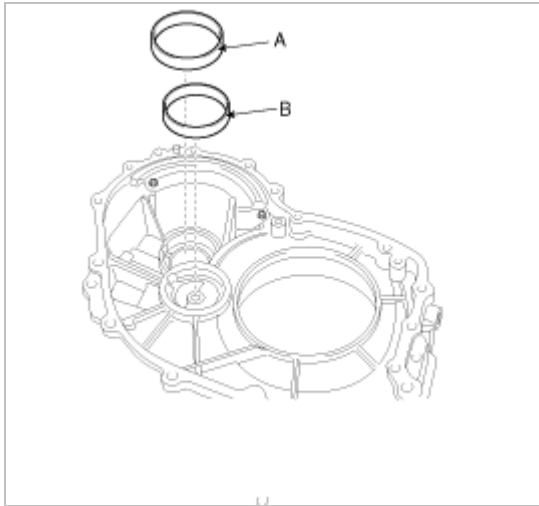
TORQUE:
8~10Nm(80~100kgf.cm, 6~7lb-ft)



58. Install the spacer(A) on the differential and the transfer driven gear of the torque converter housing.

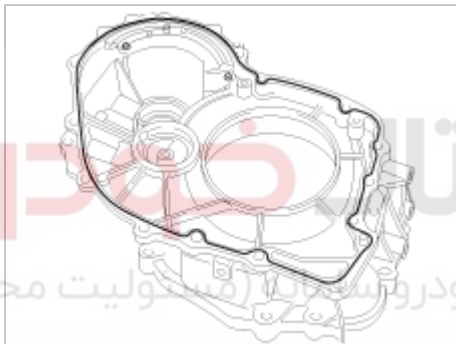


59. Install the driven gear race(A) and the driven gear outer race(B) of the torque converter housing.



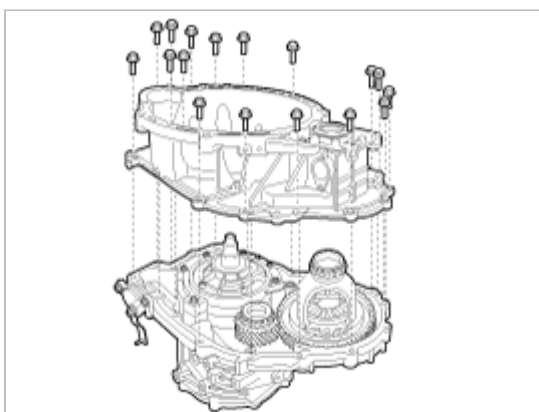
60. Apply liquid gasket with 0.063in(1.6mm) thickness on the torque converter housing without a pause.

Liquid gasket : Threebond 1281B



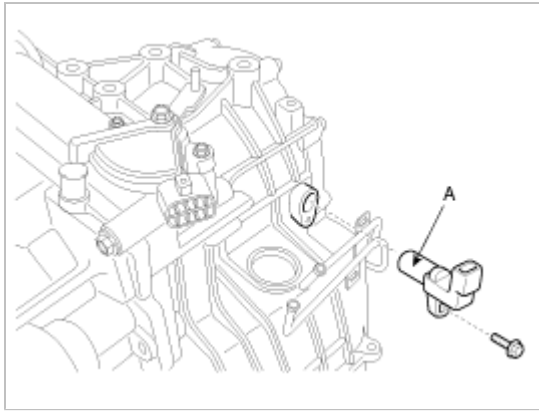
61. Install the torque converter housing and tighten the bolt(Bolt: 17EA).

Tightening torque :
43~55Nm(430~550kgf.cm, 32~41lb-ft)



62. Install the input shaft speed sensor(A)(Bolt:1EA).

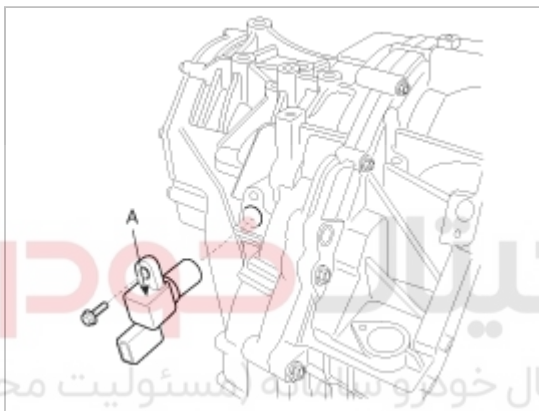
Tightening torque :
10~12Nm(100~120kgf.cm, 7~8lb-ft)



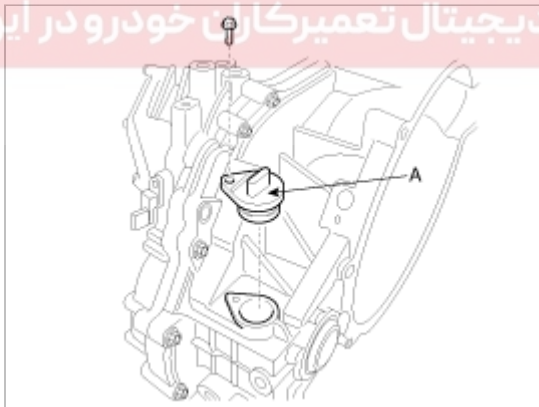
63. Install the output shaft speed sensor(A)(Bolt:1EA).

Tightening torque :

10~12Nm(100~120kgf.cm, 7~8lb-ft)



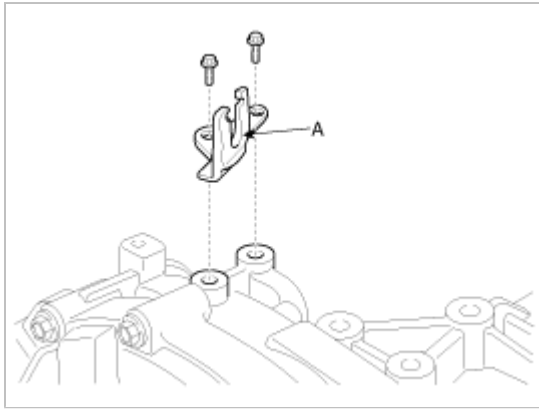
64. Install the plug(A).



65. Install the shift cable bracket(A)(Bolt:2EA).

Tightening torque :

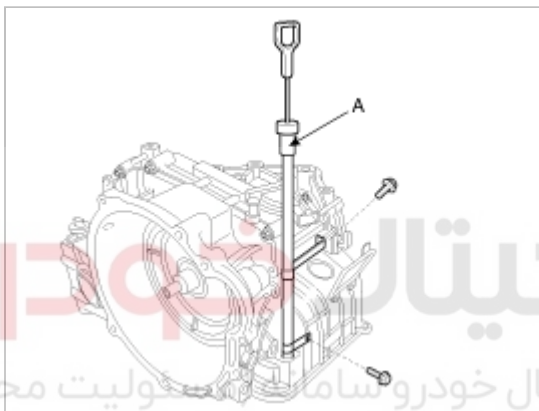
19~23Nm(190~230kgf.cm, 14~17lb-ft)



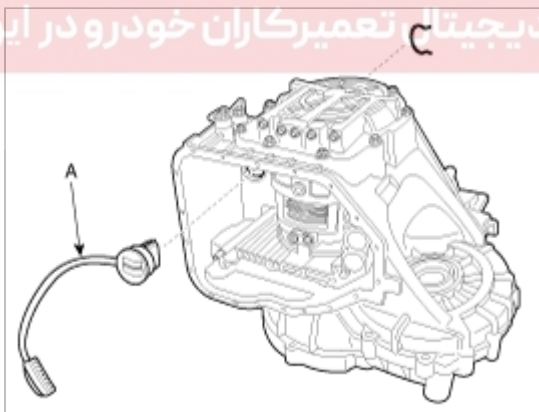
66. Install the oil level gauge(A) and bracket(Bolt:2EA).

Tightening torque :

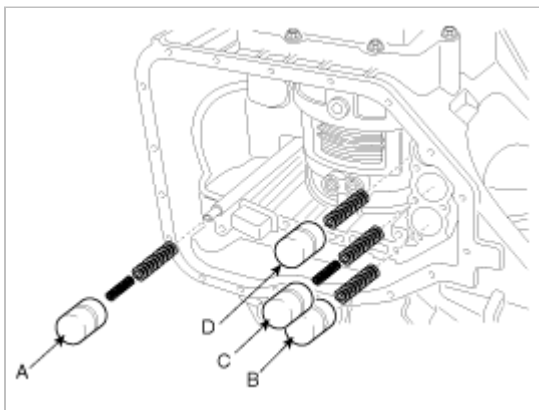
19~23Nm(190~230kgf.cm, 14~17lb-ft)



67. Install the control valve connector(A).



68. Insert each accumulator piston, new sealing and spring.



NOTICE

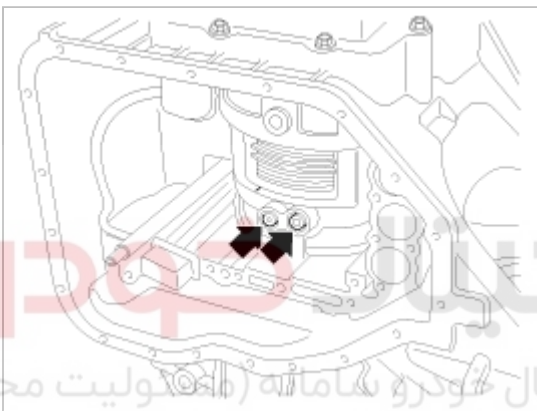
Accumulator spring identification.

NO.	Use	I.D.Color	Number
A	U/D clutch	White/ White	2
B	O/D clutch	Yellow	1
C	2ND brake	Yellow/Yellow	2
D	L/R brake	Yellow	1

69. Install the two new O-rings.

NOTICE

Insert the new O-ring into the hole of the L/R brake and transfer driven gear.



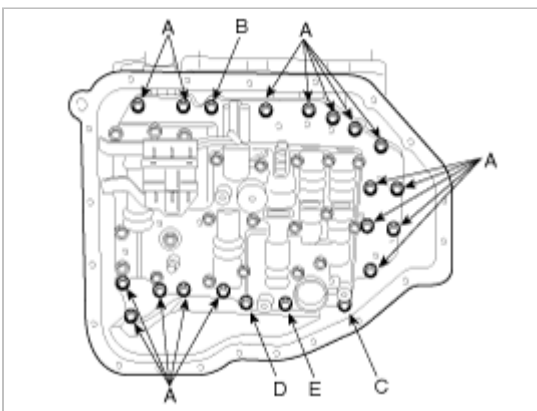
70. Install the valve body(Bolt:21EA).

NOTICE

6×30mm(A): 17EA, 6×35mm(B): 1EA, 6×40mm(C): 1EA, 6×55mm(D): 1EA, 6×60mm(E): 1EA

Tightening torque :

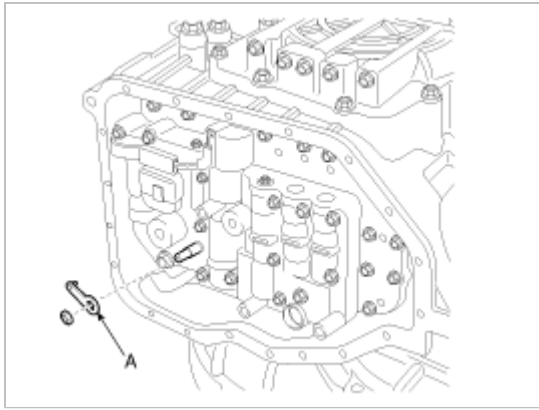
10~12Nm(100~120kgf.cm, 7~8lb-ft)



71. Install the manual valve mounting bracket(Nut:1EA)

Tightening torque :

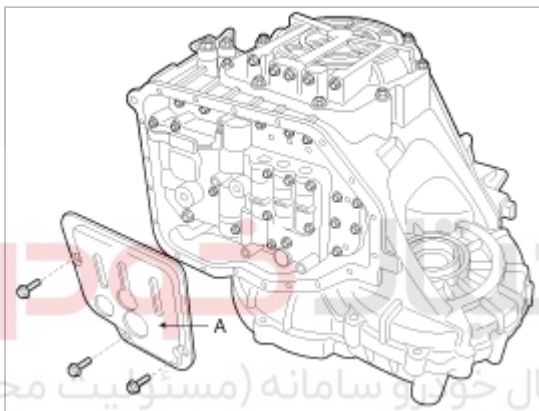
9~12Nm(90~120kgf.cm, 6.5~8lb-ft)



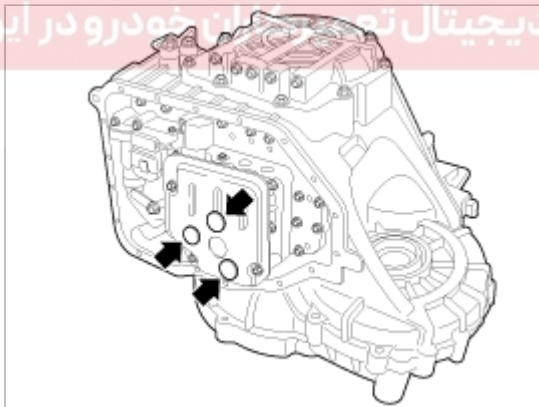
72. Install the oil filter(A)(Bolt:3EA).

Tightening torque :

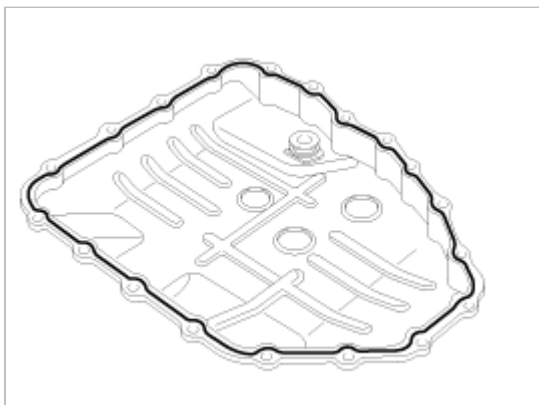
5~7Nm(50~70kgf.cm, 4~5lb-ft)



73. Install the three magnets in the lower end of the oil filter.



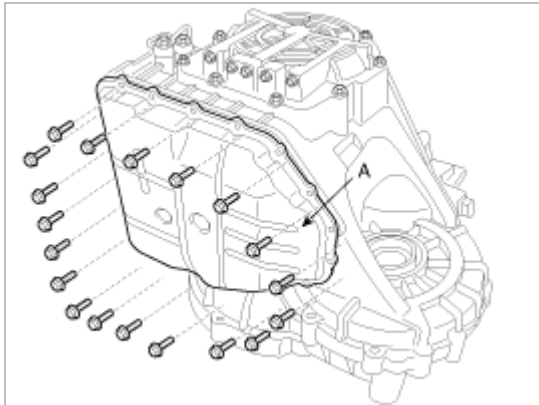
74. Apply liquid gasket with 0.102in(2.6mm) thickness without a pause as shown in the illustration.



