

MTC-2

Manual Transaxle System

General Information

Specifications

Transaxle type		M6GF2
Engine type		Diesel 2.0
Gear ratio	1st	3.615
	2nd	1.794
	3rd	1.542
	4th	1.176
	5th	0.921
	6th	0.732
	Reverse	3.416
Final gear ratio		4.063 (1st, 2nd, Rev.)/2.955 (3rd, 4-5-6th)

Service Standard

Items	Standard value [in(mm)]
Input shaft rear bearing end play (At 70kgf load)	0.0019T-0(0.05T-0)
1st output shaft bearing end play (At 70kgf load)	0.0019T-0.0039T(0.05T-0.10T)
2nd output shaft front bearing end play (At 70kgf load)	0.0019T-0.0039T(0.05T-0.10T)
Differential bearing end play (At 70kgf load)	0.0059T-0.0078T(0.15T-0.20T)

T: Indicate tightening of -(minus) direction of end play

L: Indicate loosening of +(plus) direction of end play

Tightening Torques

Standard value		Nm	kgf.m	lb-ft
Oil drain plug		60-80	6.0-8.0	43.4-57.9
Oil filler plug		30-35	3.0-3.5	21.7-25.3
Shift control cable bracket on transaxle side		15-22	1.5-2.2	10.9-16.0
Rear roll support bracket bolt		50-65	5.0-6.5	36.2-47.0
Front roll support bracket bolt		50-65	5.0-6.5	36.2-47.0
Transaxle support bracket bolts		60-80	6.0-8.0	43.4-57.8
Transaxle mounting bracket bolts		90-110	9.0-11.0	65.1-79.5
Transaxle upper mounting bolts		60-80	4.3-5.5	43.4-57.8
Transaxle lower mounting bolts	to ENG. Oil pan	40-47	4.0-4.7	28.9-34.0
	to ENG. Block	60-80	6.0-8.0	43.4-57.8

⚠ WARNING

Always follow torque tightening levels. Failure to follow such levels can result in parts breaking if over-tightened or loosening if under-tightened. In either case, serious personal injury or death could

result to vehicle occupants.

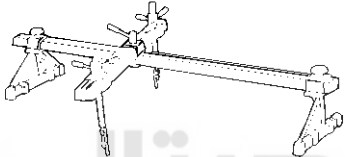
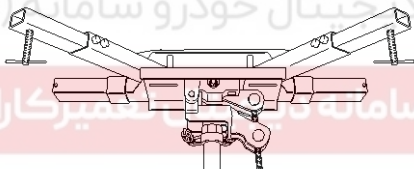
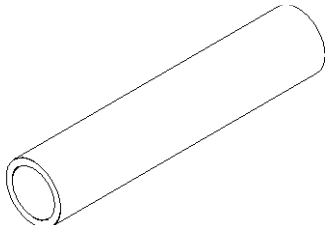
General Information

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Lubricants

Items	Recommend lubricant	Quantity
Transaxle gear oil	SAE 75W/85 API GL-4 TGO-7(MS517-14) ZIC G-F TOP 75W/85 HD GEAR OIL XLS 75W/85	1.75L(1.85US qt, 1.54Imp qt)
Air bleeder	MS721-38	As required
Transaxle housing	MS721-40 or MS721-38	As required
Surface of release fork and bearing	Grease (CASMOLY L9508)	As required

Special Service Tools

Tool (Number and Name)	Illustration	Use
09200-38001 Engine support fixture	 D0038001	Removal and installation of the transaxle
09624-38000 Crossmember supporter	 EKB005A	Supporting of crossmember
09432-3K000 Oil seal installer	 KMRE001U	Installation of differential oil seal

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Troubleshooting

Symptom	Probable cause	Remedy
Vibration, noise	Loose or damaged transaxle and engine mounts	Tighten or replace mounts
	Inadequate shaft end play	Correct end play
	Worn or damaged gears	Replace gears
	Inadequate grade of oil	Replace with specified oil
	Low oil level	Replenish
	Inadequate engine idle speed	Adjust idle speed
Oil leakage	Broken or damaged, oil seal or O-ring	Replace control cable oil seal or O-ring
Hard shift	Faulty control cable	Replace control cable
	Poor contact or wear of synchronizer ring and gear cone	Correct or replace
	Inadequate grade of oil	Replace with specified oil
Jumps out of gear	Worn gear shift fork or broken detent pin	Replace shift fork or detent pin
	Synchronizer hub-to-sleeve spline clearance too large	Replace synchronizer hub and sleeve

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Service Adjustment Procedure

Transaxle Gear Oil Level

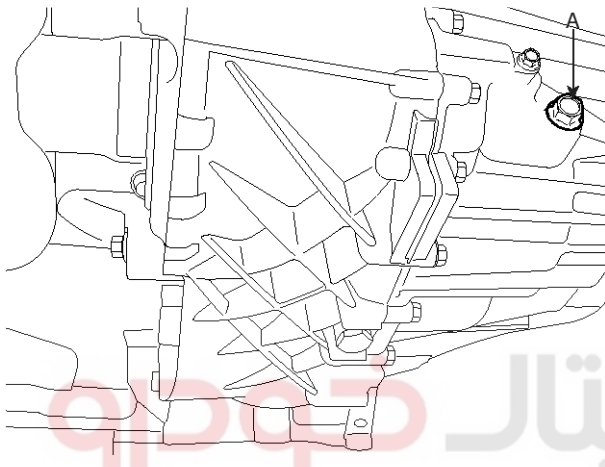
Inspection

Inspect each component for evidence of leakage.

Check the gear oil level by removing the filler plug.

If the oil is contaminated, it is necessary to replace it with new oil.

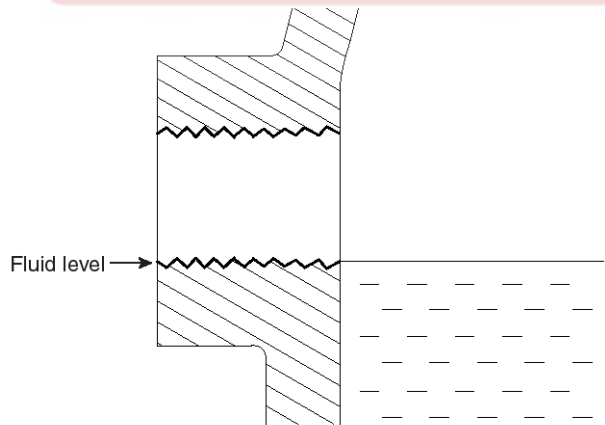
1. Remove oil filler plug(A).



SEDMC7001L

2. Check level with finger.

Oil level must be up to fill the hole, if not, add oil until it runs over.



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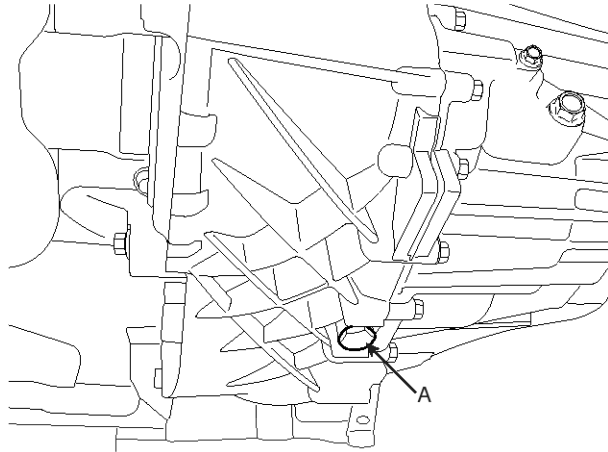
3. Install filler plug.

Tightening torque :

30-35Nm (3.0-3.5 kgf.m, 21.7-25.3 lb-ft)

Replacement

1. With the vehicle parked on a level surface, remove the drain plug.
2. Drain the transaxle oil after loosening the drain plug(A).



