

Manual Transaxle (M5GF2)

GENERAL

MANUAL TRANSAXLE SYSTEM

INPUT SHAFT
MANUAL TRANSAXLE

MANUAL TRANSAXLE SHIFT CONTROL
OUTPUT SHAFT
SHIFT FORK
REVERSE IDLER GEAR

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



MT -2

MANUAL TRANSAXLE (M5GF2)

GENERAL

SPECIFICATION

ED1FFFB6

Manual transaxle type		M5GF2	
Recommended transaxle oil		SAE75W/85 or API GL-4	
Oil quantity		1.9 Liter	
Oil inspection and supplement		Every one year	
Replacement	Private use	No service required	
	Business use	Every 100,000 Km	
		Every 100,000 Km in severe use(1~4)	
		1. Driving on rough road(bumpy road, gravel road, snowy road, unpaved road etc.)	
		2. Driving on mountain road, ascent/descent	
		3. Rpetition of short distance driving	
		4. More than 50% operation in heavy city traffic during hot weather above 32°C	
Gear ratio	Engine type	2.0 DOHC	2.4 DOHC
	1st	3.273	←
	2nd	1.794	←
	3rd	1.552	←
	4th	1.176	←
	5th	0.974	←
	Reverse	3.416	←
	Final reduction gear ratio	4.680	4.333
		3.441	3.250

LUBRICANTS

Item	Lubricant	Quantity
Transaxle input shaft spline	CASMOLY L9508	0.2 gr.
Concentric sleeve cylinder assembly	KLUBER 9R100	As required
Transaxle case gasket	LOCTITE 587	As required

GENERAL

MT -3

TIGHTENING TORQUE

Item	Nm	Kgf.cm	lb-ft
Concentric sleeve cylinder assembly	11.8~14.7	120~150	8.7~10.8
Magnetic plug	29.4~34.3	300~350	21.7~25.3
Shift control shaft fork and shaft guide	19.6~26.5	200~270	14.5~19.5
Oil filler plug	29.4~34.3	300~350	21.7~25.3
Idler shaft bolt	34.3~41.2	350~420	25.3~30.4
Back up lamp switch	29.4~34.3	300~350	21.7~25.3
Control shaft assembly	9.8~11.8	100~120	7.2~8.7
Select lever	42.2~53.9	430~550	31.1~39.8
Shift link assembly	42.2~53.9	430~550	31.1~39.8
Vehicle speed sensor	7.8~9.8	80~100	5.8~7.2
Transaxle mounting bracket assembly	63.7~83.4	650~850	47.0~61.5
Transaxle and engine mounting bolt	42.2~53.9	430~550	31.1~39.8
Cross member mounting	137.3~156.9	1400~1600	101.3~115.7
Stay mounting	44.1~58.8	450~600	32.5~43.4
Steering bar tierod mounting	23.5~33.3	240~340	17.4~24.6
Stabilizer bar link mounting	98.1~117.7	1000~1200	72.3~86.8
Lower arm ball joint and fork mounting	98.1~117.7	1000~1200	72.3~86.8
Lower arm ball joint and front axle mounting	98.1~117.7	1000~1200	72.3~86.8
Front/rear roll stopper assembly	49.0~63.7	500~650	36.2~47.0
Steering column bolt	17.7~24.5	180~250	13.0~18.1
Power steering pressure hose bolt	63.7~73.5	650~750	47.0~54.2

SERVICE STANDARD

Item	Specification [mm(inch)]
Differential end play	0.15T-0.20T (0.0059T~0.0079T)
Input shaft end play	0.05T-0 (0.0020T~0)
1st output shaft end play	0.05T-0.10T (0.0020T~0.0039T)
2nd output shaft end play	0.05T-0.10T (0.0020T~0.0039T)
1st gear end play	0.135T-0.435T (0.0053T~0.0171T)
2nd gear end play	0.230T-0.430T (0.0091T~0.0169T)
3rd gear end play	0.142T-0.472T (0.0056T~0.0186T)
4th gear end play	0.230T-0.430T (0.0091T~0.0169T)
5th gear end play	0.125T-0.305T (0.0049T~0.0120T)
Reverse gear end play	0.135T-0.345T (0.0053T~0.0136T)

MT -4

MANUAL TRANSAXLE (M5GF2)

SPACERS

Part name	Thickness [mm(inch)]	Identification number
Spacer (For adjustment of input shaft rear bearing end play)	2.15 (0.0846)	15
	2.20 (0.0866)	20
	2.25 (0.0886)	25
	2.30 (0.0906)	30
	2.35 (0.0925)	35
	2.40 (0.0945)	40
	2.45 (0.0965)	45
	2.50 (0.0984)	50
	2.55 (0.1004)	55
	2.60 (0.1024)	60
	2.65 (0.1043)	65
	2.70 (0.1063)	70
	2.75 (0.1083)	75
	2.80 (0.1102)	80
	2.85 (0.1122)	85
Spacer (For adjustment of 1st output shaft rear bearing end play)	2.30 (0.0906)	30
	2.35 (0.0925)	35
	2.40 (0.0945)	40
	2.45 (0.0965)	45
	2.50 (0.0984)	50
	2.55 (0.1004)	55
	2.60 (0.1024)	60
	2.65 (0.1043)	65
	2.70 (0.1063)	70
	2.75 (0.1083)	75
Spacer (For adjustment of 2st output shaft rear bearing end play)	2.35 (0.0925)	35
	2.40 (0.0945)	40
	2.45 (0.0965)	45
	2.50 (0.0984)	50
	2.55 (0.1004)	55
	2.60 (0.1024)	60
	2.65 (0.1043)	65
	2.70 (0.1063)	70
	2.75 (0.1083)	75
	2.80 (0.1102)	80

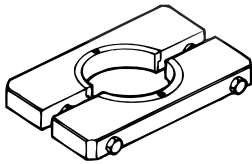
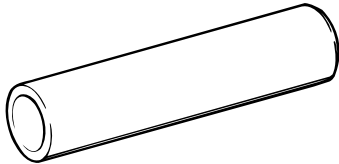
GENERAL

MT -5

Part name	Thickness [mm(inch)]	Identification number
Spacer (For adjustment of differential end play)	1.22 (0.0480)	22
	1.25 (0.0492)	25
	1.28 (0.0504)	28
	1.31 (0.0516)	31
	1.34 (0.0528)	34
	1.37 (0.0539)	37
	1.40 (0.0551)	40
	1.43 (0.0563)	43
	1.46 (0.0575)	46
	1.49 (0.0587)	49
	1.52 (0.0598)	52
	1.55 (0.0610)	55
	1.58 (0.0622)	58
	1.61 (0.0634)	61
	1.64 (0.0646)	64
	1.67 (0.0657)	67
	1.70 (0.0669)	70

SPECIAL TOOLS

EBE3DE22

Tool (Number and name)	Illustration	Use
09527-4A000 Removing plate	 KMRE001T	Removal of the 1st output shaft front taper roller bearing.
09432-3K000 Oil seal installer	 KMRE001U	Installation of a input shaft oil seal in a clutch housing.

MT -6

MANUAL TRANSAXLE (M5GF2)

MANUAL TRANSAXLE SYSTEM

SERVICE ADJUSTMENT

PROCEDURE EC3FEB20

TRANSMISSION OIL INSPECTION AND REPLACEMENT

1. After parking a vehicle on a plain, stop the engine.
2. After removing a oil filler plug and washer, inspect the manual transaxle fluid condition and quantity.
3. If the manual transaxle fluid is contaminated, drain it out by removing the oil drain plug.
4. Tighten a new oil drain plug and feed manual transaxle fluid to a proper level.

TORQUE:

29.4~34.4 N.m(300~350Kgf.cm, 21.7~25.3lb-ft)

Oil type: SAE75W/85

Oil quantity:

1.9 liter(2.0077 US qt, 1.6718 Imp qt)

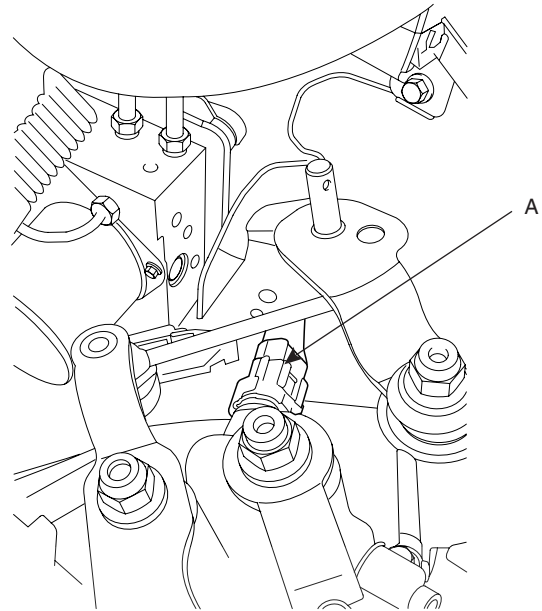
5. Retighten the oil filler plug with a new washer.

TORQUE:

29.4~34.4 N.m(300~350Kgf.cm, 21.7~25.3lb-ft)

BACK UP LAMP SWITCH INSPECTION

1. Disconnect a back up lamp switch connector(A).



KMRE009E

2. Inspect the continuity of the switch. When a shift lever is located in reverse range, it should be applied an electric current.
3. Replace a back up lamp switch, if necessary.

TORQUE:

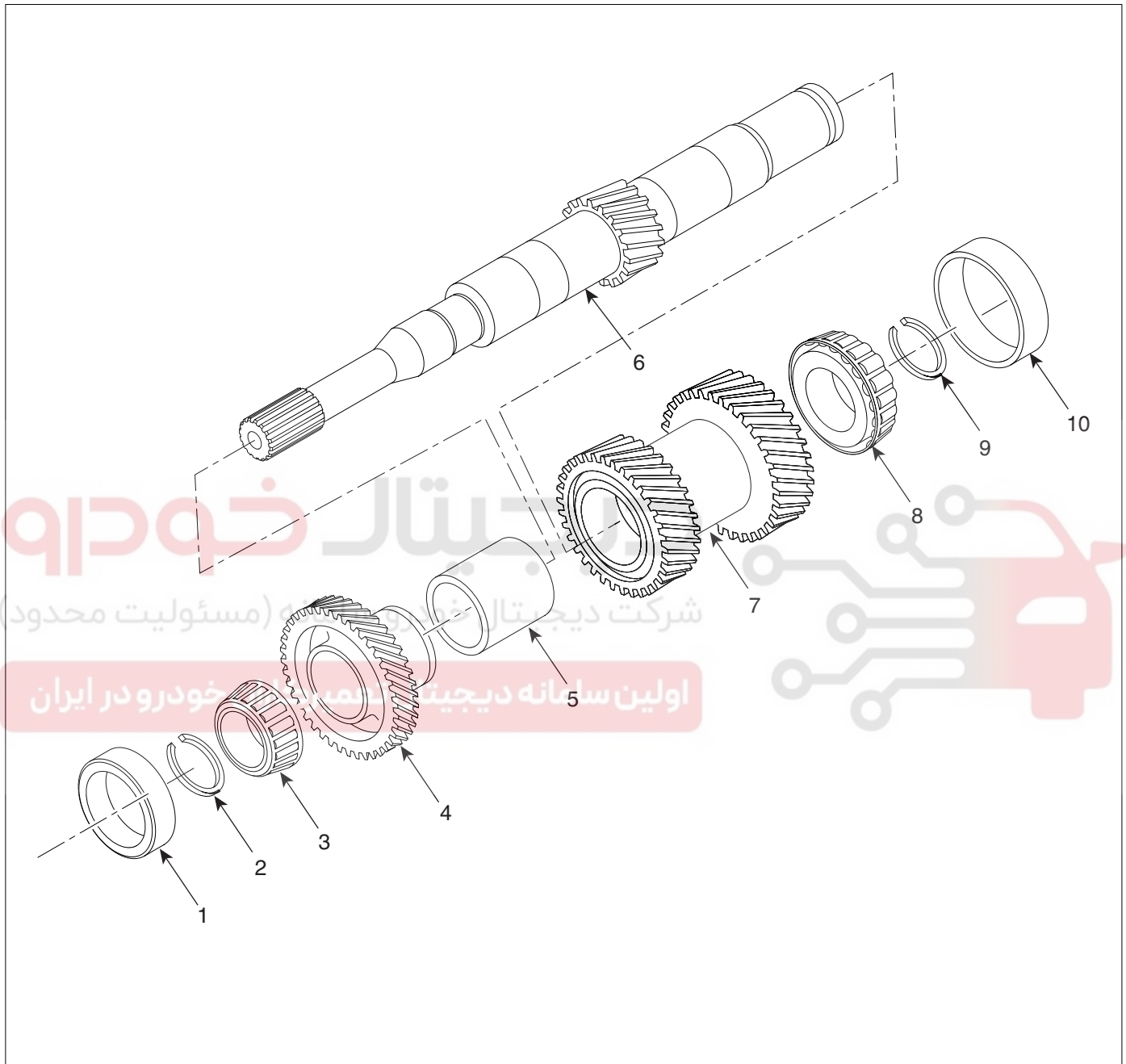
29.4~34.4 N.m(300~350Kgf.cm, 21.7~25.3lb-ft)

MANUAL TRANSAXLE SYSTEM

MT -7

INPUT SHAFT

COMPONENTS E4C7D55C



1. Taper roller bearing outer race
2. Snap ring
3. Taper roller bearing
4. 5th Input gear
5. Spacer

6. Input gear
7. 3rd/4th Input gear
8. Taper roller bearing
9. Snap ring
10. Bearing outer race

EMRE001A

MT -8

MANUAL TRANSAXLE (M5GF2)

DISASSEMBLY EB4AE24B

CAUTION

It is highly recommended not to disassemble input shaft assembly.

If you have a problem with a part in the input shaft assembly, replace it with a new input shaft assembly.

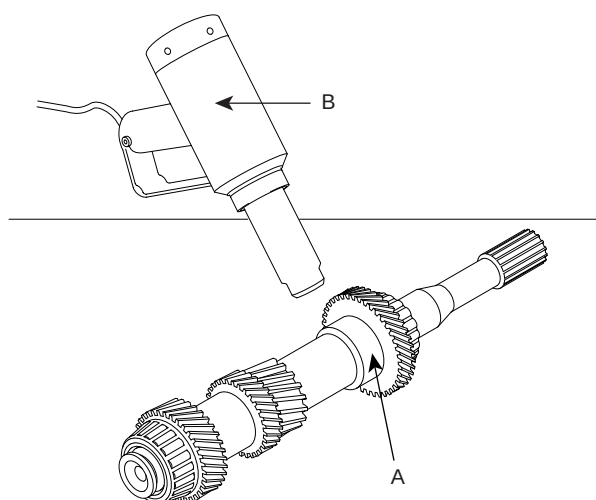
The procedures below is just for reference.

1. Disassemble the snap ring(A).



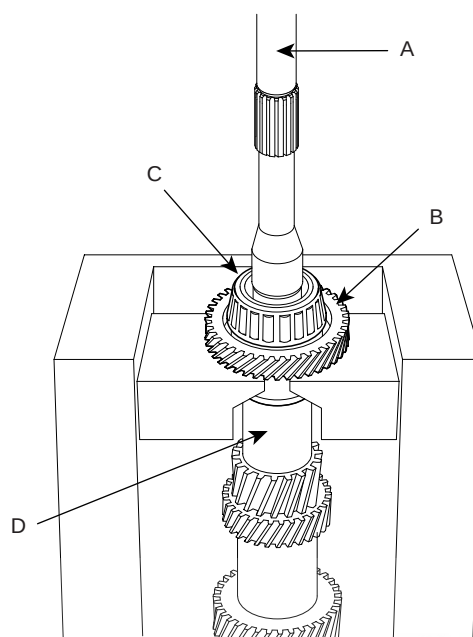
KMRE001L

2. Heat the 5th input gear(A) with a heating machine(B).



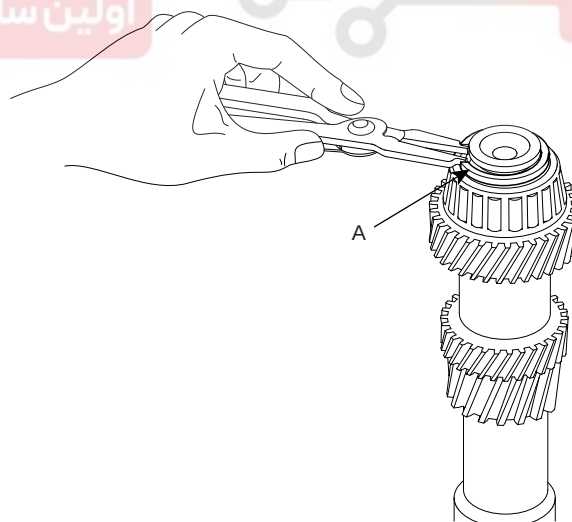
KMRE001M

3. Using a press(A), separate the 5th input gear(B) and the front side taper roller bearing(C) at a time.



KMRE001N

4. Remove the spacer(D).
5. Remove the rear side snap ring(A).

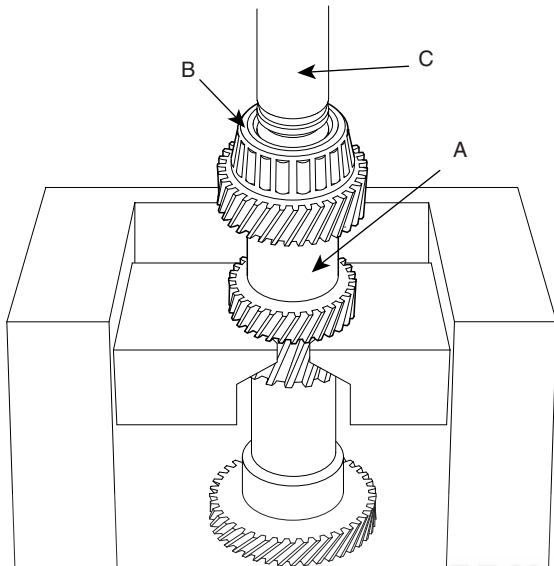


KMRE001O

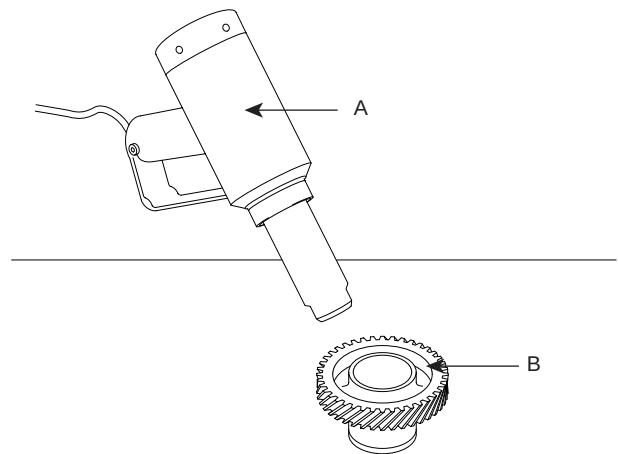
MANUAL TRANSAXLE SYSTEM

MT -9

6. Heating the 3rd/4th gear(A) with a heating machine, install the gear(A) and the rear side taper roller bearing(B) with a press(C).
2. Heating the 5th input gear with a heating machine(A), insert the input shaft(C) into it with a press(D).



KMRE001P



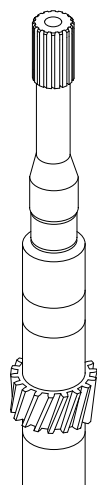
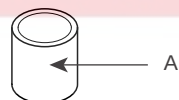
KMRE001C

REASSEMBLY

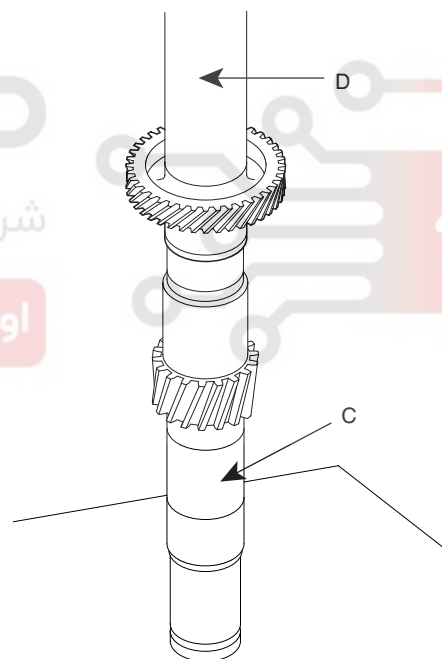
EFFC9A97

1. Insert the input shaft into the spacer(A).

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



KMRE001B

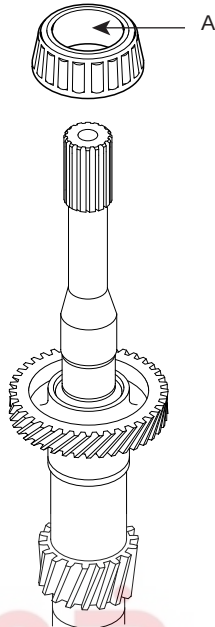


KMRE001D

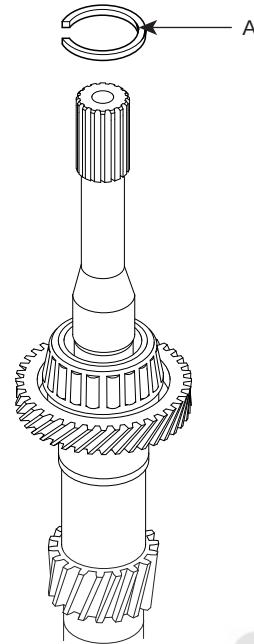
MT -10

MANUAL TRANSAXLE (M5GF2)

3. Using a press(B), do the same procedure as described above with the front side taper roller bearing(A) for its installation.
4. Selecting the front side snap ring(A) which makes the gap be in 0~0.03mm(0.0012inch), install it.

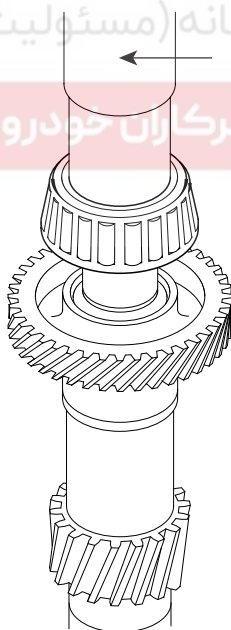


KMRE001E

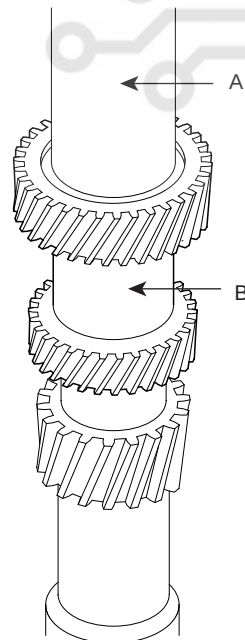


KMRE001G

5. Heating the 3rd/4th gear(B) with a heating machine, insert the input shaft(rear side) into it with a press(A).



KMRE001F

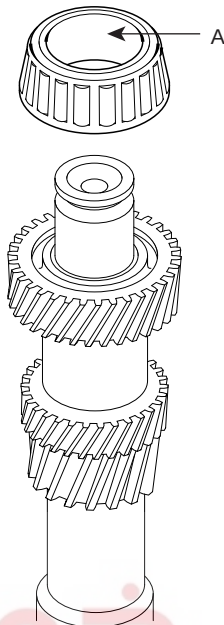


KMRE001H

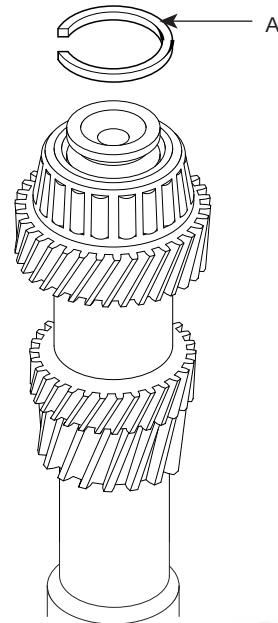
MANUAL TRANSAXLE SYSTEM

MT -11

6. Using a press(B), do the same procedure as described above with the rear side taper roller bearing(A) for its installation.
7. Selecting the rear side snap ring(A) which makes the gap be in 0~0.03mm(0.0012inch), install it.