75. Connect the oil pan(A) and tighten the bolt.

Tightening torque :

10~12Nm(100~120kgf.cm, 7~8lb-ft)



76. Install the drain plug(A).

Tightening torque :

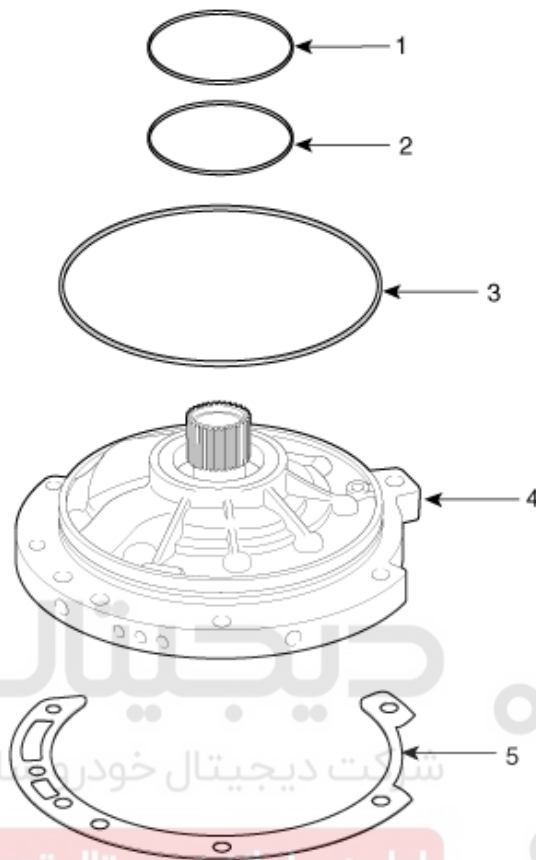
35~45Nm(350~450kgf.cm, 25~32lb-ft)



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Components



1. O-ring
2. O-ring
3. O-ring

4. Oil pump
5. Gas gasket

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**REASSEMBLY**

1. Install the oil sealing.
2. Install the O-ring.
Install the new O-ring around oil pump and apply ATF, blue mineral oil, or white Vaseline around the O-ring.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

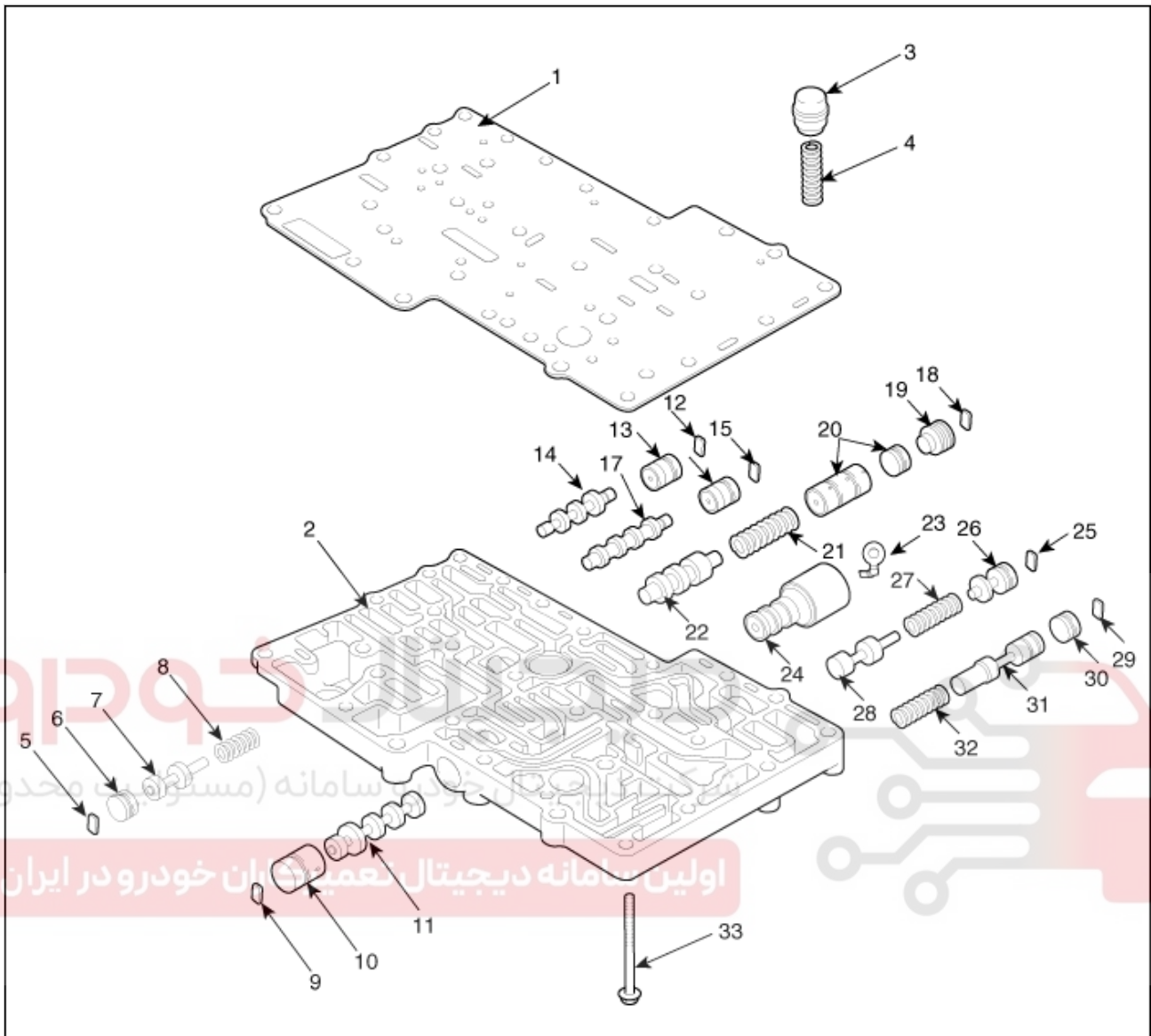
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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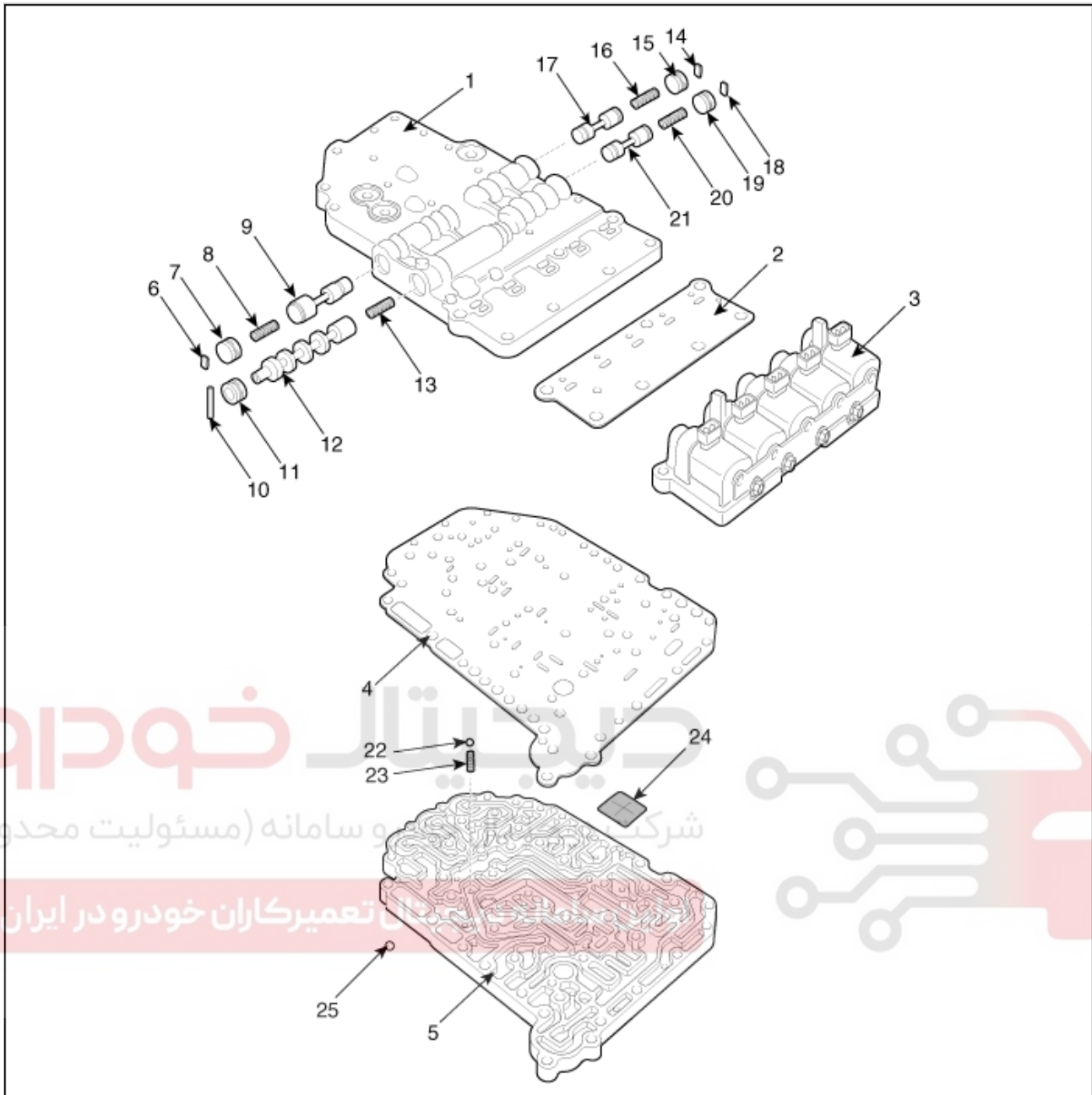


Components(1)



1. Lower separating plate	12. Stopper plate	23. VFS solenoid support
2. Lower valve body	13. Fail safe A sleeve	24. VFS solenoid valve
3. Damping valve assembly	14. Fail safe A valve	25. Stopper plate
4. Coil spring	15. Stopper plate	26. Adjust screw assembly
5. Stopper plate	16. Fail safe B sleeve	27. Coil spring
6. Stopper plug	17. Fail safe B valve	28. Reducing valve
7. Torque converter control valve	18. Stopper plate	29. Stopper plate
8. Coil spring	19. Adjust screw assembly	30. Stopper plug
9. Stopper plate	20. Regular plug/sleeve	31. NR control valve
10. 3,4 & lower switch sleeve	21. Coil spring	32. Coil spring
11. 3,4 & lower switch valve	22. Regular valve	33. Bolt

Components(2)



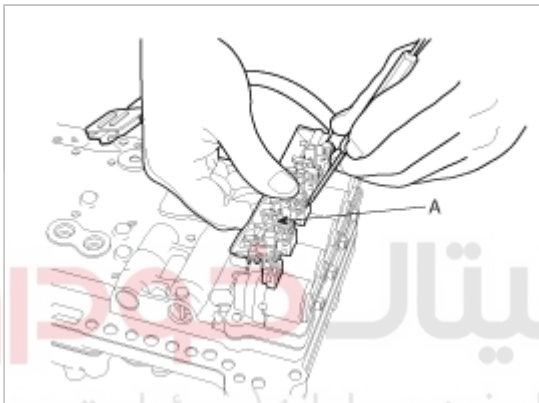
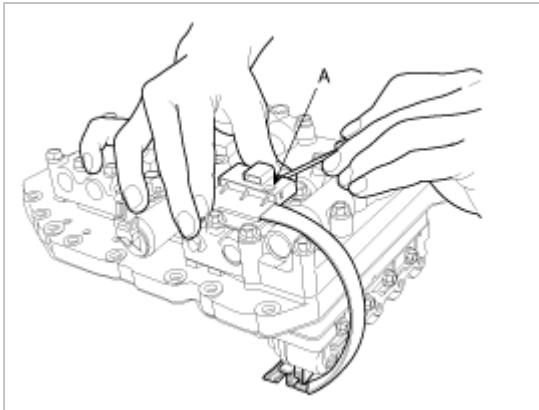
1. Upper valve body	10. Roller	19. Stopper plug
2. Solenoid separating plate	11. Damper clutch control sleeve	20. Coil spring
3. Solenoid separating valve assembly	12. Damper clutch control valve	21. Press control valve
4. Upper separating plate	13. Coil spring	22. Steel ball
5. Intermediate plate	14. Stopper plate	23. Coil spring
6. Stopper plate	15. Stopper plug	24. Oil strainer
7. Stopper plug	16. Coil spring	25. Steel ball
8. Coil spring	17. Press control valve	
9. Press control valve	18. Stopper plate	

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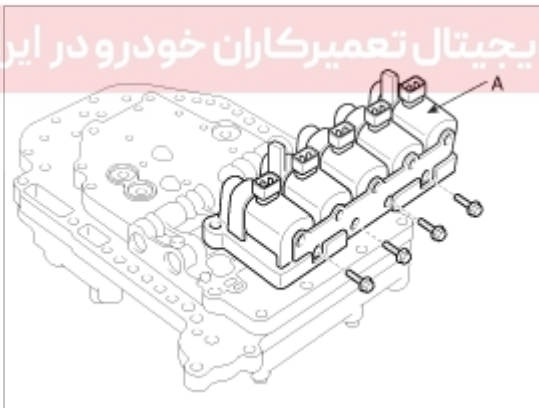


Disassembly

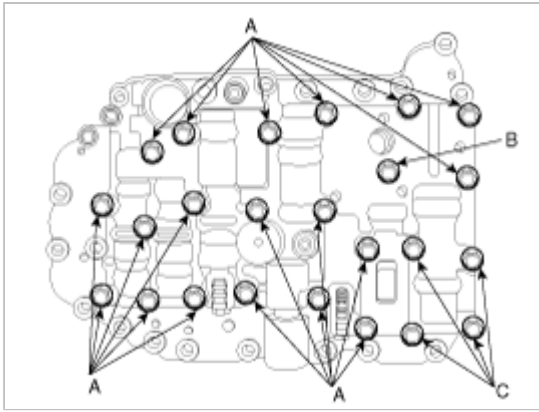
1. Remove the main harness(A) from the valve body.