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3. Install the drain plug with new washer.

Tightening torque :

60-80Nm (6.0-8.0 kgf.m, 43.4-57.9 lb-ft)

4. Add new oil through the filler plug hole and, fill it just below the plug opening.

Standard oil SAE 75W/85, API GL-4

Oil capacity: 1.75 liter (1.85 US qt, 1.54 Imp qt)

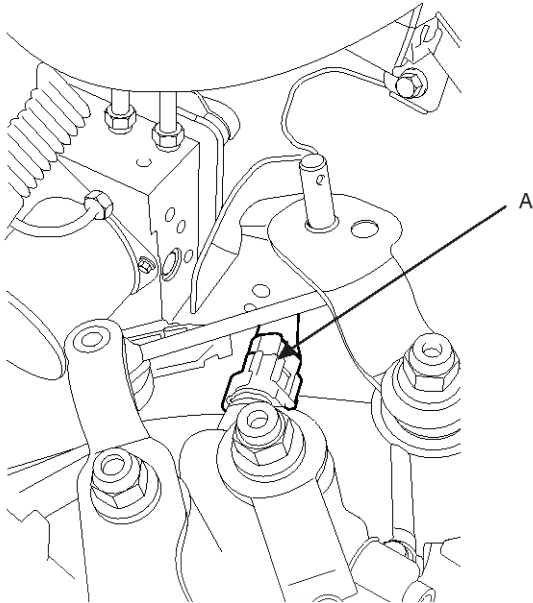
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Backup Lamp Switch

Inspection

1. Disconnect the backup lamp switch(A).



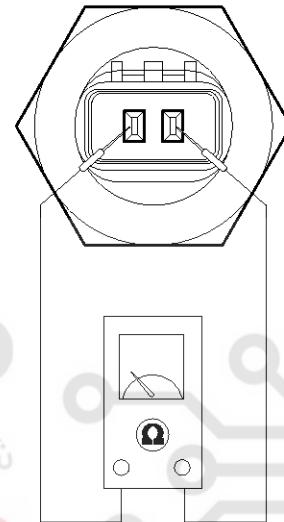
KMRE009E

2. Check the continuity between no. 1 and 2 terminals of backup lamp switch.

When the shift lever is in reverse, there should be continuity.

Condition	1	2
Reverse Range	●	●
Other Range		

*The back up Lamp "ON" shall keep over 0.5mm(0.02in) From ON-OFF point.



LMJF003B

3. If necessary, repair or replace the backup lamp switch.

Tightening torque :

30-35Nm (3.0-3.5 kgf.m, 21.7-25.3 lb-ft)

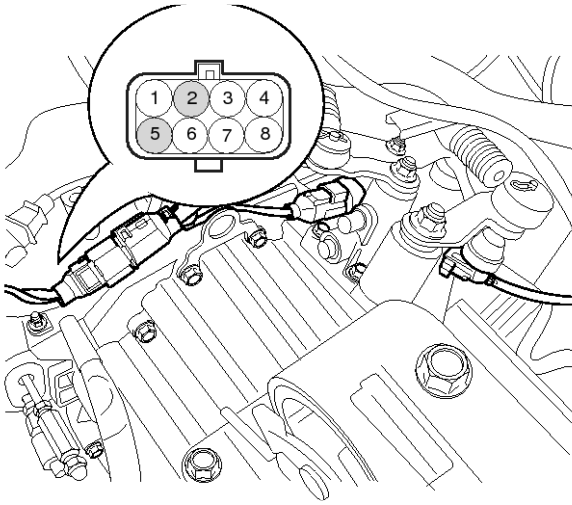
Manual Transaxle System

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Neutral Switch

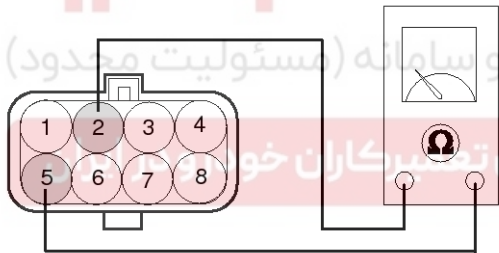
Inspection

1. Disconnect the common connector (A).



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2. Check the continuity between no. 2 and 5 terminals when the shift lever is in neutral position. If there isn't continuity, go to next step.

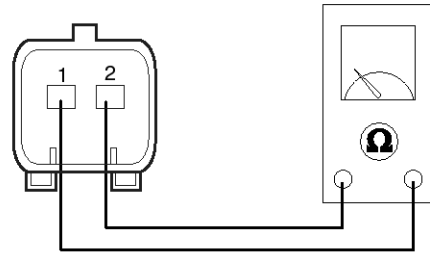


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3. Disconnect the neutral switch connector.

4. Check the continuity between no. 1 and 2 terminals of neutral switch, when the shift lever is in neutral position, there should be continuity.

Condition	1	2
Neutral	●	●
Other		



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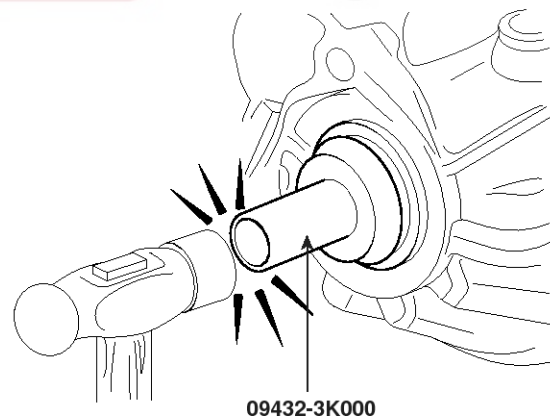
5. If necessary, repair or replace the neutral switch.

Tightening torque :

30-35 Nm (3.0-3.5 kgf.m, 21.7-25.3 lb-ft)

Drive Shaft Oil Seal Replacement

1. Disconnect the drive shaft from the transaxle. (refer to Drive shaft in DS group)
2. Using a flat-tip screwdriver, remove the oil seal.
3. Using the special tool(09432-3K000), tap the drive shaft oil seal into the transaxle.