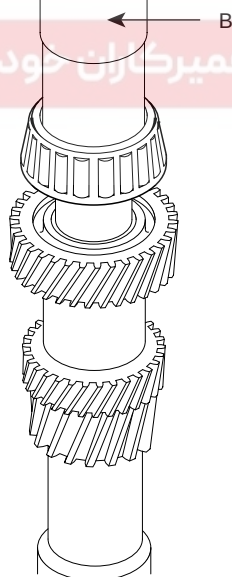


KMRE001I



KMRE001K

دیجیتال خودرو
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



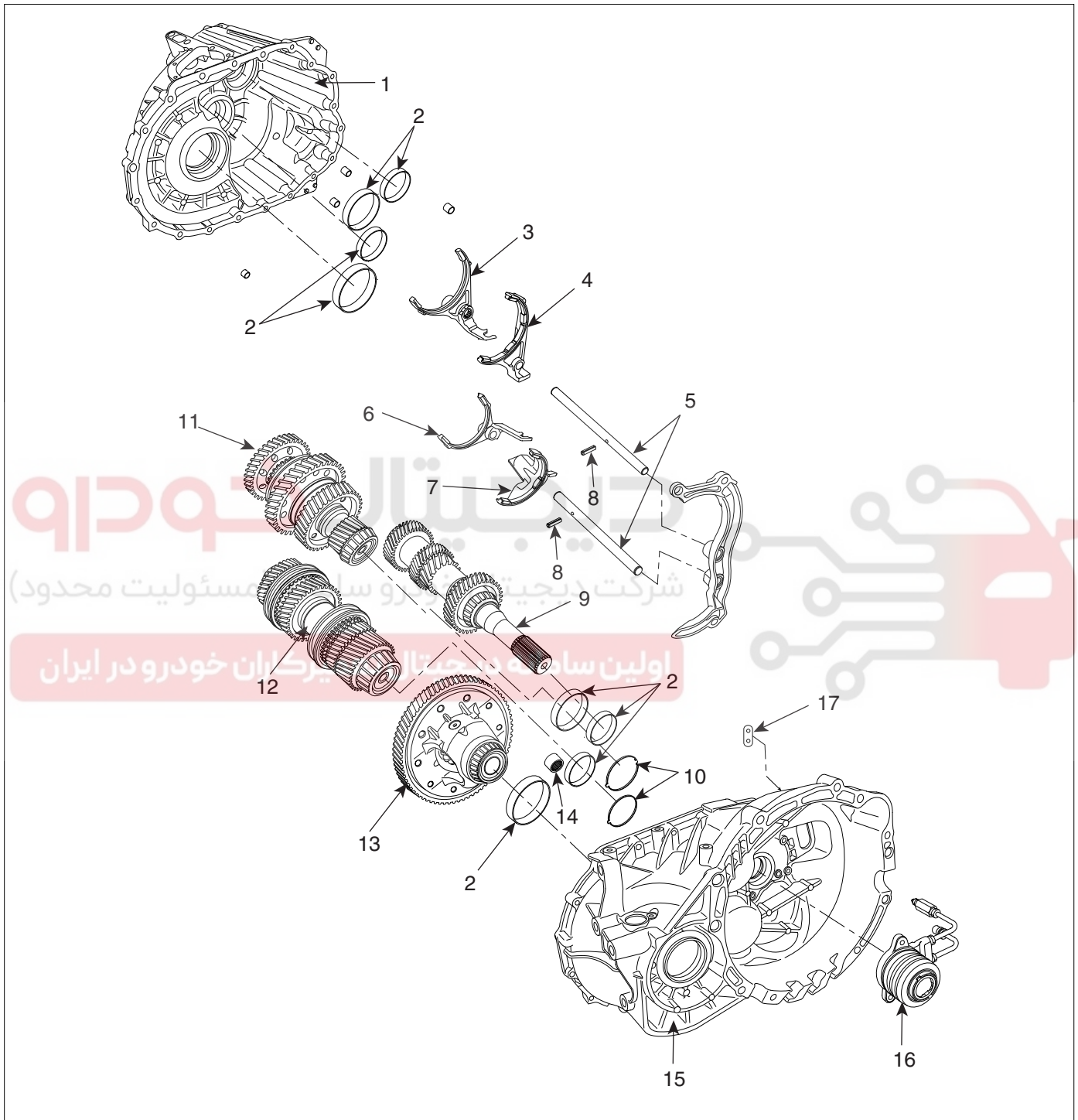
KMRE001J

MT -12

MANUAL TRANSAXLE (M5GF2)

MANUAL TRANSAXLE

COMPONENTS E3ECD674



1. Transaxle case
2. Taper roller bearing outer race
3. 1st/2nd shift fork
4. Reverse shift fork
5. Shift rail
6. 3rd/4th shift fork

7. 5th/6th shift fork
8. Spring pin
9. Input shaft
10. Oil guide
11. 1st output shaft
12. 2nd output shaft

13. Differential assembly
14. Needle bearing
15. Clutch housing
16. Concentric slave cylinder assembly
17. Boot

EMRE006A

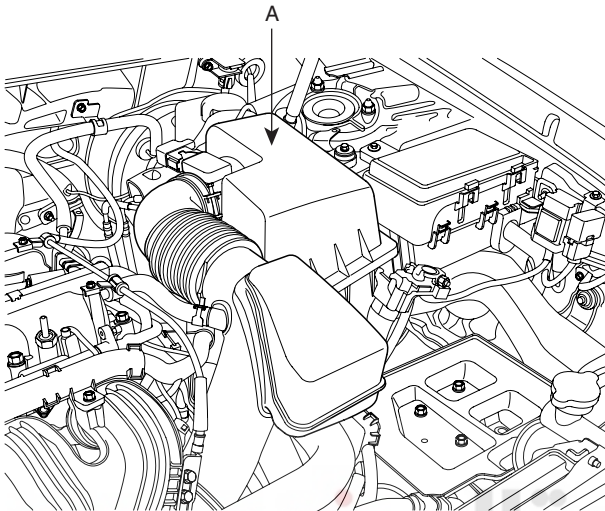
MANUAL TRANSAXLE SYSTEM

MT -13

REMOVAL

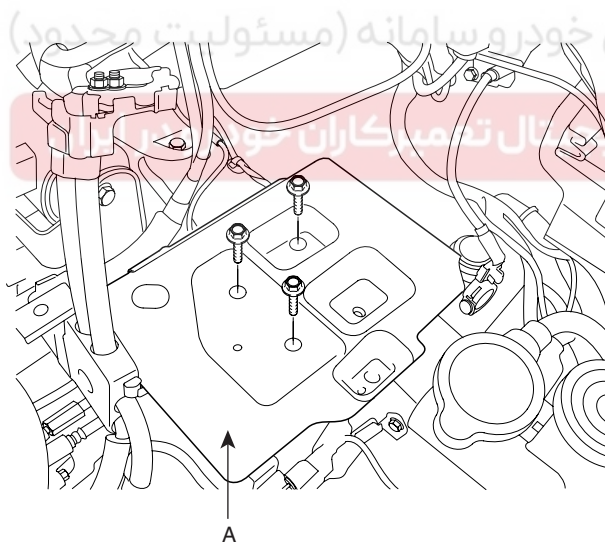
E83AF565

1. Remove the air duct.
2. Remove the battery.
3. Remove the air cleaner assembly(A).



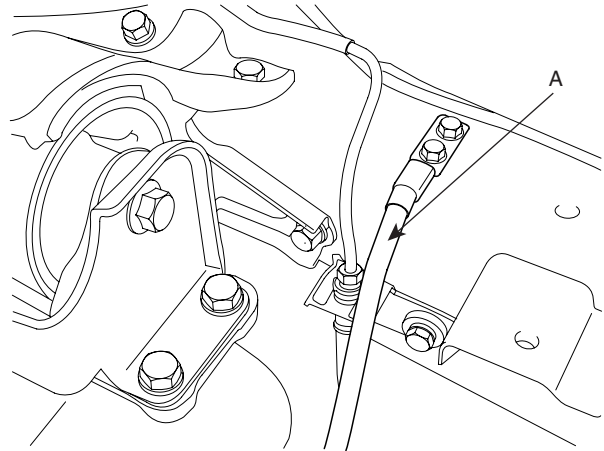
KMRE009A

4. Remove the battery tray(A).



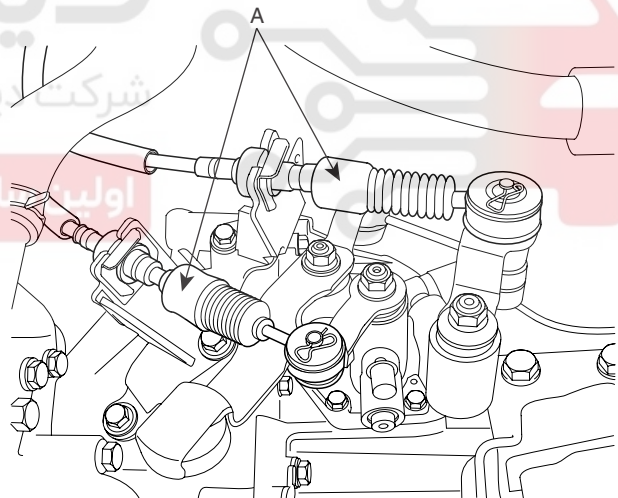
KMRE009B

5. Disconnect the ground circuit line(A) from the transaxle.



KMRE009C

6. Disconnect the vehicle speed sensor.
7. Disconnect the shift cable assembly(A).

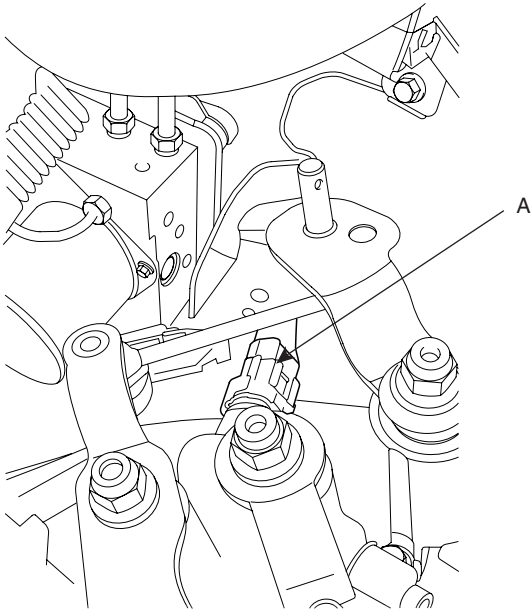


KMRE009D

MT -14

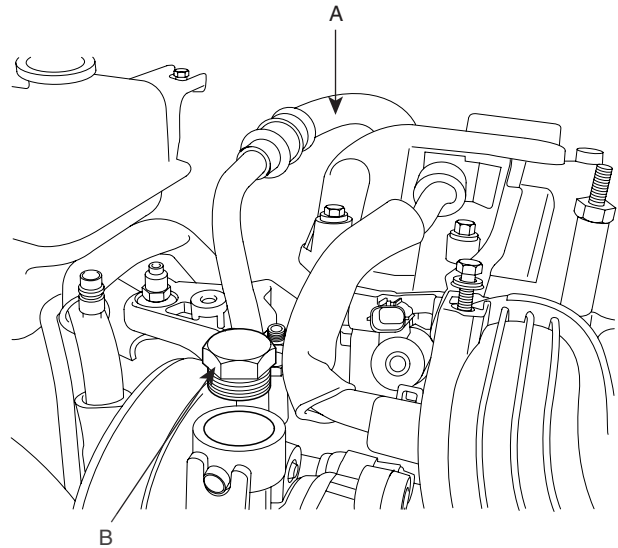
MANUAL TRANSAXLE (M5GF2)

8. Disconnect the back up lamp switch(A).



KMRE009E

11. Drain the power steering fluid and disconnect the power steering pressure hose(A) bolt(B). (Refer to 'ST'-group)

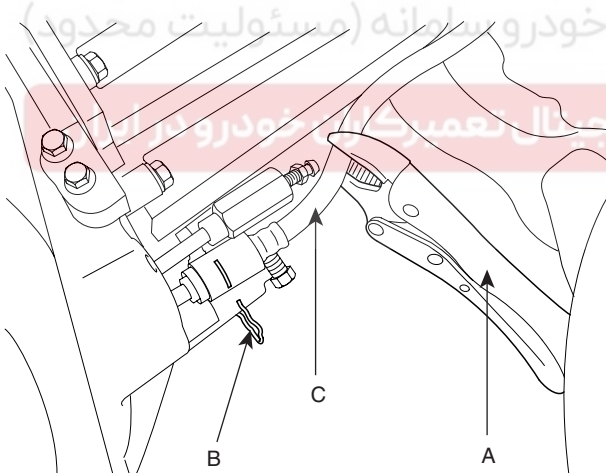


9. Disconnect the related connectors to transaxles.

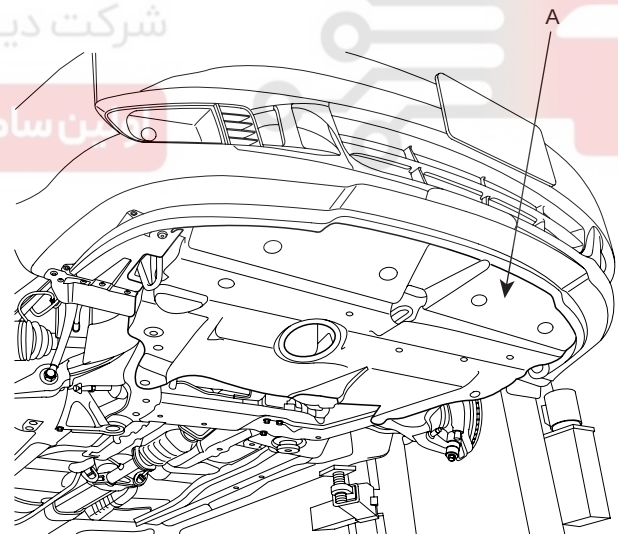
10. After removing the clip(B) with clamping(A) the concentric slave cylinder tube, disconnect the tube(C).

12. Remove the under shield cover(A).

KMRE009G



KMRE009F

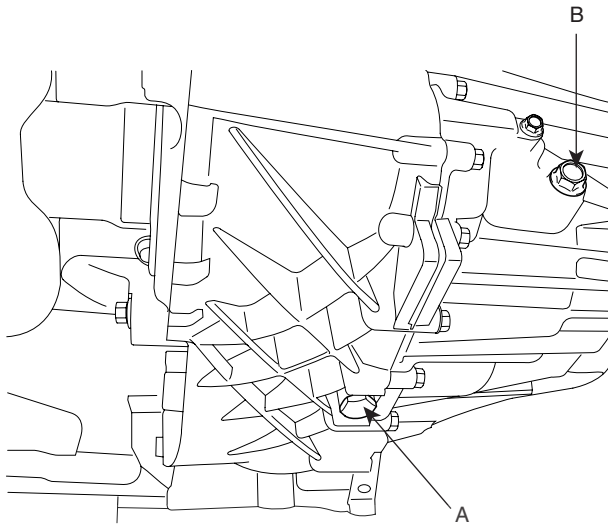


KMRE009H

MANUAL TRANSAXLE SYSTEM

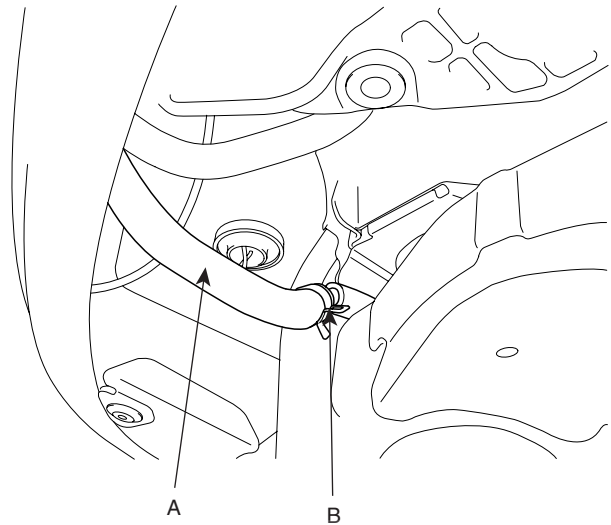
MT -15

13. Drain the manual transaxle fluid after removing the transaxle drain plug(A). It can be easier when the oil filler plug(B) is removed.



KMRE009I

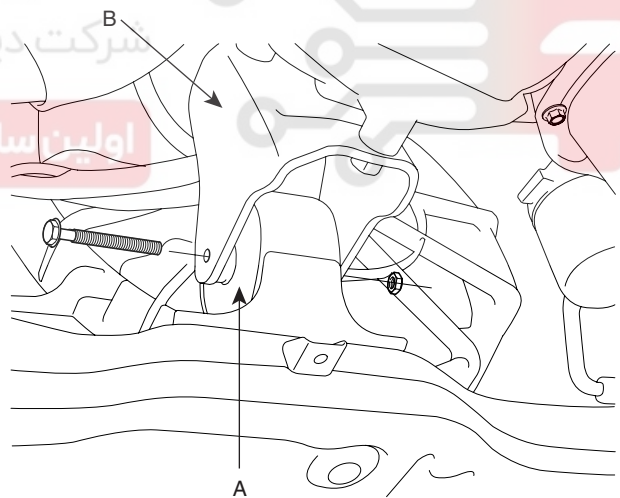
19. Loosening the power steering return hose(A) clamp(B), disconnect the hose.



KMRE009J

14. Disconnect the electronic power steering connector.
15. Remove the lower arm ball joint and fork mounting bolts. (Refer to 'SS'-group)
16. Remove the lower arm ball joint assembly mounting bolts. (Refer to 'SS'-group)
17. Remove the stabilizer bar link mounting bolts. (Refer to 'SS'-group)
18. After removing a split pin and nut from the steering bar tie rod, disconnect it. (Refer to 'ST'-group)

20. Disconnect the bracket(B) from the front roll stopper(A).

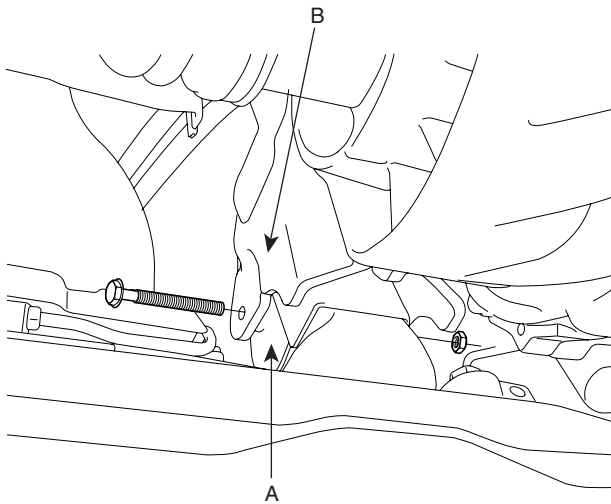


KMRE009K

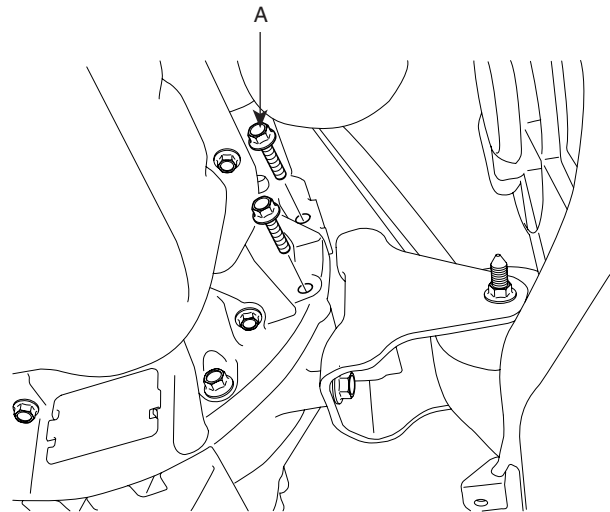
MT -16

MANUAL TRANSAXLE (M5GF2)

21. Disconnect the bracket(B) from the rear roll stopper(A).



KMRE009L

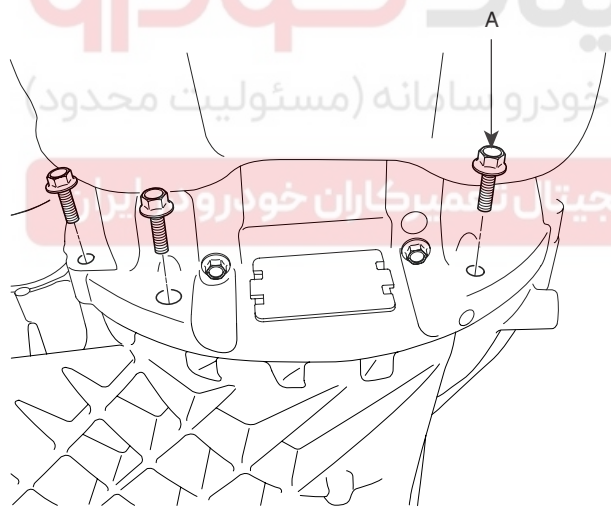


KMRE009N

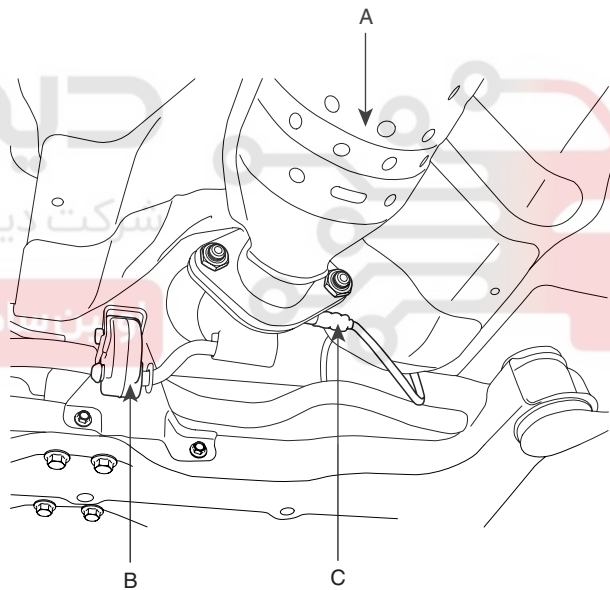
24. After disconnecting the exhaust pipe(A), disconnect the hanger(B) and the Oxygen sensor connector(C).

22. Remove the steering column bolt.

23. Remove the transaxle lower mounting bolts(A).



KMRE009M

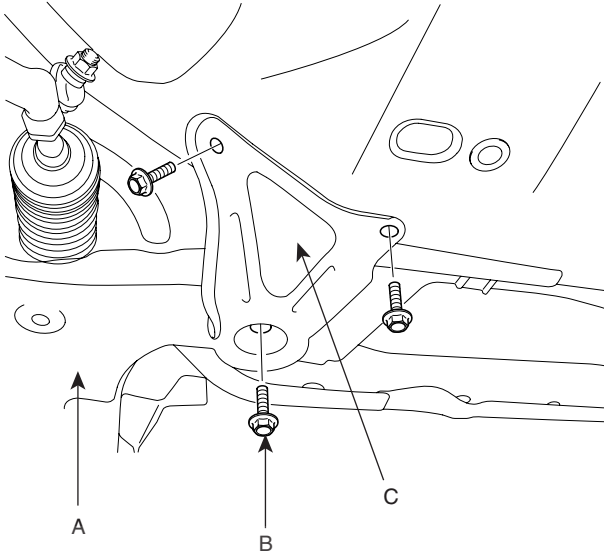


KMRE009O

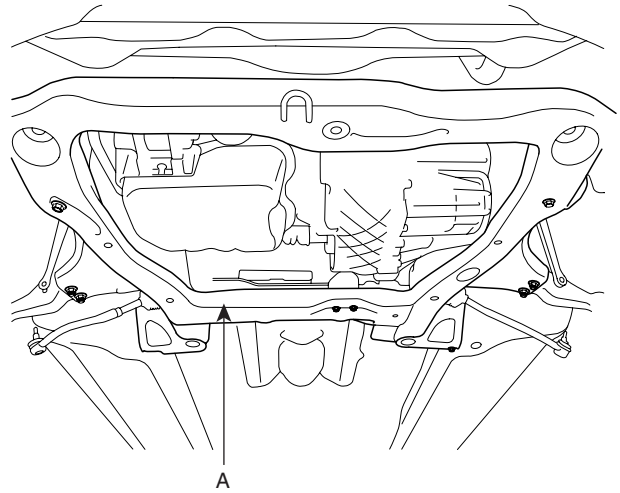
MANUAL TRANSAXLE SYSTEM

MT -17

25. Supporting the cross member(A) with a jack, remove the stay(C) with the mounting bolts(B).

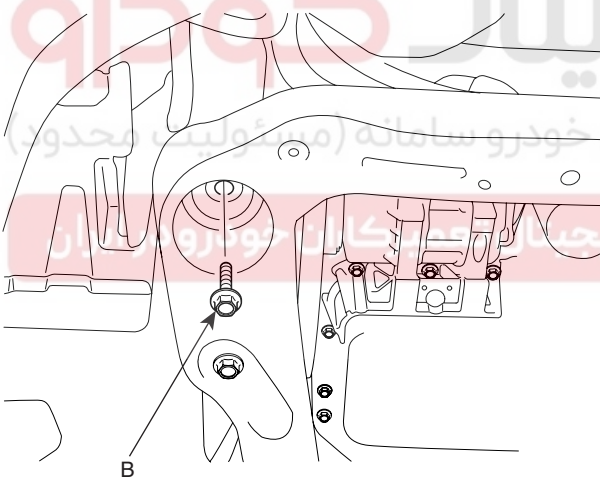


KMRE009P

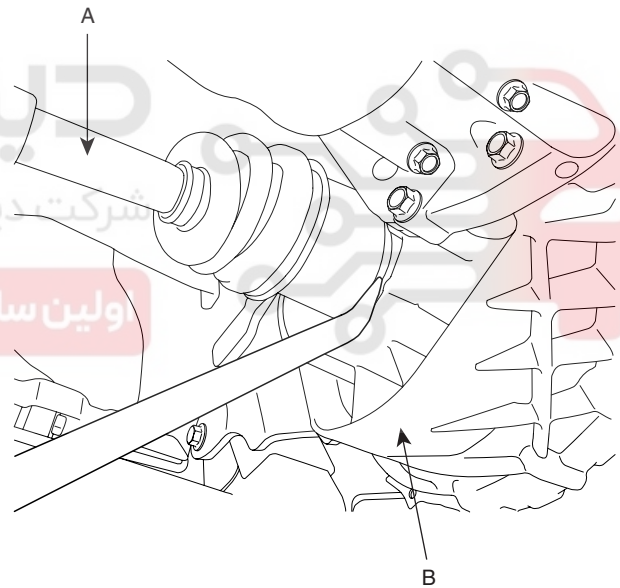


KMRE009R

26. Disconnect the driveshafts(A) from the transaxle(B) (refer to 'DS'-group).



KMRE009Q

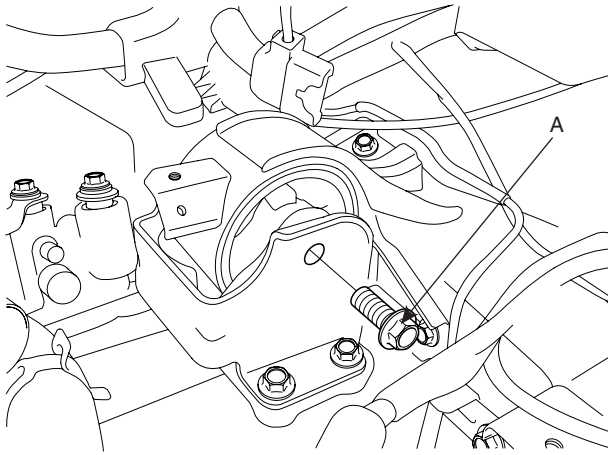


KMRE009S

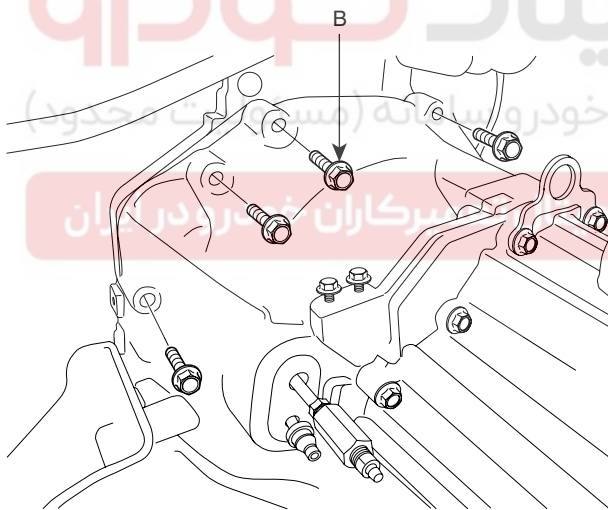
MT -18

MANUAL TRANSAXLE (M5GF2)