2. Remove the solenoid valve assembly(A).



3. Remove the valve body(Bolt:24EA).
A : 6 X 60 (19EA), B : 6 X 55 (1EA) ,C : 6X 70 (4EA)

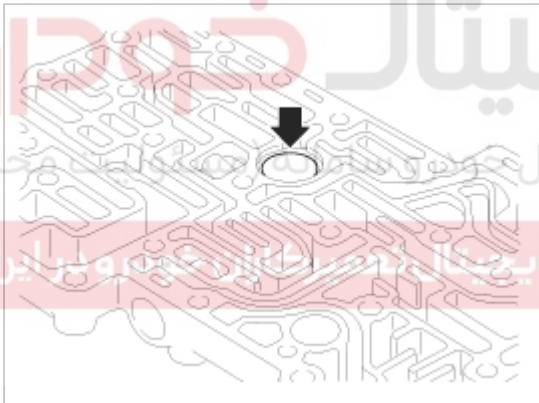


Reassembly

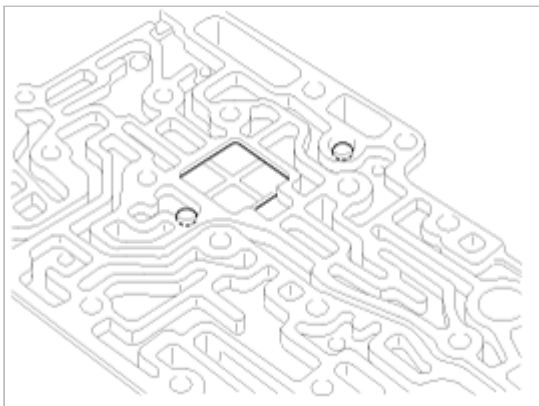
CAUTION

- All reassembled parts must be thoroughly cleaned.
- Do not use grease and use the petrolatum or industrial Vaseline if necessary.
- Apply AT fluid to all of the components.
- Do not use the cotton gloves. Use paper towel or nylon fabric.
- After reassembling the valve body, be careful not to insert the dirt and dust into the valve body.

1. Install the damping valve and the damping spring on the outside valve body.

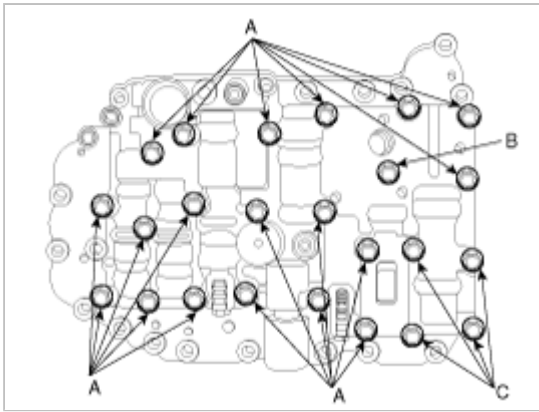


2. Install the two steel balls, spring, strainer on the inside valve body.

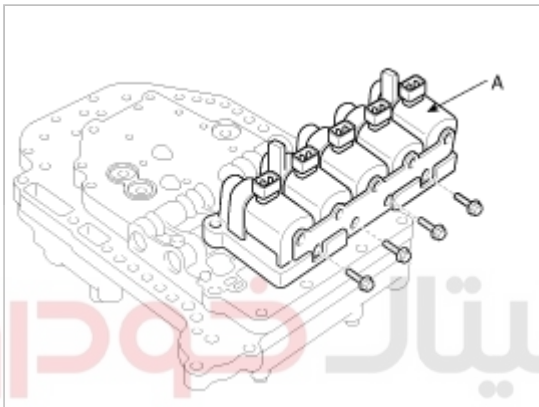


3. Install the control valve on the valve body.
4. Tighten the valve body bolts.
A : 6 X 60 (19EA), B : 6 X 55 (1EA), C : 6X 70 (4EA)

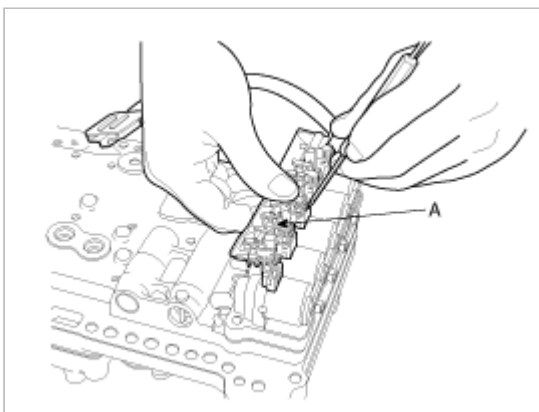
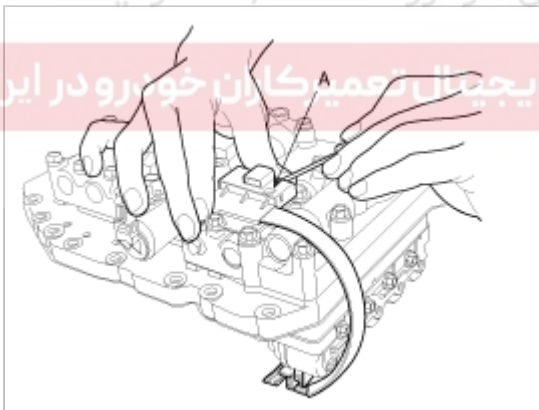
Tightening torque :
10 ~ 12Nm(100~120 kgf.cm , 7~8lb-ft)



5. Install the solenoid valve assembly(A).
A. Prior to assembly, remove the marked parts.

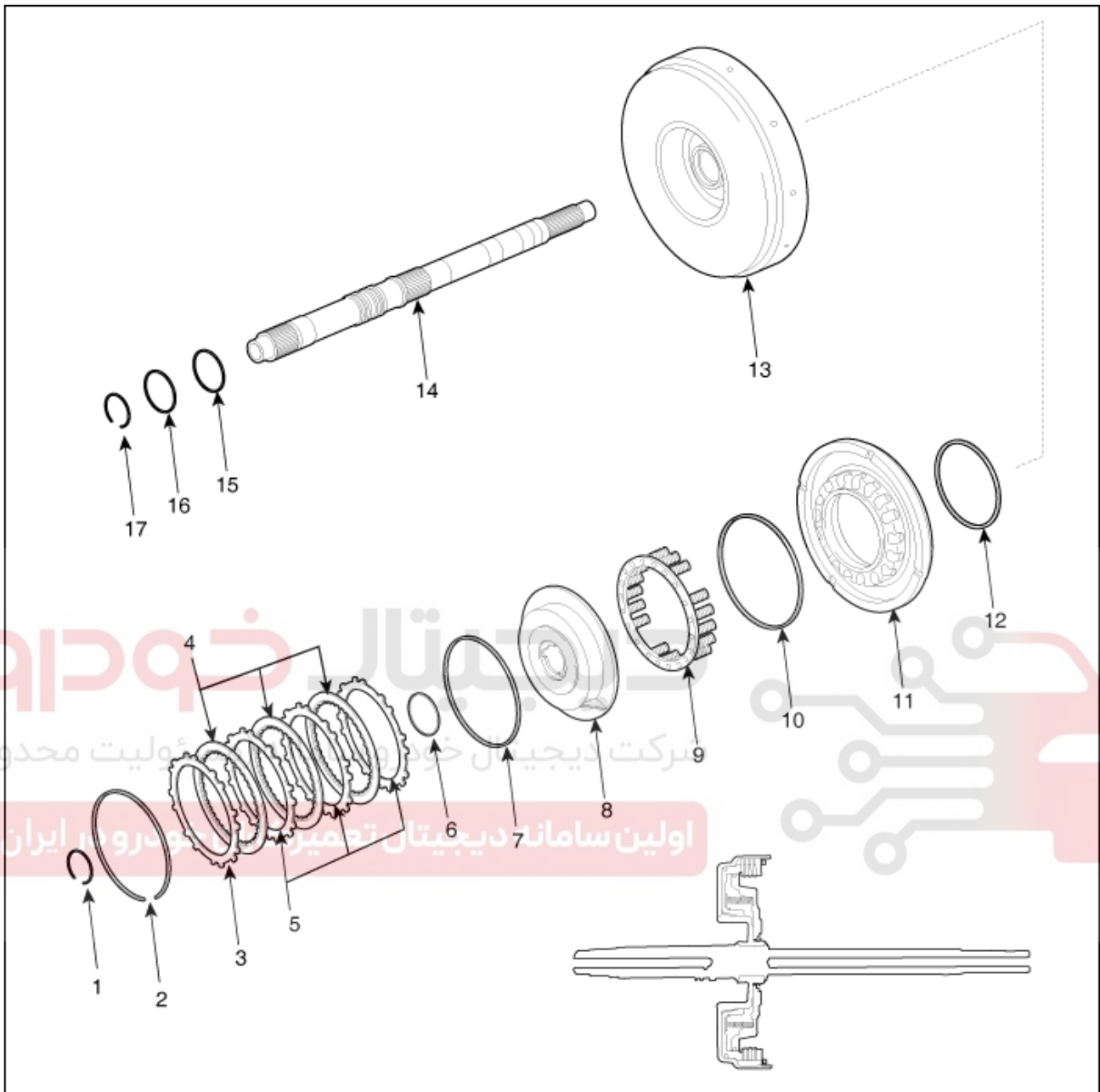


6. Install the main harness(A) on the valve body.





Components



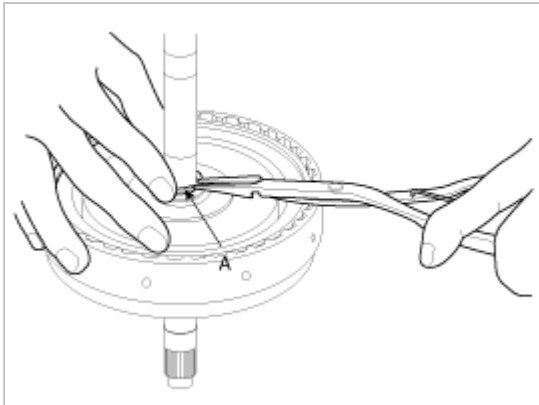
- | | | |
|--------------------------|---------------------------------------|--------------------------------|
| 1. Snap ring | 7. D-ring | 13. Underdrive clutch retainer |
| 2. Snap ring | 8. Underdrive clutch piston | 14. Input shaft |
| 3. Clutch reaction plate | 9. Return spring | 15. Seal ring |
| 4. Discs(3EA) | 10. D-ring | 16. Seal ring |
| 5. Plates(3EA) | 11. Underdrive clutch spring retainer | 17. Snap ring |
| 6. D-ring | 12. D-ring | |

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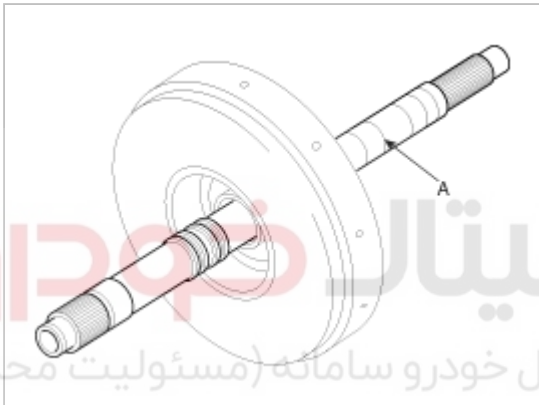


Disassembly

1. Remove the input shaft snap ring(A).

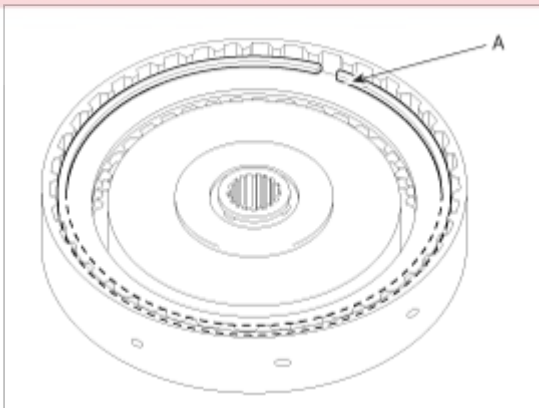


2. Remove the input shaft(A).

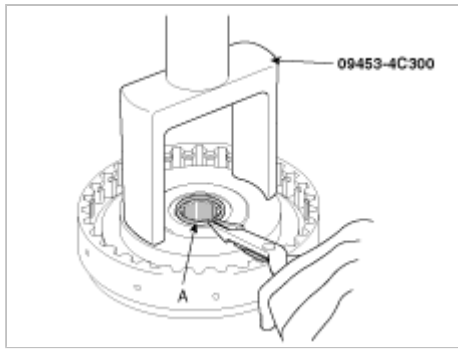


3. Remove the two seal rings.

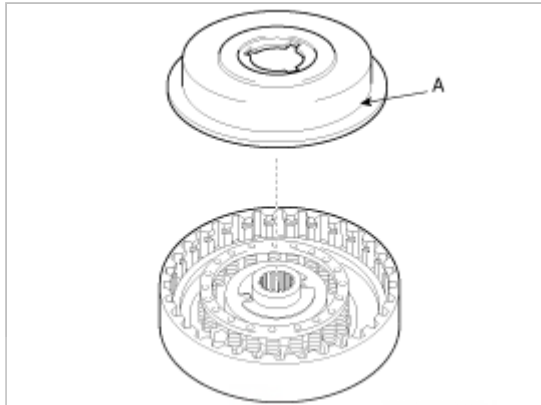
4. Remove the clutch reaction plate snap(A).



5. Disassemble the clutch reaction plate.
6. Disassemble the three clutch discs and three plates.
7. Using the special tool(09453-4C300), remove the underdrive clutch piston snap ring(A).

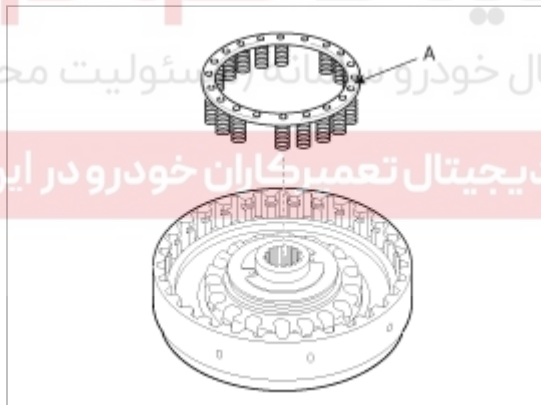


8. Using air pressure, remove the under drive clutch piston(A).

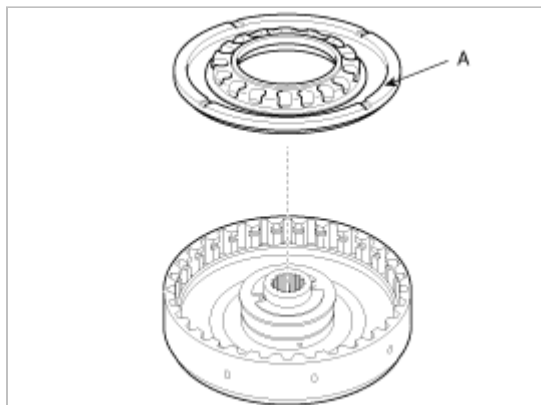


9. Disassemble the two underdrive clutch piston D-rings.

10. Remove the clutch return spring(A).



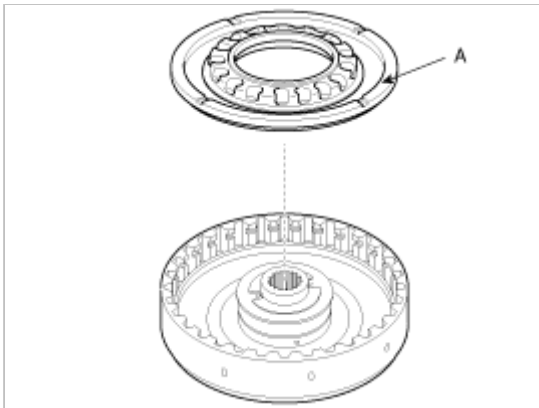
11. Remove the underdrive clutch spring retainer(A).



