

MT-2

Manual Transaxle System

General Information

Specifications

Engine type		θ 2.0
Manual transaxle type		M5GF1
Gear ratio	1st	3.636
	2nd	2.056
	3rd	1.333
	4th	0.971
	5th	0.775
	Reverse	3.455
Final gear ratio		4.333
T/M oil capacity(ℓ) ※		2.1 liter (0.55US qt, 0.46Imp qt)

※ The quantity in the chart above is for the reference.
The actual filling quantity of the automatic transaxle fluid must be set according to 'INSPECTION' or 'REPLACEMENT' procedure of the automatic transaxle fluid.

Recommended transaxle oil			SAE75W/85 or API GL-4
Check & Replenishment			Every one year or every 100,000km
Replacement	Private use	Normal use	No service required
		Severe use(※)	Every 100,000 Km
	Business use		

※ Severe use(marked '※') is defined as:

1. Driving on rough road(bumpy road, gravel road, snowy road, unpaved road etc.).
2. Driving on mountain road, ascent/descent.
3. Repetition of short distance driving.
4. More than 50% operation in heavy city traffic during hot weather above 32°C(89.6°F).
5. Police car, Taxi, Commercial type operation or trailer towing, etc.

Lubricants

Item	Lubricant	Quantity
Transaxle input shaft splin	CASMOLY L9508	0.2 gr.
Transaxle case gasket	LOCTITE 587	As required

General Information

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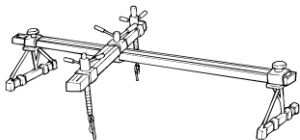
Tightening Torques

Item	Nm	kgf.m	lb-ft
Magnetic plug	29.4~34.3	3.0~3.5	21.7~25.3
Shift control cable bracket	14.8~21.7	1.5~2.2	10.9~16
Oil filler plug	29.4~34.3	3.0~3.5	21.7~25.3
Idler shaft bolt	34.3~41.2	3.5~4.2	25.3~30.4
Back up lamp switch	29.4~34.3	3.0~3.5	21.7~25.3
Vehicle speed sensor	7.8~9.8	0.8~1.0	5.8~7.2
Transaxle mounting bracket assembly	59.2~78.9	6.0~8.0	43.6~58.2
Transaxle and engine mounting bolt	42.2~53.9	4.3~5.5	31.1~39.8
Cross member mounting	137.3~156.9	14.0~16.0	101.3~115.7
Stay mounting	44.1~58.8	4.5~6.0	32.5~43.4
Steering bar tierod mounting	23.5~33.3	2.4~3.4	17.4~24.6
Stabilizer bar link mounting	98.1~117.7	10.0~12.0	72.3~86.8
Lower arm ball joint and folk mounting	98.1~117.7	10.0~12.0	72.3~86.8
Lower arm ball joint and front axle mounting	98.1~117.7	10.0~12.0	72.3~86.8
Front/rear roll stopper assembly	49.0~63.7	5.0~6.5	36.2~47.0
Steering column bolt	17.7~24.5	1.8~2.5	13.0~18.1
Power steering pressure hose bolt	63.7~73.5	6.5~7.5	47.0~54.2

Service Standard

Item	Specification [mm(in)]
Differential end play	0.05T-0.10T
Input shaft end play	0.01L-0.12L
Output shaft end play	0-0.05T
1st gear end play	0.11L-0.22L
2nd gear end play	0.11L-0.22L
3rd gear end play	0.11L-0.22L
4th gear end play	0.11L-0.22L
5th gear end play	0.11L-0.22L
Reverse gear end play	0.11L-0.22L

MT-4**Manual Transaxle System****Special Service Tools**

Tool (Number and name)	Illustration	Use
09200 - 38001 Engine support fixture	 D0038001	Removal and installation of transaxle.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Manual Transaxle System

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Manual Transaxle System

Service Adjustment Procedure

Transmission Oil Inspection And Replacement

1. After parking the vehicle on a plain, stop the engine.
2. After removing the 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 the new oil drain plug and feed manual transaxle fluid to a proper level.

Tightening torque :

29.4~34.4 Nm(3.0~3.5kgf.m, 21.7~25.3lb-ft)

Oil type: SAE75W/85 or API GL-4

Oil quantity:

2.1 liter (0.55US qt, 0.46Imp qt)

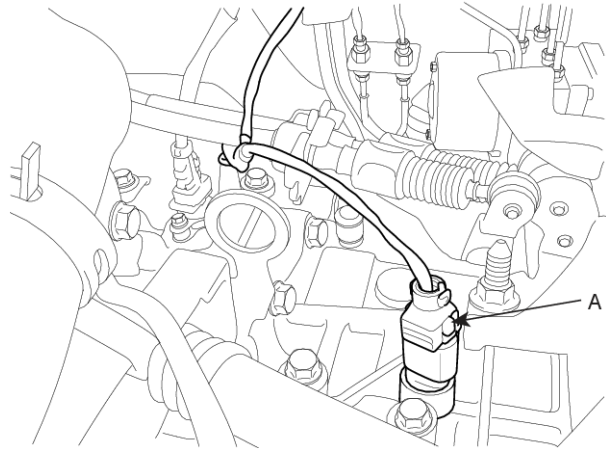
5. Retighten the oil filler plug with a new washer.

Tightening torque :

29.4~34.4 Nm(3.0~3.5kgf.m, 21.7~25.3lb-ft)

Back Up Lamp Switch Inspection

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



AMLFO12B

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

Tightening torque :

29.4~34.4 Nm(3.0~3.5kgf.m, 21.7~25.3lb-ft)

سازمان دیجیتال خودرو
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

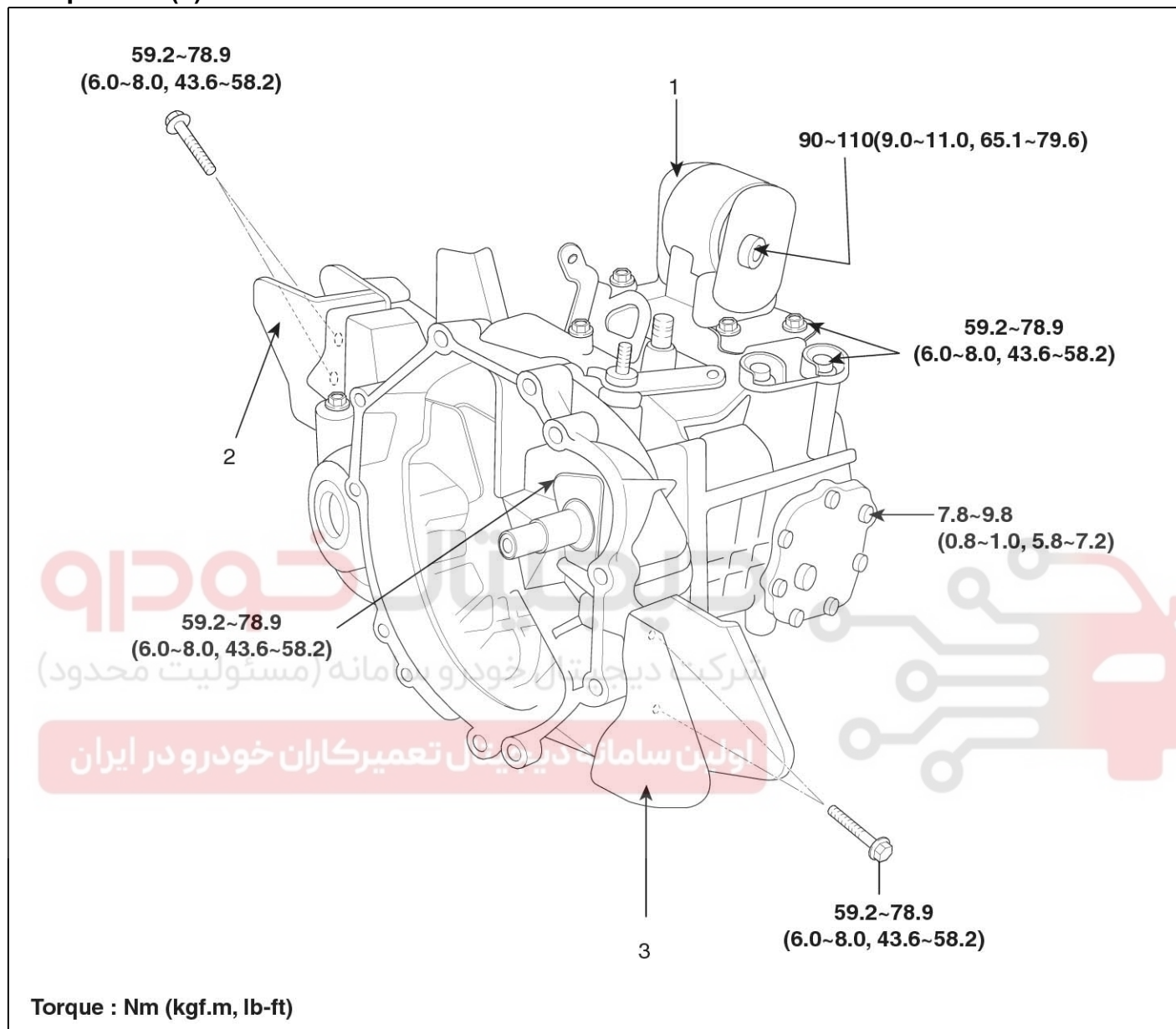
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

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Manual Transaxle System

Manual Transaxle

Components(1)