09432-3K000

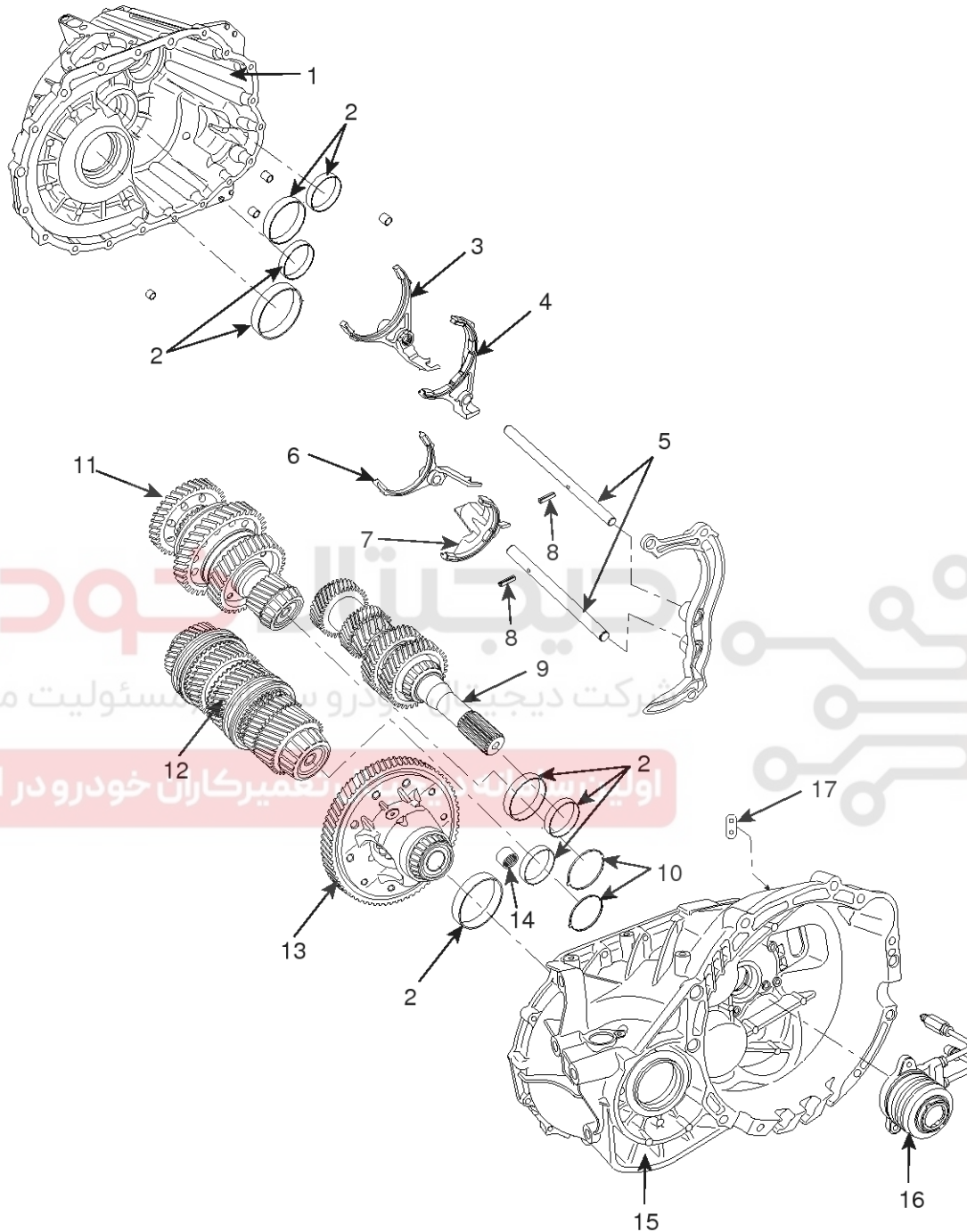
SEDMC7003L

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Manual Transaxle System

Manual Transaxle

Components



- | | | |
|------------------------------------|-----------------------|--|
| 1. Transaxle case | 7. 5th/6th shift fork | 13. Differential assembly |
| 2. Taper roller bearing outer race | 8. Spring pin | 14. Needle bearing |
| 3. 1st/2nd shift fork | 9. Input shaft | 15. Clutch housing |
| 4. Reverse shift fork | 10. Oil guide | 16. Concentric slave cylinder assembly |
| 5. Shift rail | 11. 1st output shaft | 17. Boot |
| 6. 3rd/4th shift fork | 12. 2nd output shaft | |

LMIG001A

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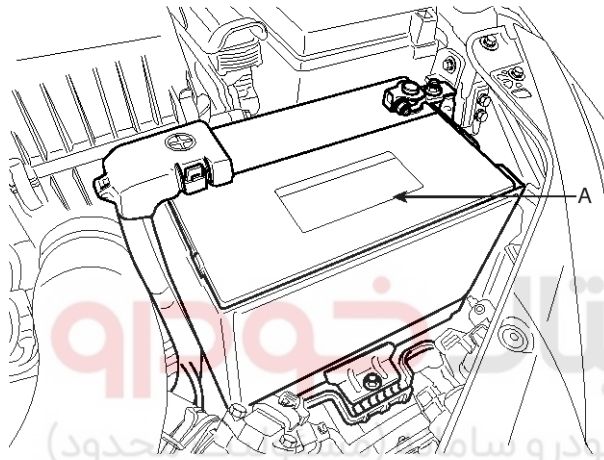
Removal

⚠ CAUTION

- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.

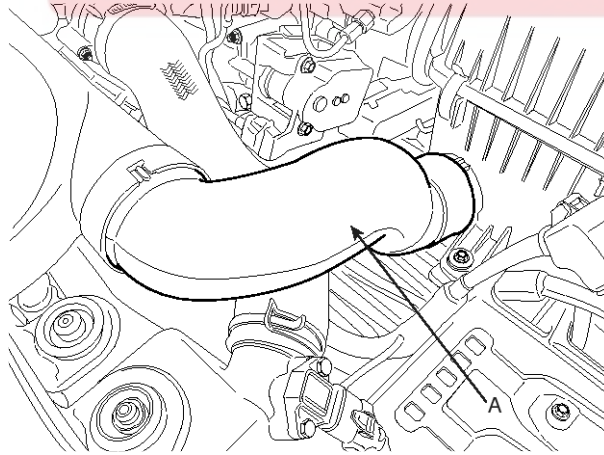
📌 NOTICE

- Mark all wiring and hoses to avoid misconnection.
1. Remove the engine cover. (refer to Engine and Transaxle Assembly in EM group)
 2. Remove the battery (A) after removing the battery terminal.



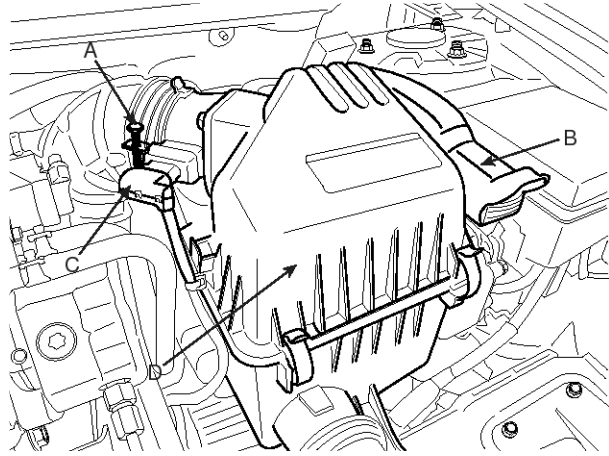
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3. Disconnect the air intake hose (A).



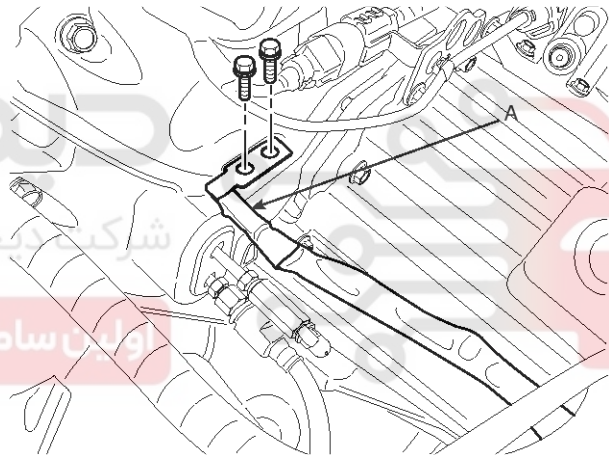
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4. Remove the air cleaner assembly (D) by disconnecting the clamp (A), the PCM connector (B), and AFS connector (C).



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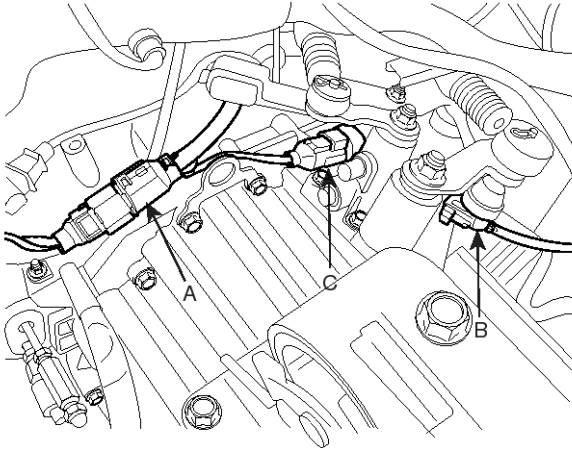
5. Remove the ground cable from transaxle (A).