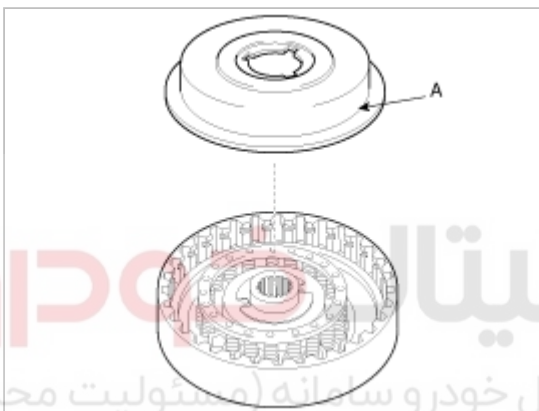
12. Disassemble the two underdrive clutch spring D-rings.

Reassembly

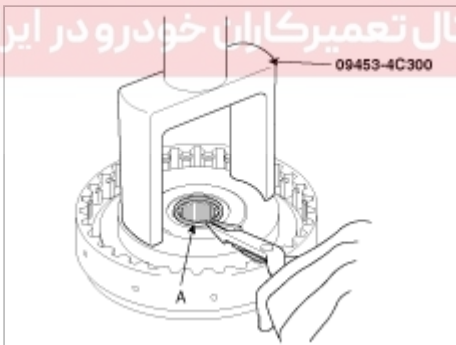
1. Assemble the two underdrive clutch spring D-rings.
2. Install the under driveclutch spring retainer(A).



3. Assemble the two underdrive clutch piston D-rings.
4. Install the under driveclutch piston(A).



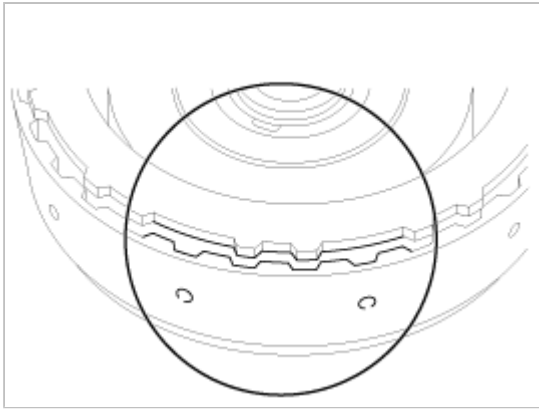
5. Using the special tool(09453-4C300), install the underdrive clutch piston snap ring(A).



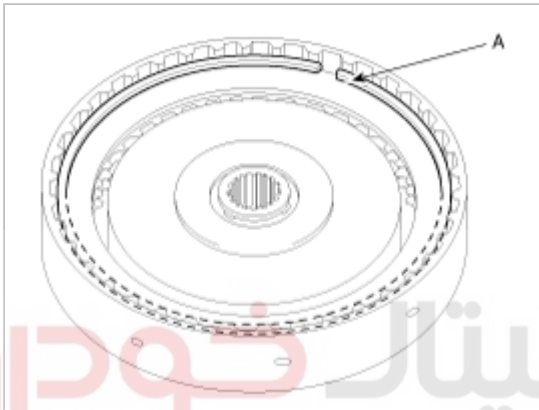
6. Assemble the clutch plate, clutch disc and clutch reaction plate.

CAUTION

Align the two tooth of the clutch plate, clutch disc and clutch reaction plate with two holes of the underdrive clutch as shown below illustration.

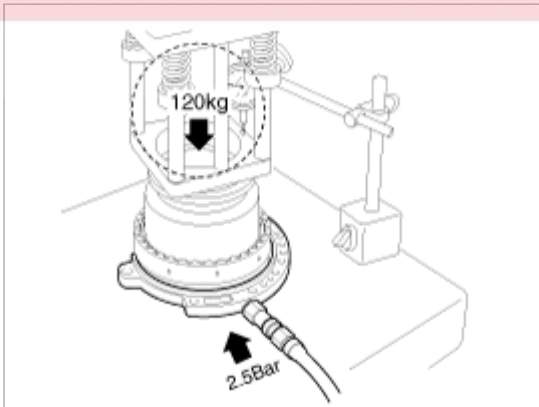


7. Install the clutch reaction plate.
8. Install the clutch reaction plate snap ring(A).

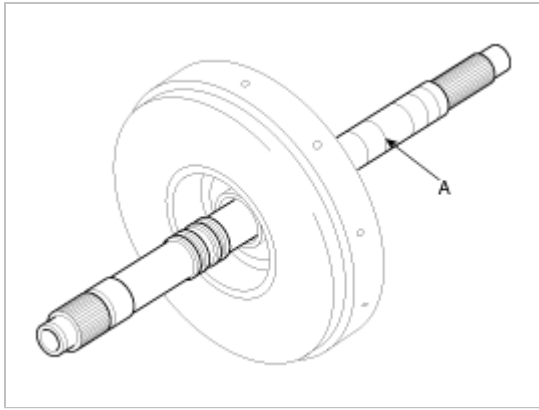


9. Measure the end play between the snap ring and the reaction plate with 245.17kPa(2.5 Bar, 35.56psi) air pressure and 1200N(120kgf) weight applied.

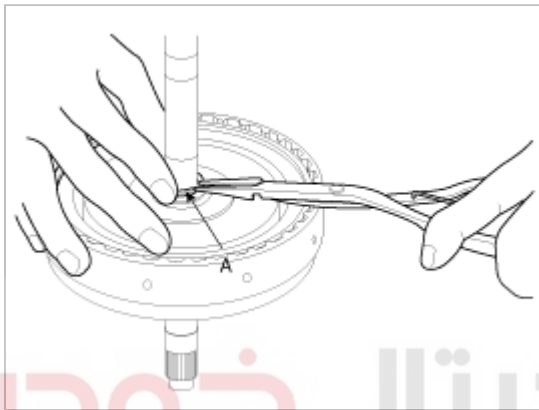
Standard value : 0.047 ~ 0.055in(1.2 ~ 1.4mm)



10. If the end play is not within the standard value, choose the suitable snap ring.
11. Install the two seal rings on in the input shaft.
12. Assemble the input shaft(A) in the under driveclutch assembly.



13. Install the input shaft snap(A).



دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

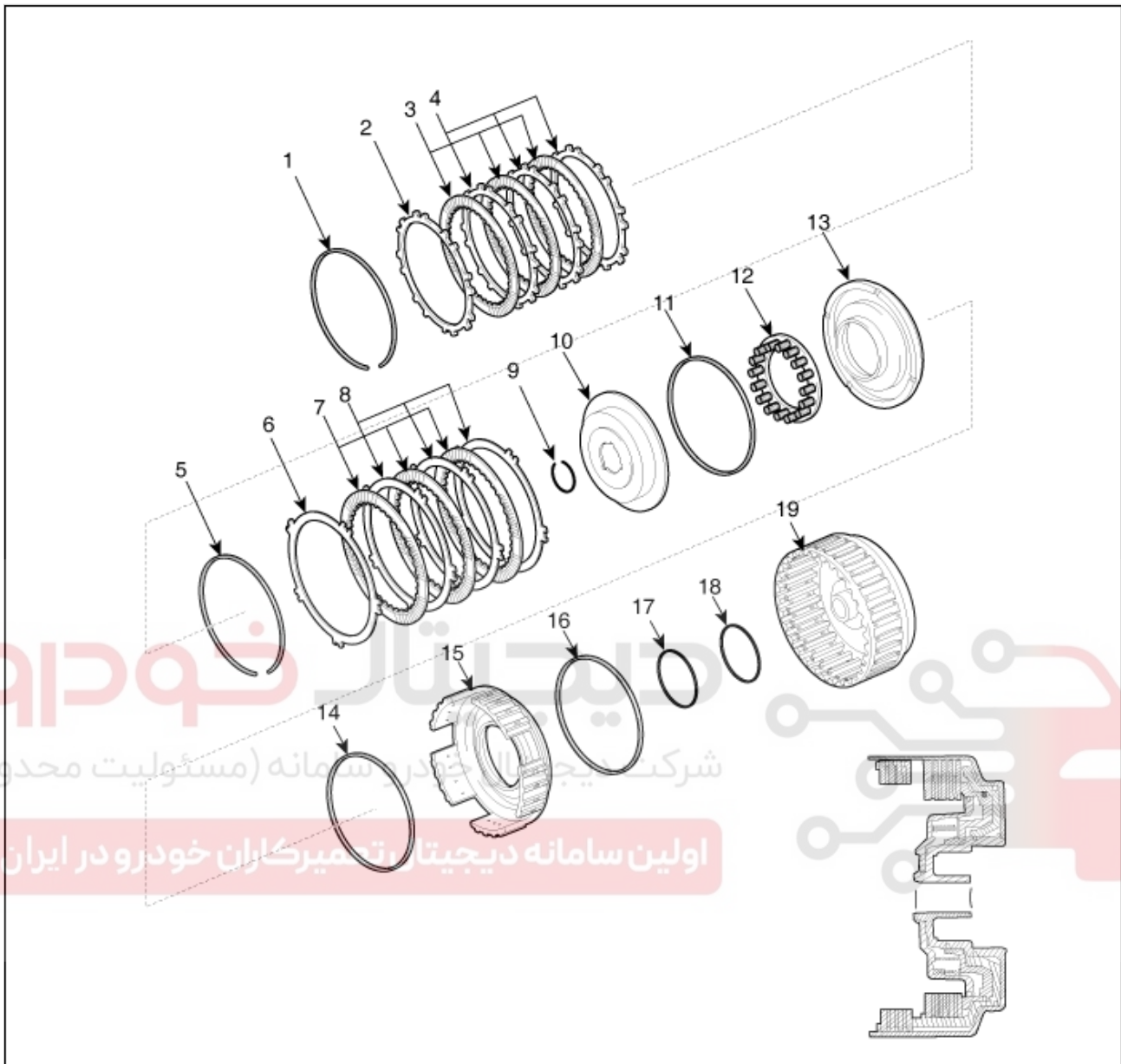
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Components



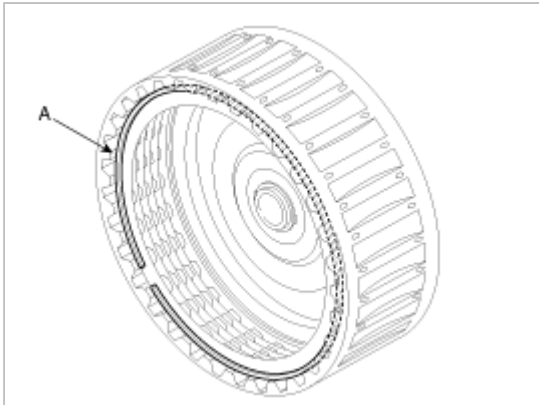
1. Snap ring	8. Clutch plates	15. Reverse clutch piston
2. Clutch reaction plate	9. Snap ring	16. D-ring
3. Clutch discs	10. Spring retainer	17. D-ring
4. Clutch plates	11. D-ring	18. D-ring
5. Snap ring	12. Return spring	19. Reverse clutch retainer
6. Clutch reaction plate	13. Overdrive clutch piston	
7. Clutch discs	14. D-ring	

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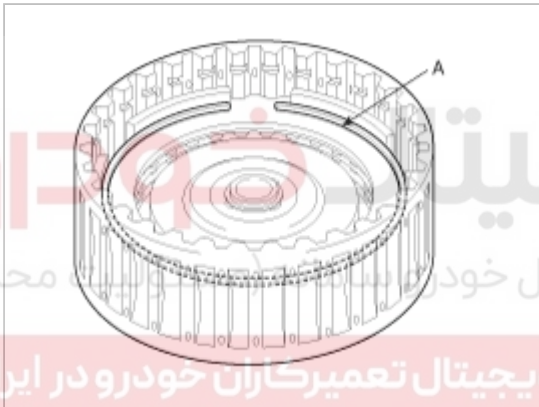


Disassembly

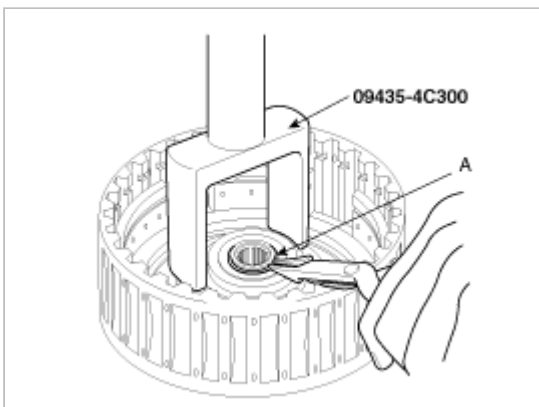
1. Remove the reverse clutch reaction plate snap ring(A).



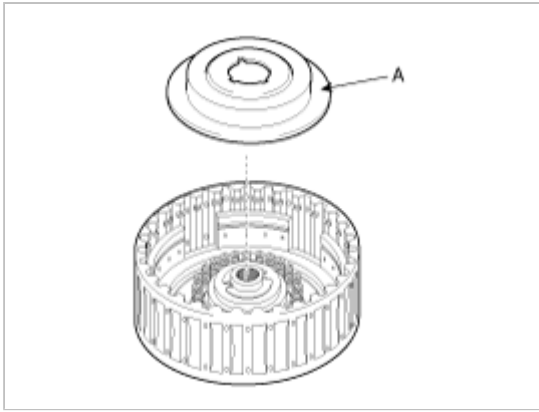
2. Remove the reverse reaction plate.
3. Remove the three reverse clutch discs and the three plates.
4. Remove the over drive reaction plate snap ring(A).