SMGMT9001L

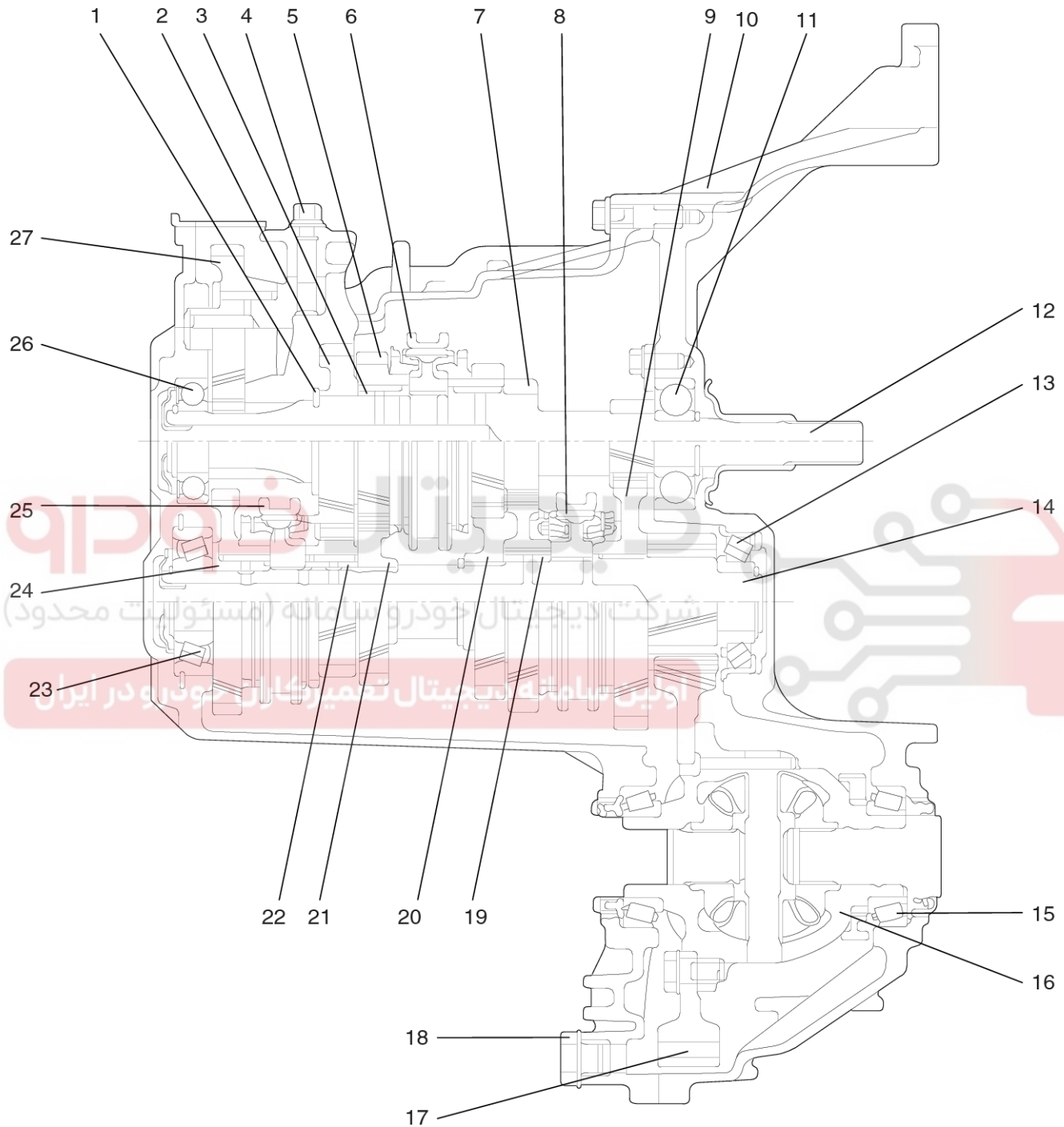
1. Transaxle mounting bracket
2. Rear roll stopper bracket

3. Front roll stopper bracket

Manual Transaxle System

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Components(2)



KMBC013A

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Manual Transaxle System

1. Snap ring
2. 5th speed gear
3. 4th speed gear sleeve
4. Reverse idler bolt
5. 4th speed gear
6. 3&4th synchronizer hub & sleeve
7. 3rd speed gear
8. 1&2nd synchronizer hub & sleeve
9. 1st speed gear
10. Cutch housing
11. Front input shaft ball bearing
12. Input shaft
13. Front output shaft taper roller bearing
14. Output shaft

15. Differential taper roller bearing
16. Differential
17. Differential drive gear
18. Drain plug
19. 2nd speed gear sleeve
20. 3rd speed input gear
21. 4th speed input gear
22. 5th speed gear sleeve
23. Rear output shaft taper roller bearing
24. Reverse driven gear sleeve
25. 5th & REV synchronizer hub & sleeve
26. Rear input shaft ball bearing
27. Reverse idler gear