27. Supporting the transaxle with a jack, remove the transaxle support bracket(A) and the upper mounting bolts(B).



KMRE009W



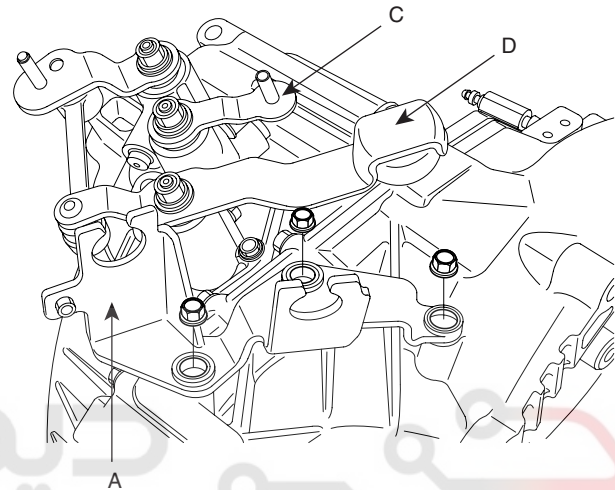
KMRE009X

28. Lowering the jack slowly, remove the transaxle.

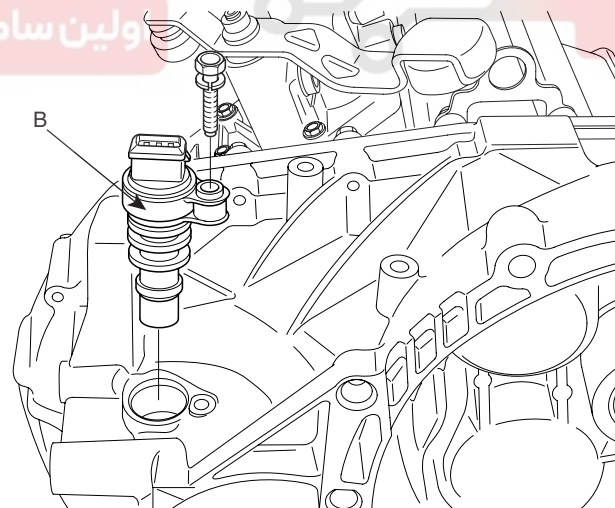
DISASSEMBLY

EA077C88

1. After removing a boot, disassemble the concentric slave cylinder assembly.
2. Remove the shift control cable bracket assembly(A) and the vehicle speed sensor(B).
3. Remove the select lever(C) and shift link assembly(D).



KMRE007J

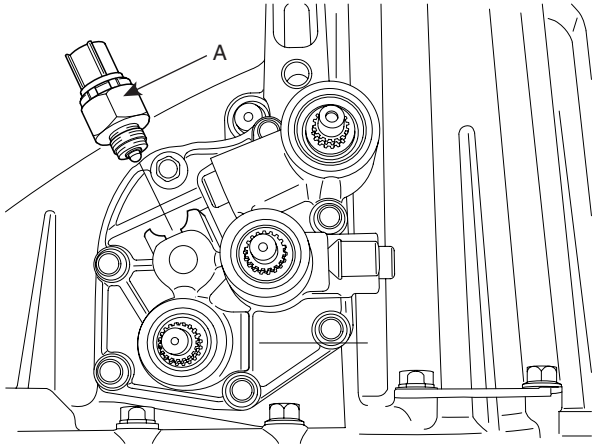


KMRE007I

MANUAL TRANSAXLE SYSTEM

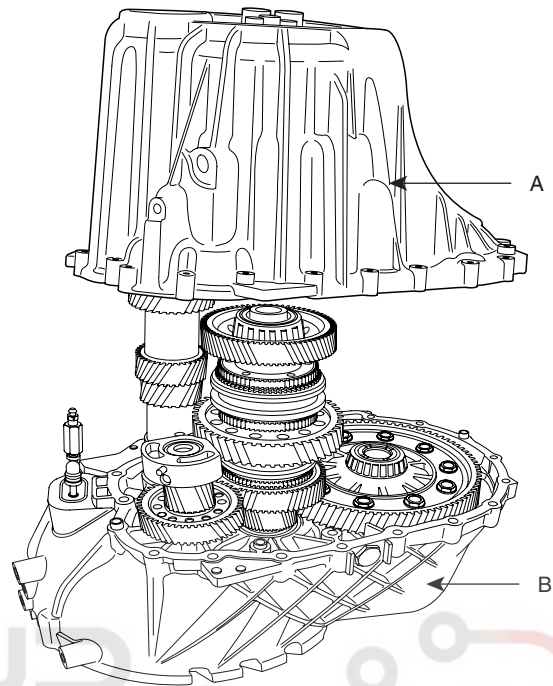
MT -19

4. Remove the back up lamp switch(A).



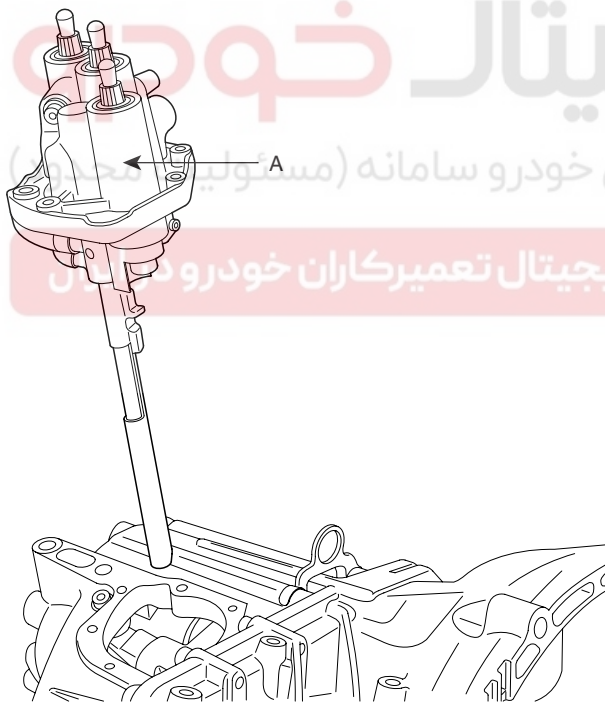
KMRE007F

8. Disconnect the clutch housing(B) from the transaxle case(A).



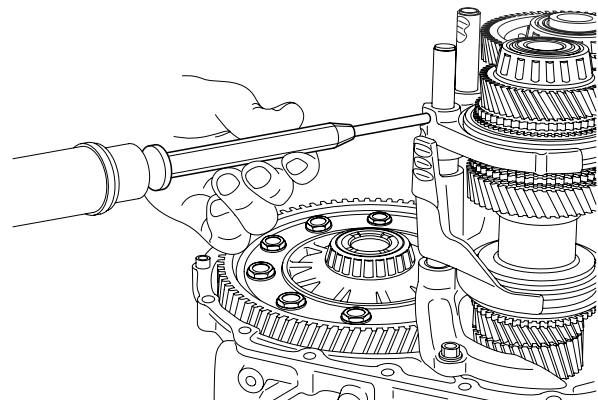
KMRE007A

5. Remove the control shaft complete(A).



KMRE007L

9. Remove the spring pins from the shift rail(3rd/4th & Reverse).



KMRE007K

6. Disconnect the transaxle hanger.
7. Remove the oil filler plug and the idler shaft bolt.

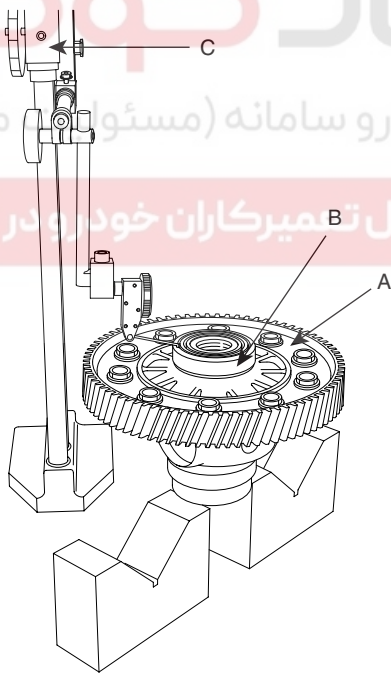
MT -20

MANUAL TRANSAXLE (M5GF2)

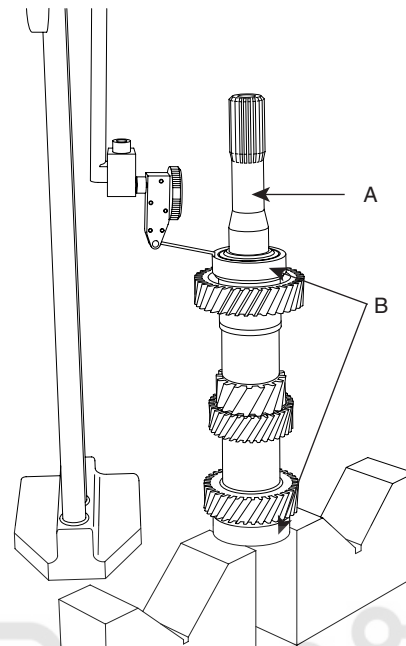
10. Remove the shift control shaft forks(4EA) and shafts(2EA) and rail support bracket.
11. Remove the parts in the order as shown below.
2nd output shaft → input shaft → 1st output shaft → differential assembly.
12. Remove the reverse idler gear assembly.
13. Remove the magnetic plug and the concentric slave cylinder.
14. Remove oil guides, bearing outer races, dowel pins and spacers from the clutch housing.
15. Remove oil seals and guides from the clutch housing.

REASSEMBLY EA2F45CE

1. Assemble the reverse idler gear assembly.
2. Measure the height with a height gauge(C), after fixing the taper roller bearing outer race(B) to the differential assembly(A).

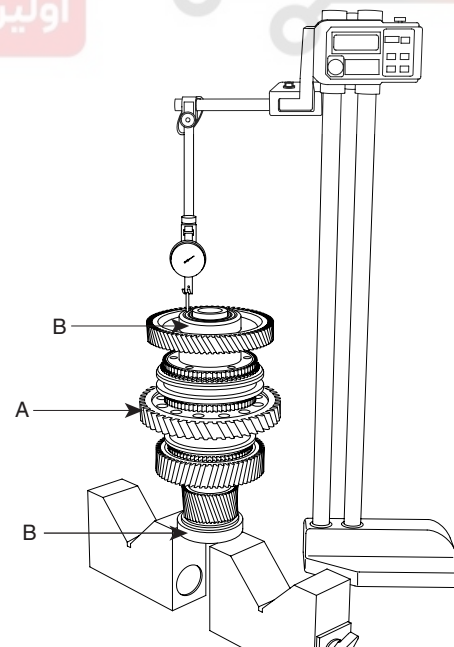


KMRE006B



KMRE006C

4. After installing the taper roller bearing outer race(B) to both sides of the 1st output shaft(A), measure the height with a gauge.

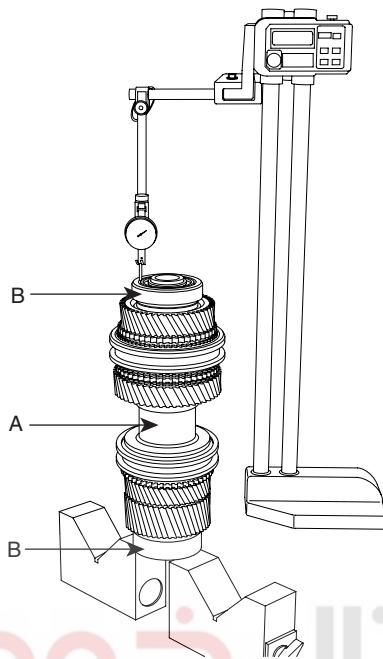


KMRE006D

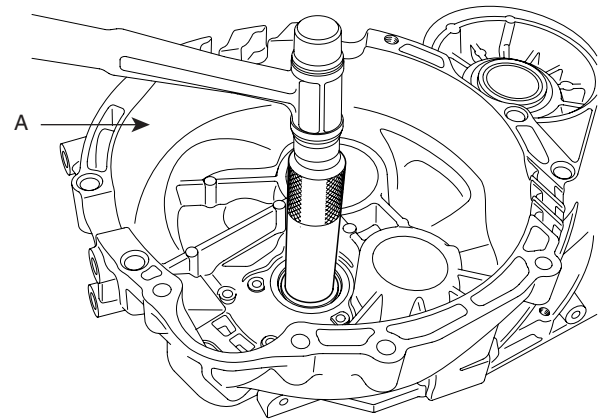
MANUAL TRANSAXLE SYSTEM

MT -21

5. After installing the taper roller bearing outer race(B) to both sides of the 2nd output shaft(A), measure the height with a gauge.



KMRE006E



KMRE006G

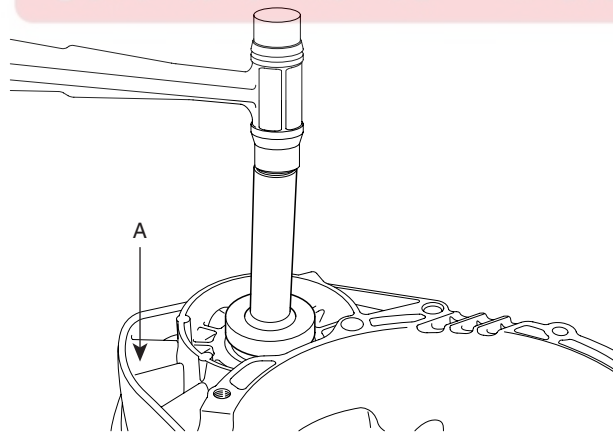
7. Install the concentric slave cylinder assembly(A).

TORQUE:

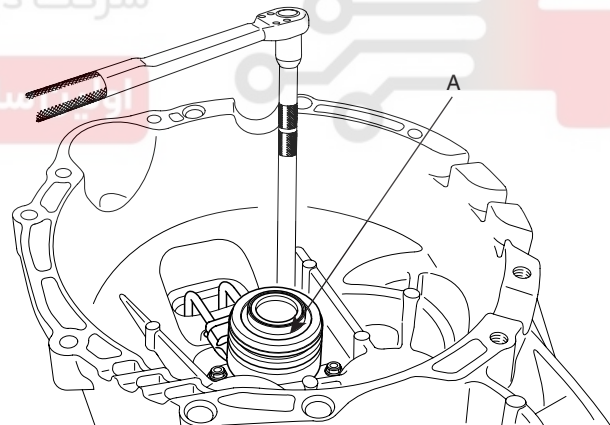
11.8~14.7Nm (120~150kgf.cm, 8.7~10.8lb-ft)

Give it a series of tightenings.

6. Assemble oil seals and guides to the clutch housing(A).



KMRE006F

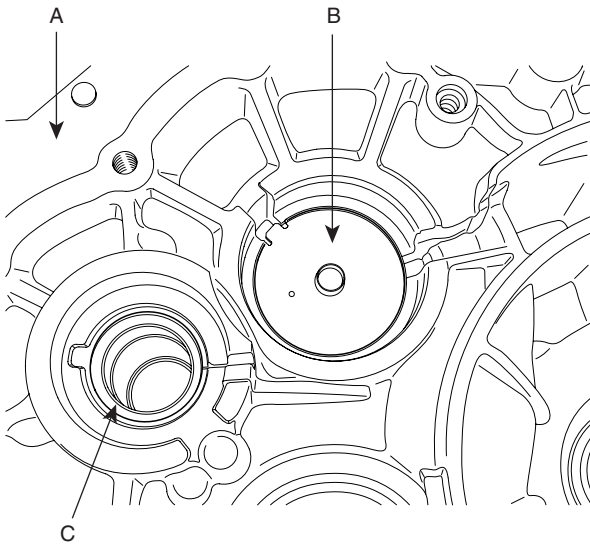


KMRE006H

MT -22

MANUAL TRANSAXLE (M5GF2)

8. Fix the oil guides(B), bearing outer races, dowel pins and spacers(C) to the clutch housing(A).

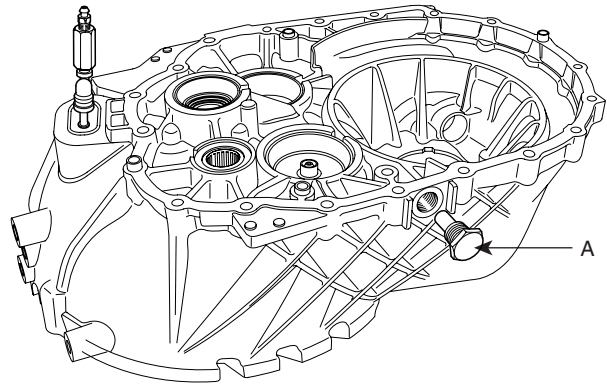


KMRE006I

10. Tighten the magnetic plug(A).

TORQUE:

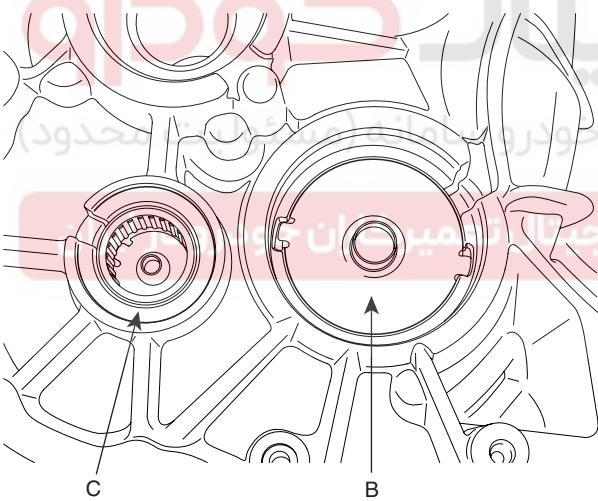
29.4~34.3Nm (300~350kgf.cm, 21.7~25.3lb-ft)



KMRE006K

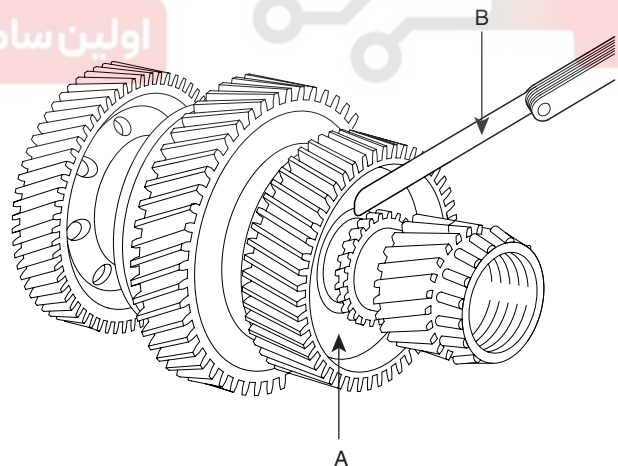
11. Measure the end play with a thickness gauge(B) in the reverse gear(A) of the 1st output shaft.

STANDARD VALUE : 0.135~0.345mm



KMRE006J

9. Insert a rubber bushing in the hole for the concentric slave cylinder.



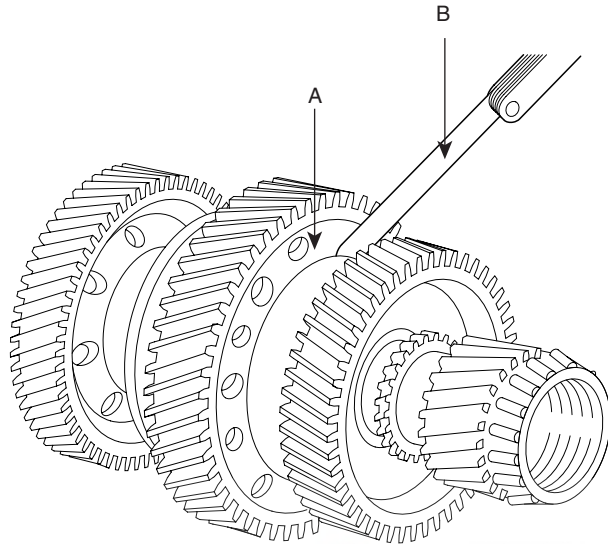
KMRE006L

MANUAL TRANSAXLE SYSTEM

MT -23

12. Measure the end play with a thickness gauge(B) in the 1st gear(A) of the 1st output shaft.

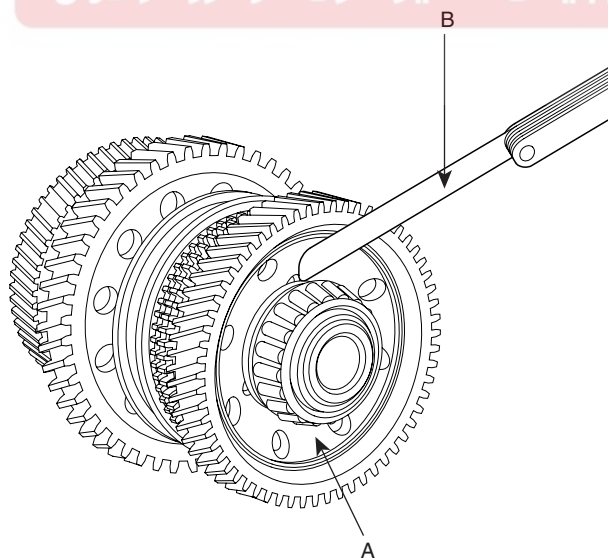
STANDARD VALUE : 0.230~0.430mm



KMRE006M

13. Measure the end play with a thickness gauge(B) in the 2nd gear(A) of the 1st output shaft.

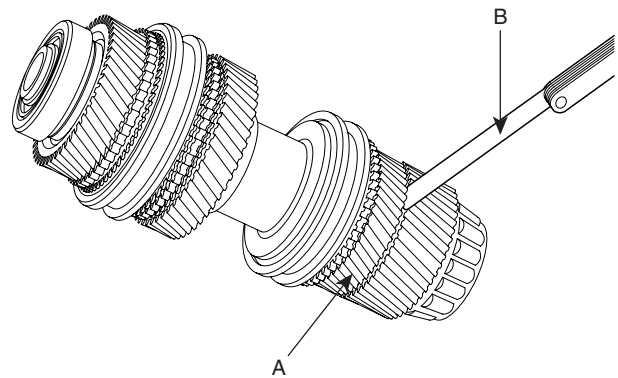
STANDARD VALUE : 0.230~0.430mm



KMRE006N

14. Measure the end play with a thickness gauge(B) in the 5th gear of the 2nd output shaft(A).

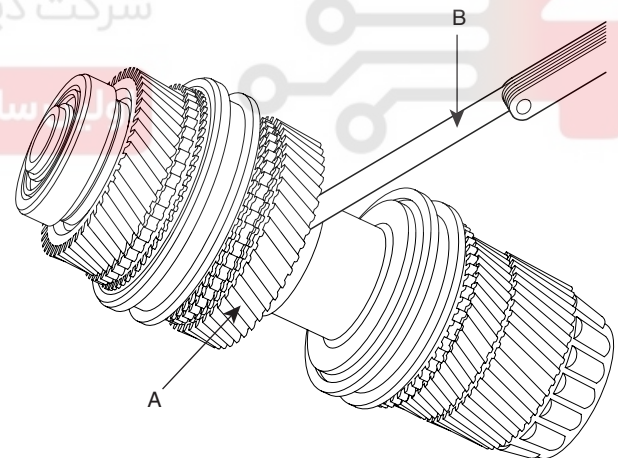
STANDARD VALUE : 0.125~0.305mm



KMRE006O

15. Measure the end play with a thickness gauge(B) in the 3rd gear(A) of the 2nd output shaft.

STANDARD VALUE : 0.142~0.472mm



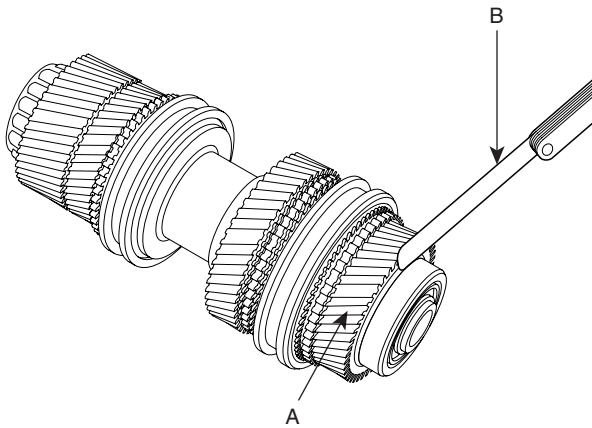
KMRE006P

MT -24

MANUAL TRANSAXLE (M5GF2)

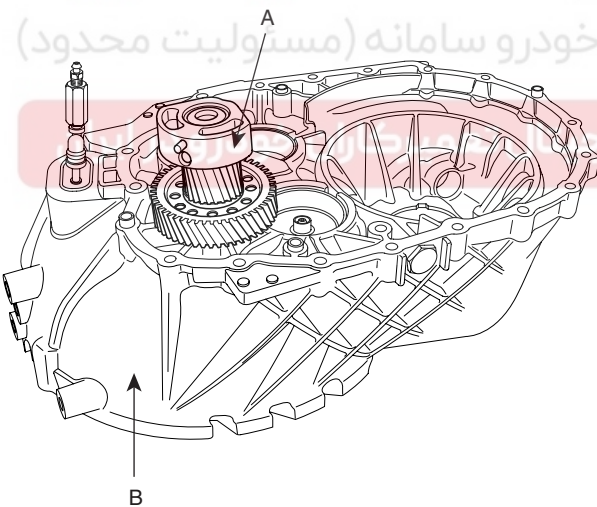
16. Measure the end play with a thickness gauge(B) in the 4th gear(A) of the 2st output shaft.