5. Remove the overdrive reaction plate.
6. Remove the four overdrive clutch discs and the four plates.
7. Using the special tool(09453-4C300), remove the clutch spring retainer snap ring(A).

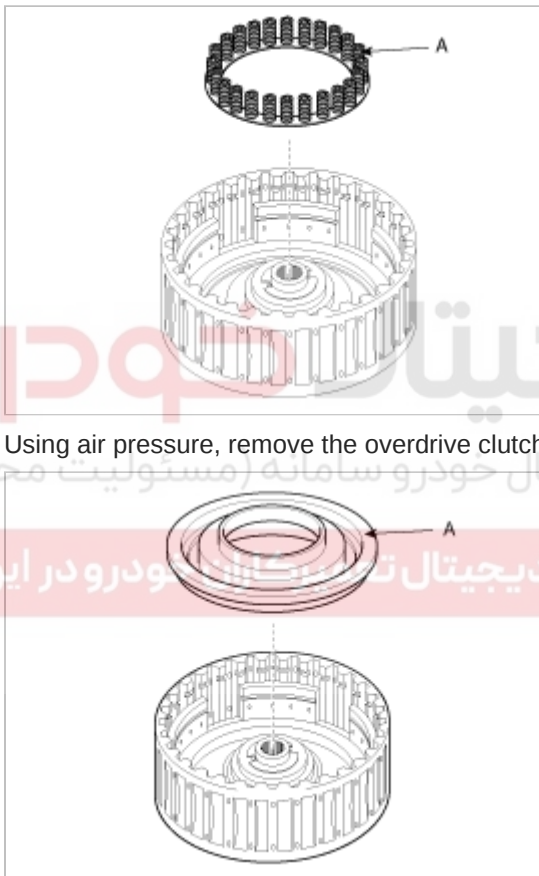


8. Remove the clutch spring retainer.



9. Remove the D-ring from the clutch spring retainer.

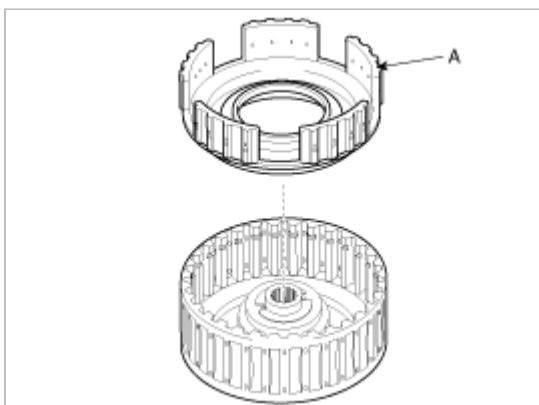
10. Remove the clutch return spring(A).



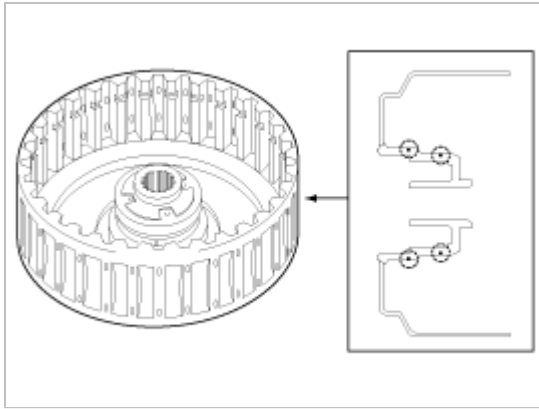
11. Using air pressure, remove the overdrive clutch piston(A).

12. Disassemble the D-ring.

13. Remove the reverse clutch piston(A).

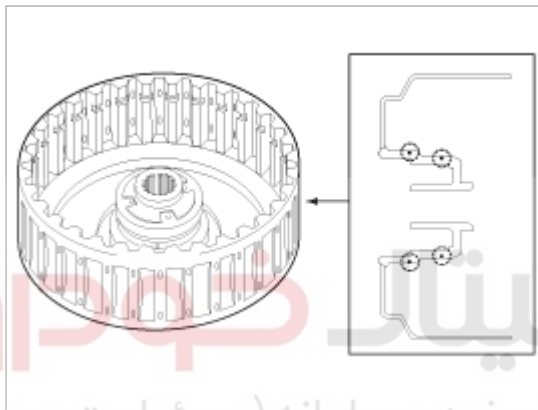


14. Remove the two D-rings from the reverse clutch retainer.

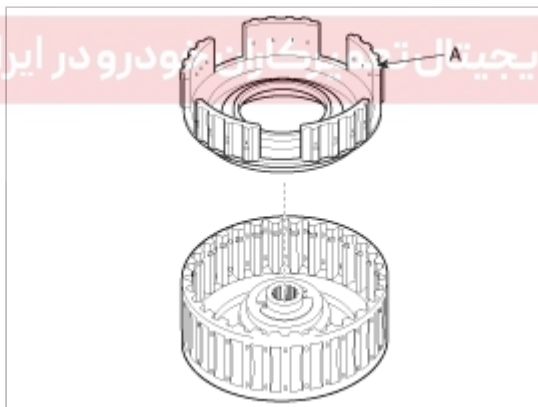


Reassembly

1. Assemble the two D-rings on the reverse clutch retainer.

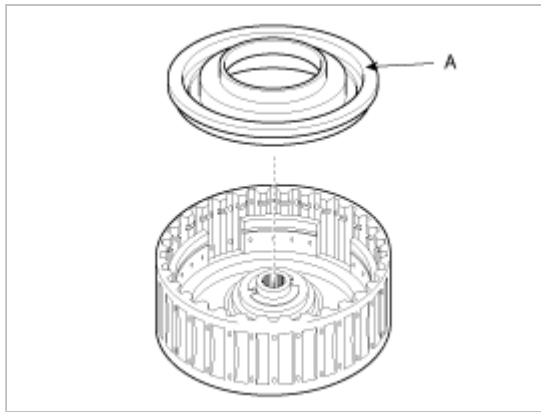


2. Install the reverse clutch piston(A).

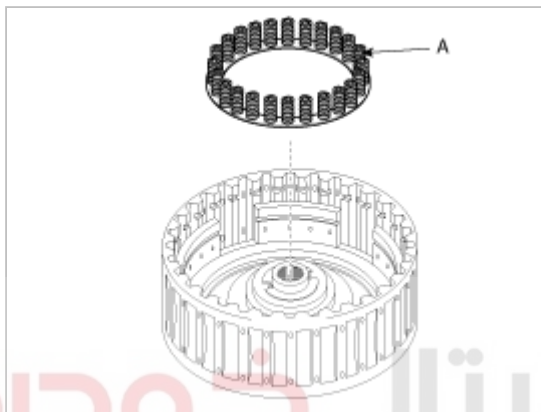


3. Assemble the two D-rings.

4. Install the overdrive clutch piston(A).

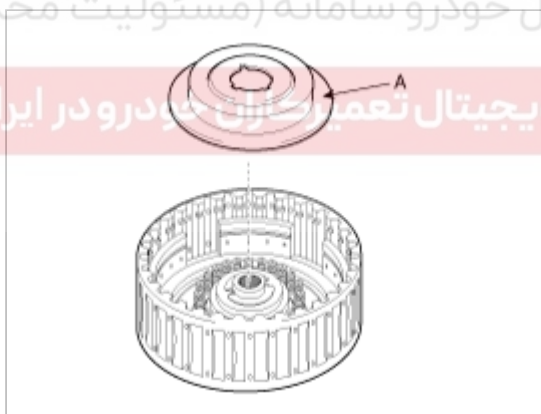


5. Install the clutch return spring(A).

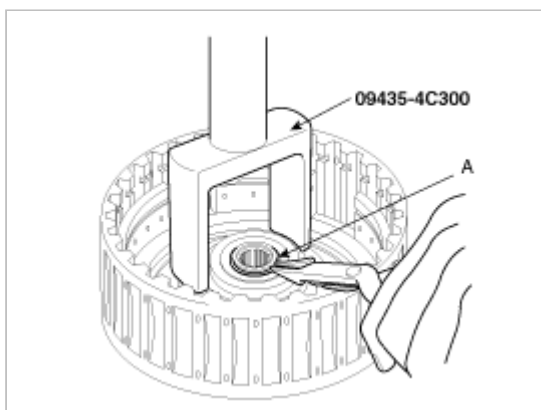


6. Assemble the two D-rings in the clutch spring retainer.

7. Install the clutch spring retainer.



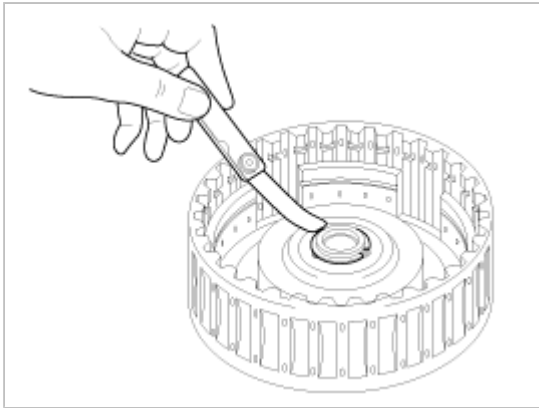
8. Using the special tool(09435-4C300), install the clutch spring retainer snap ring(A).



9. Applying 49N(5Kg,11lbf) weight on the return spring retainer, measure the end play. If the measured value is not within the standard value, choose the suitable snap ring.

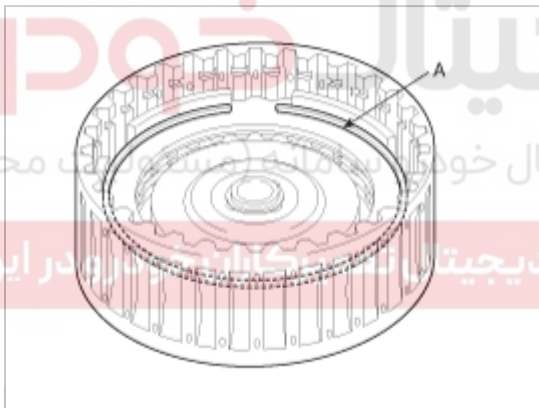
Standard value :

0~0.0035in(0 ~ 0.09 mm)

**NOTICE**

Soak the clutch disc in ATF sufficiently before assembly.

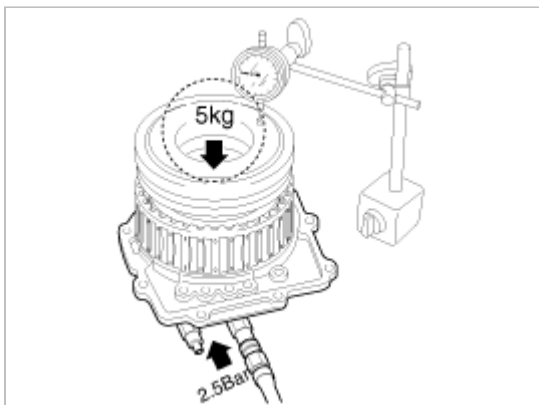
10. Install the four overdrive discs and the four plates.
11. Install the overdrive reaction plate.
12. Install the snap ring(A).



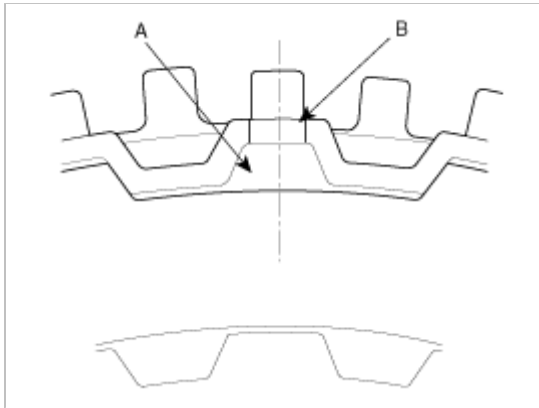
13. Measure the end play between the overdrive clutch reaction plate and snap ring with 49N(5Kgf,11lbf) weight and 245.17kPa(2.5 Bar, 35.56psi) air pressure applied. If the measured value is not within the standard value, choose the suitable snap ring.

Standard value :

0.027~0.05in(0.7 ~ 0.9 mm)



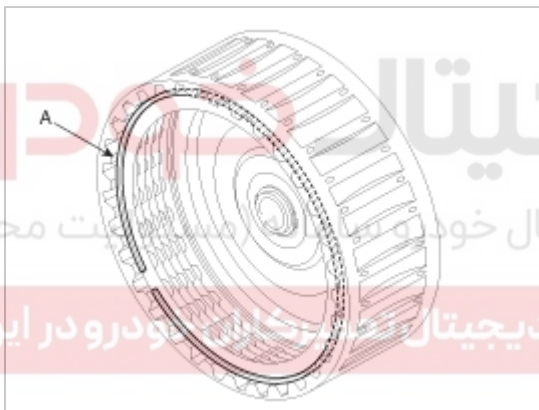
14. Align the teeth of the clutch plate, the clutch disc and the clutch reaction plate(fig.A) and the hole of the reverse clutch retainer(fig.B) and then assemble them.



15. Install the three reverse clutch discs and the three plates.
16. Install the reverse clutch reaction plate.
17. Install the snap ring(A).

CAUTION

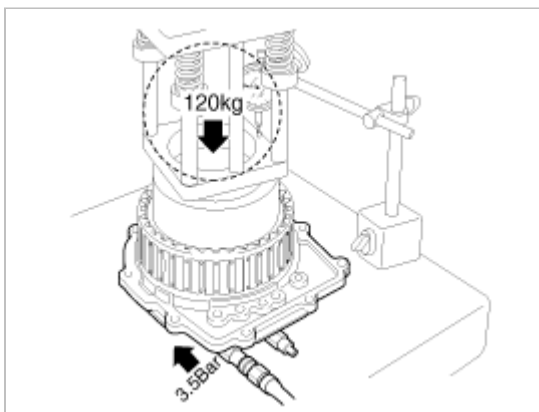
Install the snap ring to reverse the each aperture direction of snap ring.



18. Applying 1,200N(120Kgf) weight and 3.5 Bar pressure on the plates and discs of the overdrive clutch reaction, measure the end play. If the measured value is not within the standard value, choose the suitable snap ring.