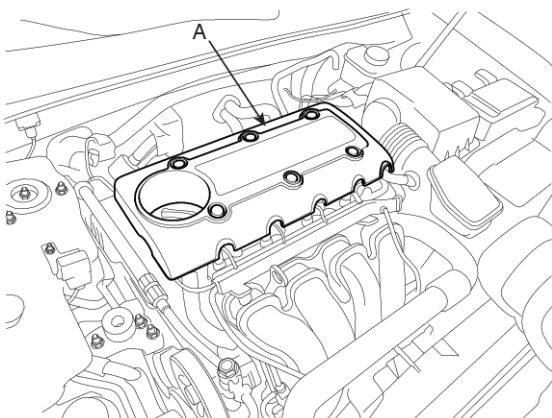
Removal

1. Remove the battery(A).



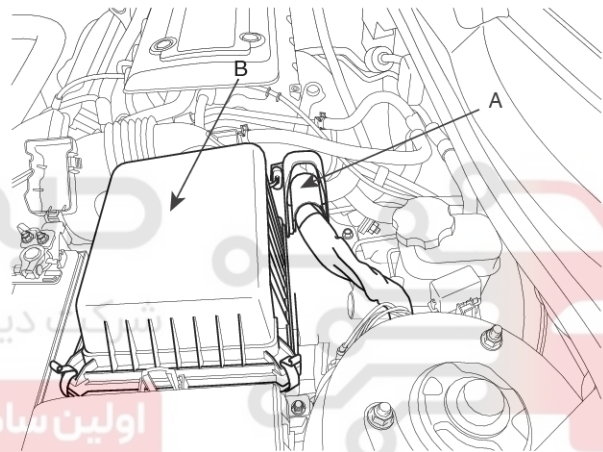
SMGAA9001D

2. Remove the engine cover(A).



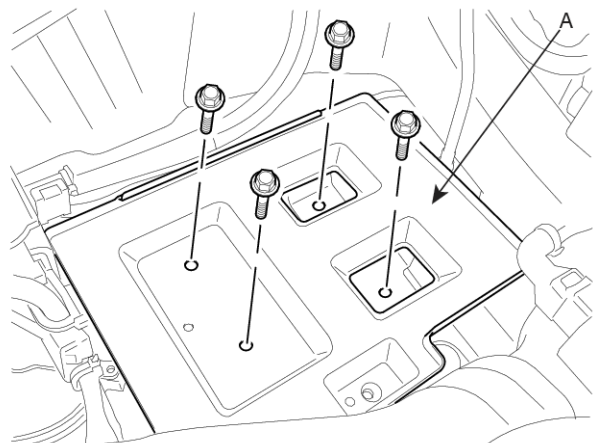
SMGMT9002D

3. After disconnecting the PCM connector (A), remove air cleaner (B).



SMGMT9003L

4. Remove the battery tray(A).

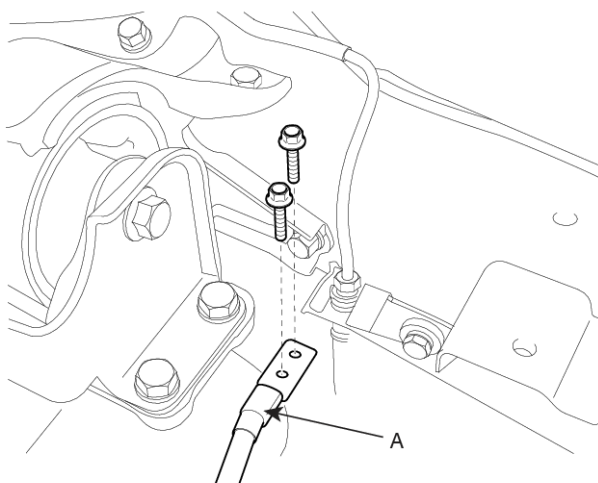


AKLG012A

Manual Transaxle System

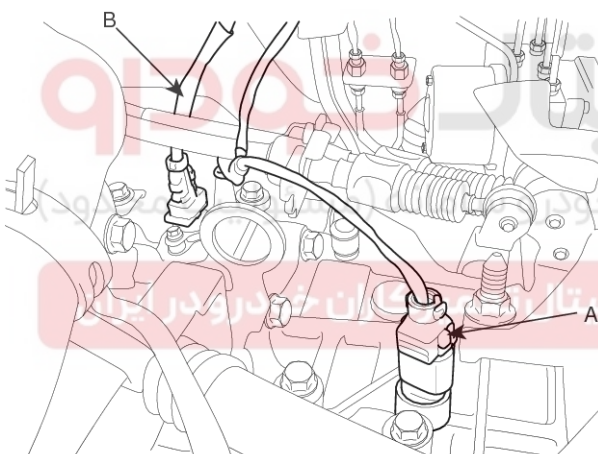
MT-9

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



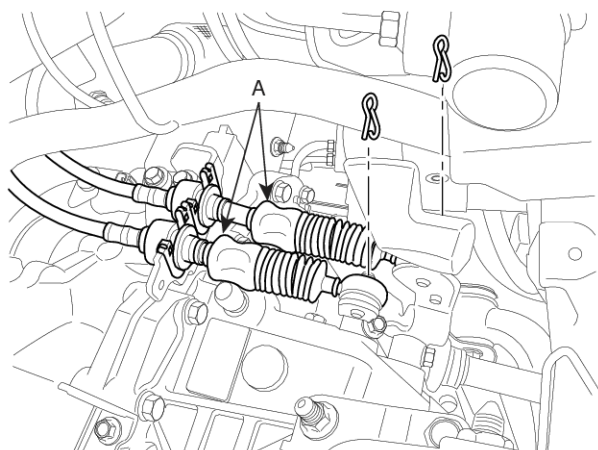
AMLF001B

6. Remove the back up lamp switch(A) and Vehicle speed sensor(B).



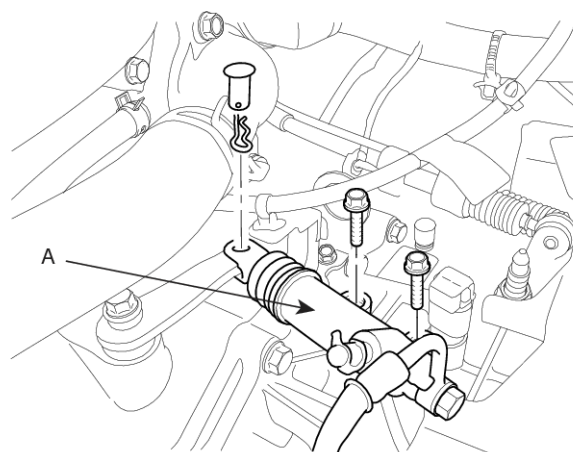
AMLF012A

7. Remove the shift cable assembly(A).



SUNMA6007D

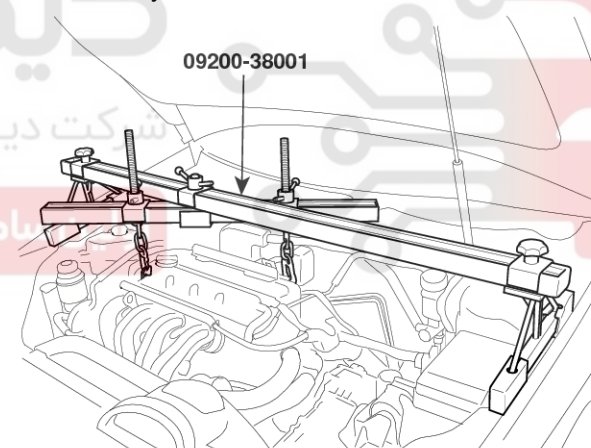
8. Remove the clutch release cylinder(A).



AMLF013A

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

10. Install the SST(09200-38001), the engine support fixture and the adapter on the engine and transaxle assembly.

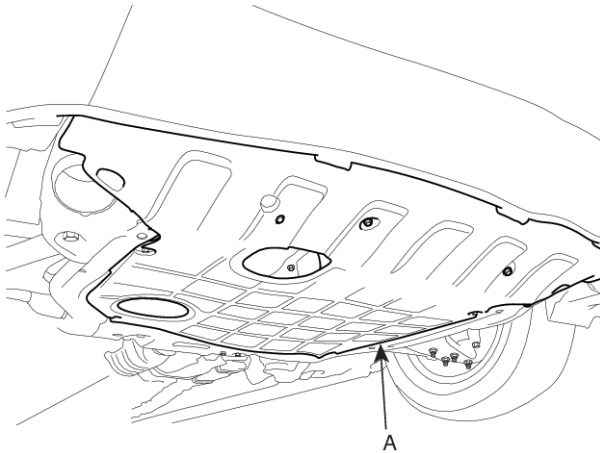


AKLG018A

MT-10

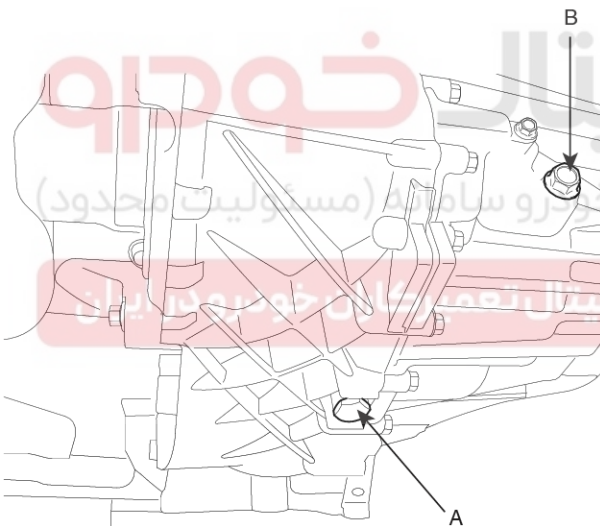
Manual Transaxle System

11. Remove the under shield cover(A).



AML F015A

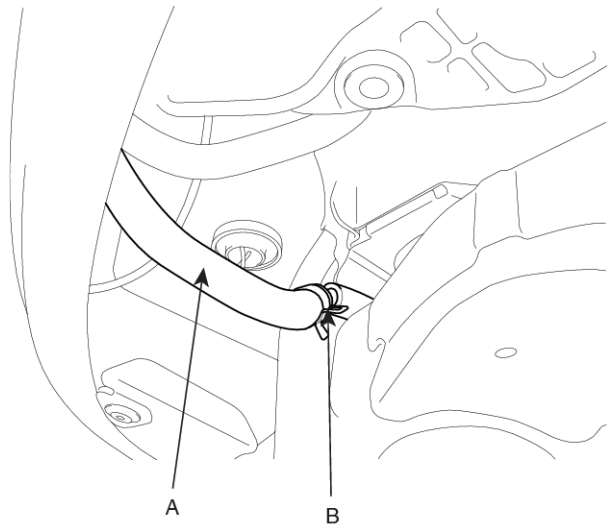
12. Drain the manual transaxle fluid after removing the transaxle drain plug(A). It can be easier when the oil filler plug(B) is removed.



KMRE009I

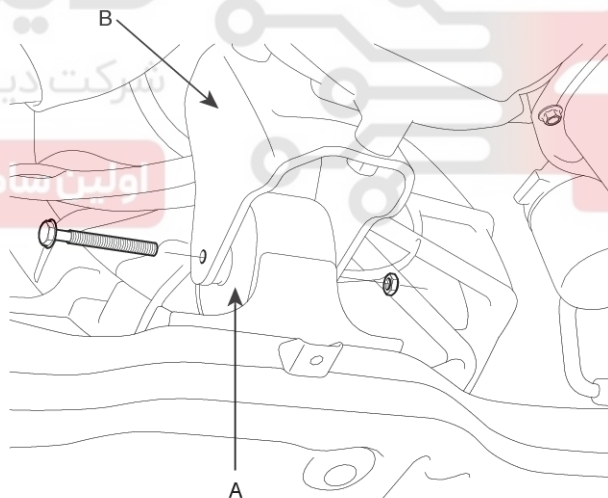
- 13. Drain the power steering fluid. (Refer to 'ST'-group)
- 14. Disconnect the electronic power steering connector.
- 15. Remove the lower arm ball joint assembly mounting bolts. (Refer to 'ST'-group)
- 16. Remove the stabilizer bar link mounting bolts. (Refer to 'ST'-group)
- 17. After removing a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