STANDARD VALUE : 0.230~0.430mm



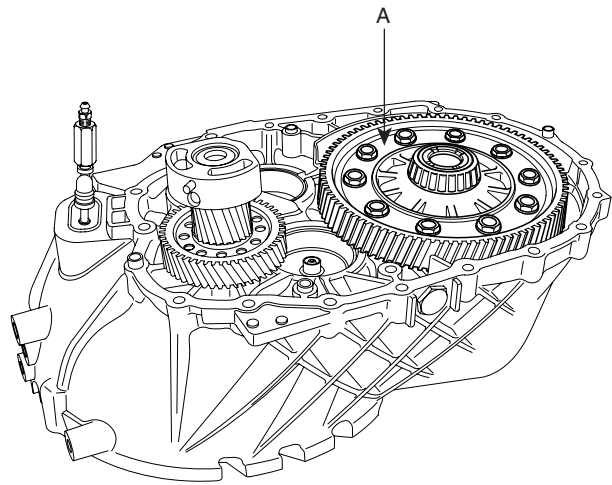
KMRE006Q

17. Install the reverse idler gear assembly(A) with a spacer in the clutch housing(B).



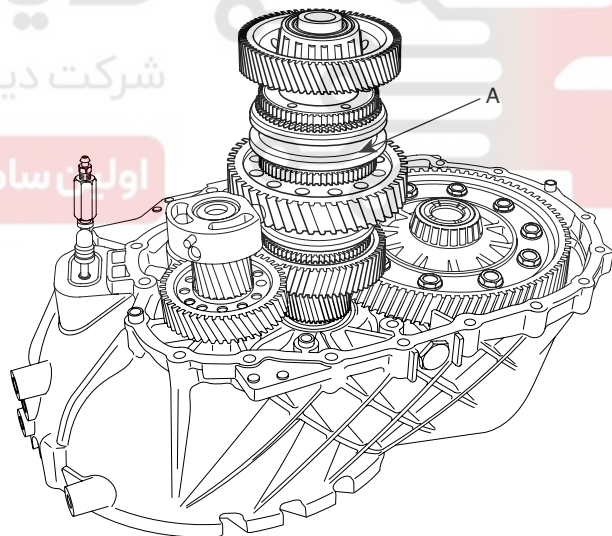
KMRE006R

18. Install the differential assembly(A) with a spacer in the clutch housing.



KMRE006S

19. Install the 1st output shaft(A) with a spacer in the clutch housing.



KMRE006T

MANUAL TRANSAXLE SYSTEM

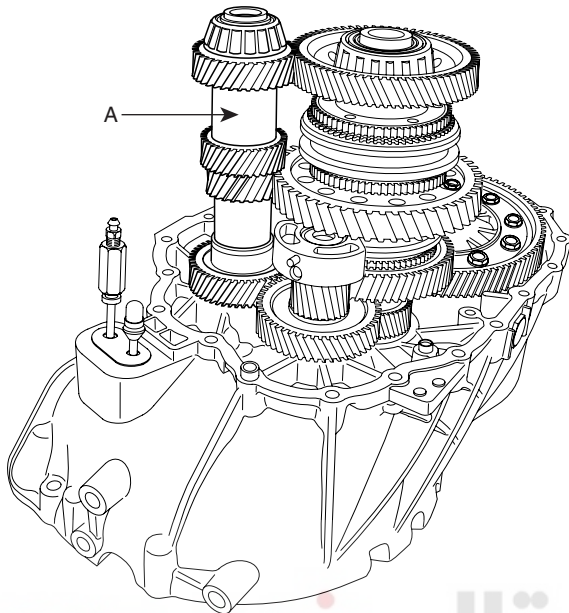
MT -25

20. Install the input shaft(A) with a spacer in the clutch housing.

22. Install the shift control shift fork(4EA)(A) and shifts(2EA)(B) and rail support bracket.

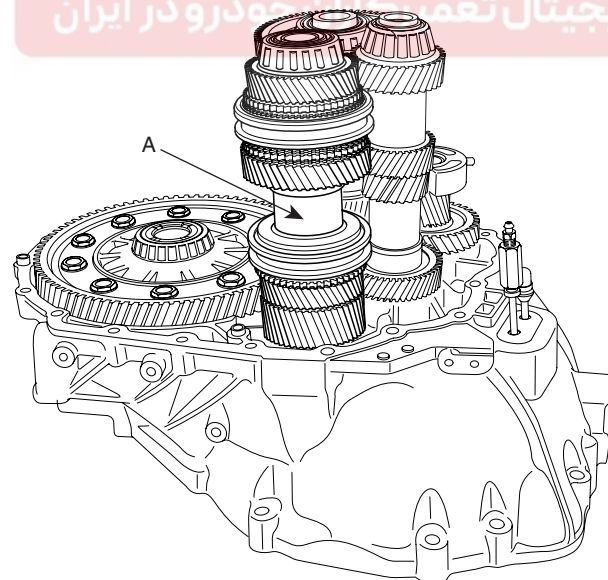
TORQUE :

19.6~26.5Nm (200~270kgf.cm, 14.5~19.5lb-ft) (3EA)

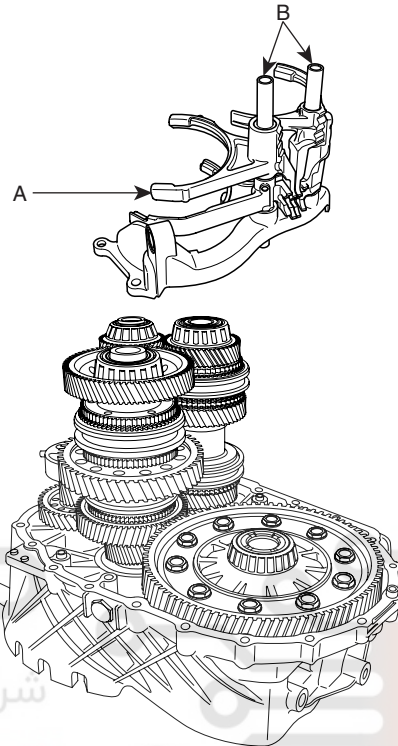


KMRE006U

21. Install the 2nd output shaft(A) with a spacer in the clutch housing.



KMRE006V



KMRE006W

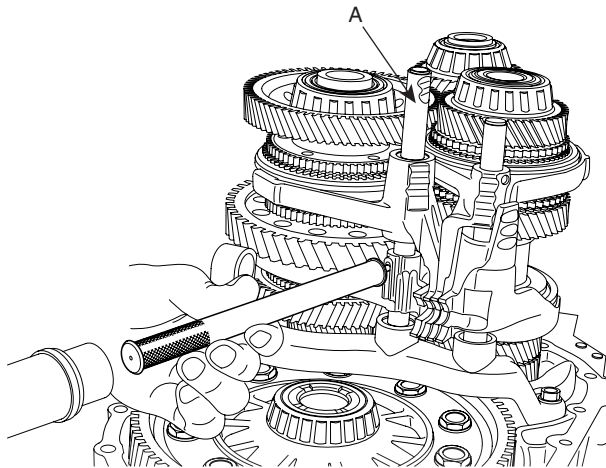
MT -26

MANUAL TRANSAXLE (M5GF2)

23. Fix them by inserting a pin into the shift rail(A, B).

 NOTE

Strike the spring pins with slit facing front or rear side.



KMRE006X

24. Insert spacers, bushings and bearing outer races in the transaxle case.

 NOTE

Differential end play [mm(inch)]: 0.15T-0.20T
(0.0059T~0.0079T)

Input shaft end play [mm(inch)]: 0.05T-0 (0.0020T~0)

1st output shaft end play [mm(inch)]: 0.05T-0.10T
(0.0020T~0.0039T)

2nd output shaft end play [mm(inch)]: 0.05T-0.10T
(0.0020T~0.0039T)

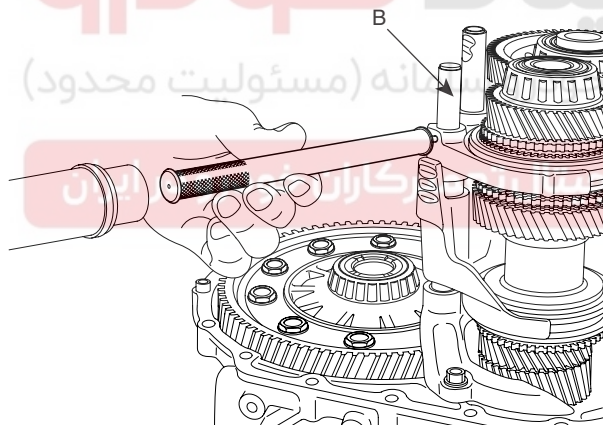
Spacer thickness[mm(inch)] = Clutch housing height[mm(inch)] + Transaxle case [mm(inch)] - Measured length [mm(inch)] + end play + tolerance value 0.05mm(0.0020inch)

When measuring the length of the output shaft, the outer races on both sides should be installed to the output shaft.

Measure the length at least 3 other points and take the average value for accuracy.

When measuring end play, take the average.

Tolerance means the applied value of shafts and differential length for the transaxle case weight.



KMRE006Y

MANUAL TRANSAXLE SYSTEM

MT -27

Part name	Thickness [mm(inch)]	Identification number
Spacer (For adjustment of input shaft rear bearing end play)	2.15 (0.0846)	15
	2.20 (0.0866)	20
	2.25 (0.0886)	25
	2.30 (0.0906)	30
	2.35 (0.0925)	35
	2.40 (0.0945)	40
	2.45 (0.0965)	45
	2.50 (0.0984)	50
	2.55 (0.1004)	55
	2.60 (0.1024)	60
	2.65 (0.1043)	65
	2.70 (0.1063)	70
	2.75 (0.1083)	75
	2.80 (0.1102)	80
	2.85 (0.1122)	85
Spacer (For adjustment of 1st output shaft rear bearing end play)	2.30 (0.0906)	30
	2.35 (0.0925)	35
	2.40 (0.0945)	40
	2.45 (0.0965)	45
	2.50 (0.0984)	50
	2.55 (0.1004)	55
	2.60 (0.1024)	60
	2.65 (0.1043)	65
	2.70 (0.1063)	70
	2.75 (0.1083)	75
Spacer (For adjustment of 2st output shaft rear bearing end play)	2.80 (0.1102)	80
	2.35 (0.0925)	35
	2.40 (0.0945)	40
	2.45 (0.0965)	45
	2.50 (0.0984)	50
	2.55 (0.1004)	55
	2.60 (0.1024)	60
	2.65 (0.1043)	65
	2.70 (0.1063)	70
	2.75 (0.1083)	75
	2.80 (0.1102)	80

MT -28

MANUAL TRANSAXLE (M5GF2)

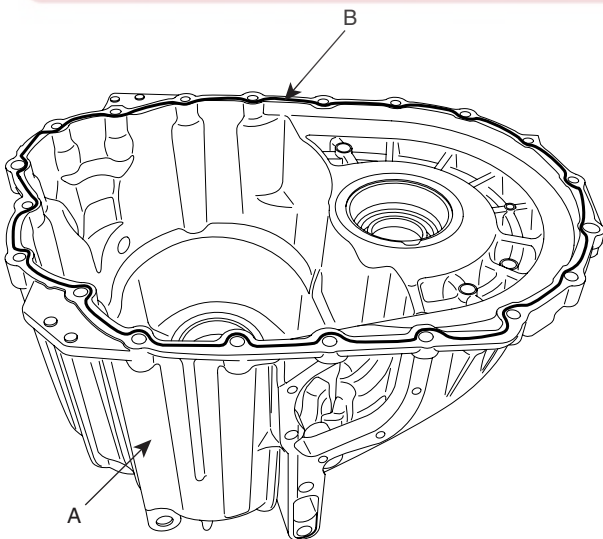
Part name	Thickness [mm(inch)]	Identification number
Spacer (For adjustment of differential end play)	1.22 (0.0480)	22
	1.25 (0.0492)	25
	1.28 (0.0504)	28
	1.31 (0.0516)	31
	1.34 (0.0528)	34
	1.37 (0.0539)	37
	1.40 (0.0551)	40
	1.43 (0.0563)	43
	1.46 (0.0575)	46
	1.49 (0.0587)	49
	1.52 (0.0598)	52
	1.55 (0.0610)	55
	1.58 (0.0622)	58
	1.61 (0.0634)	61
	1.64 (0.0646)	64
	1.67 (0.0657)	67
	1.70 (0.0669)	70

25. Apply the liquid gasket(B) on the transaxle case(A).

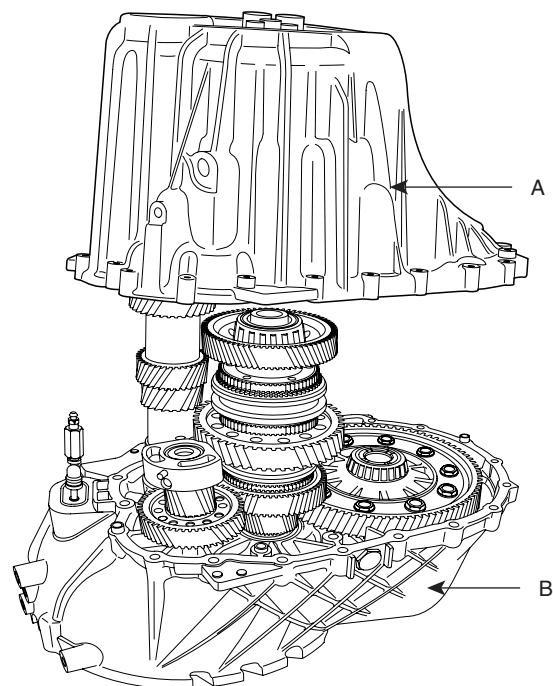
26. Align the pin position with the hole on the reverse idler gear damper.

SPECIFICATION : LOCTITE 587

27. Install the transaxle case(A) with the clutch housing(B).



KMRE006Z



KMRE007A

MANUAL TRANSAXLE SYSTEM

MT -29

28. Tighten the oil filler plug(A) and idler shaft bolt(B).

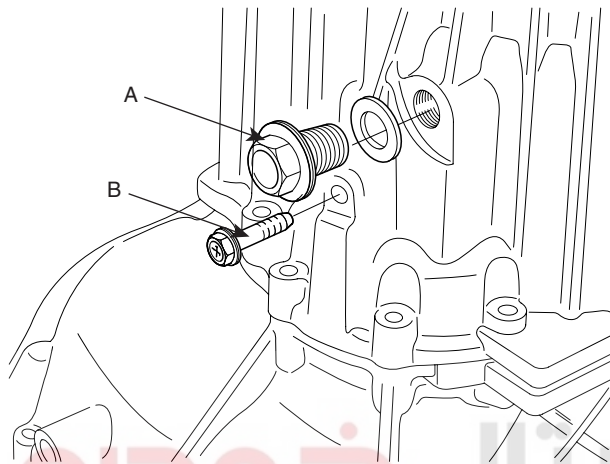
TORQUE :

29.4~34.3Nm (300~350kgf.cm, 21.7~25.3lb-ft)

(Oil filler plug)

19.6~26.5Nm (200~270kgf.cm, 14.5~19.5lb-ft)

(Idler shaft bolt)

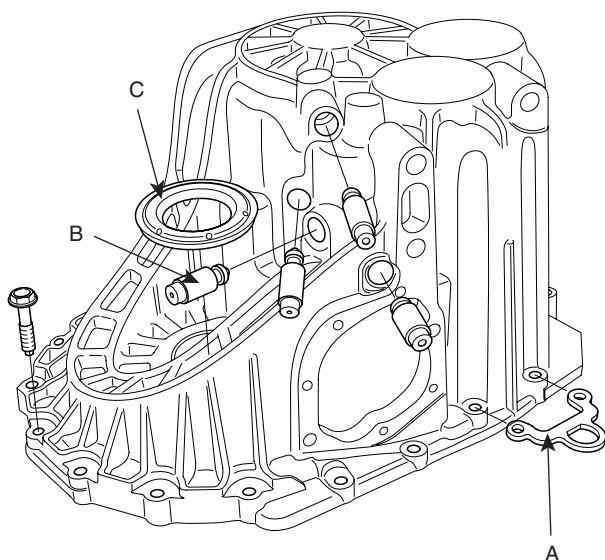


KMRE007B

29. Fix the transaxle hanger(A), detent pins(4EA)(B) and oil seal(C).

**NOTE**

Press the detent pins for the step to be the same level as the surface on the transmission case(4 places).

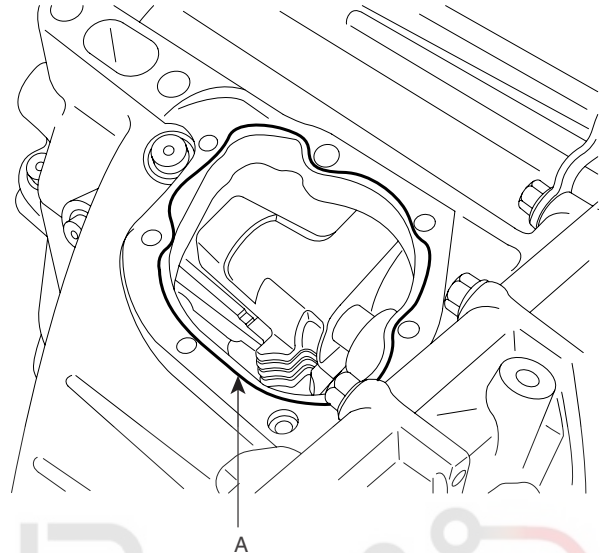


KMRE007C

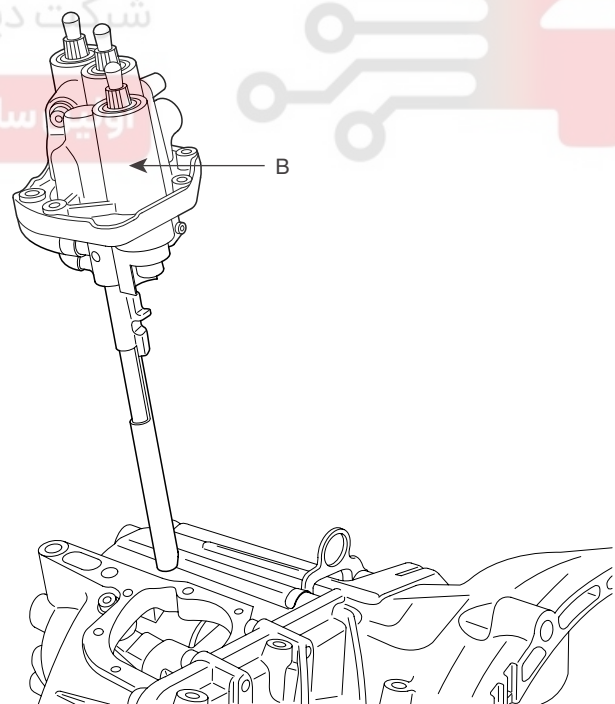
30. Applying a liquid gasket(A) on the contacting surface of the control shaft complete(B), install it.

TORQUE :

9.8~11.8Nm (100~120kgf.cm, 7.2~8.7lb-ft) (7EA)



KMRE007D



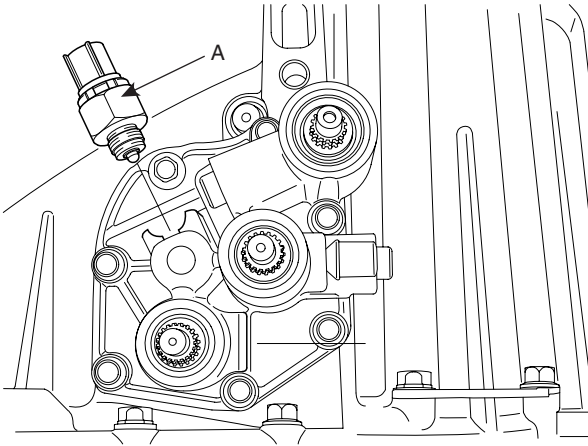
KMRE007E

MT -30

MANUAL TRANSAXLE (M5GF2)

31. Tighten the back up lamp switch(A).

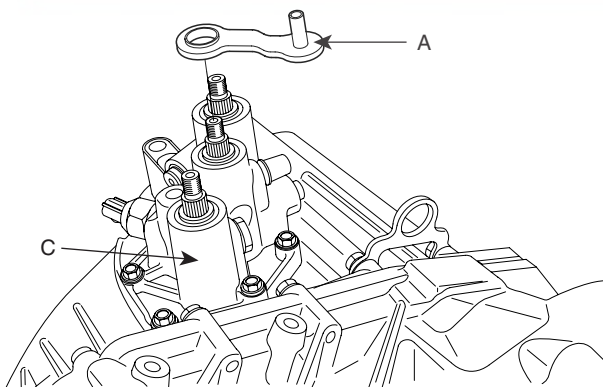
TORQUE :
29.4~34.3Nm (300~350kgf.cm, 21.7~25.3lb-ft)



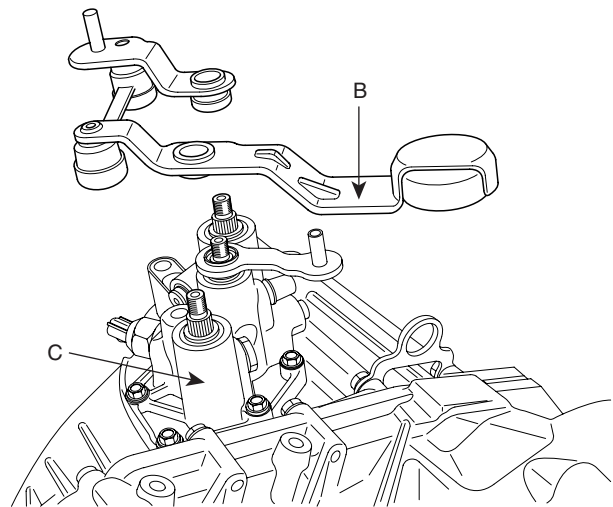
KMRE007F

32. Install the select lever(A) and the shift link assembly(B) aligning their position with the identification mark(yellow) which is on the control shaft complete(C).