Standard value :

0.047~0.055in(1.2 ~ 1.4 mm)



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Components



1. D-ring
2. 2ND brake piston

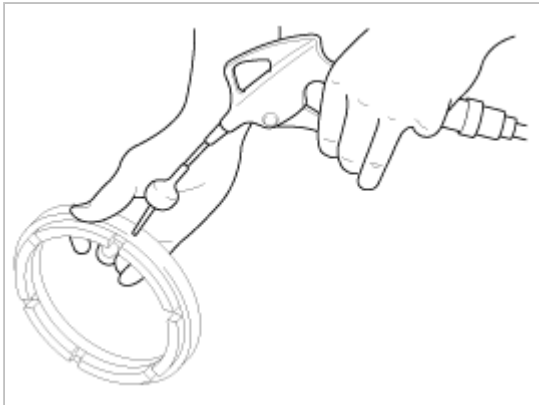
3. D-ring
4. 2ND brake retainer

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Disassembly

1. Using air pressure, remove the underdrive clutch piston(A).



Reassembly

1. Install the D-ring.
Apply ATF or white Vaseline on the D-ring and install it carefully not to damage it.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

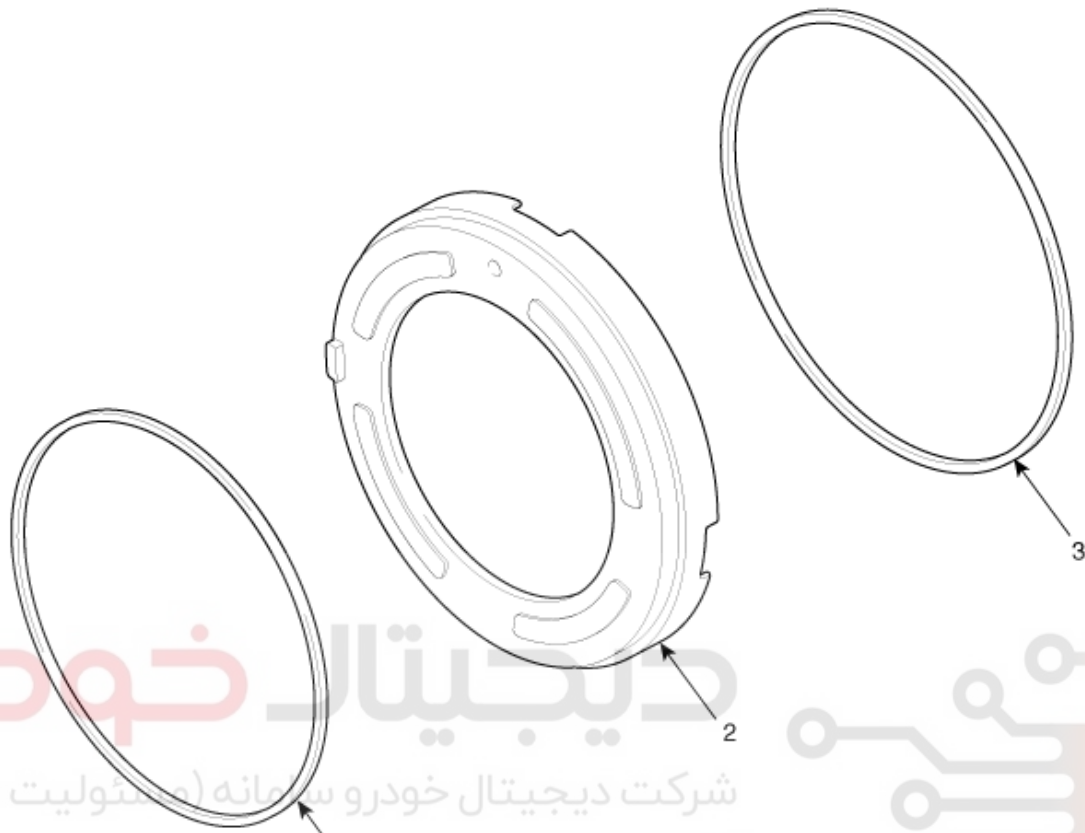
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Components



1. D-ring
2. Low & reverse brake
3. D-ring

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**REASSEMBLY**

1. Install the D-ring.
Apply ATF or white Vaseline on the D-ring and be careful not to damage when installing it.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

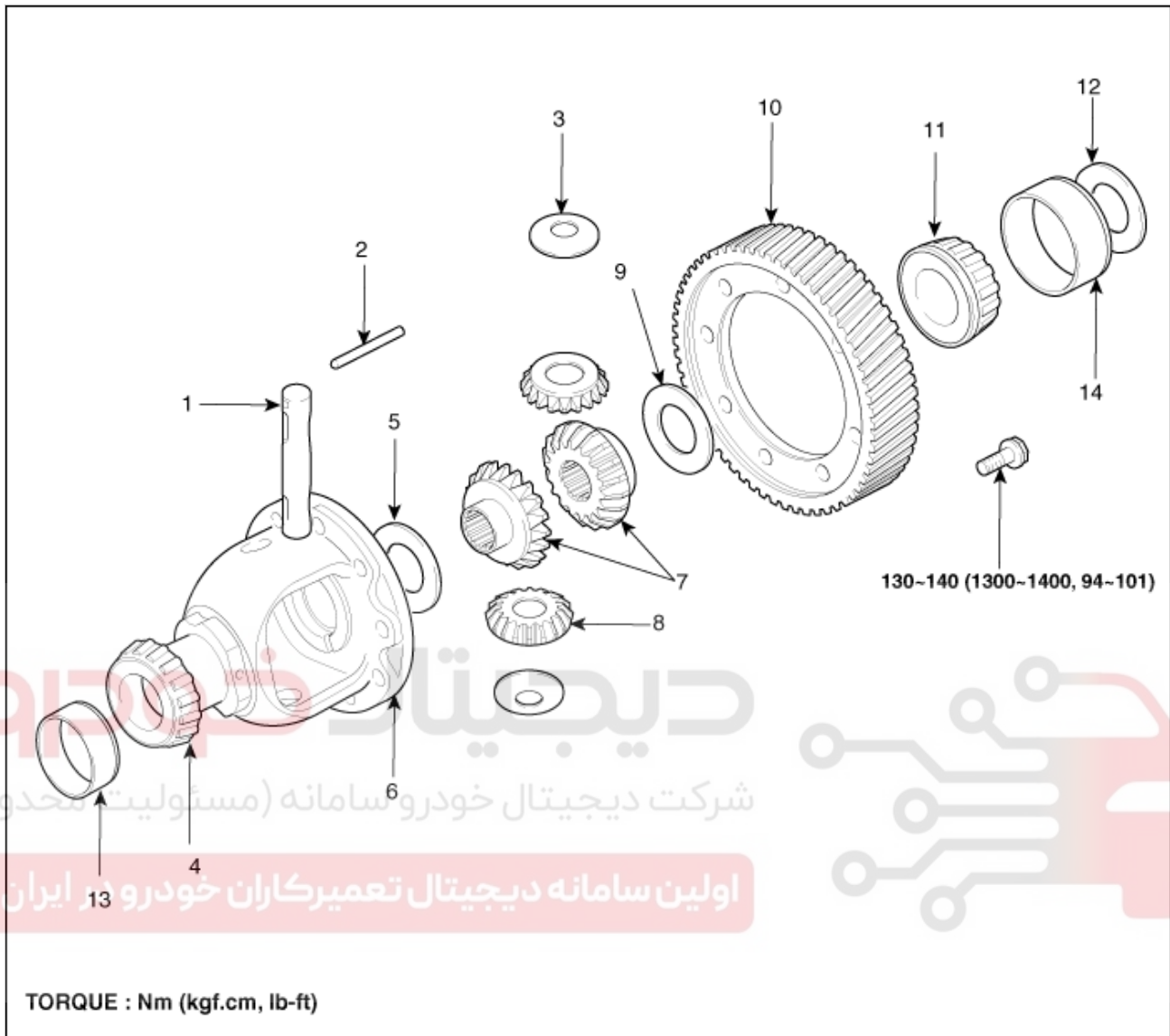
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Components



1. Pinion shaft
2. Lock pin
3. Washer
4. Taper roller bearing
5. Spacer
6. Differential case
7. Side gear

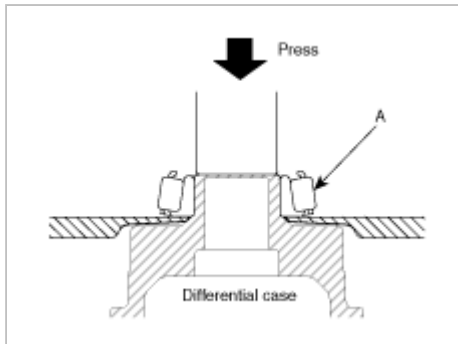
8. Pinion gear
9. Spacer
10. Differential drive gear
11. Taper roller bearing
12. Spacer
13. Outer race

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Disassembly

1. Remove the taper roller bearing(A) using the press.



Reassembly

1. Reassemble the spacer, side gear, washer, pinion and pinion shaft
 - (1) Connect the side gear with the spacer, and install the side gear into differential case.

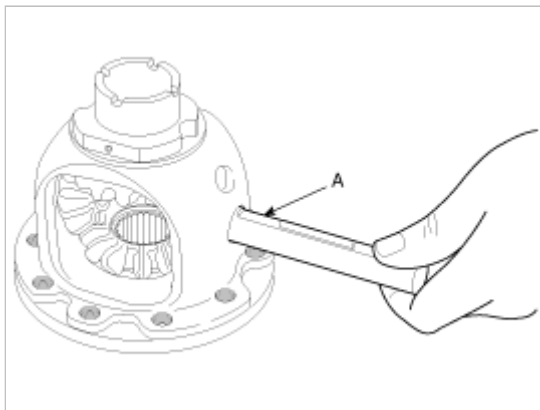
NOTICE

Use a spacer of neutral thickness.
0.037-0.039in(0.93-1.00mm) for a new side gear

- (2) Connect the washer to the pinion and install them simultaneously at the point so that they may lock with the side gear.



- (3) Insert the pinion shaft(A).

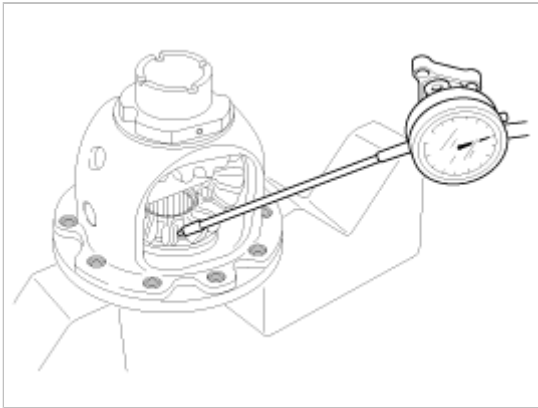


- (4) Check the side gear pinion backlash and install a proper spacer.

Standard value : 0.00098-0.0059in (0.025-0.150mm)

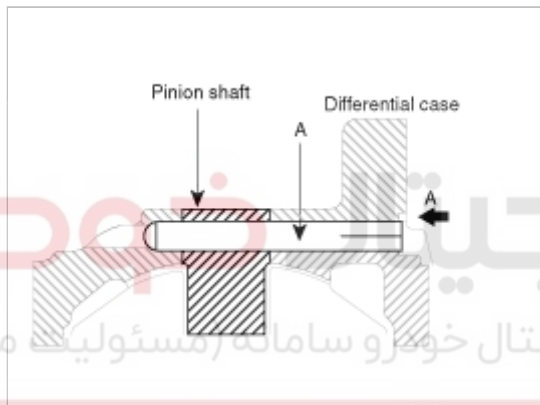
NOTICE

Adjust backlashes at both sides to be within standard value.



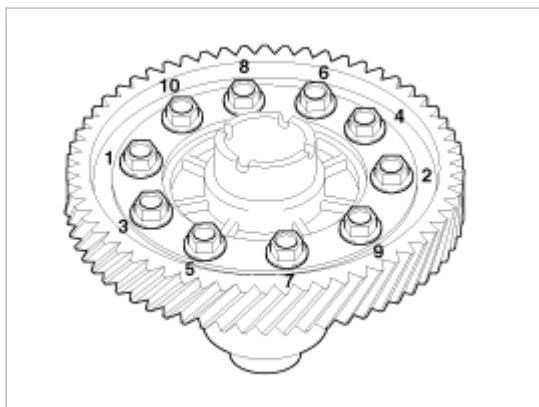
2. Install the lock pin(A).

(1) Install the lock pin as shown in the illustration.

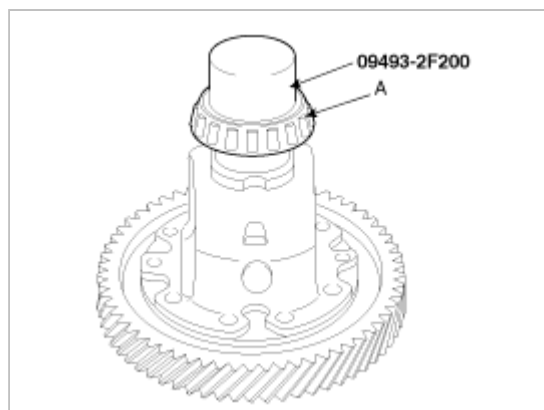


3. Install the differential drive gear.

Apply the ATF to the entire threads of the bolts. Tighten to specifications using the sequence shown in the illustration.