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



KMRE009J

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

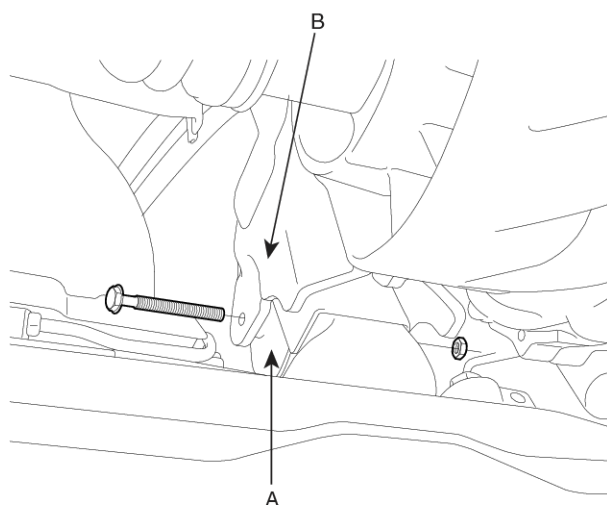


KMRE009K

Manual Transaxle System

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



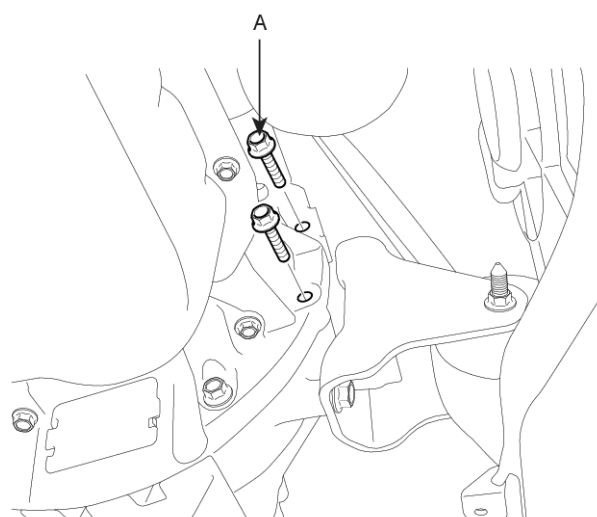
KMRE009L

21. Remove the steering column bolt. (Refer to 'ST'-group).

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

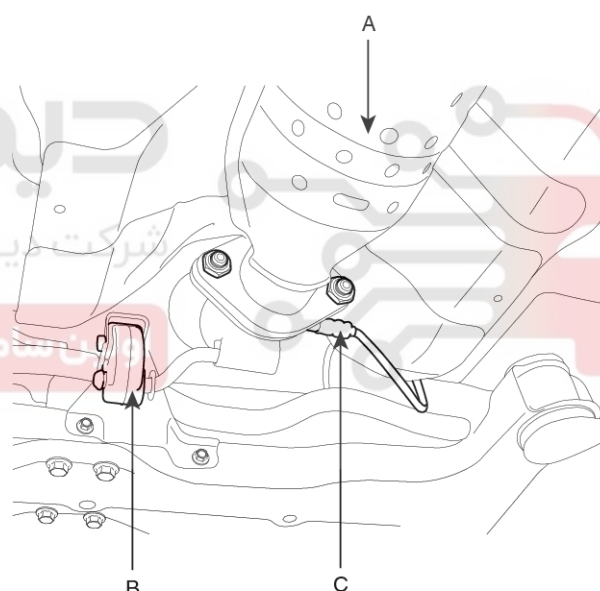


KMRE009M



KMRE009N

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

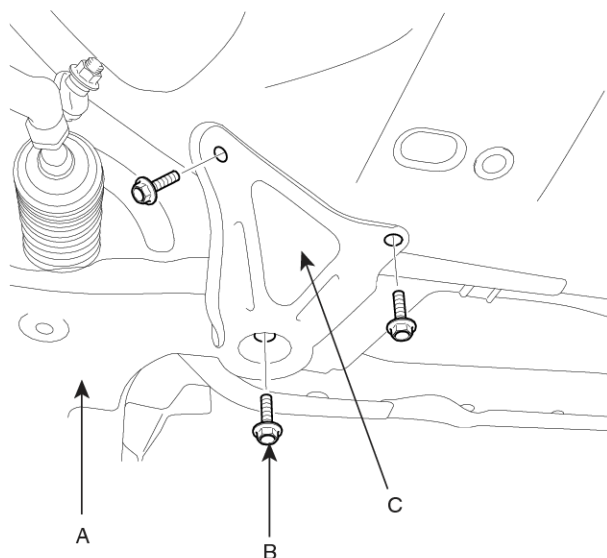


KMRE009O

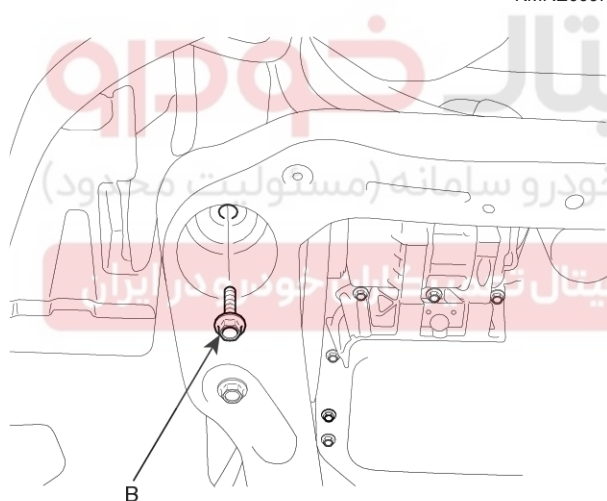
MT-12

Manual Transaxle System

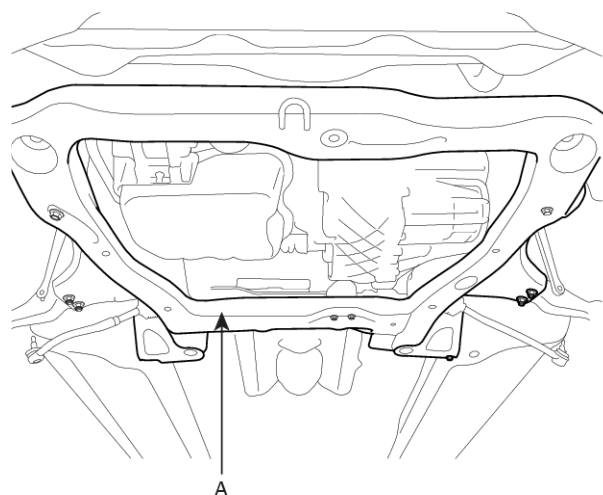
24. Supporting the cross member(A) with a jack, remove the stay(C) with the mounting bolts(B).



KMRE009P

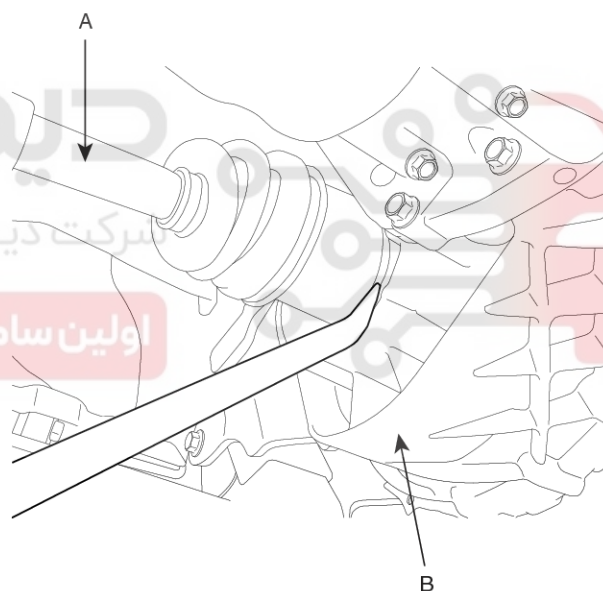


KMRE009Q



KMRE009R

25. Disconnect the driveshafts(A) from the transaxle(B)
(Refer to 'DS'-group)

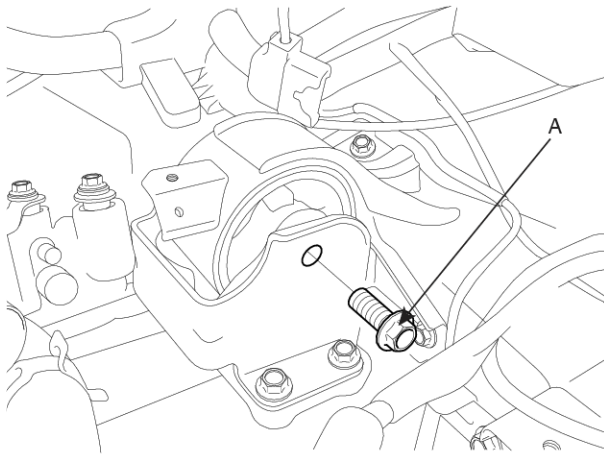


KMRE009S

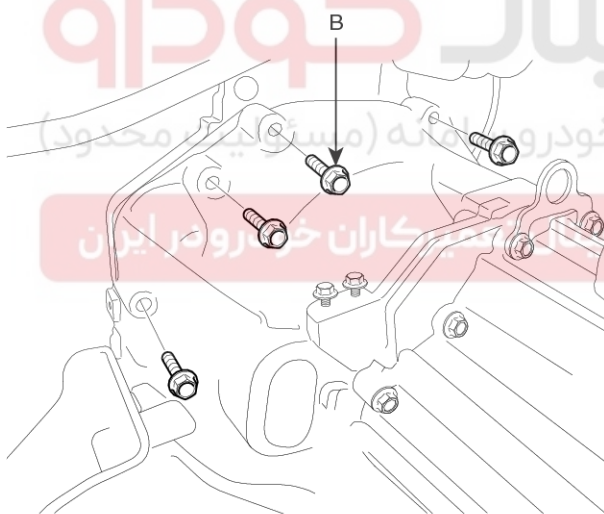
Manual Transaxle System

MT-13

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



KMRE009W



AMLF016B

27. Lowering the jack slowly, remove the transaxle.

Installation

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

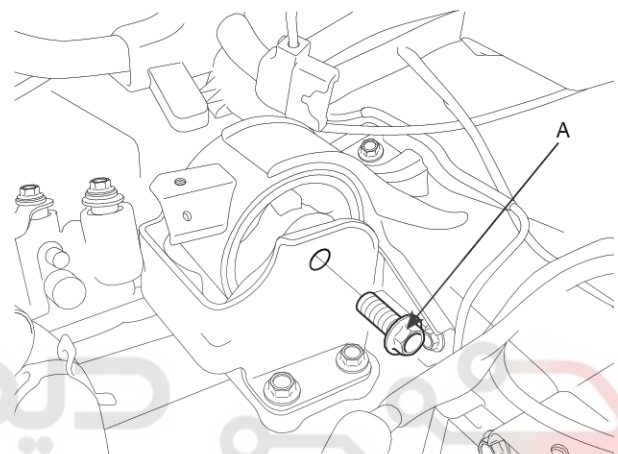
Tightening torque :

42.2~53.9Nm (4.3~5.5kgf.m, 31.1~39.8lb-ft)