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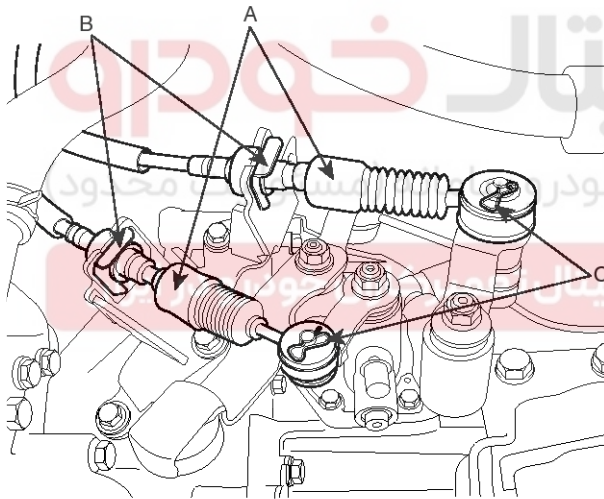
MTC-10

6. Disconnect the vehicle speed sensor connector (A), the back up lamp switch (B) and the neutral position switch (C).



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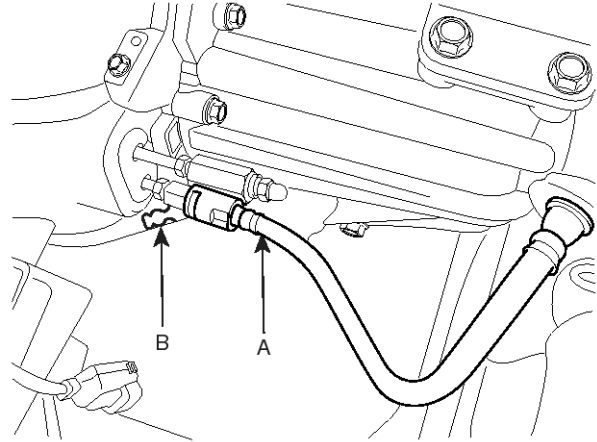
7. Remove the control cable assembly (A) by removing the snap pins (C) and clips (B).



LMIG002G

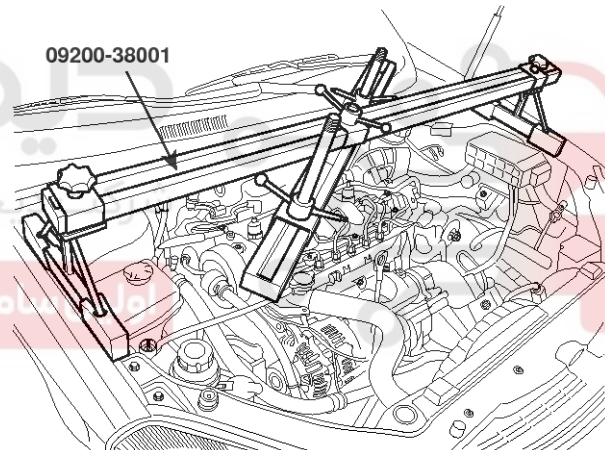
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8. After removing the clip(B) with clamping the concentric slave cylinder tube, disconnect the tube(A).



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9. Using the special tool (09200-38001), support the engine assembly safely.

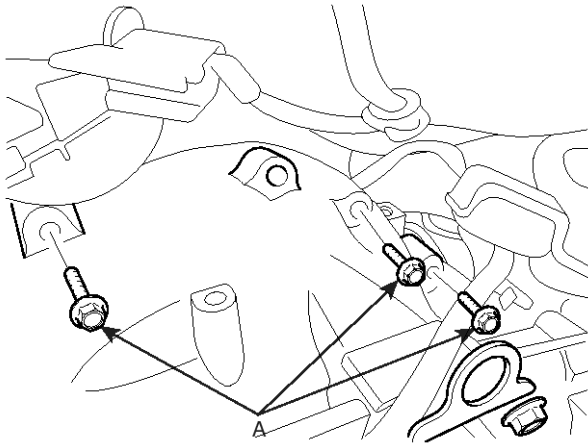


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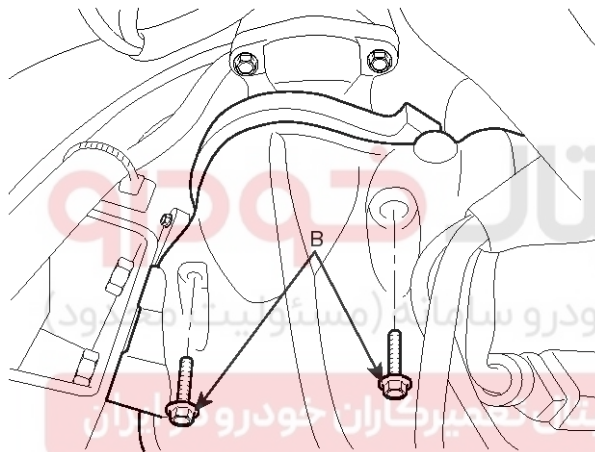
Manual Transaxle System

MTC-11

10. Remove the transaxle upper mounting bolts (A-3ea) and the starter motor mounting bolts (B-2ea).

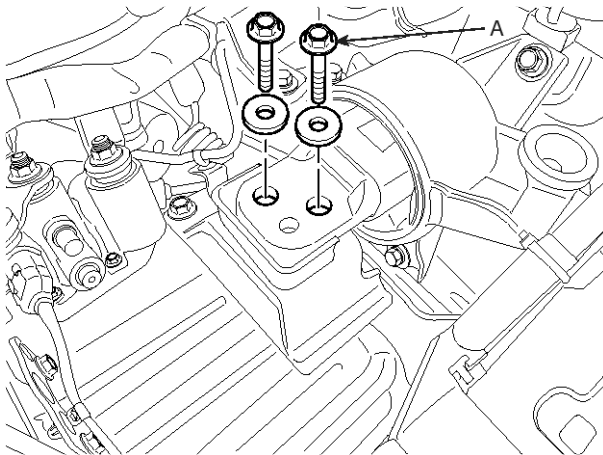


SMGMT6109D



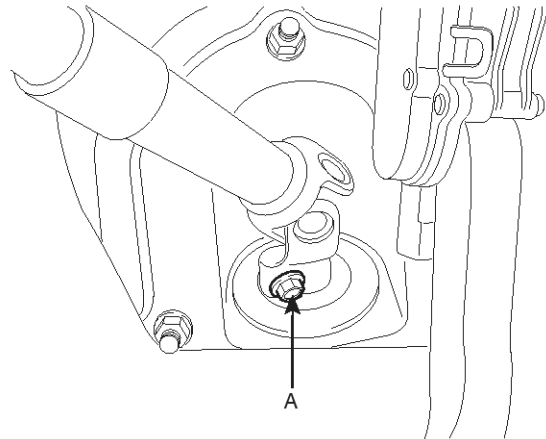
SMGMT6110D

11. Remove the transaxle support bracket mounting bolts (A-2ea).



SEDMB7006L

12. Remove the steering joint assembly bolt. (refer to Steering column/shaft in ST group)



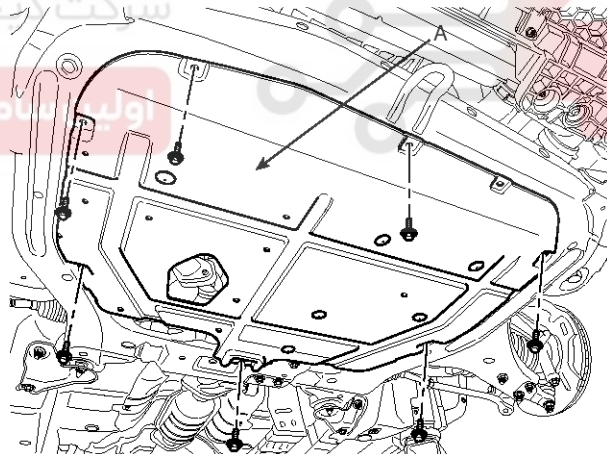
AKGF032S

13. Lifting up the vehicle.

14. Remove the front wheels and tires. (refer to Front suspension system in SS group)

15. Remove the lower arm ball joint mounting nut, the stabilizer link mounting nut, and the tie rod end mounting nut from the front knuckles. (refer to Front suspension system in SS group)