TORQUE :
42.2~53.9Nm (430~550kgf.cm, 31.1~39.8lb-ft) (3EA)



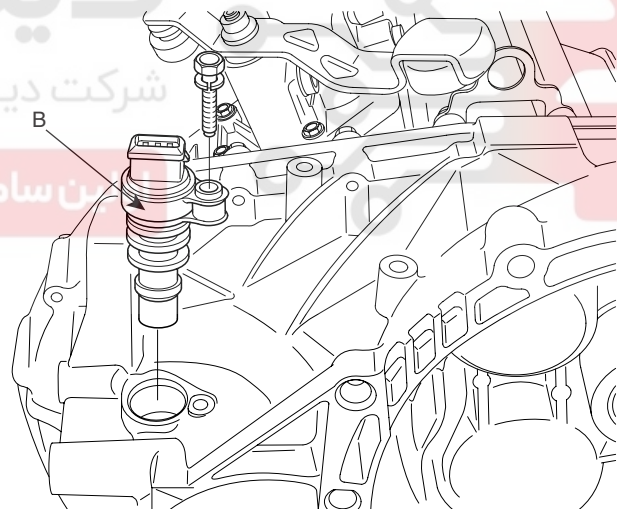
KMRE007G



KMRE007H

33. Tighten the vehicle speed sensor(B).

TORQUE :
7.8~9.8Nm (80~100kgf.cm, 5.8~7.2lb-ft)



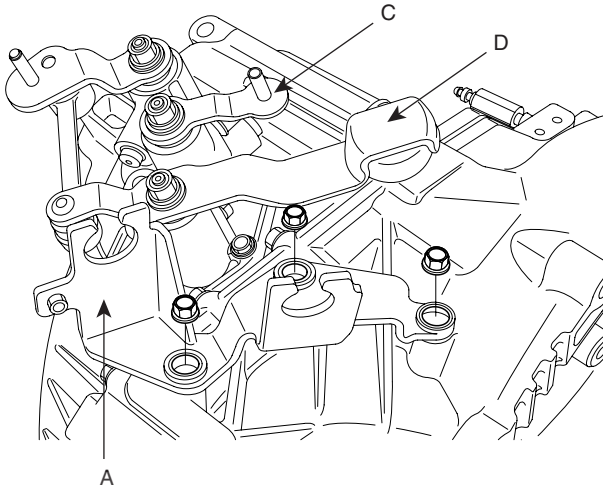
KMRE007I

MANUAL TRANSAXLE SYSTEM

MT -31

34. Install the shift control cable bracket assembly(A).

TORQUE :
14.7~19.6Nm (150~220kgf.cm, 10.8~14.5lb-ft)



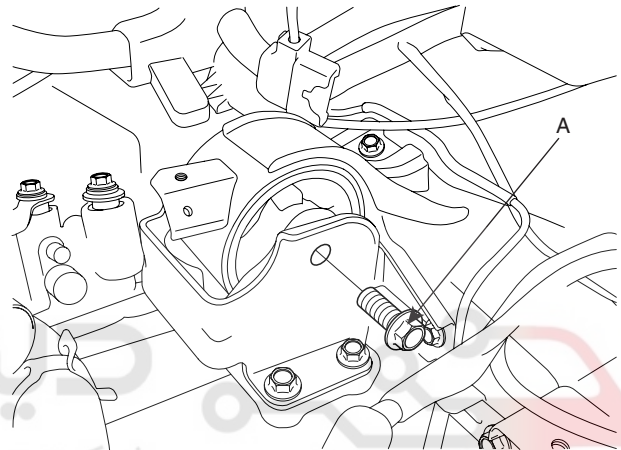
KMRE007J

INSTALLATION

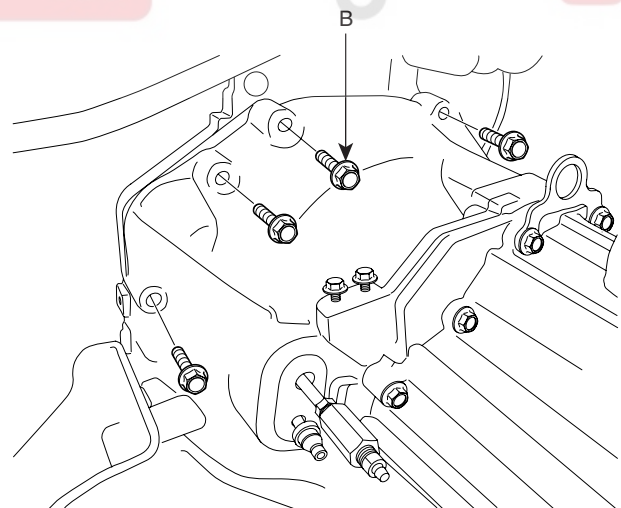
EC8237F9

1. Raising a jack slowly, tighten the transaxle mounting bolts(A) and support bracket mounting bolts(B).

TORQUE :
42.2~53.9Nm (430~550kgf.cm, 31.1~39.8lb-ft)
(Support bracket mounting)
63.7~83.4Nm (650~850kgf.cm, 47.0~61.5lb-ft)
(Transaxle mounting bracket)



KMRE009W



KMRE009X

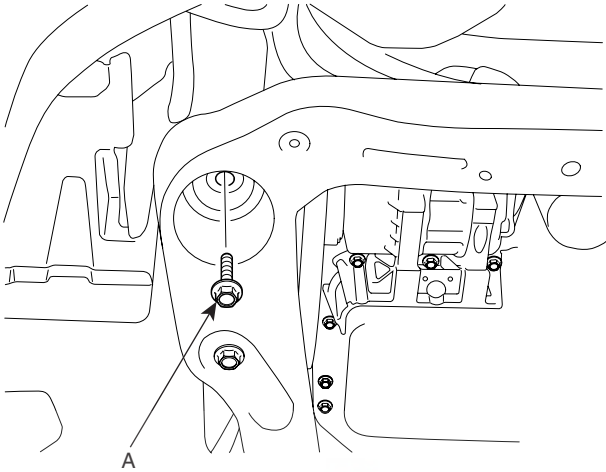
2. Tighten the transaxle lower mounting bolts.
3. Install the driveshafts(refer to 'DS'-group).

MT -32

MANUAL TRANSAXLE (M5GF2)

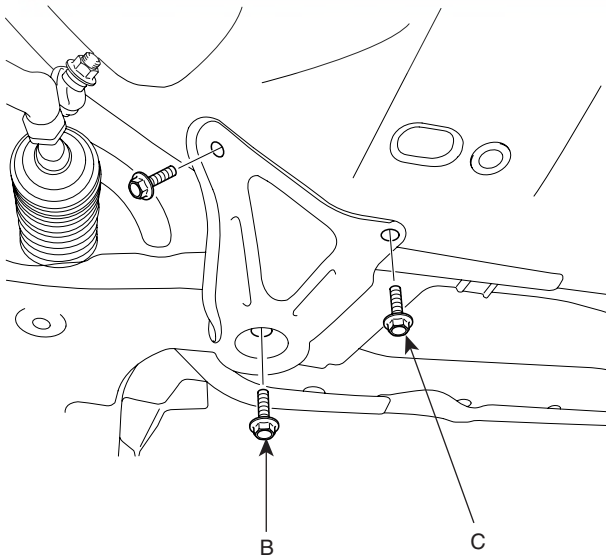
4. Lifting the cross member up with a jack slowly, tighten the mounting bolts.

TORQUE :
137.3~156.9Nm (1400~1600kgf.cm, 101.3~115.7lb-ft)
(Front mounting)(A)



KMRE009Y

TORQUE :
137.3~156.9Nm (1400~1600kgf.cm, 101.3~115.7lb-ft)
(Rear mounting)(B)
44.1~58.8Nm (450~600kgf.cm, 32.5~43.4lb-ft)
(Stay mounting)(C)



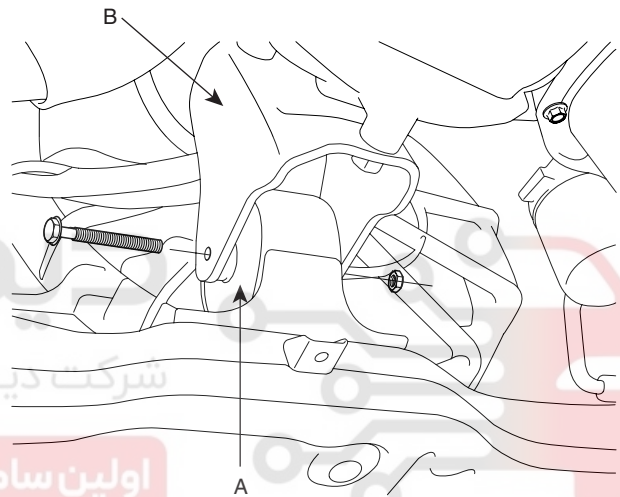
KMRE009Z

5. Tighten the steering column bolt.

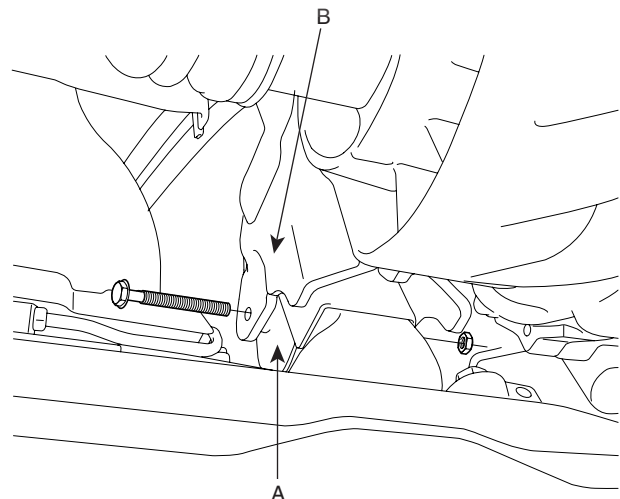
TORQUE :
14.7~19.6Nm (150~200kgf.cm, 10.8~14.5lb-ft)

6. Assembling the exhaust pipe, connect the hanger and oxygen sensor connector.
7. Fix the front/rear roll stopper(A) to brackets(B) with the mounting bolts.

TORQUE :
49.0~63.7Nm (500~650kgf.cm, 36.2~47.0lb-ft)



KMRE009K

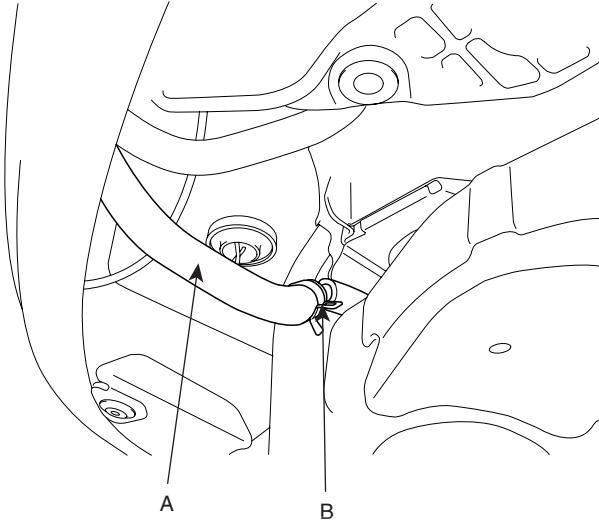


KMRE009L

MANUAL TRANSAXLE SYSTEM

MT -33

8. Inserting the power steering return hose(A), fix it with a clamp(B).



KMRE009J

9. Tightening the steering bar tie rod mounting nut, insert a new split pin. (refer to 'ST'-group)

TORQUE :
23.5~33.3Nm (240~340kgf.cm, 17.4~24.6lb-ft)

10. Tighten the stabilizer bar link mounting bolt. (refer to 'SS'-group)

TORQUE :
98.1~117.7Nm (1000~1200kgf.cm, 72.3~86.8lb-ft)

11. Tighten the lower arm ball joint and fork mounting bolt. (refer to 'SS'-group)

TORQUE :
98.1~117.7Nm (1000~1200kgf.cm, 72.3~86.8lb-ft)

12. Fix the lower arm ball joint assembly to the front axle. (refer to 'SS'-group).

TORQUE :
98.1~117.7Nm (1000~1200kgf.cm, 72.3~86.8lb-ft)

13. Connect the electronic power steering connector.

14. After tightening the transaxle drain plug and filling the manual transaxle fluid, tighten the oil filler plug.

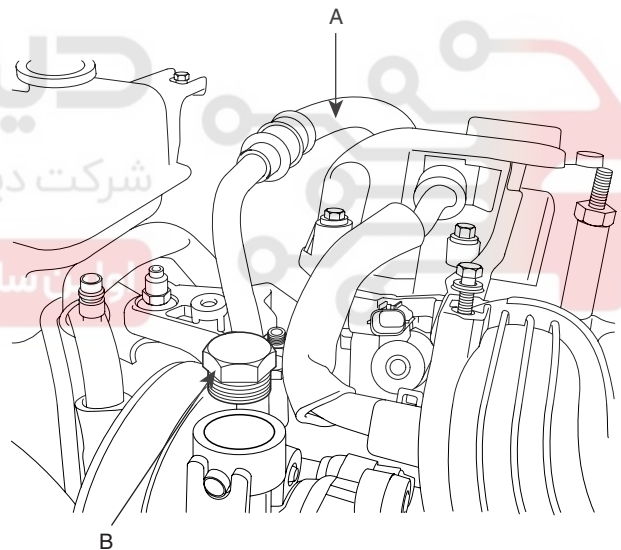
TORQUE :
29.4~34.3Nm (300~350kgf.cm, 21.7~25.3lb-ft)

Manual transaxle fluid: SAE 75W/85

15. Install the under shield cover.

16. After tightening the power steering pressure hose(A) bolt(B), fill the power steering fluid. (refer to 'ST'-group)

TORQUE :
63.7~73.5Nm (650~750kgf.cm, 47.0~54.2lb-ft)



KMRE009G

17. Install a pin on the concentric slave cylinder tube and push it till 'click' sound is heard. Loosen a clamp.

18. Tighten the back up lamp switch.

19. Install the shift cable assembly.

20. Fix the vehicle speed sensor and the ground line.

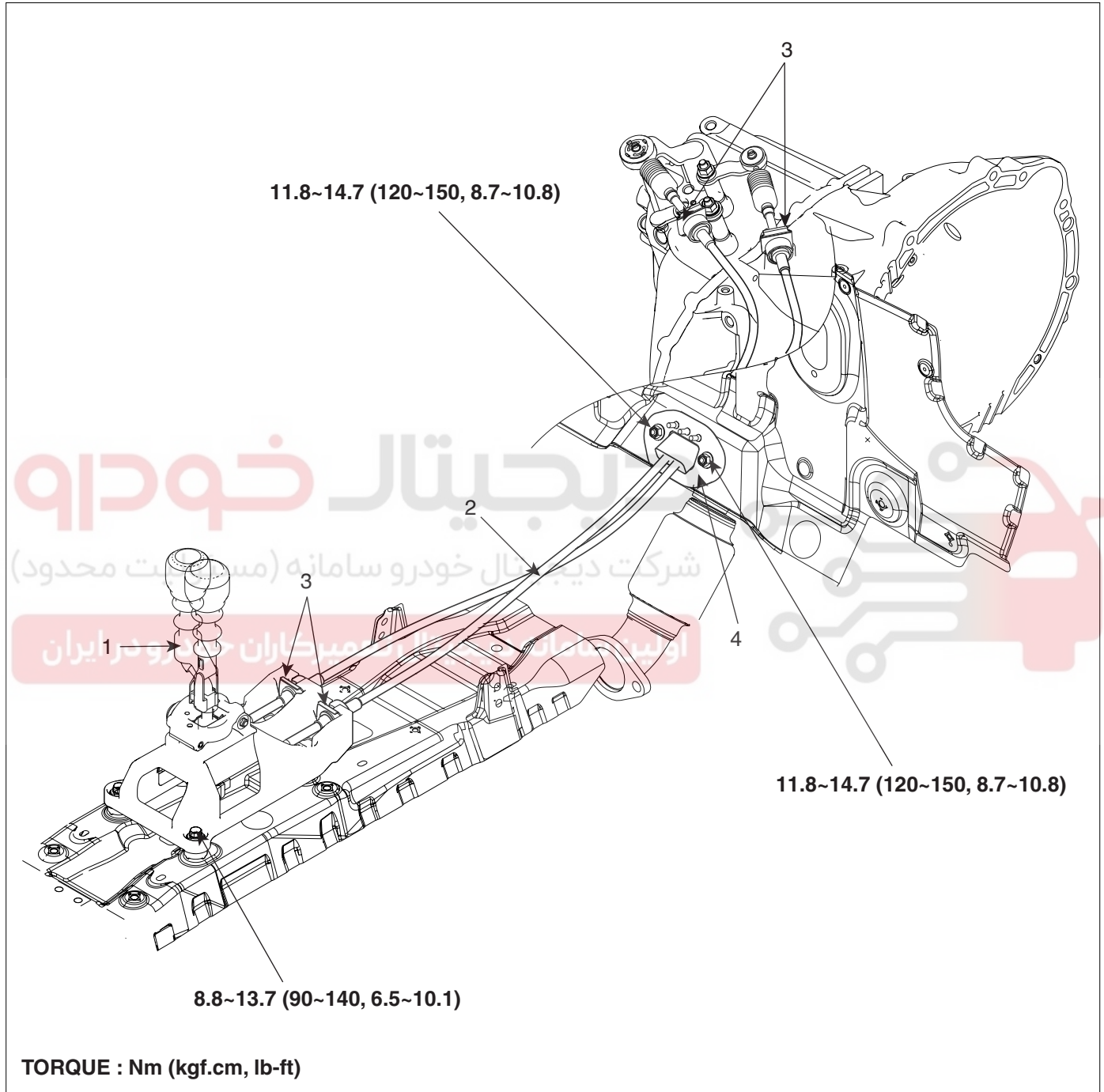
21. Install the battery, air cleaner and air duct.

MT -34

MANUAL TRANSAXLE (M5GF2)

MANUAL TRANSAXLE SHIFT CONTROL

COMPONENTS E7EFF69C



1. Lever assembly
2. Gear shift cable assembly

3. Clip
4. Retainer

EMRE010A

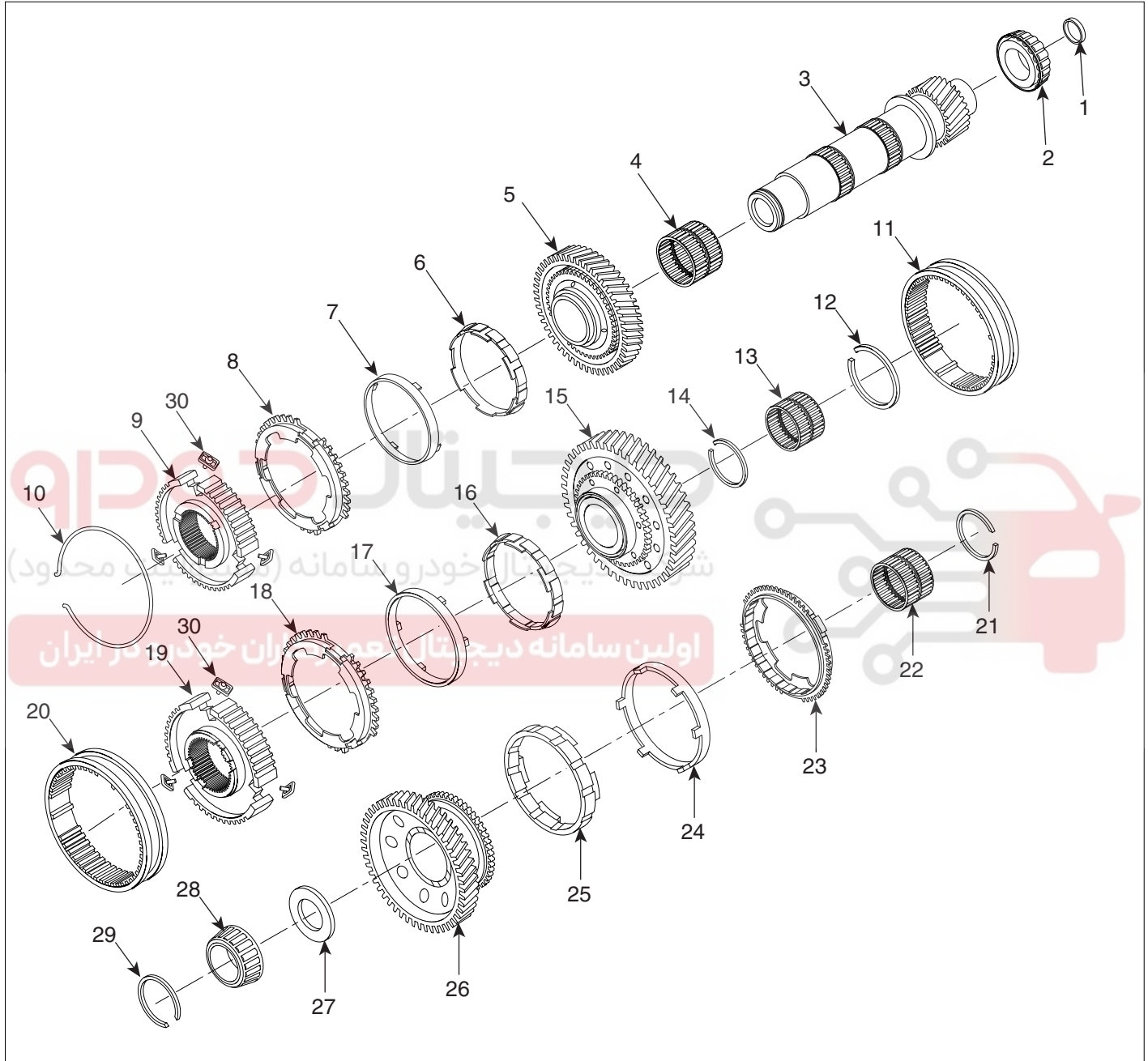
MANUAL TRANSAXLE SYSTEM

MT -35

OUTPUT SHAFT

COMPONENTS EA8DAD80

THE 1ST OUTPUT SHAFT



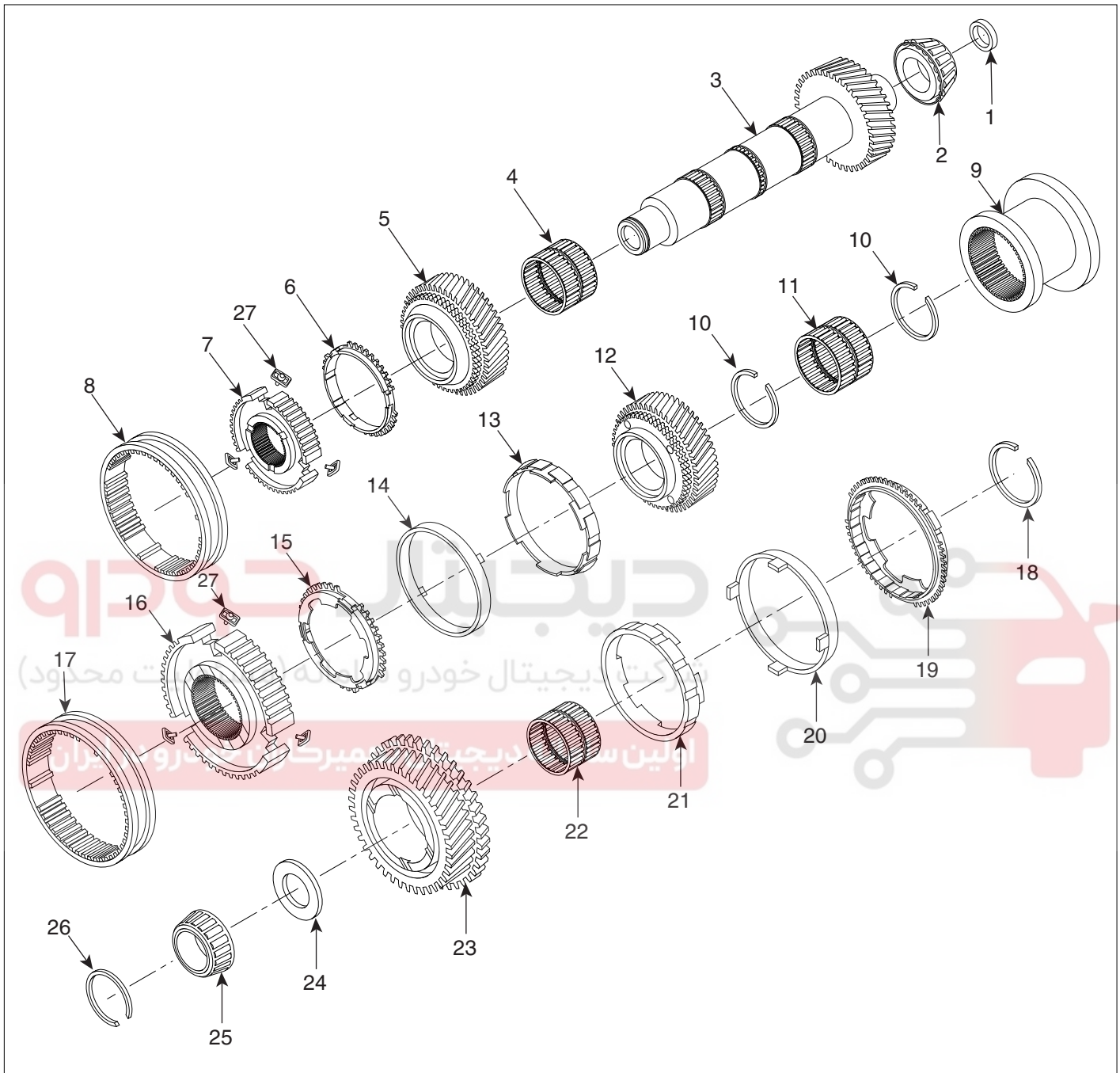
- | | | |
|------------------------------------|---------------------------------|---------------------------------|
| 1. Oil guide ring | 11. Reverse sleeve | 21. Snap ring |
| 2. Taper roller bearing | 12. Snap ring | 22. Needle roller bearing |
| 3. 1st output shaft | 13. Needle roller bearing | 23. 2nd outer synchronizer ring |
| 4. Needle roller bearing | 14. Snap ring | 24. 2nd synchronizer cone |
| 5. Reverse driven gear | 15. 1st output gear | 25. 2nd inner synchronizer ring |
| 6. Reverse inner synchronizer ring | 16. 1st inner synchronizer ring | 26. 2nd outer gear |
| 7. Reverse synchronizer cone | 17. 1st synchronizer cone | 27. Spacer |
| 8. Reverse outer synchronizer ring | 18. 1st outer synchronizer ring | 28. Taper roller bearing |
| 9. Reverse hub | 19. 1st/2nd hub | 29. Snap ring |
| 10. Synchronizer key stopper | 20. 1st/2nd sleeve | 30. Synchronizer key assembly |

EMRE002A

MT -36

MANUAL TRANSAXLE (M5GF2)

THE 2ND OUTPUT SHAFT



- | | | |
|--------------------------|---------------------------------|---------------------------------|
| 1. Oil guide ring | 10. Snap ring | 19. 4th outer synchronizer ring |
| 2. Taper roller bearing | 11. Needle roller bearing | 20. 4th synchronizer cone |
| 3. 2nd output shaft | 12. 3th output gear | 21. 4th inner synchronizer ring |
| 4. Needle roller bearing | 13. 3th inner synchronizer ring | 22. Needle roller bearing |
| 5. 5th output gear | 14. 3th synchronizer cone | 23. 4th output gear |
| 6. 5th synchronizer ring | 15. 3th outer synchronizer ring | 24. Spacer |
| 7. 5th hub | 16. 3th/4th hub | 25. Taper roller bearing |
| 8. 5th sleeve | 17. 3th/4th sleeve | 26. Snap ring |
| 9. Spacer | 18. Snap ring | 27. Synchronizer key assembly |

EMRE002B

MANUAL TRANSAXLE SYSTEM

MT -37

DISASSEMBLY EF290434

CAUTION

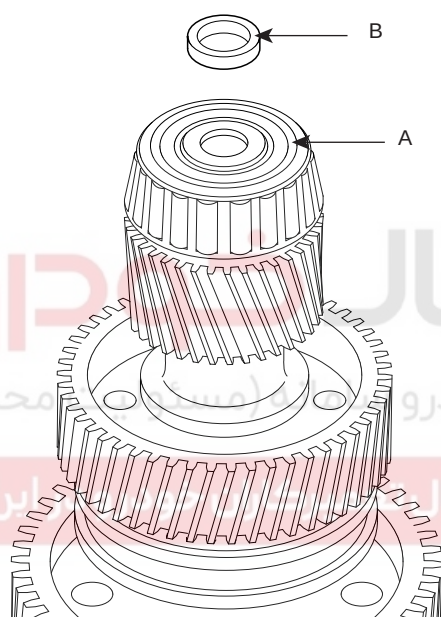
It is highly recommended not to disassemble output shaft assembly.