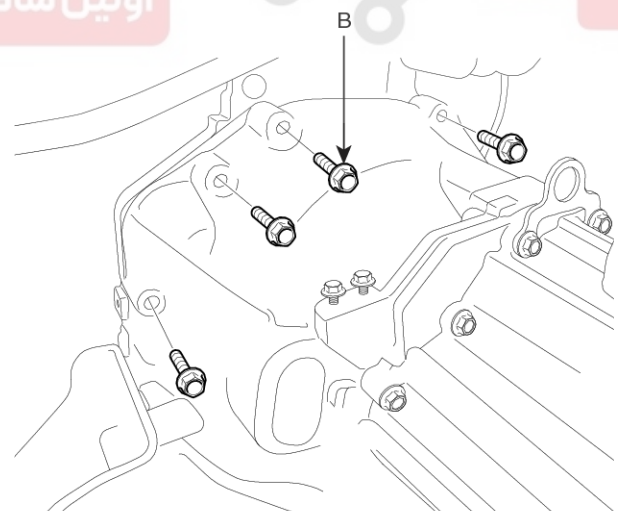
(Support bracket mounting)

63.7~83.4Nm (6.5~8.5kgf.m, 47.0~61.5lb-ft)

(Transaxle mounting bracket)



KMRE009W



AMLF016B

2. Tighten the transaxle lower mounting bolts.

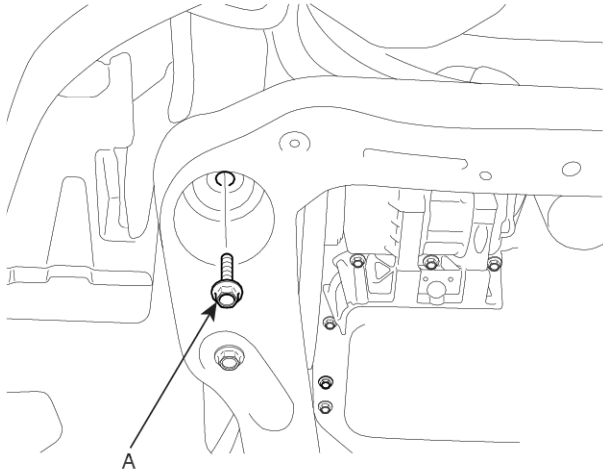
3. Install the driveshafts. (Refer to 'DS'-group)

MT-14

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

Tightening torque :

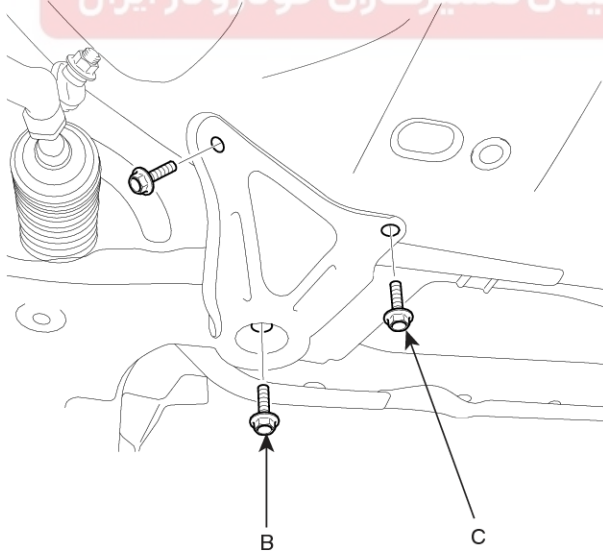
137.3~156.9Nm (14.0~16.0kgf.cm, 101.3~115.7lb-ft)
(Front mounting)(A)



KMRE009Y

Tightening torque :

137.3~156.9Nm (14.0~16.0kgf.m, 101.3~115.7lb-ft)
(Rear mounting)(B)
44.1~58.8Nm (4.5~6.0kgf.m, 32.5~43.4lb-ft)
(Stay mounting)(C)



KMRE009Z

Manual Transaxle System

5. Tighten the steering column bolt.

Tightening torque :

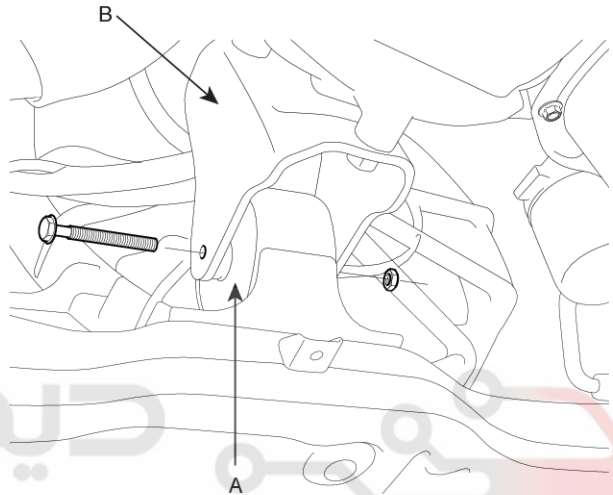
14.7~19.6Nm (1.5~2.0kgf.m, 10.8~14.5lb-ft)

6. Assembling the exhaust pipe, connect the hanger and oxygen sensor connector.

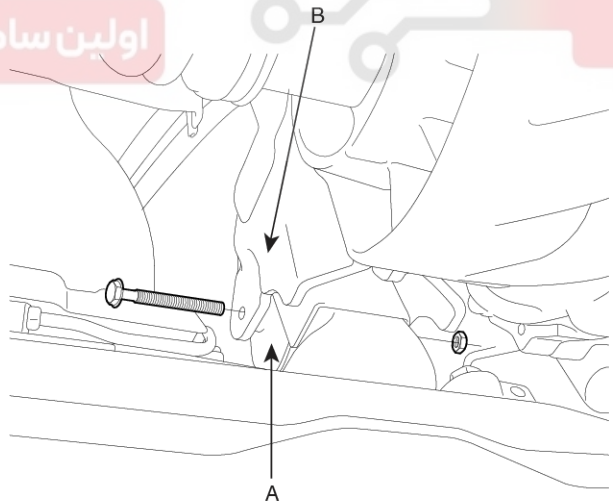
7. Fix the front/rear roll stopper(A) to brackets(B) with the mounting bolts.

Tightening torque :

49.0~63.7Nm (5.0~6.5kgf.m, 36.2~47.0lb-ft)



KMRE009K

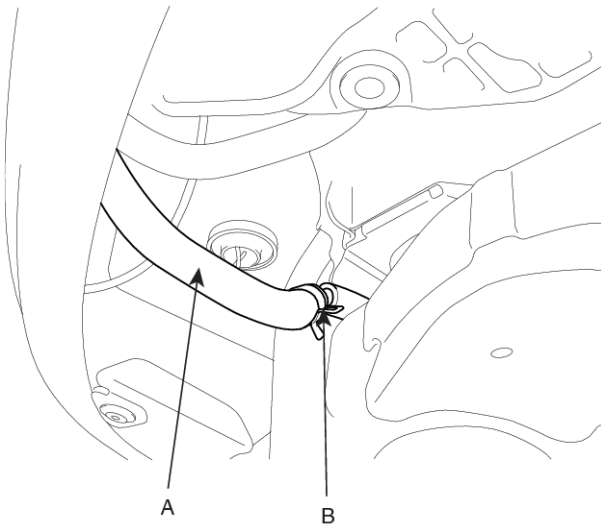


KMRE009L

Manual Transaxle System

MT-15

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)

Tightening torque :

23.5~33.3Nm (2.4~3.4kgf.m, 17.4~24.6lb-ft)

10. Tighten the stabilizer bar link mounting bolt. (Refer to 'ST'-group)

Tightening torque :

98.1~117.7Nm (10.0~12.0kgf.m, 72.3~86.8lb-ft)

11. Fix the lower arm ball joint assembly to the front axle. (Refer to 'ST'-group).

Tightening torque :

98.1~117.7Nm (10.0~12.0kgf.m, 72.3~86.8lb-ft)

12. Connect the electronic power steering connector.

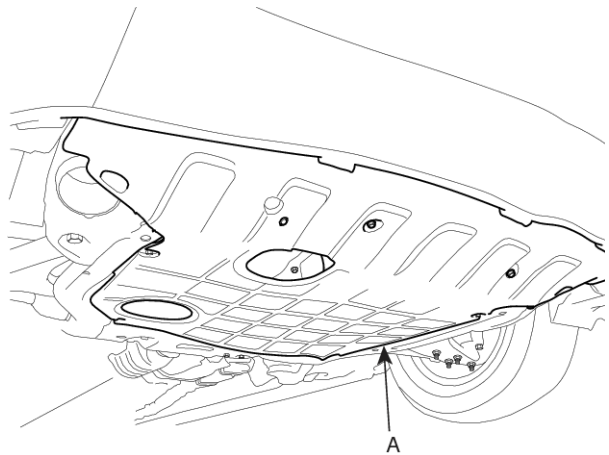
13. After tightening the transaxle drain plug and filling the manual transaxle fluid, tighten the oil filler plug.