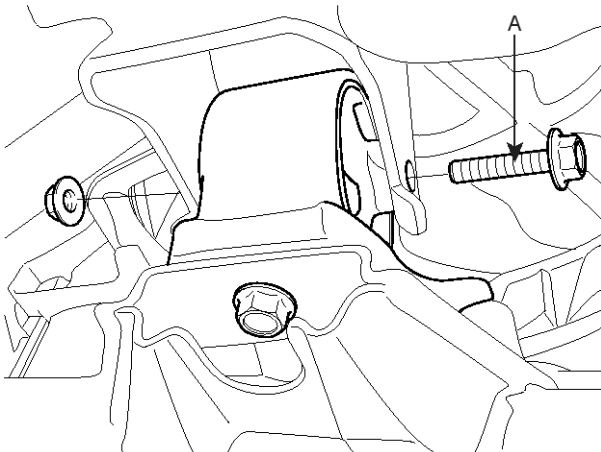
16. Remove the under shield cover(A).



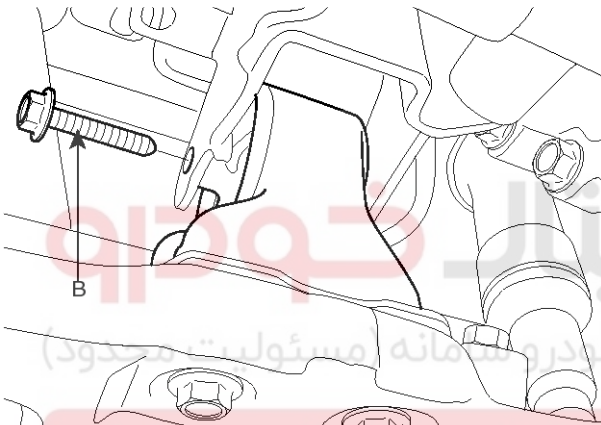
SEDMB7007L

MTC-12

17. Remove the roll stopper mounting bolts (A,B).

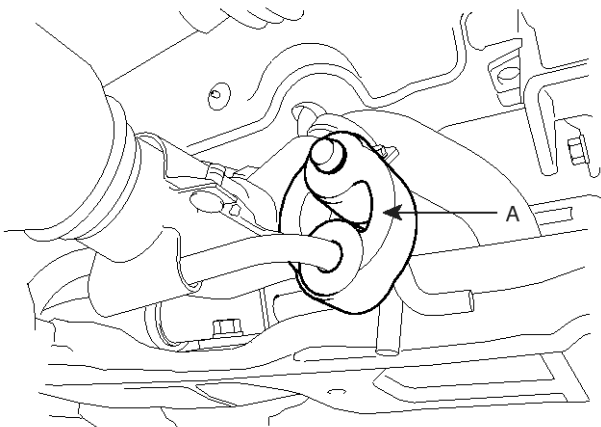


SHDAT6017D



SHDAT6018D

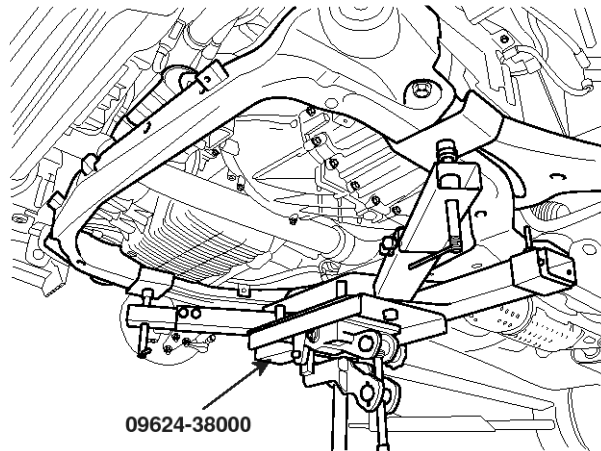
18. Disconnect the muffler hanger rubber (A).



SHDMA6004D

Manual Transaxle System

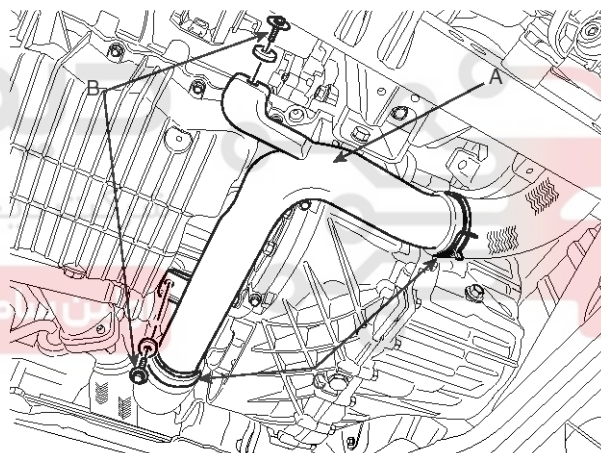
19. Supporting the sub frame (A) with a jack and the Special tool (09624-38000), remove the mounting bolts. (refer to Front Stabilizer in SS group)



09624-38000

SMGMT6114D

20. Remove the intercooler tube (A) by removing the two bolts (B) and loosening the clamps (C).

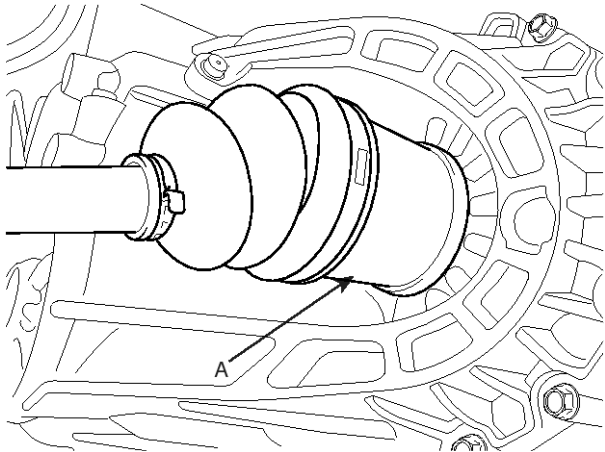


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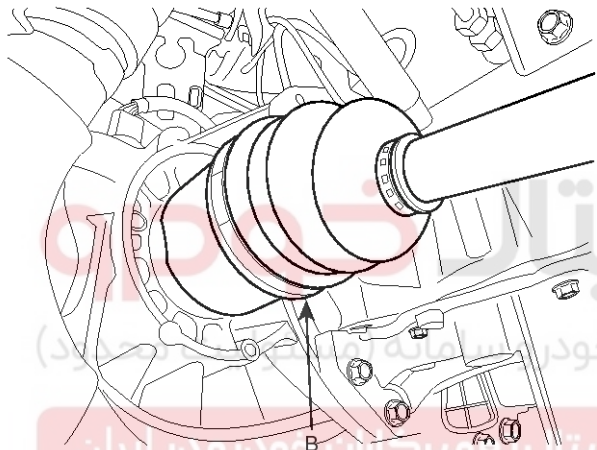
Manual Transaxle System

MTC-13

21. Disconnect the drive shafts (A,B) from the transaxle.

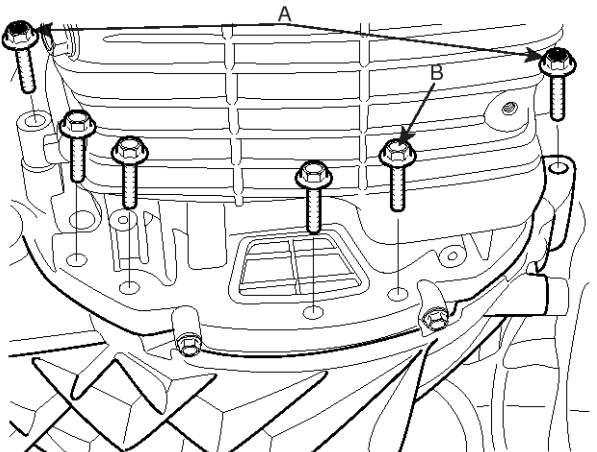


SMGMT6118D



SMGMT6117D

22. Supporting the transaxle with a jack, remove the transaxle lower mounting bolts (A-2ea, B-4ea).



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23. Lowering the jack slowly, remove the transaxle.