4. Using the special tool(09493-2F200) and press, install the taper roller bearing(A).



دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

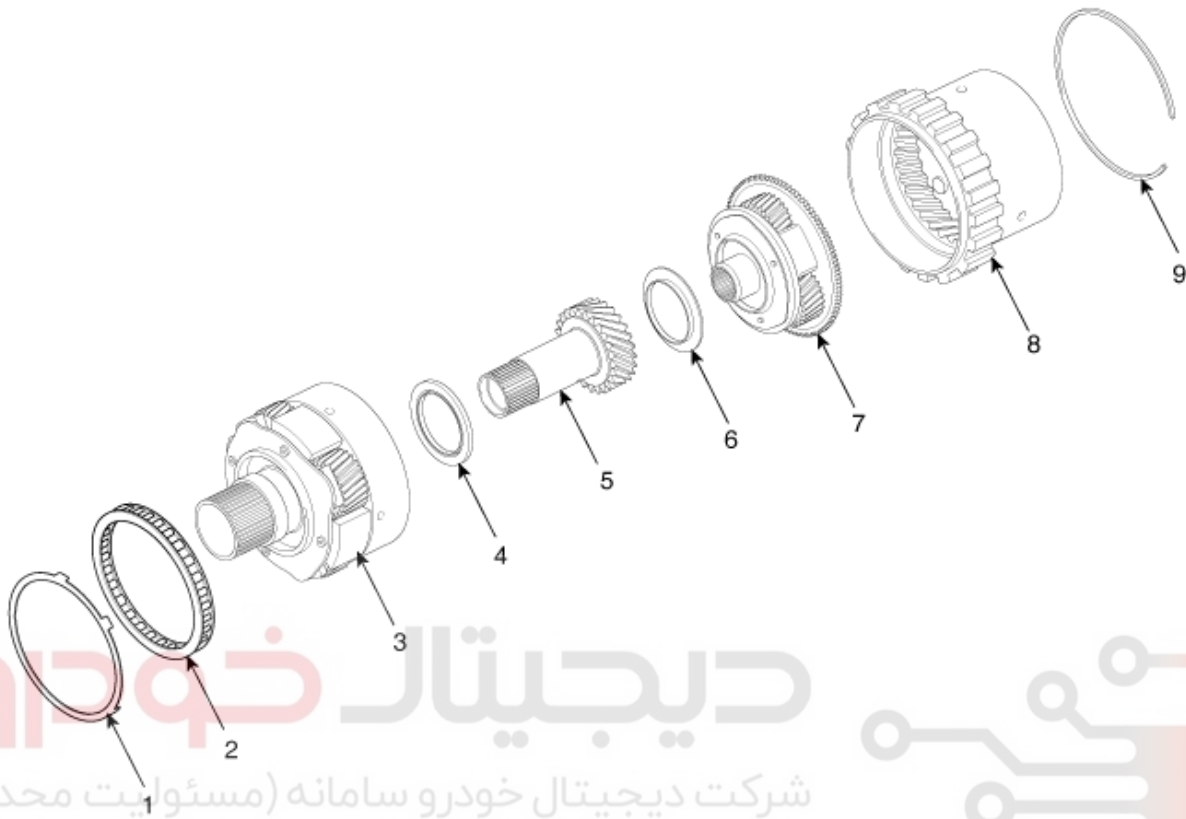
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Components



1. Stopper plate
2. One way clutch
3. Output carrier
4. Thrust bearing
5. Underdrive sun gear

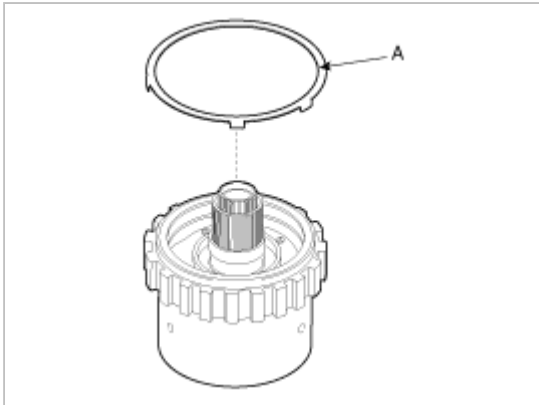
6. Thrust bearing
7. Underdrive carrier
8. Low & reverse annulus gear
9. Snap ring

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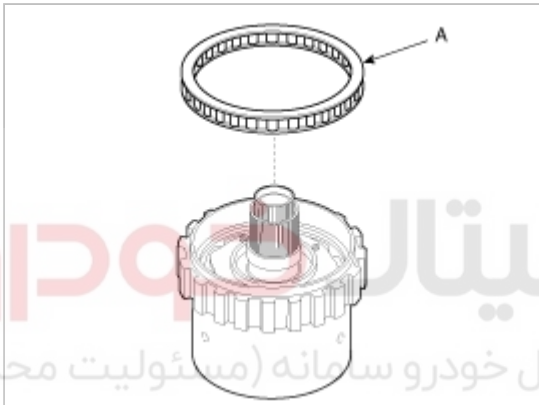


Disassembly

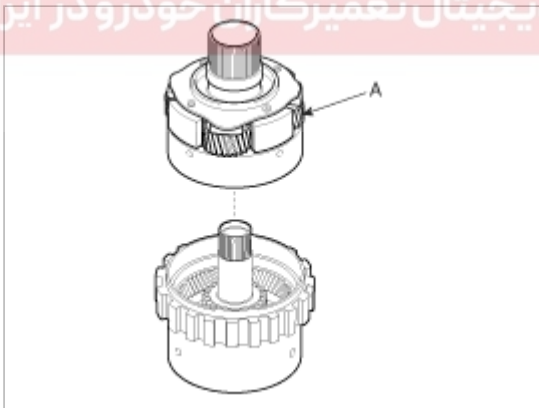
1. Remove the stopper plate(A).



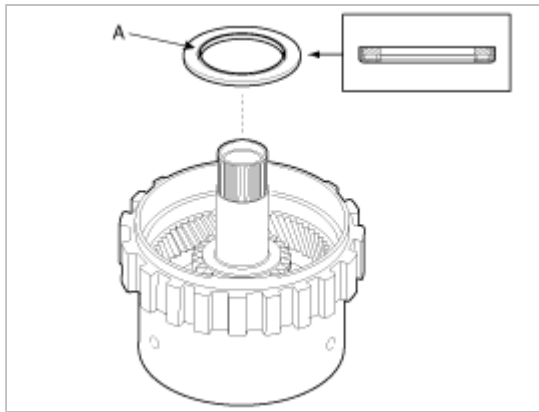
2. Remove the one way clutch(A).



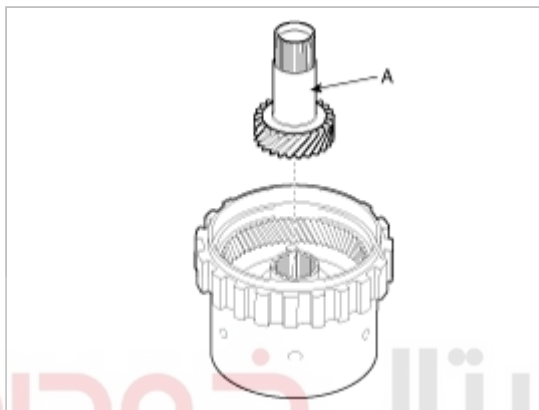
3. Remove the output carrier(A).



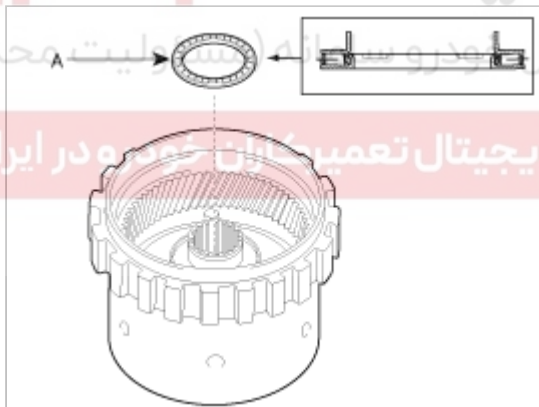
4. Remove the thrust bearing(A).



5. Remove the underdrive sun gear(A).

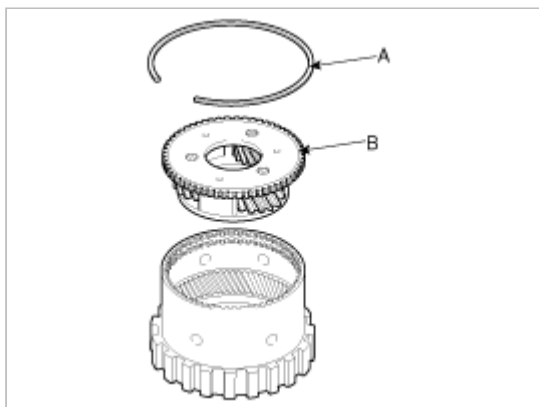


6. Remove the thrust bearing(A) from the overdrive carrier.



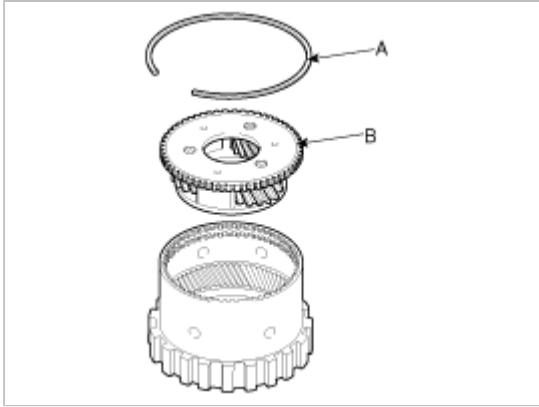
7. Remove the snap ring(A).

8. Remove the overdrive carrier(B) from the Low & reverse annulus gear.



Reassembly

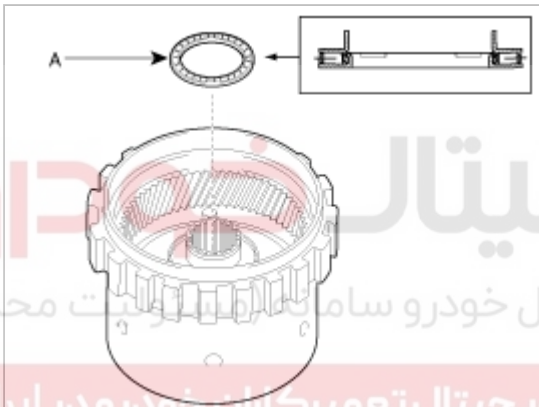
1. Install the overdrive carrier(B) on the & reverse annulus gear.



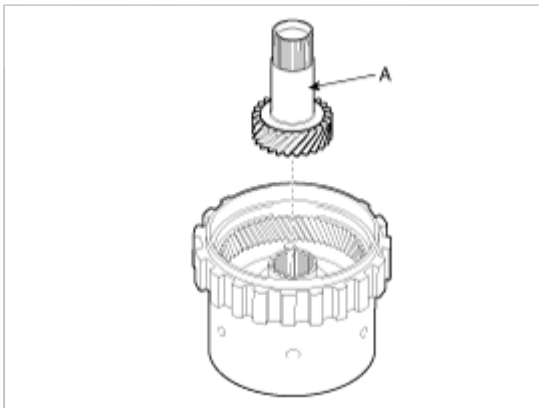
2. Install the snap ring(A).
3. Install the thrust bearing(A) on the Low&reverse annulus gear.

CAUTION

Be careful not to reverse the direction of the thrust bearing.



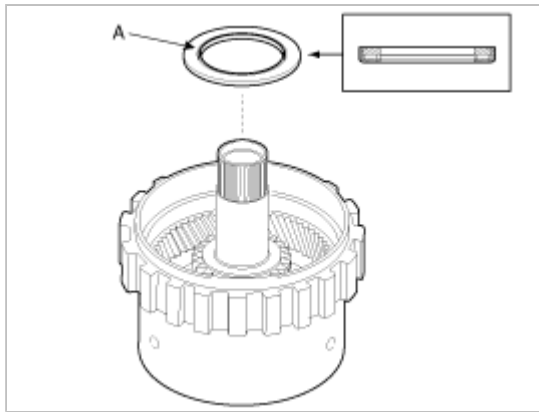
4. Install the undersdrive sun gear(A).



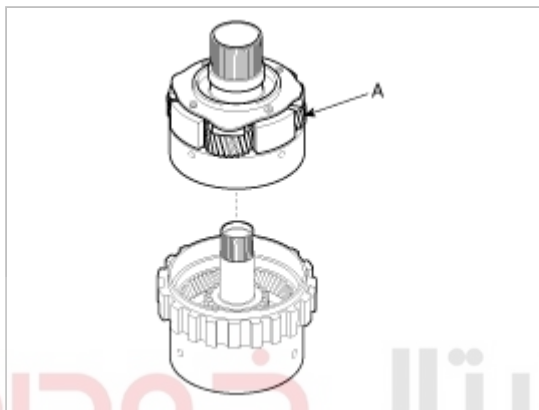
5. Install the thrust bearing(A) on the Low&reverse annulus gear.

CAUTION

Be cautions to the direction of the thrust bearing.



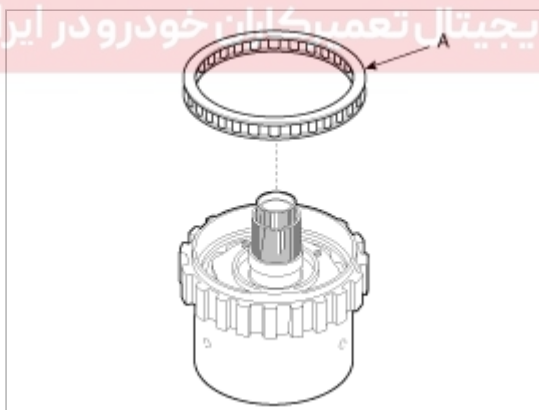
6. Install the output carrier(A).



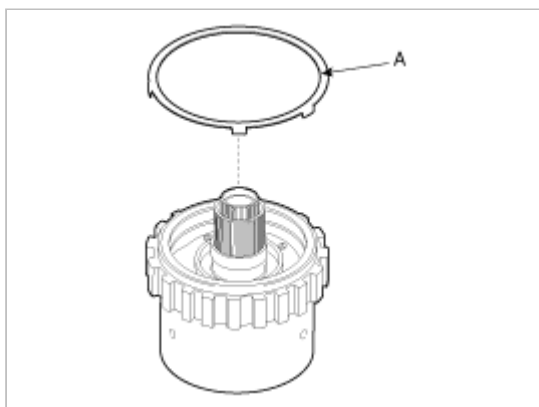
7. Install the one way clutch(A).

CAUTION

Be careful not to reverse the direction of the one way clutch.