Tightening torque :

29.4~34.3Nm (3.0~3.5kgf.m, 21.7~25.3lb-ft)

Manual transaxle fluid: SAE 75W/85

14. Install the under shield cover(A).



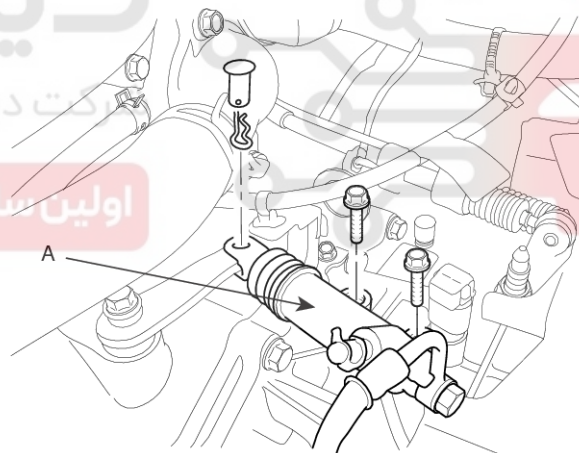
AMLF015A

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

Tightening torque :

63.7~73.5Nm (6.5~7.5kgf.m, 47.0~54.2lb-ft)

16. Install the clutch release cylinder(A).

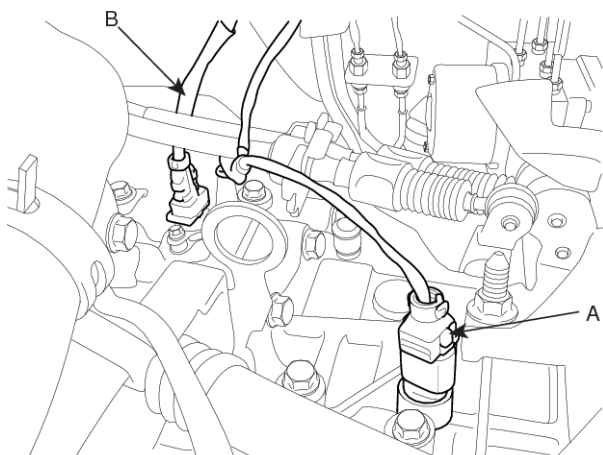


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MT-16

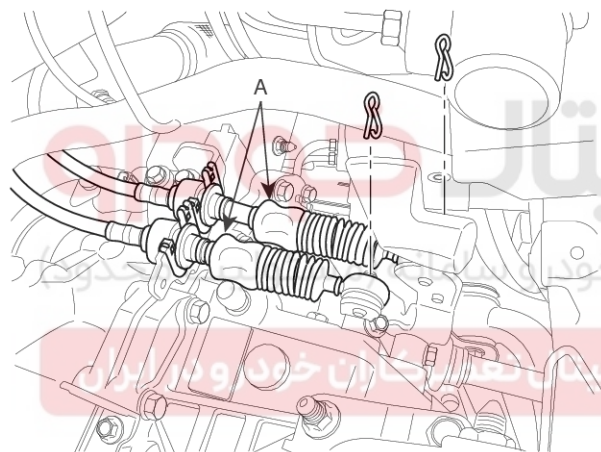
Manual Transaxle System

17. Install the back up lamp switch(A) and Vehicle speed sensor(B).



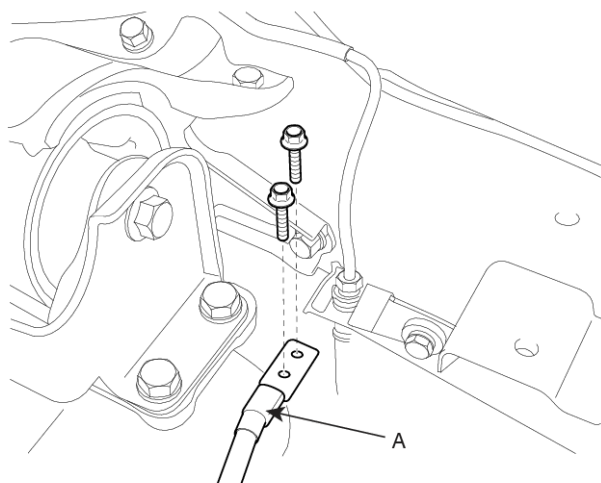
AMLF012A

18. Install the shift cable assembly(A).



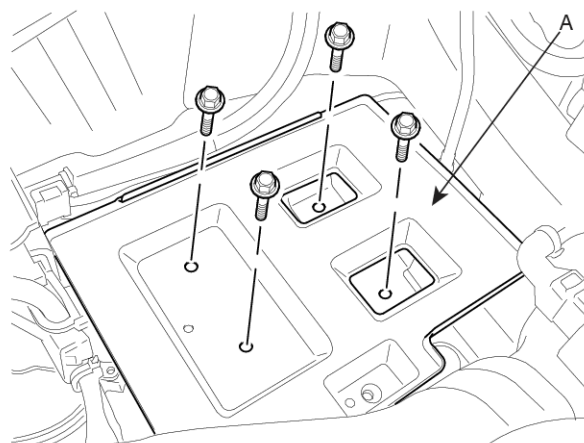
SUNMA6007D

19. Install the ground circuit line(A) from the transaxle.



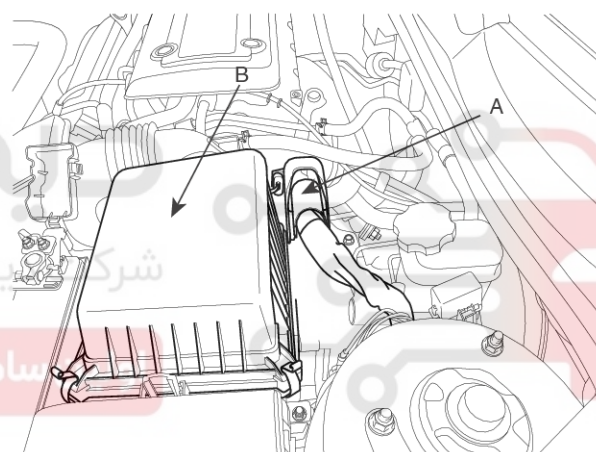
AMLF001B

20. Install the battery tray(A).



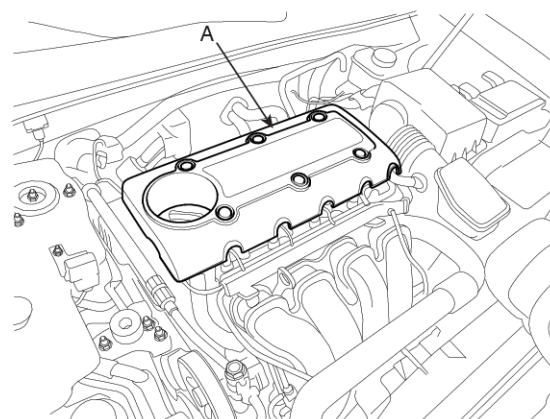
AKLG012A

21. Install air cleaner assembly (A) and the PCM connector (B).



SMGMT9003L

22. Install the engine cover(A).

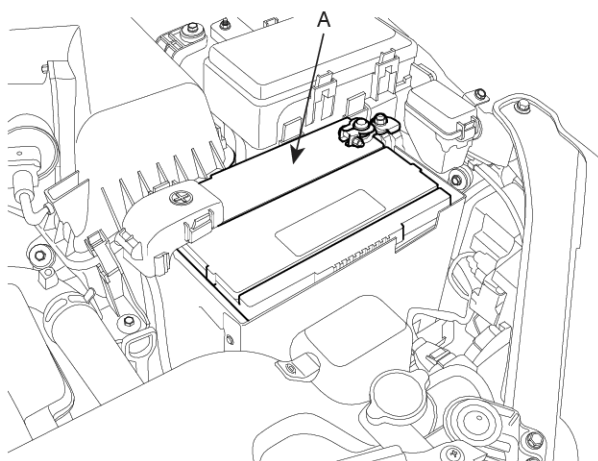


SMGMT9002D

Manual Transaxle System

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23. Install the battery(A).