If you have a problem with a part in the input shaft assembly, replace it with a new input shaft assembly.

The procedures below is just for reference.

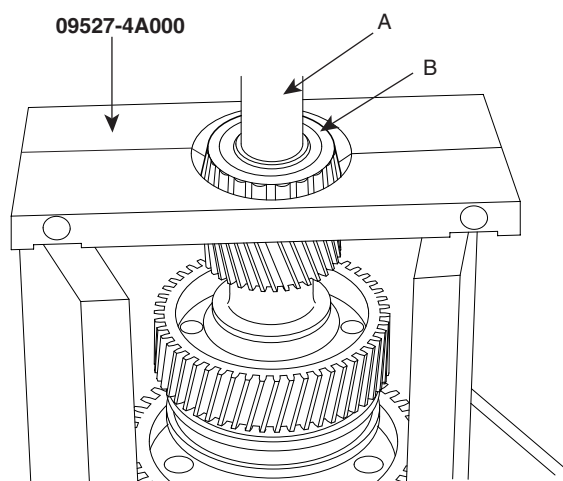
THE 1ST OUTPUT SHAFT

1. Remove the oil guide ring(B) from the front taper roller bearing(A).



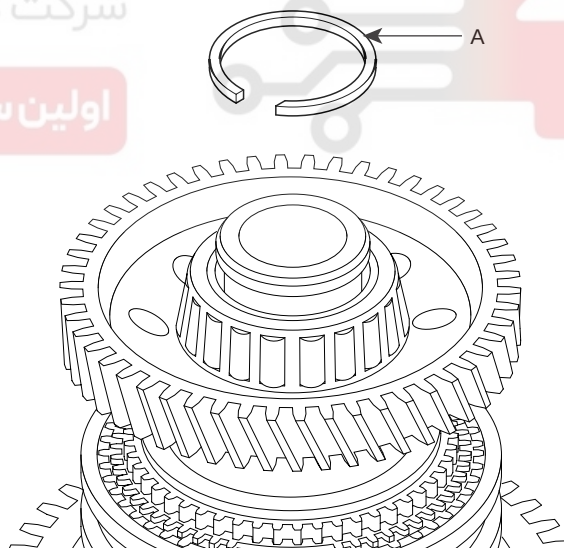
KMRE005A

2. Using a press(A) and the SST(09527-4A000), remove the front side taper roller bearing(B).



KMRE005B

3. Remove the rear side snap ring(A).

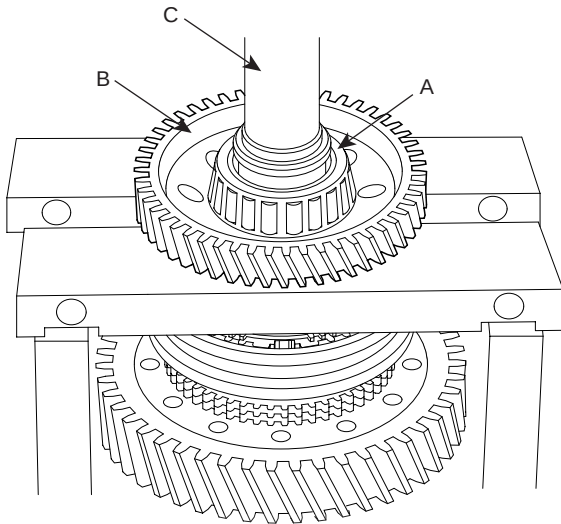


KMRE003C

MT -38

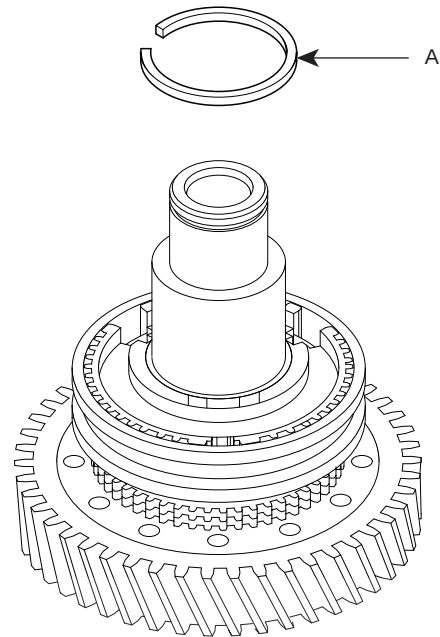
MANUAL TRANSAXLE (M5GF2)

4. Using a press(C), remove the rear side taper roller bearing(A) and the 2nd output gear(B).



KMRE005C

7. Remove the snap ring(A).



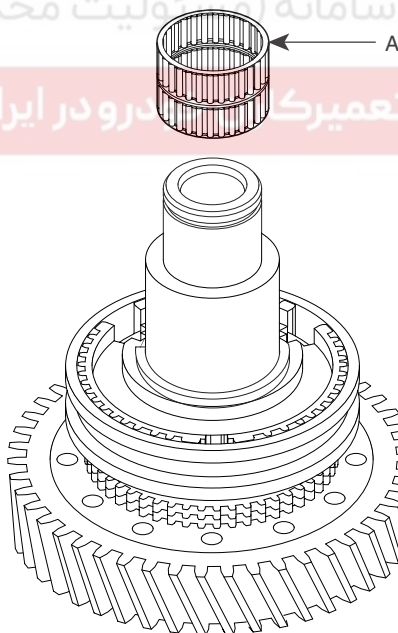
5. Remove the 2nd triple cone assembly.

6. Remove the needle roller bearing(A).

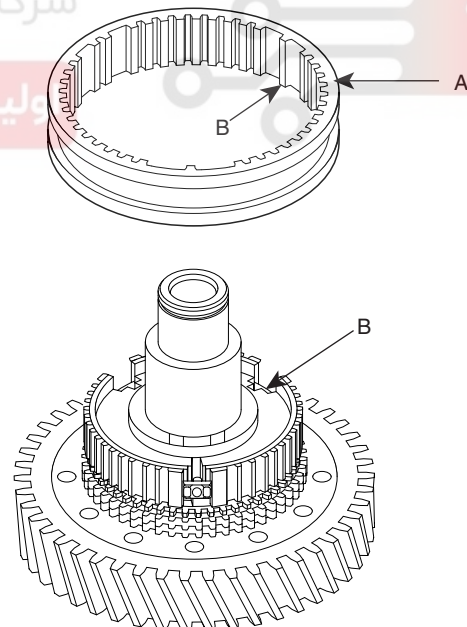
8. Remove the 1st/2nd sleeve(A).

KMRE002V

شرکت دیجیتال خودرو (مسئولیت محدود)
اولین سامانه دیجیتال تعمیرگاه خودرو در ایران



KMRE002W

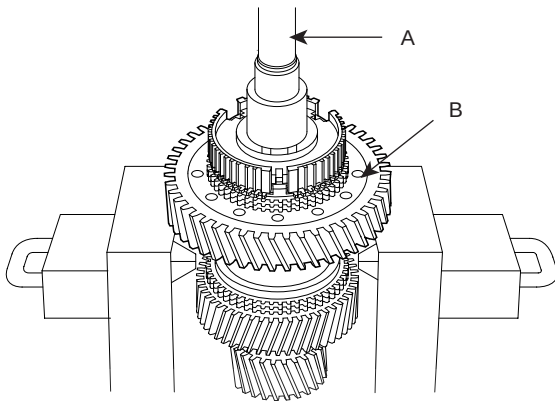


KMRE002T

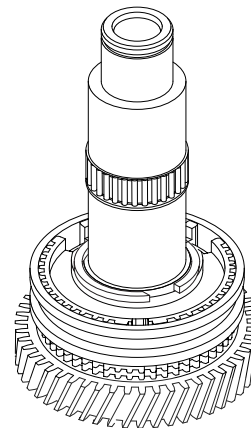
MANUAL TRANSAXLE SYSTEM

MT -39

9. Disassemble the 1st synchronizer key assembly(3EA).
10. Using a press(A), remove the 1st output gear(B), synchronizer assembly and hub at a time.
12. Remove the needle roller bearing(A).



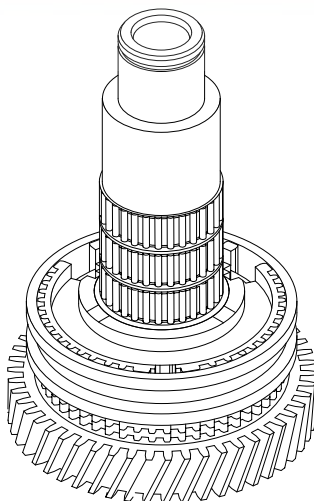
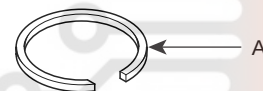
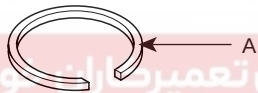
KMRE005D



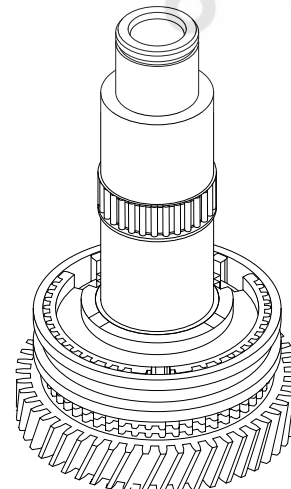
KMRE002L

11. Remove the snap ring(A).

13. Remove the snap ring(A).



KMRE002M

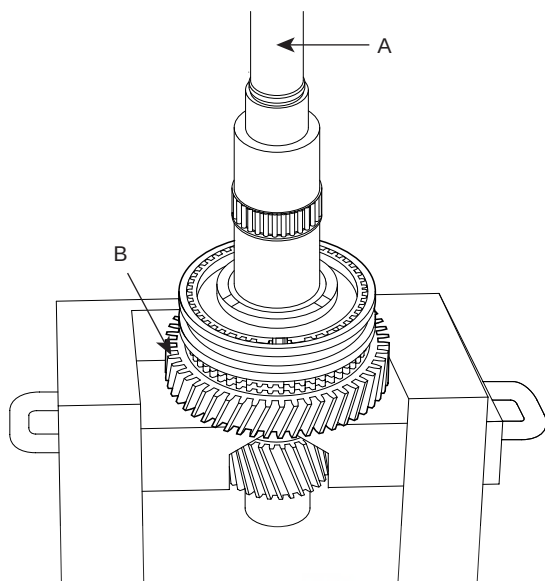


KMRE002K

MT -40

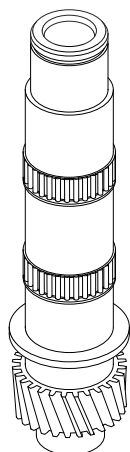
MANUAL TRANSAXLE (M5GF2)

14. Using a press(A), remove the reverse gear(B), synchronizer assembly and hub at a time.



KMRE005E

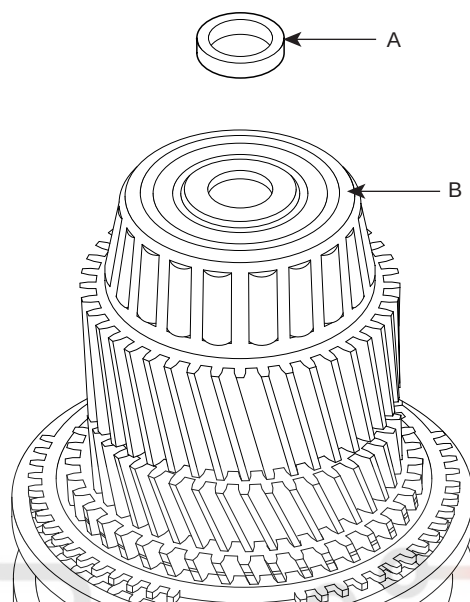
15. Remove the needle roller bearing(A).



KMRE002C

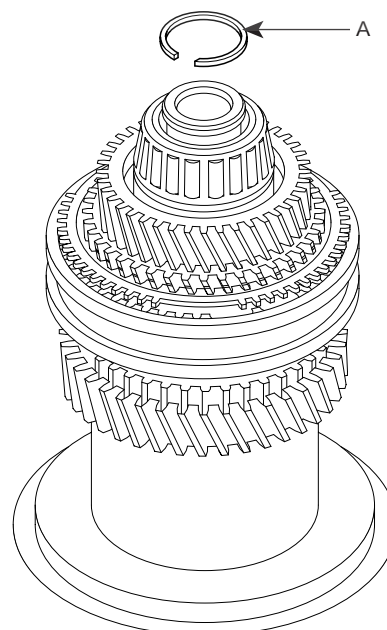
THE 2ND OUTPUT SHAFT

1. Remove the oil guide ring(A) from the front side taper roller bearing(B).



KMRE004B

2. Using a press, remove the front side taper roller bearing.
3. Remove the rear side snap ring(A).



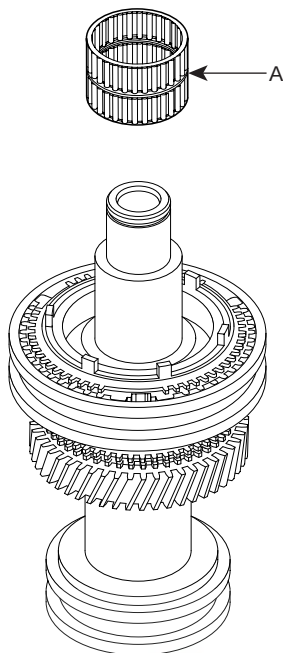
KMRE003Z

4. Setting a press up in the 3rd output gear, remove the assemblies at a time.

MANUAL TRANSAXLE SYSTEM

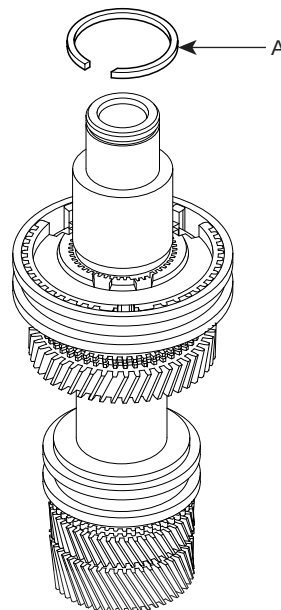
MT -41

5. Remove the needle roller bearing(A).



KMRE003V

7. Remove the snap ring(A).



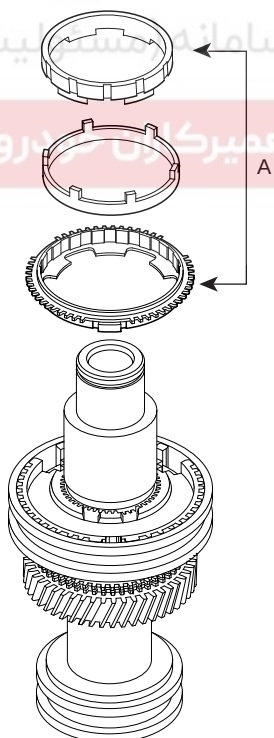
KMRE003T

6. Remove the 4th double cone ring assembly(A).

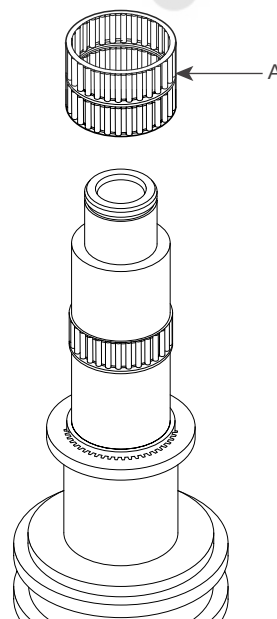
8. Setting a press up in the 4th output gear, remove the assemblies at a time.

9. Remove the snap ring.

10. Remove the needle roller bearing(A).



KMRE003U

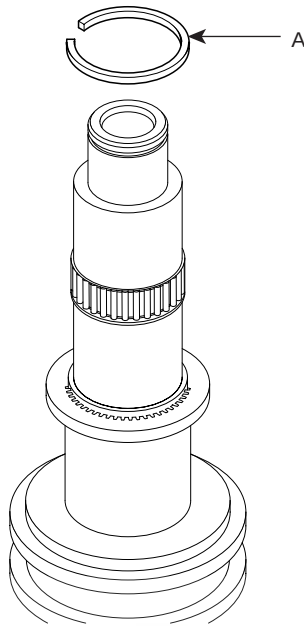


KMRE003N

MT -42

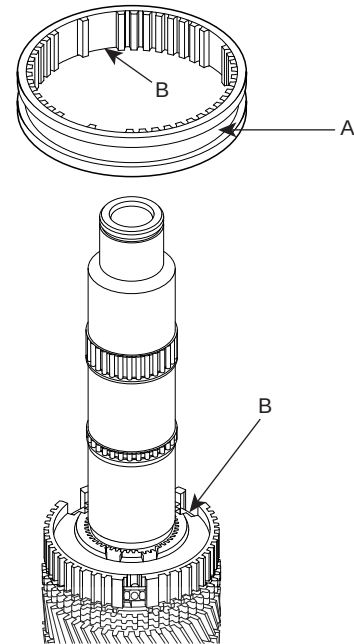
MANUAL TRANSAXLE (M5GF2)

11. Remove the snap ring(A).



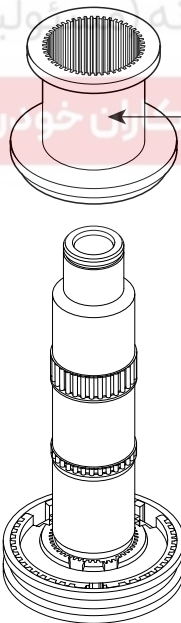
KMRE003M

13. Remove the 5th sleeve(A).



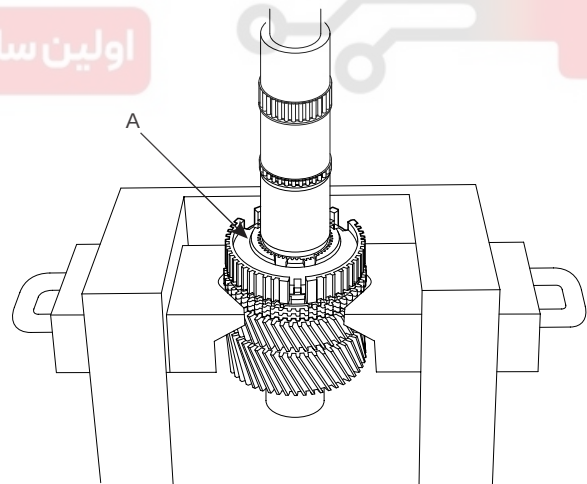
KMRE003K

12. Remove the spacer(A).



KMRE003L

14. After removing the 5th synchronizer keys, pull out the hub assembly(A) with a press.

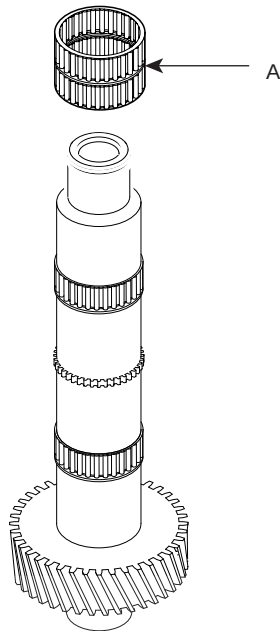


KMRE005G

MANUAL TRANSAXLE SYSTEM

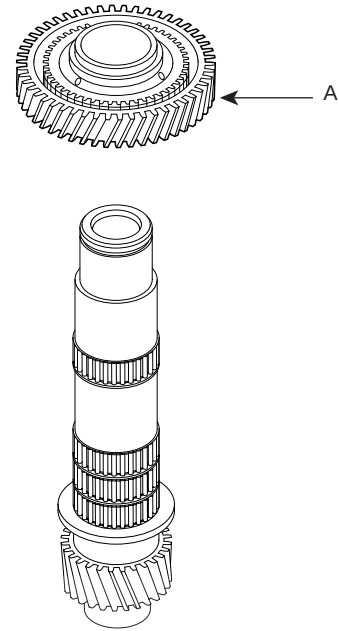
MT -43

15. Remove the needle roller bearing(A).



KMRE003F

2. Install the reverse driven gear(A).



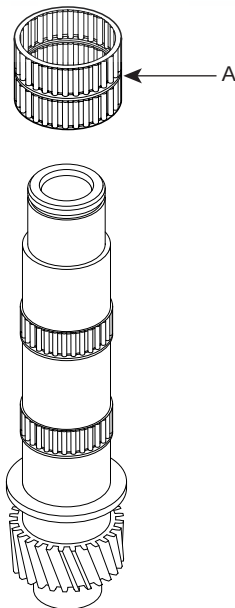
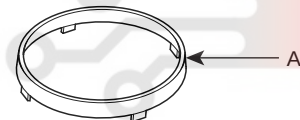
KMRE002D

REASSEMBLY EC9265DB

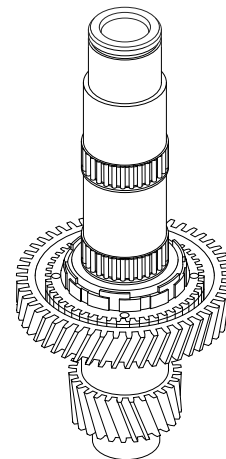
3. Install the reverse inner synchronizer ring with the reverse synchronizer cone(A).