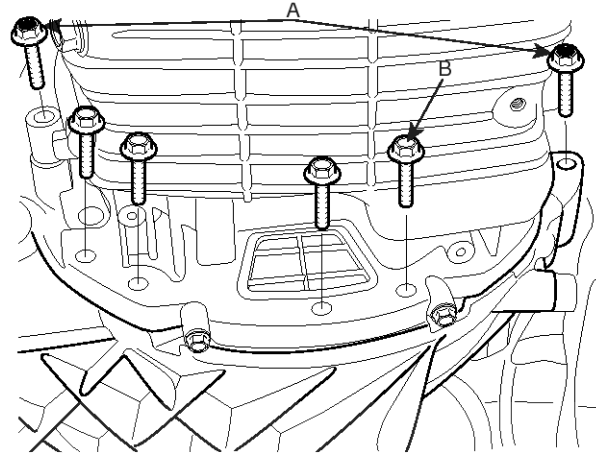
Installation

1. Install the transaxle lower mounting bolts (A-2ea, B-4ea) after fitting the transaxle assembly into the engine assembly.

Tightening torque :

[A] 60-80Nm (6.0-8.0kgf.m, 43.4-57.8 lb-ft)

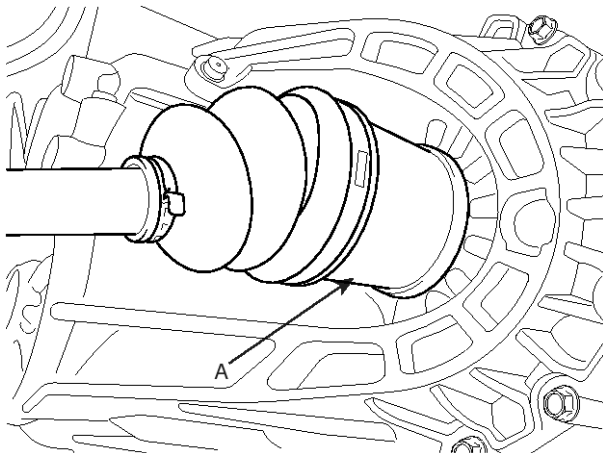
[B] 40-47Nm (4.0-4.7kgf.m, 28.9-34.0 lb-ft)



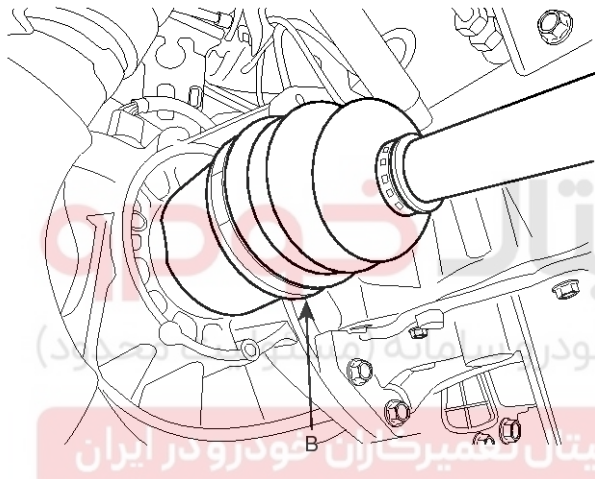
SNFMT6007D

MTC-14

2. Connect the drive shafts(A,B) to the transaxle.

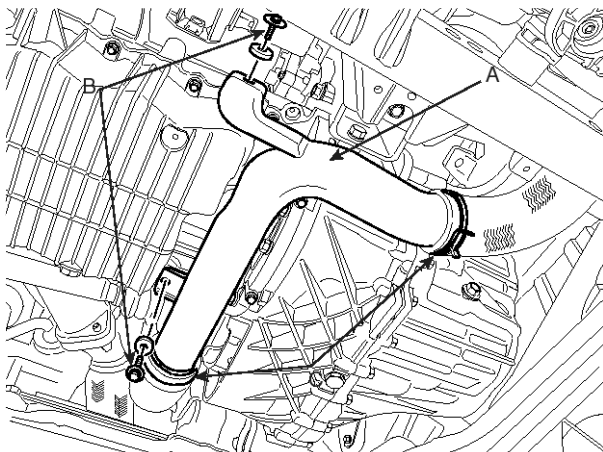


SMGMT6118D



SMGMT6117D

3. Install the intercooler tube (A) by installing the two bolts (B) and tightening the clamps (C).



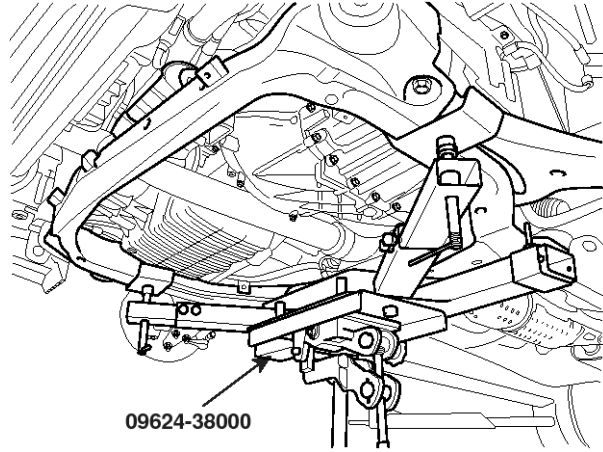
SEDMB7008L

Manual Transaxle System

4. Supporting the sub frame(A) with a jack and the Special tool(09624-38000), install the mounting bolts. (refer to Front Stabilizer in SS group)

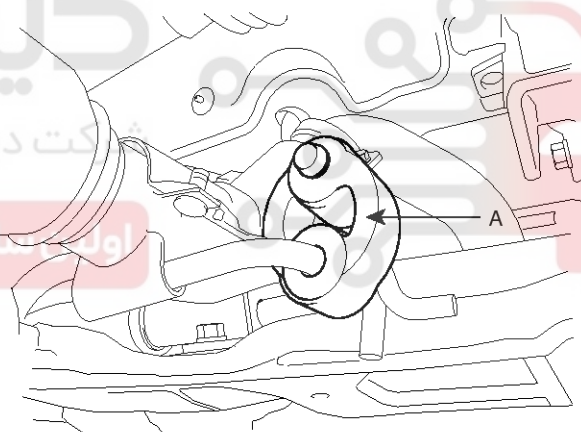
Tightening torque :

140-160Nm(14-16kgf.m,101-118 lb-ft)