SMGAA9001D

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



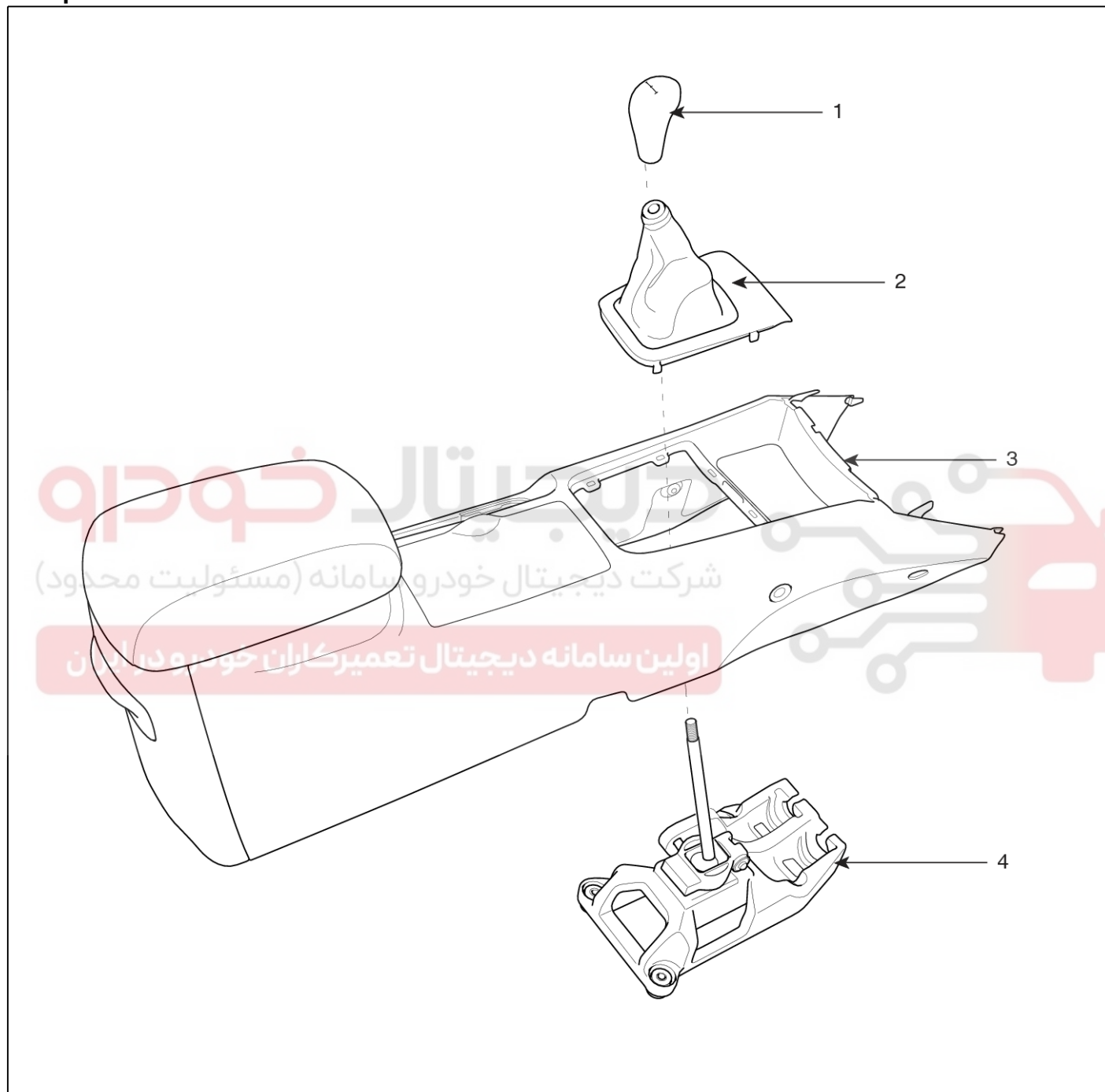
MT-18

Manual Transaxle System

Manual Transaxle Control System

Manual Transaxle Shift Control

Components



SMGMT9002L

- 1. Shift lever
- 2. Shift boot

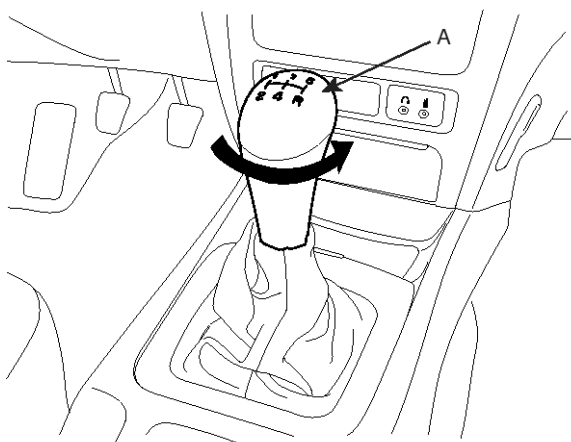
- 3. Center console
- 4. Shift lever assembly

Manual Transaxle Control System

MT-19

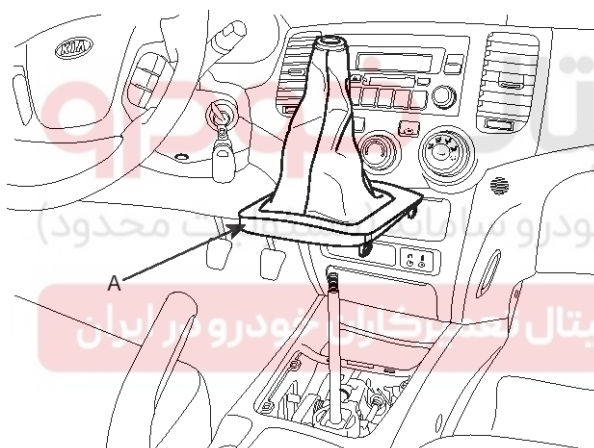
Removal

1. Remove the shift lever knob(A) by turning the knob in the direction as shown in the illustration.



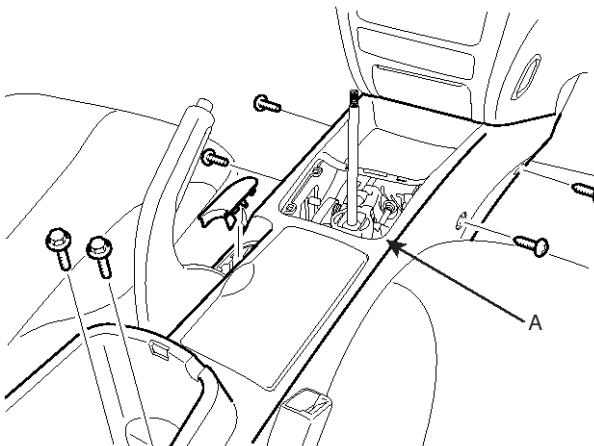
AMLF001A

2. Remove the shift boot (A).(Refer to BD group)



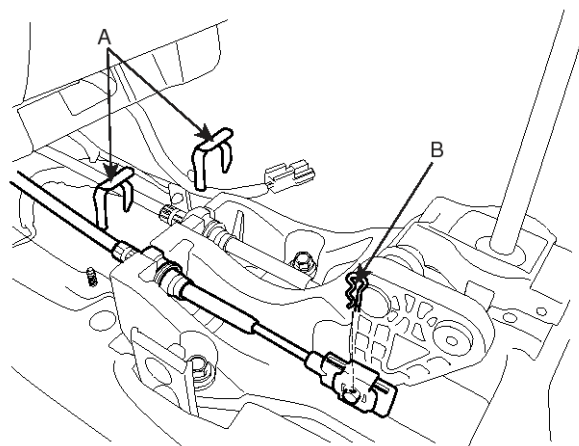
AMLF002A

3. Remove the center console(A).(Refer to BD group.)



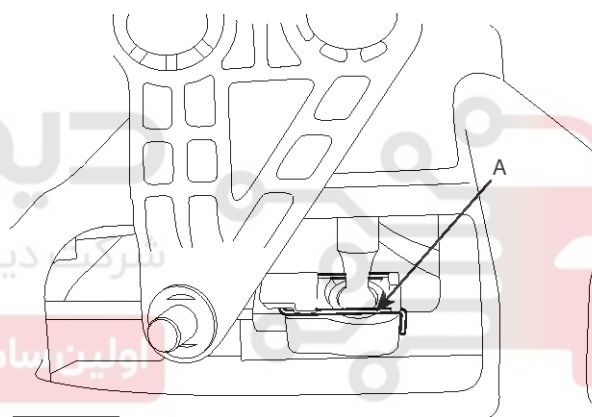
AMLF003A

4. Remove the snap pin (B) and the clip (A) from the select cable assembly.



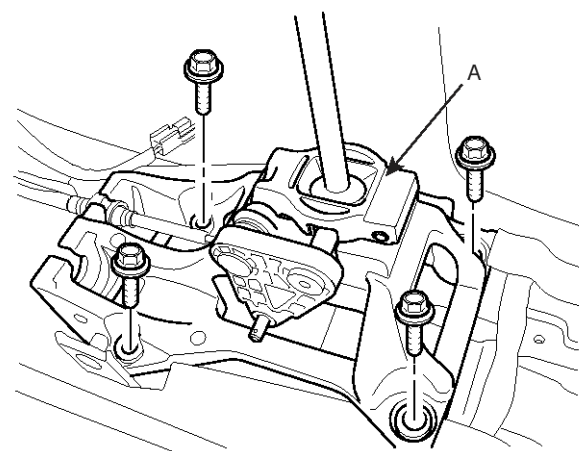
AMLF004A

5. Remove the clip (A) from the shift cable assembly.



AMLF009A

6. Remove the shift lever assembly(A).

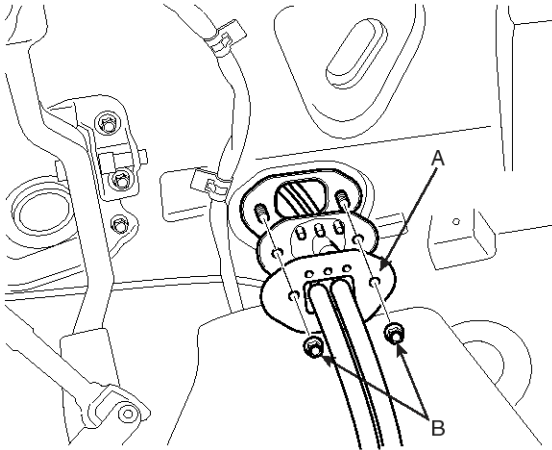


AMLF008A

MT-20

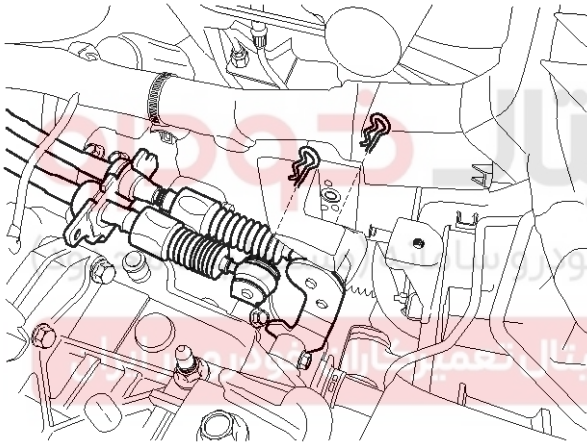
Manual Transaxle System

7. Remove the retainer(A) and nuts(B).



AMJF500A

8. Remove the select and shift cable assembly from the transaxle. (Refer to Transaxle removal)



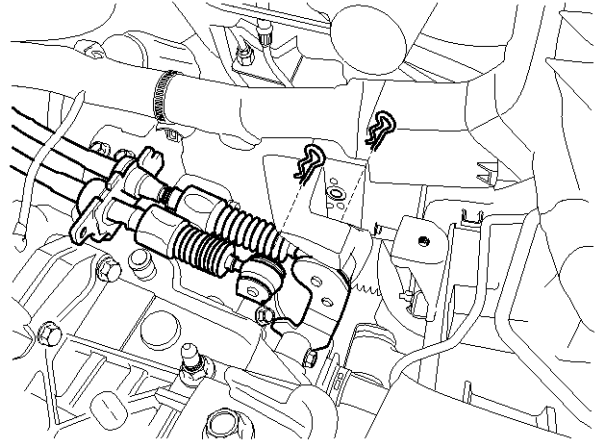
AMLF016C

Inspection

1. Check the select cable for proper operation and for damage.
2. Check the shift cable for proper operation and for damage.
3. Check the boots for damage.
4. Check the boots for wear abrasion sticking, restricted movement or damage.
5. Check for the weak or damaged spring.