THE 1ST OUTPUT SHAFT

1. Installing the needle roller bearing(A), apply gear oil around.



KMRE002C

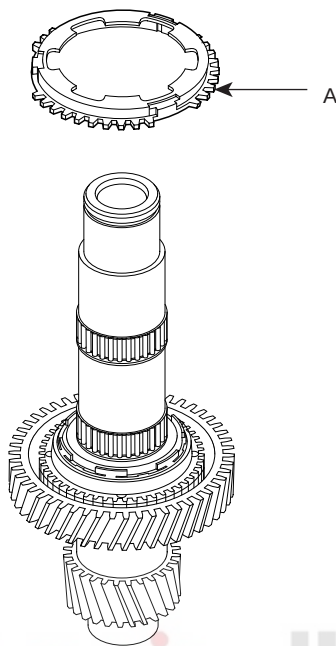


KMRE002E

MT -44

MANUAL TRANSAXLE (M5GF2)

4. Assemble the reverse outer synchronizer ring (A)(triple cone type).

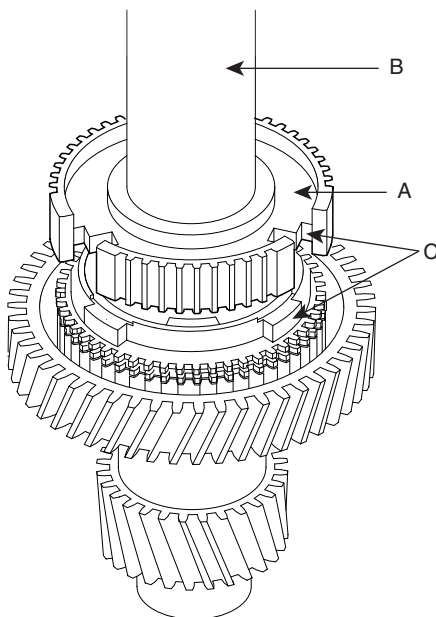


KMRE002F

5. Install the reverse hub(A) with a press(B).

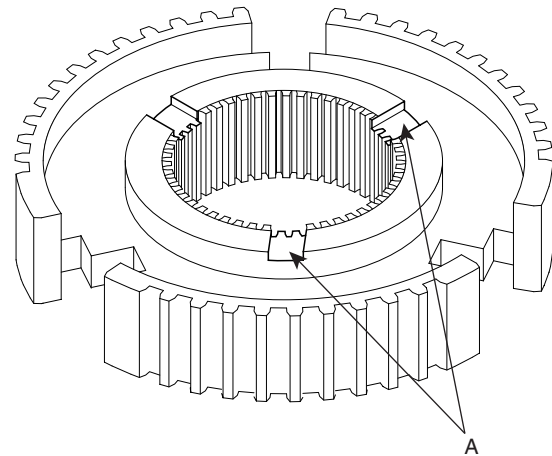
**NOTE**

Align the groove(C) of the reverse hub with the protrusion(C) of the output synchronizer ring.



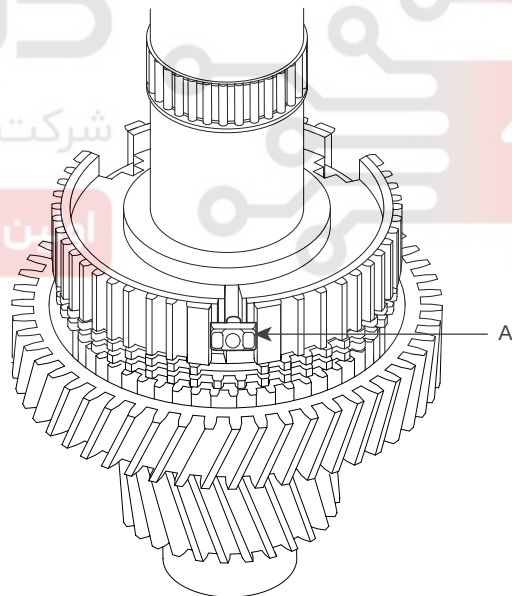
KMRE002G

The hub surface which has the three grooves(A) in triangle should face the 1st gear side.



KMRE002H

6. Insert the three synchronizer key assemblies(A).



KMRE002I

7. Insert the synchronizer key stopper.

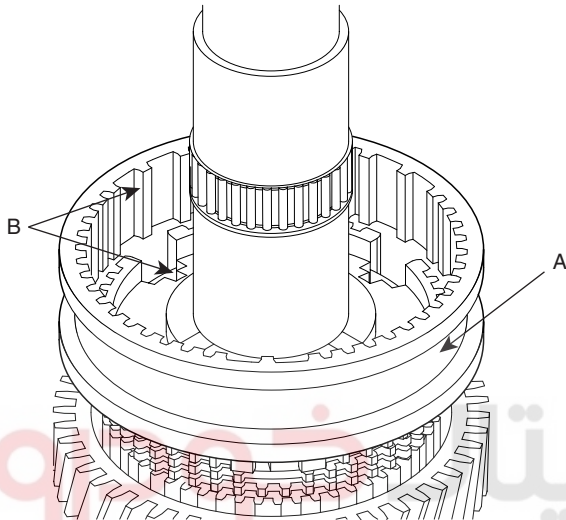
MANUAL TRANSAXLE SYSTEM

MT -45

8. Insert the three key assemblies in the reverse sleeve by pushing the balls.

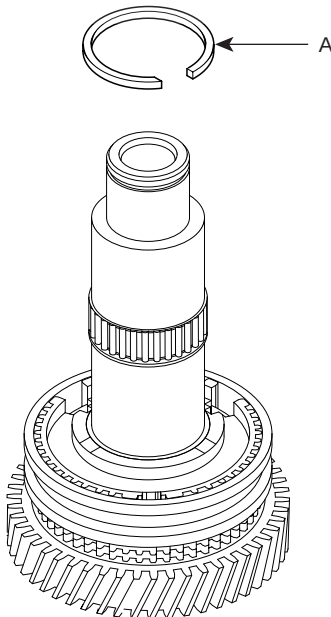
**NOTE**

Aligning the groove&protrusion(B), install the reverse sleeve(A).



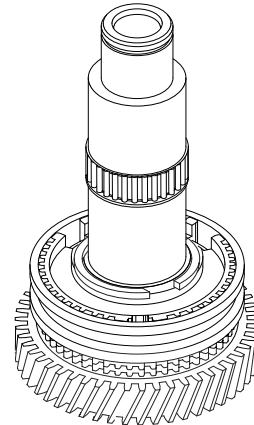
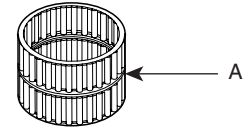
KMRE002J

9. Selecting the snap ring(A) which makes the gap be in 0~0.03mm(0.0012inch), install it.



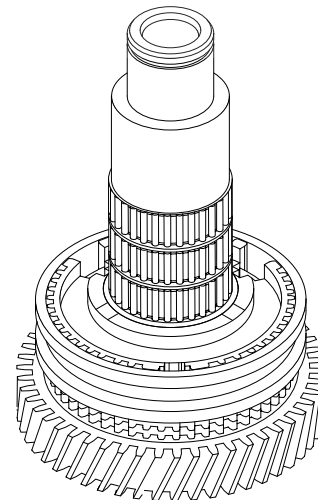
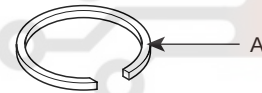
KMRE002K

10. Installing the needle roller bearing(A), apply gear oil around.



KMRE002L

11. Install the snap ring(A) (thickness: 2.5mm or 0.0984inch).

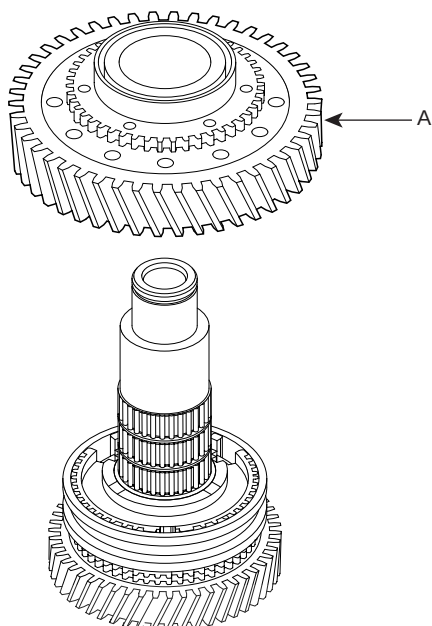


KMRE002M

MT -46

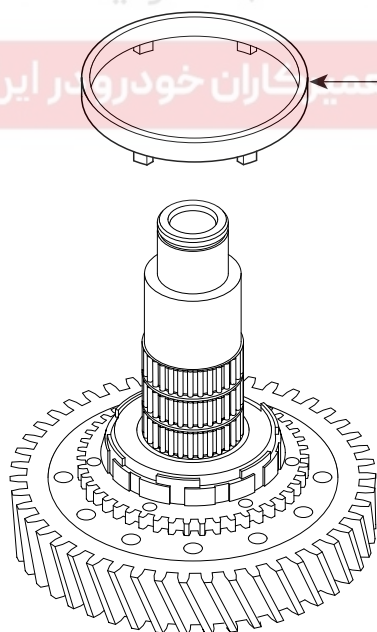
MANUAL TRANSAXLE (M5GF2)

12. Install the 1st gear assembly(A).



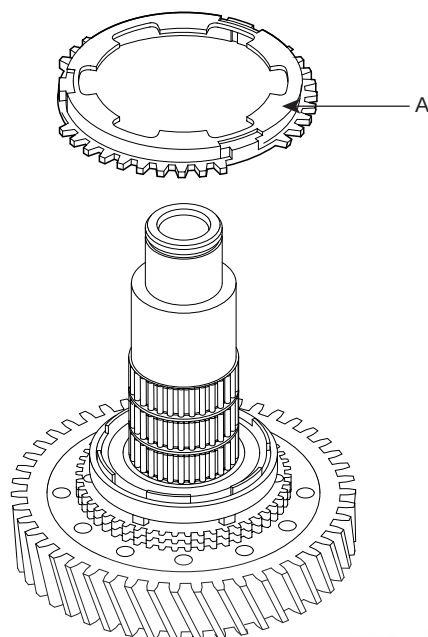
KMRE002N

13. Install the 1st inner synchronizer ring with the 1st synchronizer cone(A).



KMRE002O

14. Assemble the 1st outer synchronizer ring(A)(triple cone type).



KMRE002P

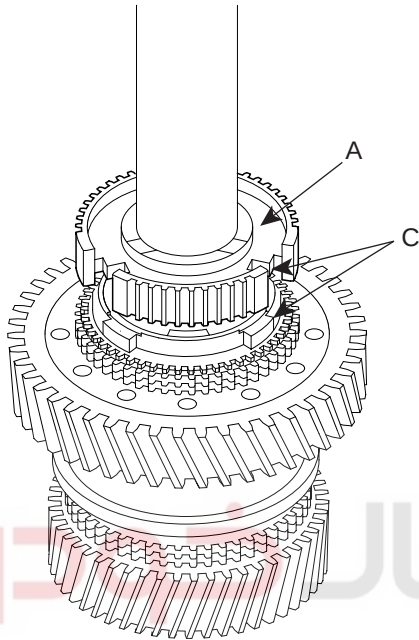
MANUAL TRANSAXLE SYSTEM

MT -47

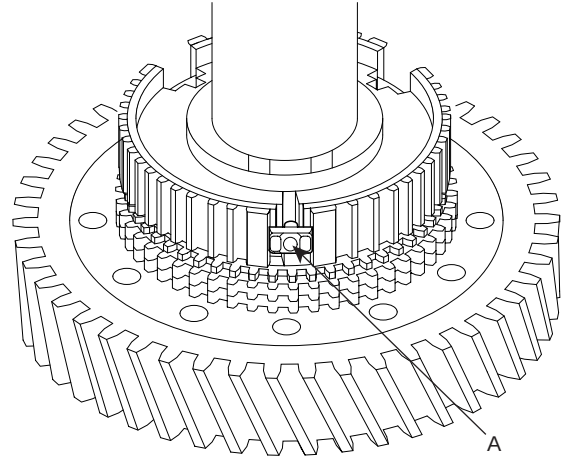
15. Using a press, install the 1st/2nd hub(A).

 NOTE

Align the groove(C) of the hub with the protrusion(C) of the output synchronizer ring.



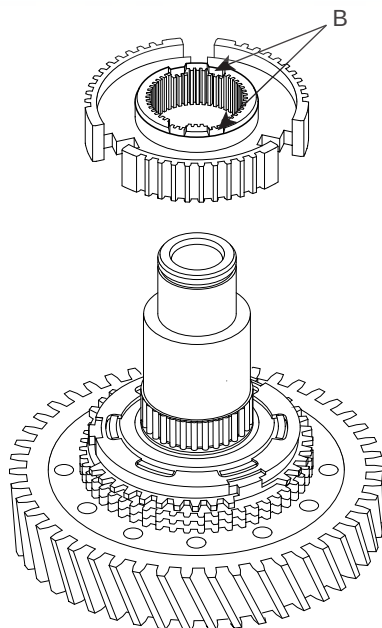
16. Insert the three 1st/2nd synchronizer key assemblies(A).



KMRE002S

دیجیتال خودرو سامانه (مسئولیت محدود)
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
KMRE002Q

The hub surface which has the four grooves(B) in parallel should face the 2nd gear side.



KMRE002R

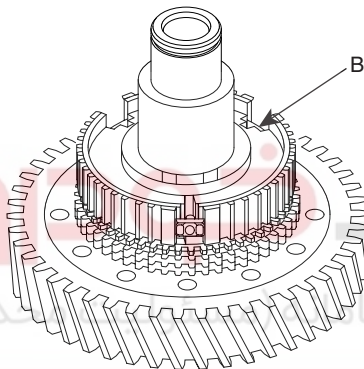
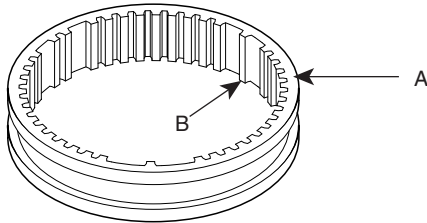
MT -48

MANUAL TRANSAXLE (M5GF2)

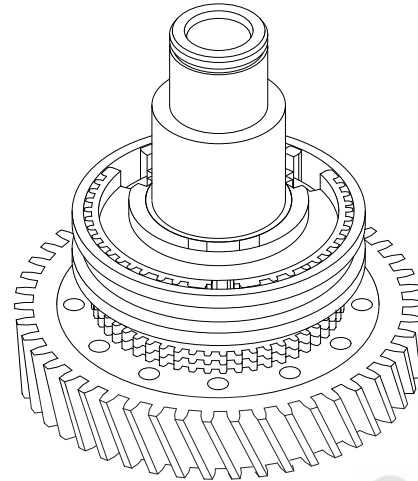
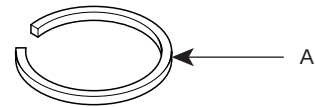
17. Install the 1st/2nd sleeve(A) by tapping softly with a rubber hammer.
Insert the three key assemblies in the 1st/2nd sleeve by pushing them.

**NOTE**

Align the groove & protrusion(B), install the 1st/2nd sleeve(A).

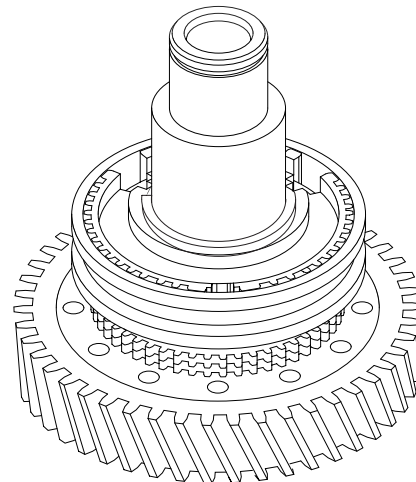
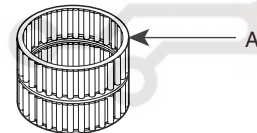


18. Selecting the snap ring(A) which makes the gap be in 0~0.03mm(0.0012inch), install it.

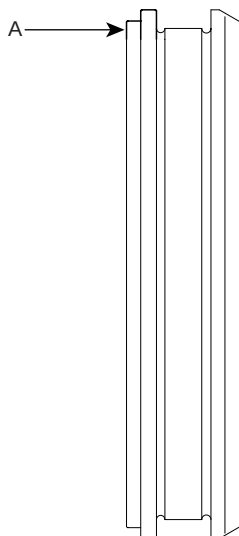


KMRE002V

19. Installing the needle roller bearing(A), apply gear oil around.



KMRE002W



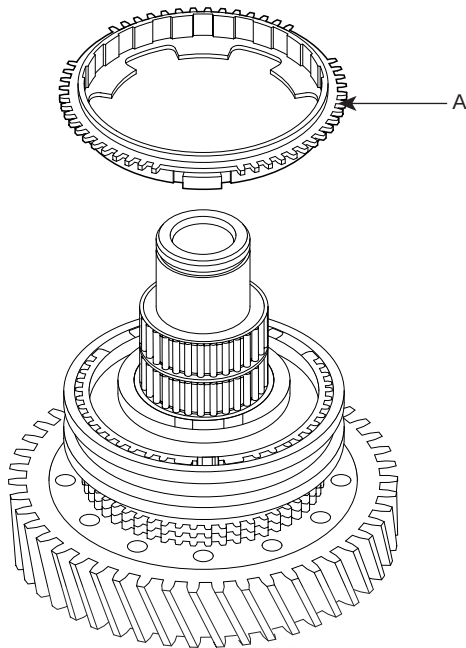
KMRE002U

The sleeve surface which has the groove(A) should face the 1st gear side.

MANUAL TRANSAXLE SYSTEM

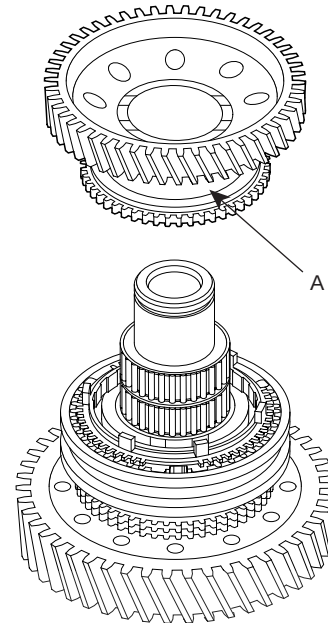
MT -49

20. Install the 2nd outer synchronizer ring(A).



KMRE002X

22. Assemble the 2nd output gear(A).



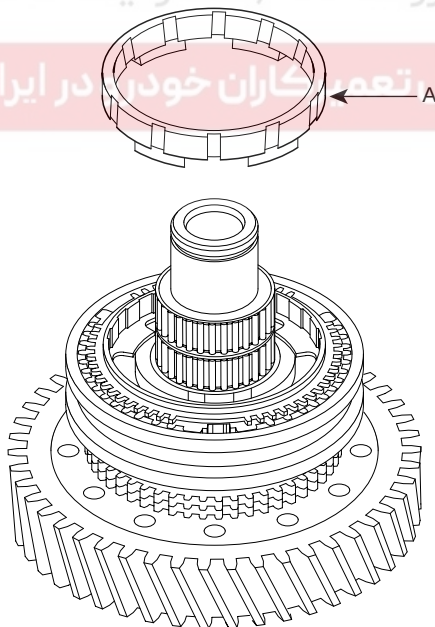
KMRE002Z

21. Install the 2nd synchronizer cone with the 2nd inner synchronizer ring(A)(triple cone type).

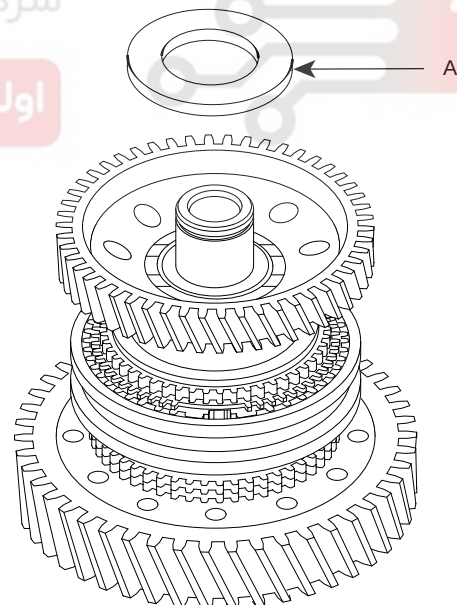
23. Assemble the spacer(A).

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



KMRE002Y

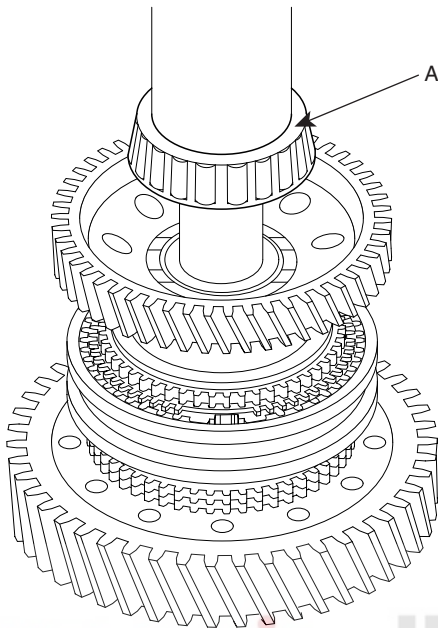


KMRE003A

MT -50

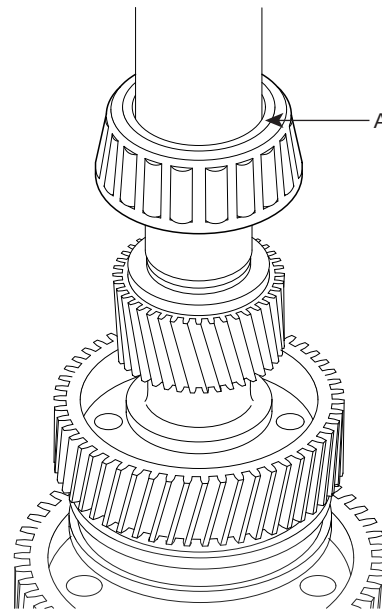
MANUAL TRANSAXLE (M5GF2)

24. Using a press, assemble the rear side taper roller bearing(A).



KMRE003B

26. Using a press, assemble the front side taper roller bearing(A).



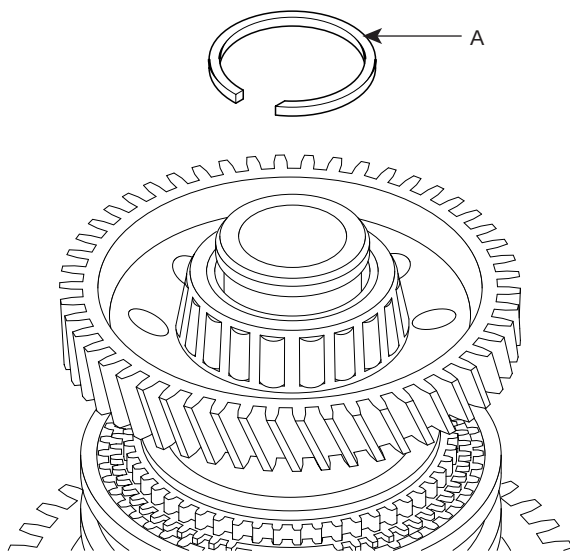
KMRE003D

25. Assemble the snap ring(A).

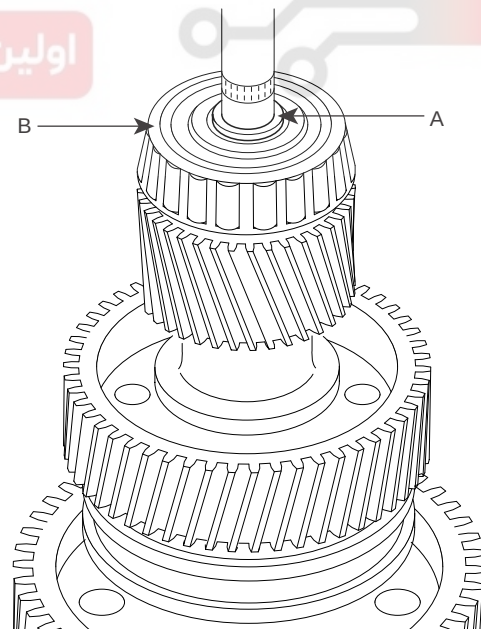
**NOTE**

Selecting the snap ring which makes the gap be in 0~0.03mm(0.0012inch), install it.

27. Usint a press, insert the oil guide ring(A) into the front side taper roller bearing(B).



KMRE003C



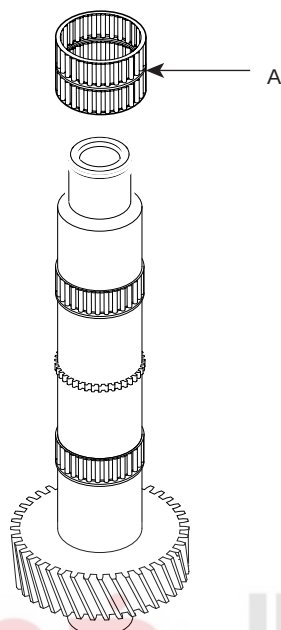
KMRE003E

MANUAL TRANSAXLE SYSTEM

MT -51

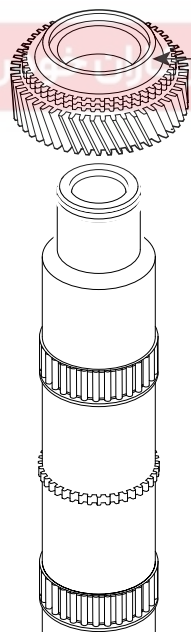
THE 2ND OUTPUT SHAFT

1. Assemble the needle roller bearing(A).



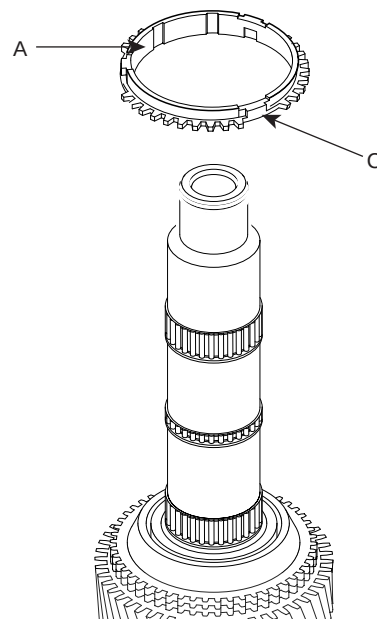
KMRE003F

2. Assemble the 5th output gear(A).



KMRE003G

3. Assemble the 5th synchronizer ring(A).

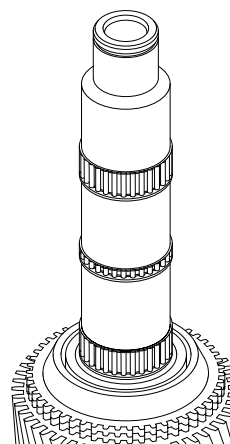
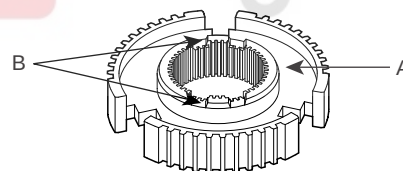


KMRE003H

4. Using a press, assemble the 5th hub(A).

**NOTE**

The hub surface which has the four grooves(B) in parallel should face the spacer.