SMGMT6114D

5. Install the muffler hanger rubber (A).



SHDMA6004D

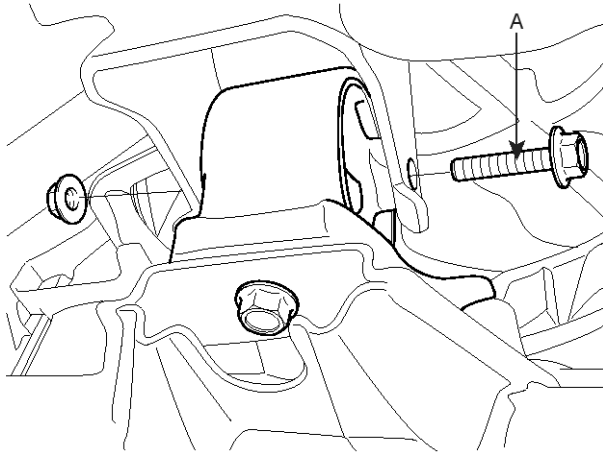
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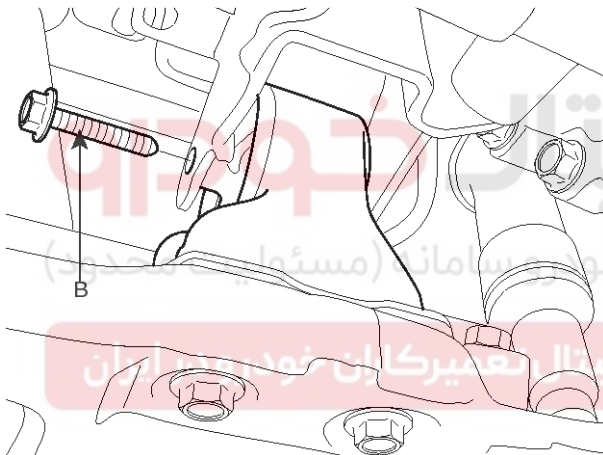
6. Install the roll stopper bracket bolts(A,B).

Tightening torque :

50-65Nm(5-6.5kgf.m, 36.2-47.0 lb-ft)

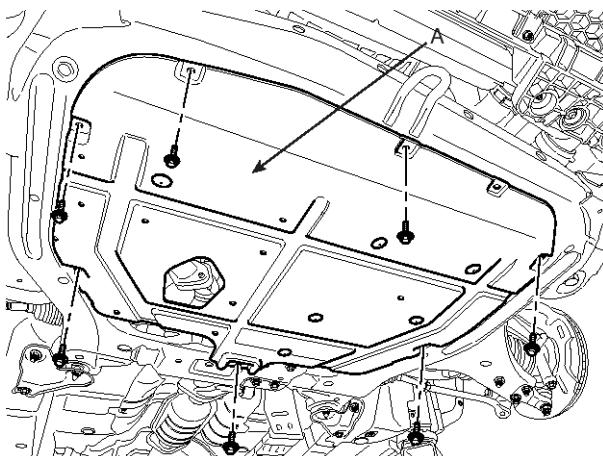


SHDAT6017D



SHDAT6018D

7. Install the under shield cover (A).

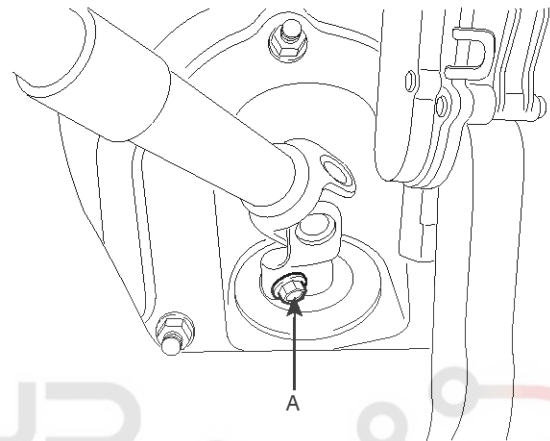


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8. Install the lower arm ball joint mounting nut, the stabilizer link mounting nut, and the tie rod end mounting nut to the front knuckles. (refer to Front suspension system in SS group)
9. Install the front wheels and tires. (refer to Front suspension system in SS group)
10. Install the steering joint assembly bolt (A). (refer to Steering column/shaft in ST group)

Tightening torque :

18-25Nm (1.8-2.5kgf.m, 13.0-18.1 lb-ft)

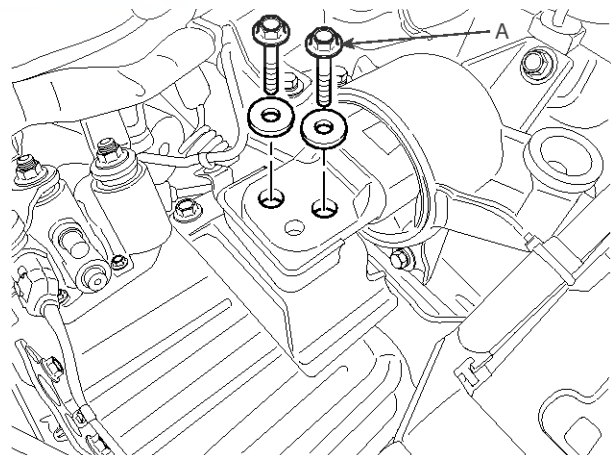


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11. Install the transaxle support bracket mounting bolts (A-2ea).

Tightening torque :

90-110Nm (9.0-11.0kgf.m, 65.1-79.5 lb-ft)



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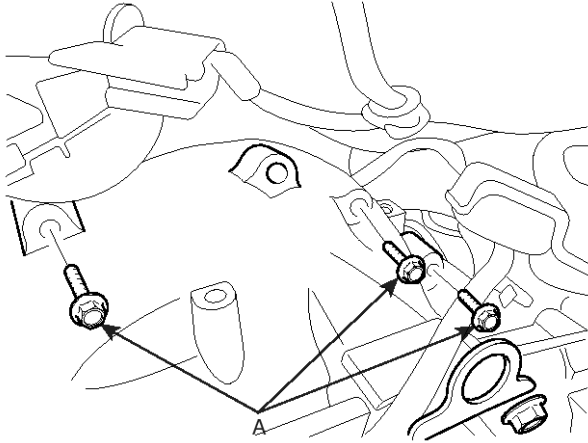
MTC-16

12. Install the transaxle upper mounting bolts (A-3ea) the starter motor mounting bolts. (B-2ea).

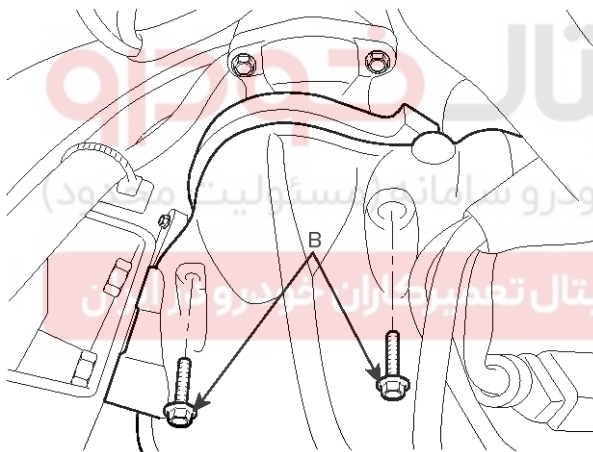
Tightening torque :

[A] 60-80Nm(6.0-8.0kgf.m, 43.4-57.8 lb-ft)

[B] 43-55Nm(4.3-5.5kgf.m, 31.1-39.8 lb-ft)