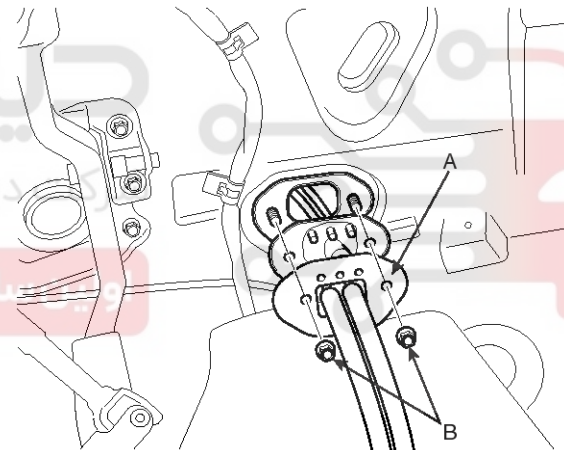
Installation

1. Install the cable assembly placing the select and shift lever in neutral position. (Refer to Transaxle installation)



AMLF016C

2. Install the retainer(A) and nuts(B).



AMJF500A

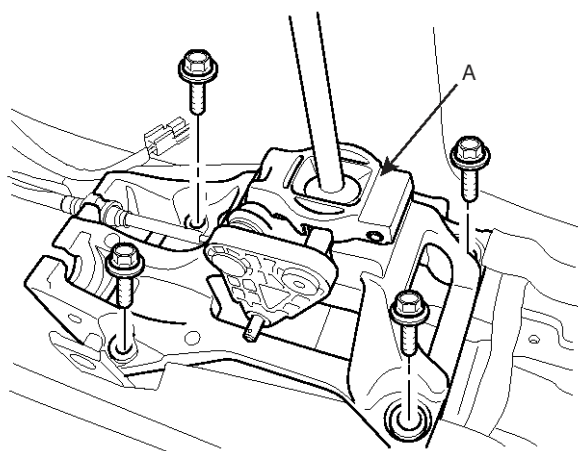
Manual Transaxle Control System

MT-21

3. Install the shift lever assembly(A).

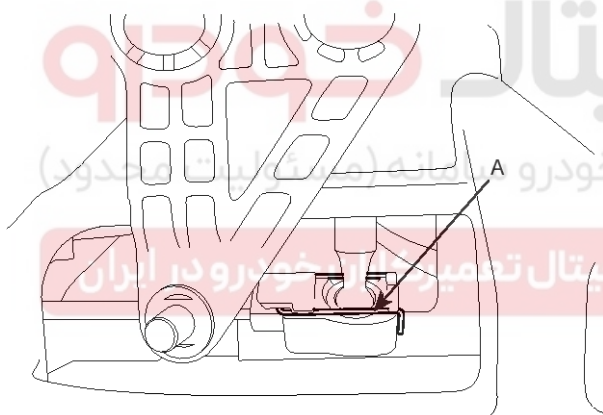
Tightening torque :

9~14Nm(0.9~1.4kgf.m, 6~9.5lb.ft)



AMLF008A

4. Install the clip (A) connecting the shift cable and the shift lever.

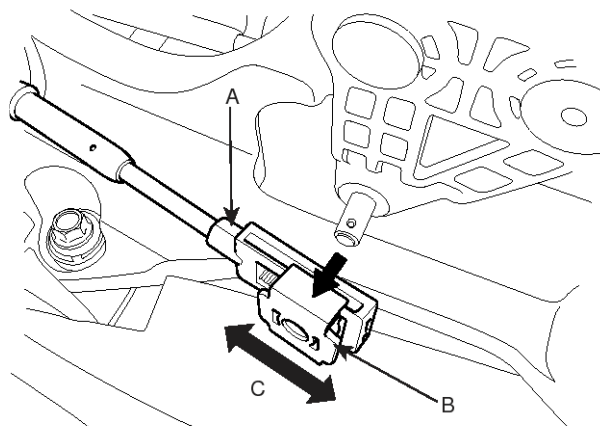


AMLF009A

5. Move the slide clip (B) of guide member (A) in the direction as shown in the illustration.

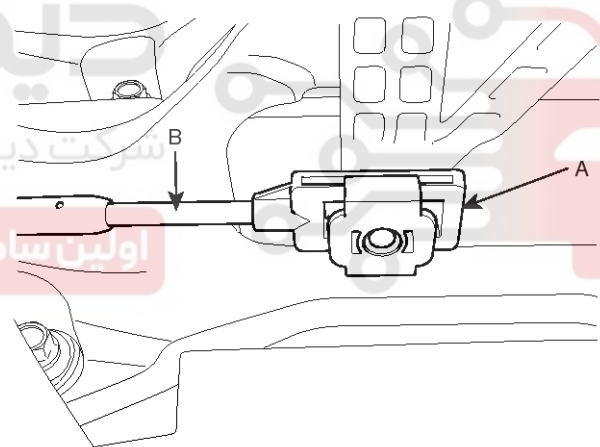
NOTICE

Adjust the slide clip fit into the select lever moving the slide clip in the direction (C).



AMLF005A

6. Install the guide member (A) of the select cable (B).



AMLF006A

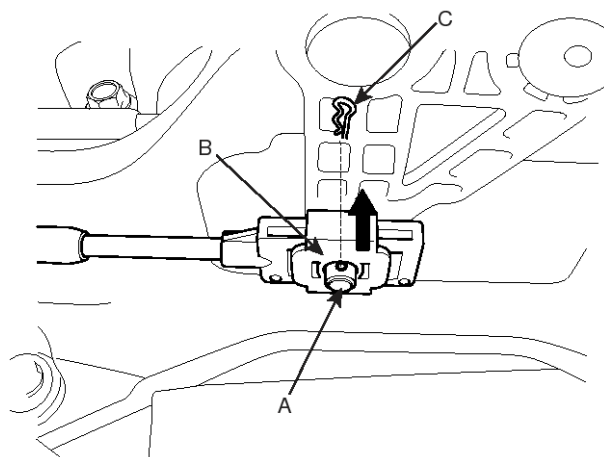
MT-22

Manual Transaxle System

7. Adjust the slide clip (B) to fit it into the select lever pin (A) and install the snap pin (C).

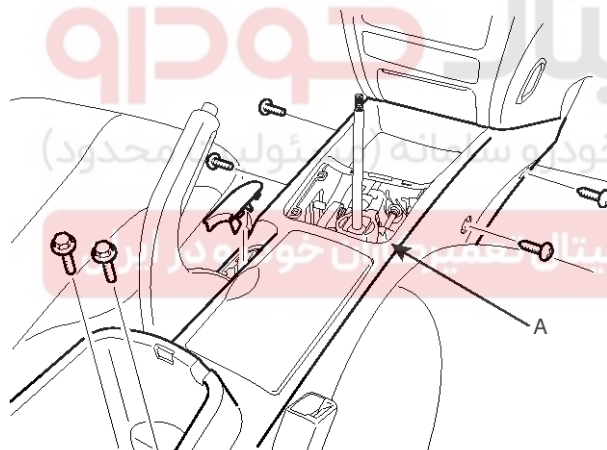
NOTICE

Insert the slide clip in the direction as shown in the illustration.



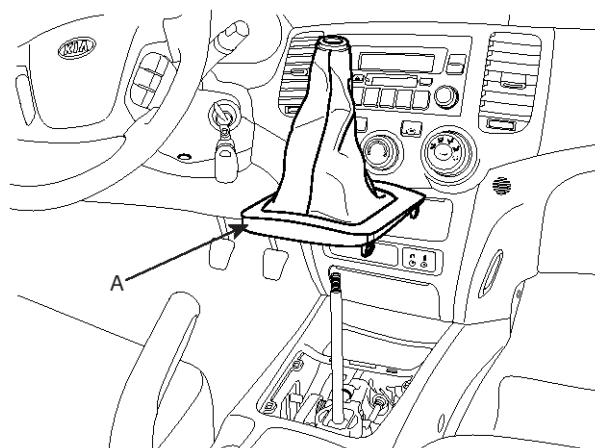
AMLF007A

8. Install the center console (A). (Refer to BD group).



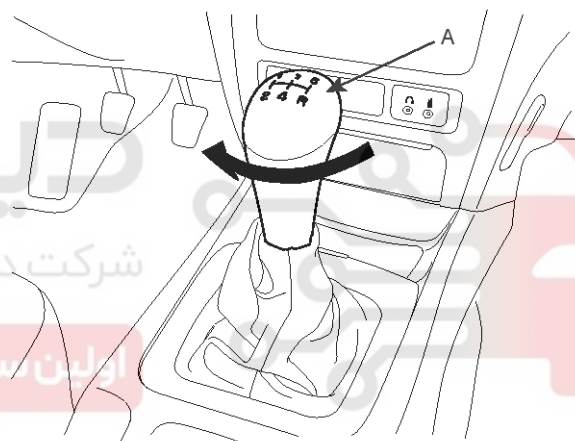
AMLF003A

9. Install the shift boot (A). (Refer to BD group).



AMLF002A

10. Install the shift lever knob (A) by turning in the direction as shown in the illustration.



AMLF016D