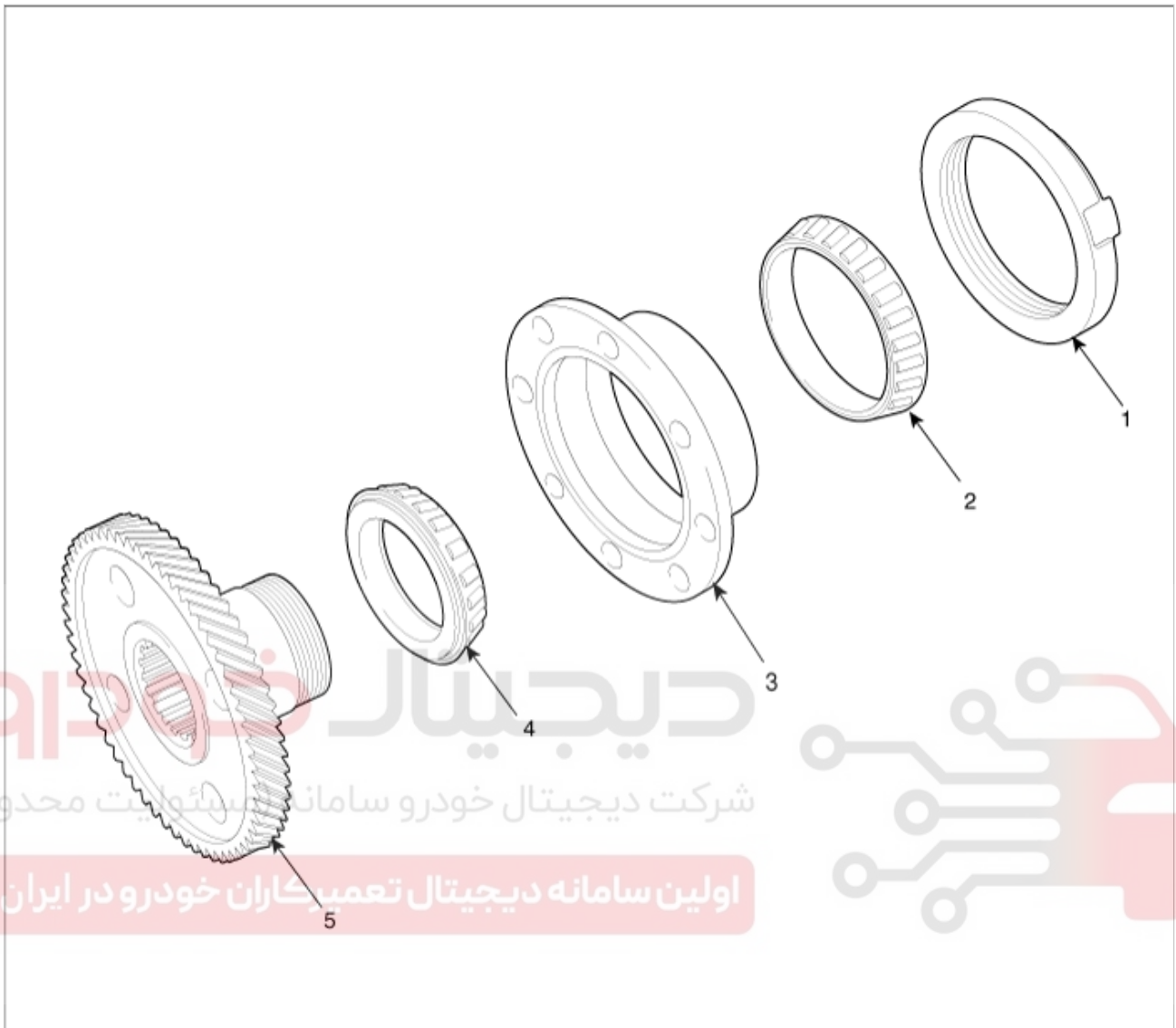
8. Install the stopper plate(A).



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Components



1. Lock nut
2. Taper roller bearing
3. Transfer drive gear bearing bracket

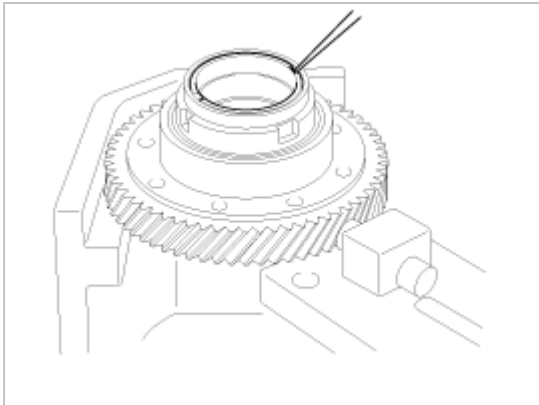
4. Taper roller bearing
5. Transfer drive gear

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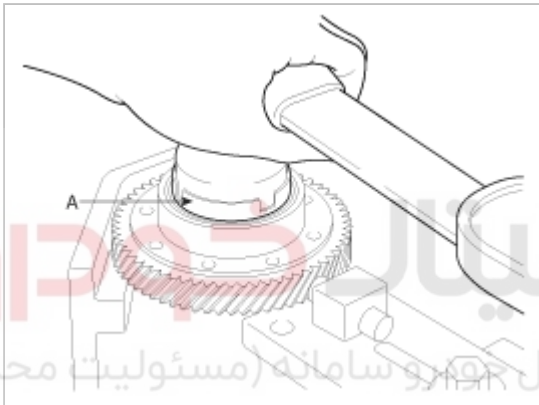


Disassembly

1. Cock the lock nut only enough to turn.

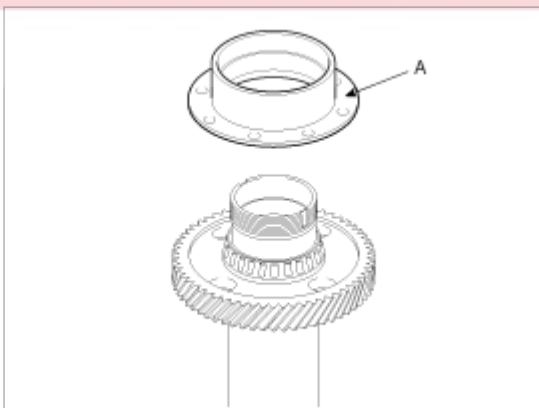


2. Remove the lock nut(A).



3. Remove the taper roller bearing.

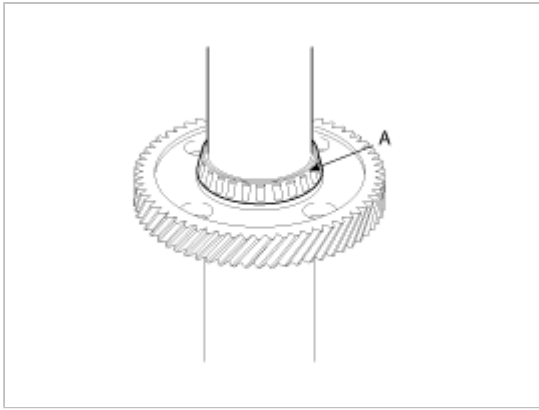
4. Remove the transfer drive gear bearing bracket(A).



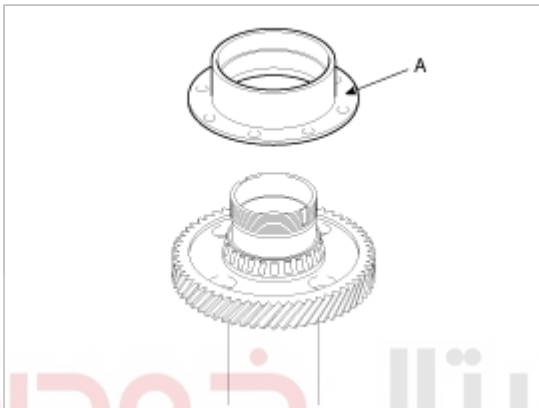
5. Remove the taper roller bearing.

Reassembly

1. Press the taper roller bearing(A) into the transfer driver gear.



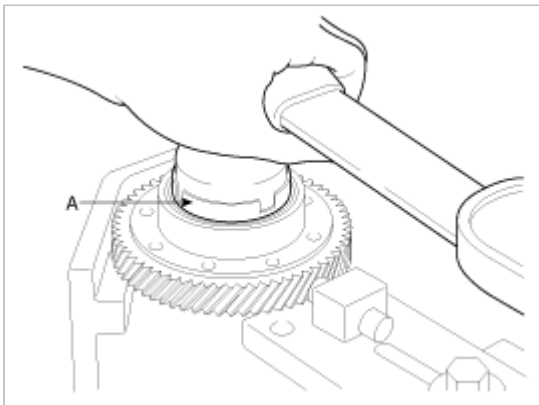
2. Install the bearing bracket(A).



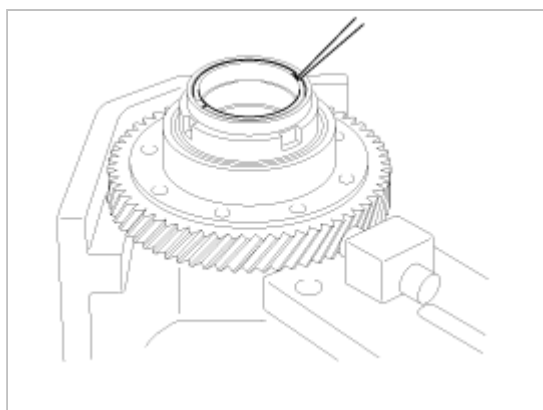
3. Press the taper roller bearing(A).



4. Using the torque wrench tighten the lock nut(A).



5. Stake the nut with a chisel.



دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

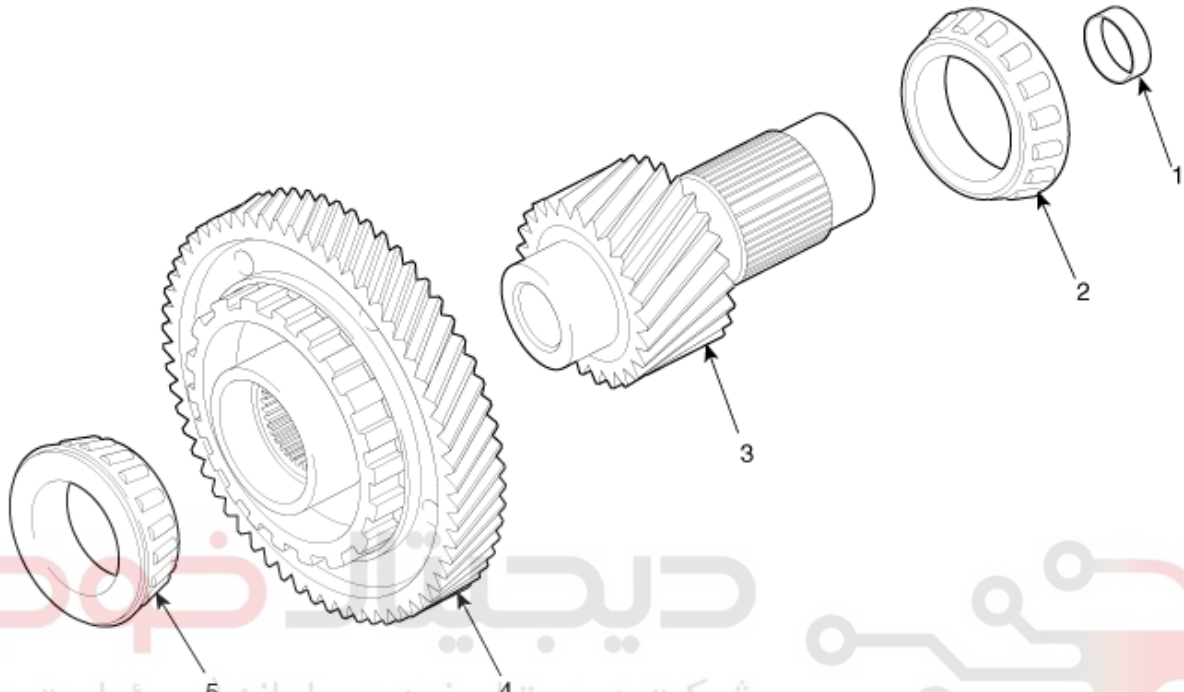
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Components



1. Cap seal
2. Taper roller bearing
3. Output shaft

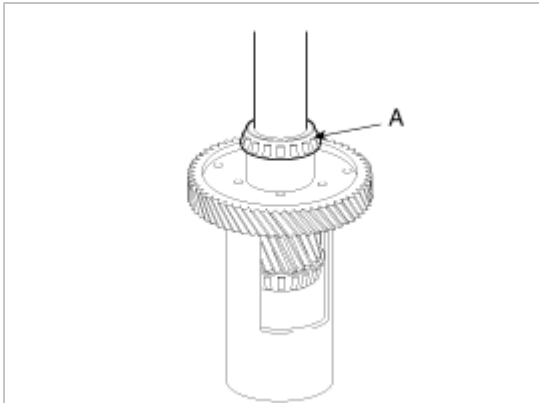
4. Transfer driven gear
5. Taper roller bearing

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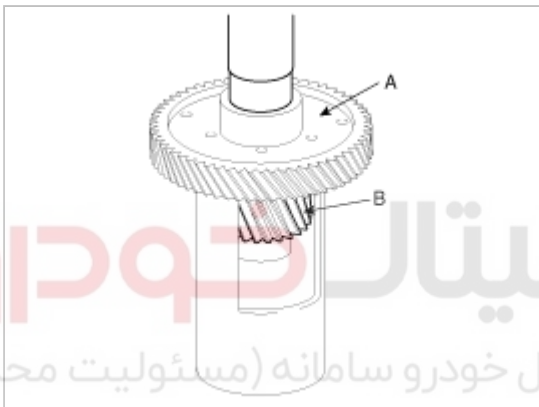


Disassembly

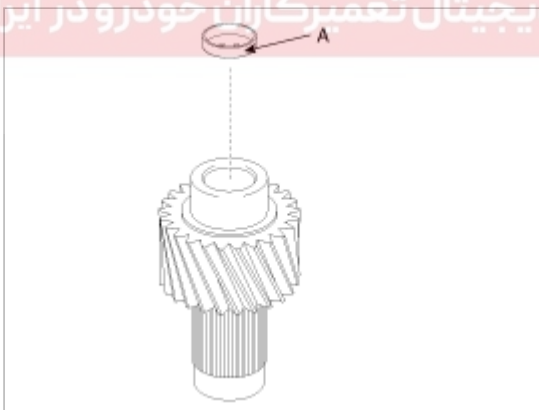
1. Remove the taper roller bearing(A).



2. Remove the transfer driven gear(A) and shaft(B).

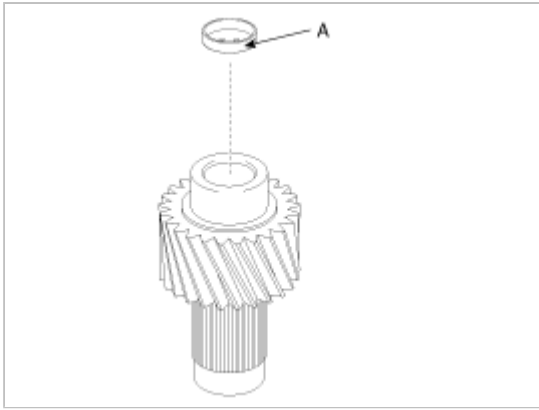


3. Remove the cap seal(A) from the shaft.

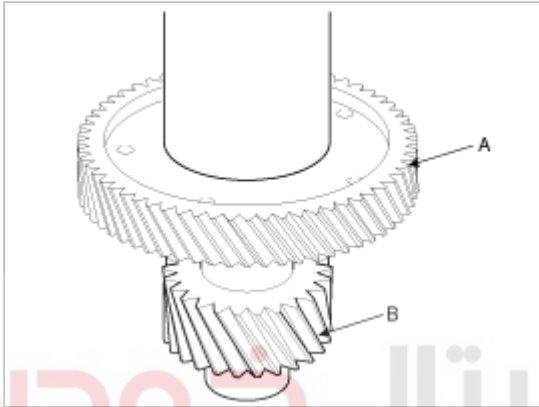


Reassembly

1. Install the cap seal(A) on the output shaft.



2. Press the transfer driven gear(A) and shaft(B).



3. Using the special tool(09453-2F100), press the taper roller bearing (A).