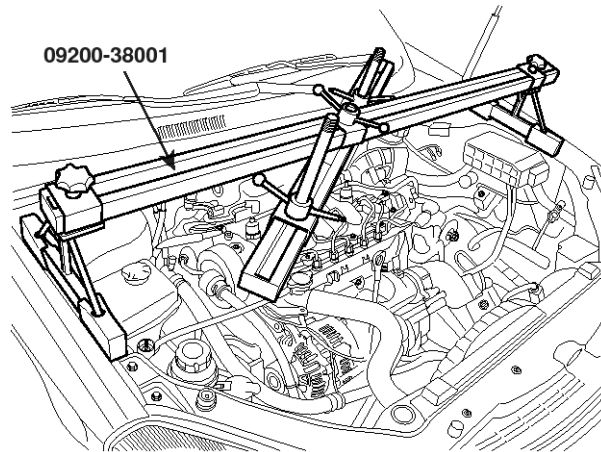
SMGMT6109D



SMGMT6110D

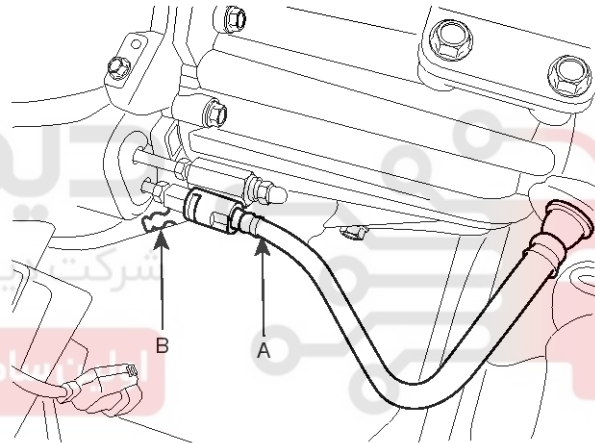
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13. Remove the special tool (09200-38001).



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14. Connecting the concentric slave cylinder tube(A) install the clip(B).

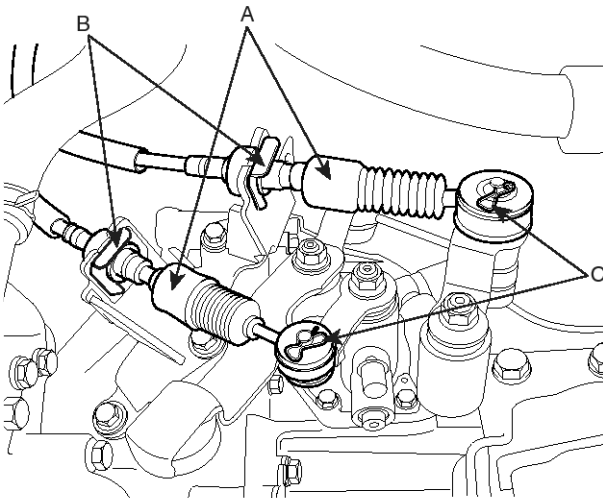


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Manual Transaxle System

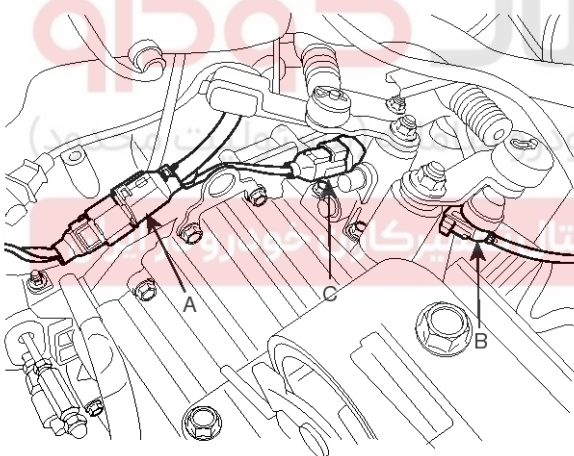
MTC-17

15. Install the shift cable assembly (A) by installing the clips (B) and pins (C).



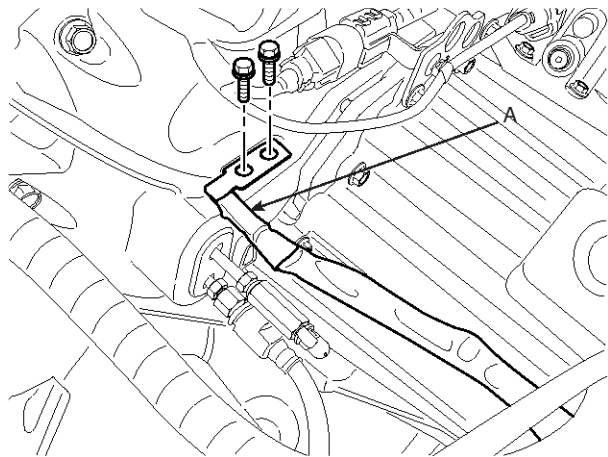
LMIG002G

16. Connect the vehicle speed sensor connector (A), the back up lamp switch (B) and the neutral position switch (C).



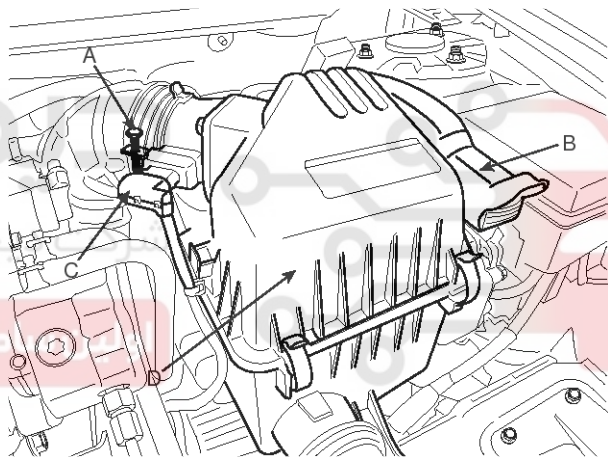
SNFMT6006D

17. Install the ground cable (A) to transaxle.



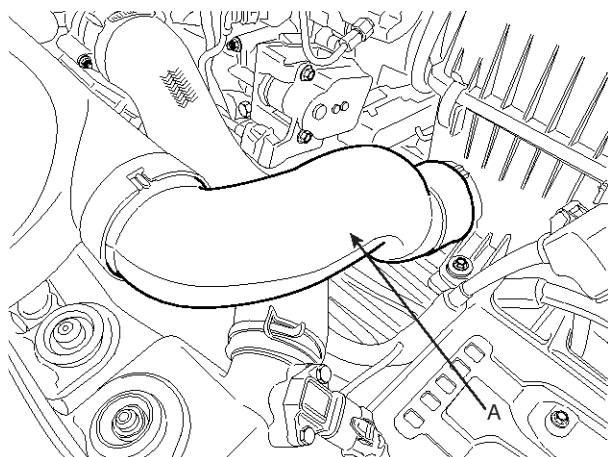
SEDMB7005L

18. Install the air cleaner assembly (D) by connecting the clamp (A), the ECM connector (B), and the AFS connector (C).



SEDMB7004L

19. Connect the air intake hose (A).

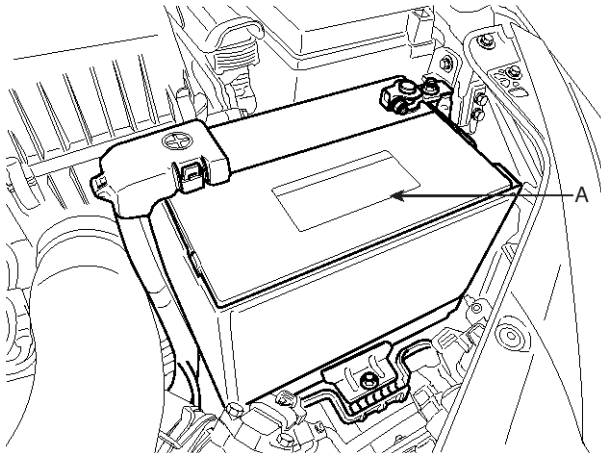


SEDMB7003L

MTC-18

Manual Transaxle System

20. Install the battery (A) and the battery terminal.



SEDMB7009L

21. Install the engine cover. (refer to Engine and Transaxle Assembly in EM group)

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