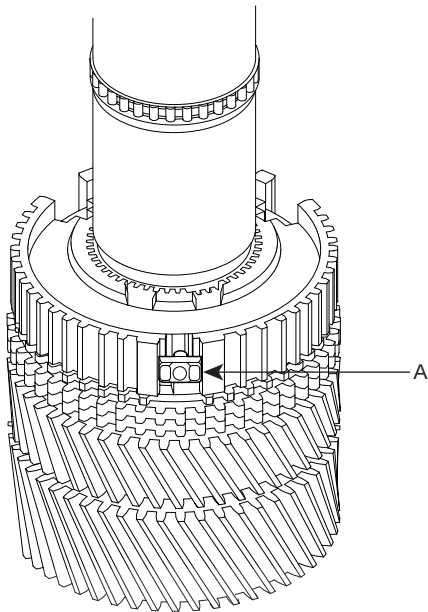
EMRE003I

MT -52

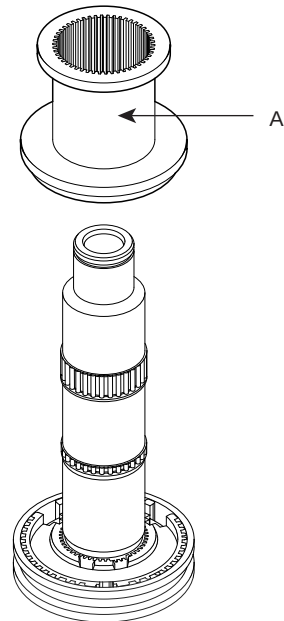
MANUAL TRANSAXLE (M5GF2)

5. Insert the three 5th synchronizer key assemblies(A).

7. Insert the spacer(A).



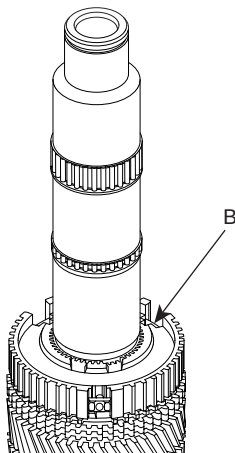
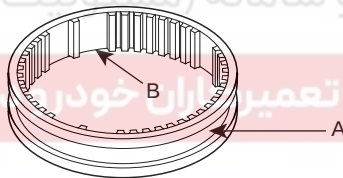
KMRE003J



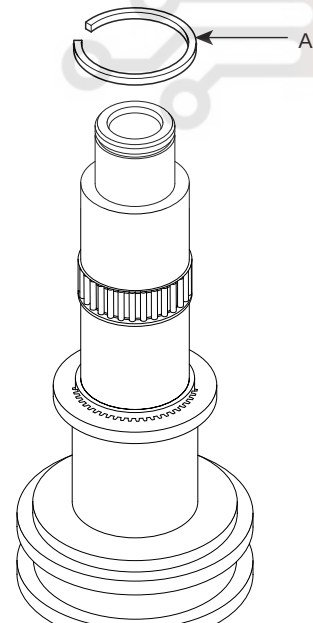
KMRE003L

6. Taking care of the grooves(B), assemble the 5th sleeve(A).

8. Selecting the snap ring(A) which makes the gap be in 0~0.03mm(0.0012inch), install it.



KMRE003K

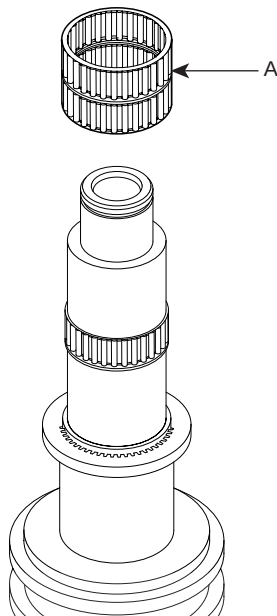


KMRE003M

MANUAL TRANSAXLE SYSTEM

MT -53

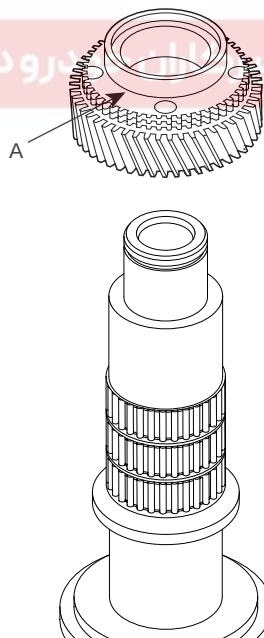
9. Assemble the needle roller bearing(A).



KMRE003N

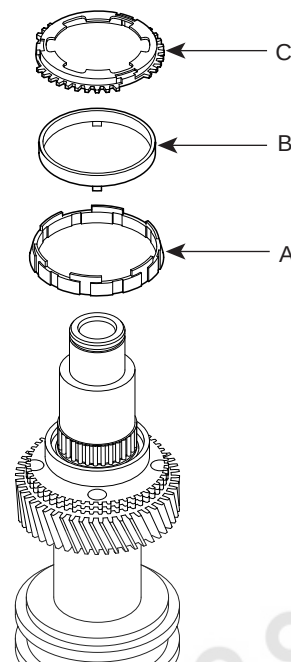
10. Install the snap ring(thickness: 2.5mm or 0.0984inch).

11. Assemble the 3rd output gear assembly(A).



KMRE003O

12. Assemble the 3rd inner synchronizer ring(A), synchronizer cone(B) and outer synchronizer ring(C). Apply gear oil around.

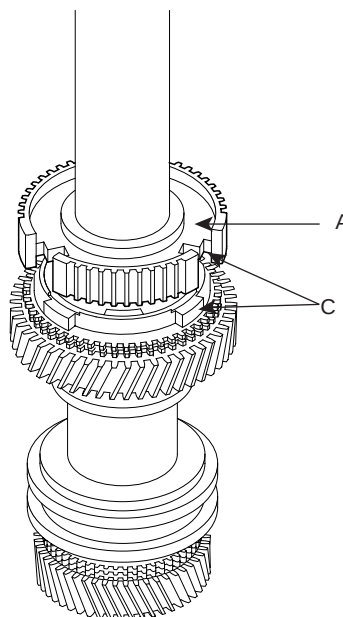


KMRE003P

13. Using a press, install the 3rd/4th hub(A).

**NOTE**

- The hub surface which has the four grooves in parallel should face the rear side.
- Assemble the hub, aligning the groove & protrusion(C).

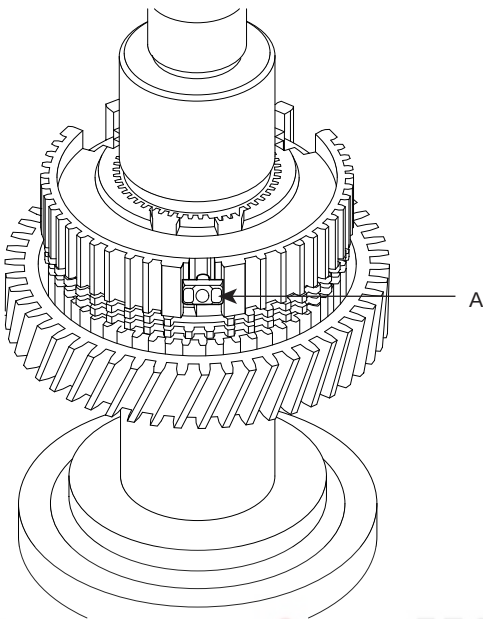


KMRE003Q

MT -54

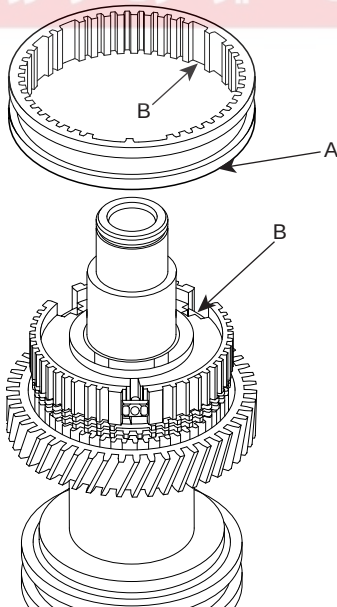
MANUAL TRANSAXLE (M5GF2)

14. Insert the three 3rd/4th synchronizer key assemblies(A).

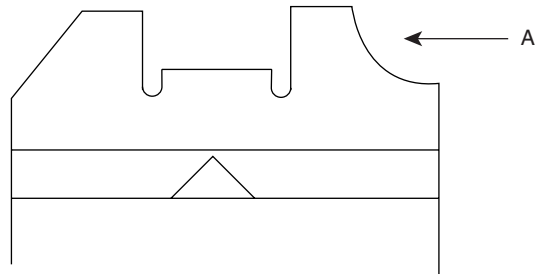


KMRE003R

15. The sleeve surface which has the groove should face the 3rd gear side(A). Align the grooves(B) in the sleeve with the ones of the hub.

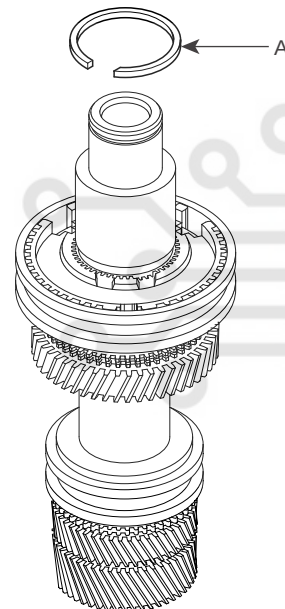


KMRE003S



KMRE004C

16. Selecting the snap ring(A) which makes the gap be in 0~0.03mm(0.0012inch), install it.

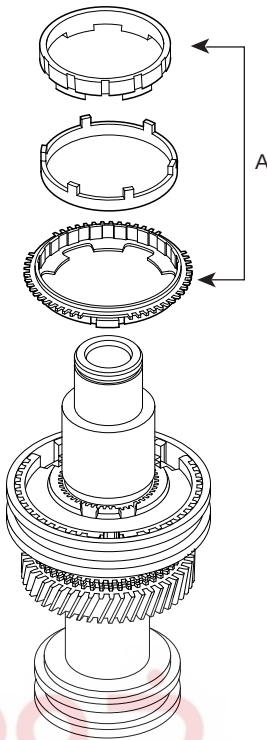


KMRE003T

MANUAL TRANSAXLE SYSTEM

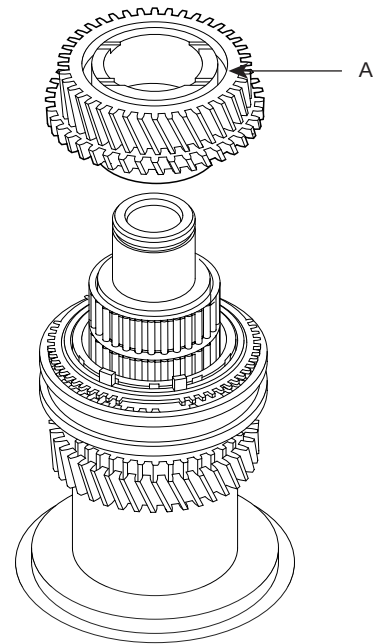
MT -55

17. Assemble the 4th triple cone ring assembly(A).



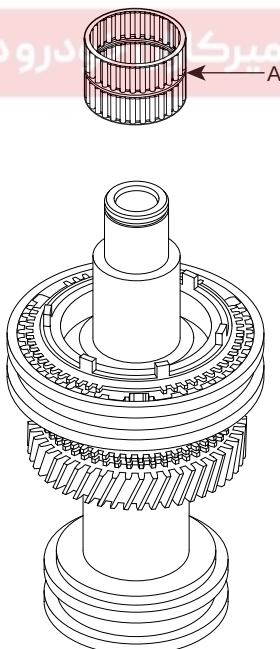
KMRE003U

19. Insert the 4th output gear assembly(A).



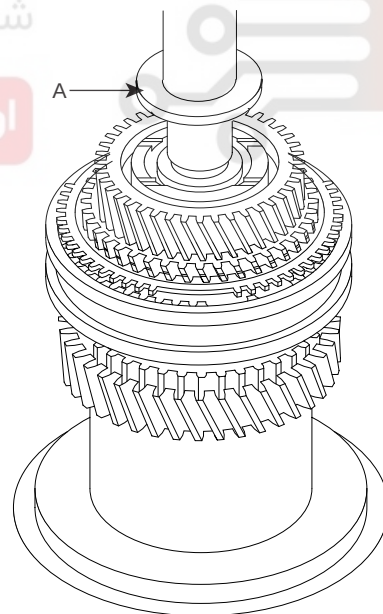
KMRE003W

18. Insert the needle roller bearing(A).



KMRE003V

20. Using a press, assemble the spacer(A).

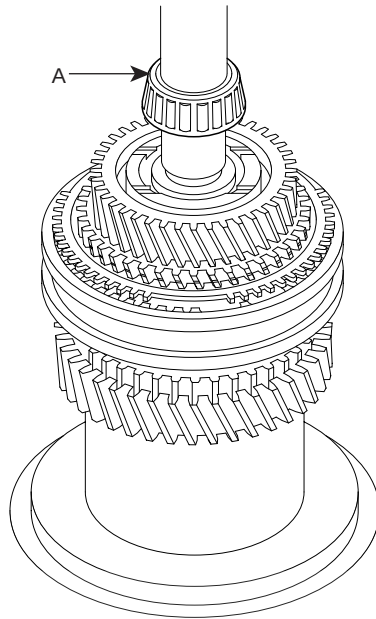


KMRE003X

MT -56

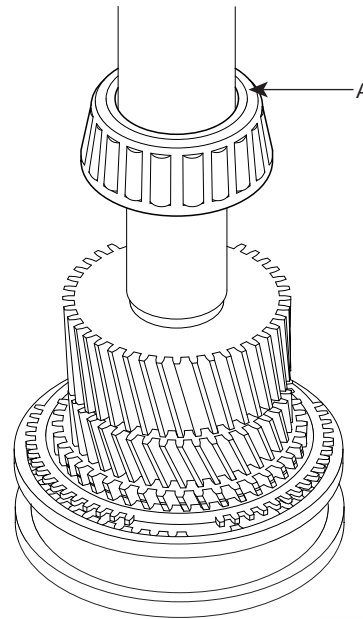
MANUAL TRANSAXLE (M5GF2)

21. Using a press, install the taper roller bearing(A).



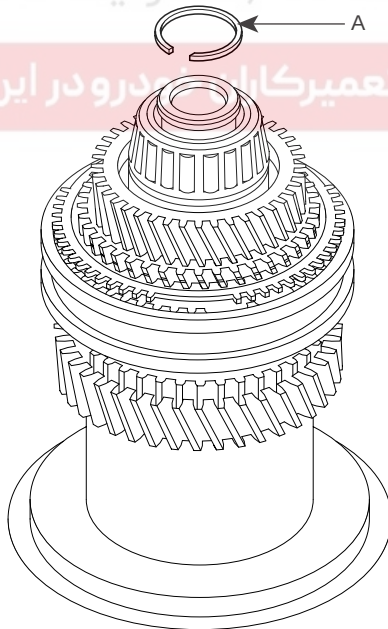
KMRE003Y

23. Using a press, install the front side taper roller bearing(A).



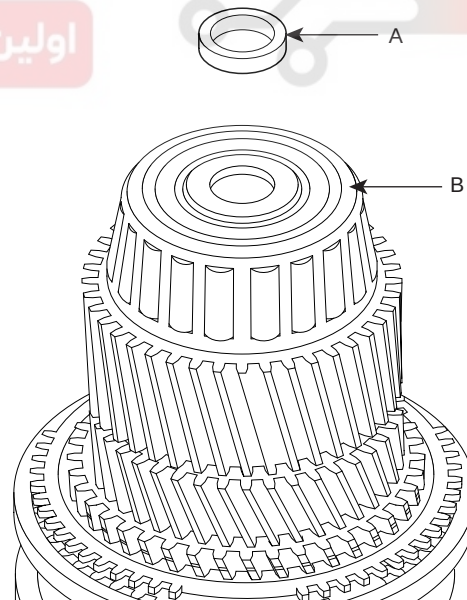
KMRE004A

22. Selecting the snap ring(A) which makes the gap be in 0~0.03mm(0.0012inch), install it.



KMRE003Z

24. Usint a press, insert the oil guide ring(A) into the front side taper roller bearing(B).



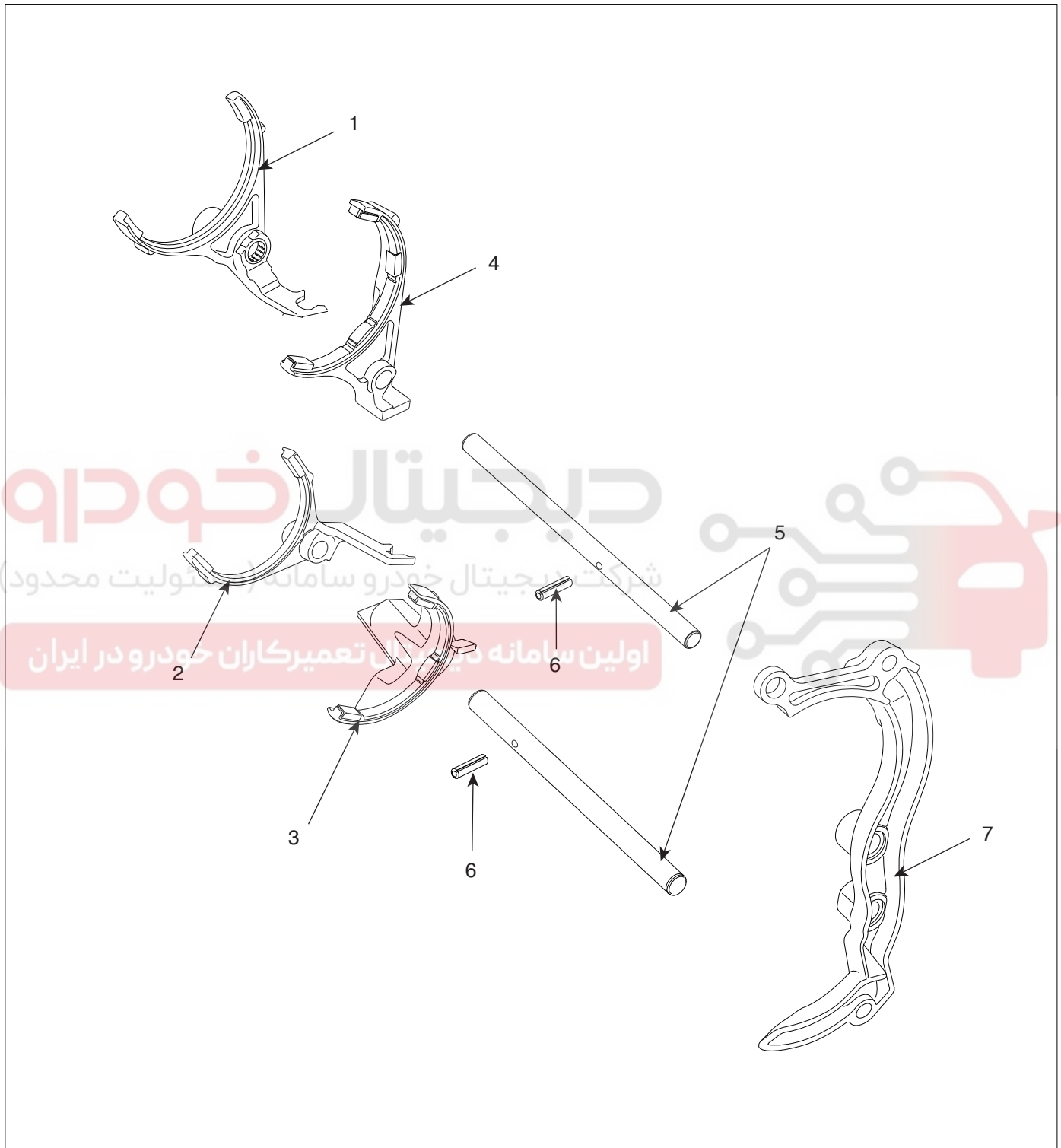
KMRE004B

MANUAL TRANSAXLE SYSTEM

MT -57

SHIFT FORK

COMPONENTS EEFAC20



1. 1st/2nd shift fork
2. 3rd/4th shift fork
3. 5th/6th shift fork
4. Reverse shift fork

5. Shift rail
6. Spring pin
7. Rail support bracket

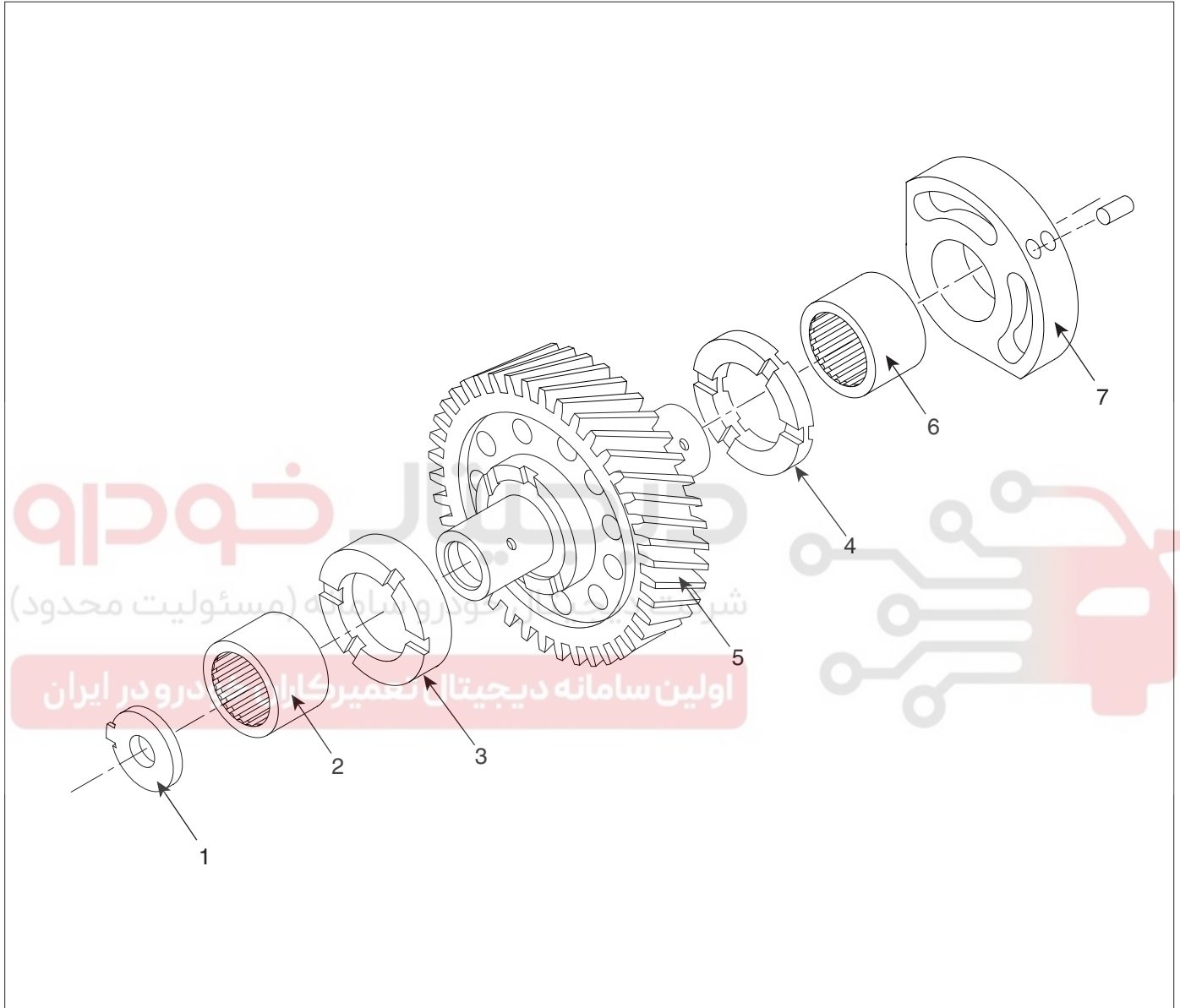
EMRE011A

MT -58

MANUAL TRANSAXLE (M5GF2)

REVERSE IDLER GEAR

COMPONENTS EB770408



- | | |
|---------------------------|--------------------------------|
| 1. Oil guide | 5. Reverse idler gear assembly |
| 2. Needle roller bearing | 6. Needle roller bearing |
| 3. Reverse idler spacer A | 7. Bearing retainer |
| 4. Reverse idler spacer B | |

EMRE008A

REASSEMBLY ECDA0E25

1. Insert the reverse idler spacers in the reverse idler gear assembly.
2. Insert the needle roller bearing into the bearing retainer by tapping.
3. Install the rest parts manually.