

MTA-2

Manual Transaxle System

General Information

Specifications

Engine type		Gasoline 2.0
Transaxle type		M5CF3
Gear ratio	1st	3.636
	2nd	1.962
	3rd	1.189
	4th	0.844
	5th	0.660
	Reverse	3.583
Final gear ratio		4.188

Service Standard

Items	Standard value [in(mm)]
Input shaft rear bearing end play	0.00-0.0019L(0.00-0.05L)
Output shaft bearing end play (At 70kgf load)	0.00-0.0019T(0.00-0.05T)
Input shaft front bearing end play	0.00-0.0019L(0.00-0.05L)
Differential bearing end play (At 70kgf load)	0.0059T-0.0078T(0.15T-0.20T)
Differential pinion backlash	0.0039L MAX(0.1L MAX)

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	43.4-57.8	
Oil filler plug	60-80	6.0-8.0	43.4-57.8	
Shift control cable bracket on transaxle side	20-27	2.0-2.7	14.5-19.5	
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	
Clutch release lever fulcrum bolt	55-60	5.5-6.0	39.8-43.4	
Transaxle upper mounting bolts	60-80	6.0-8.0	43.4-57.8	
Transaxle lower mounting bolts	TM → ENG	43-55	4.3-5.5	31.1-39.8
	ENG → TM	35-50	3.5-5.0	25.3-36.2

⚠ 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.

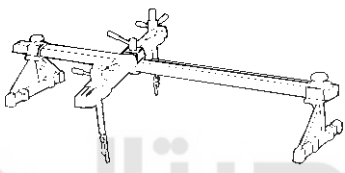
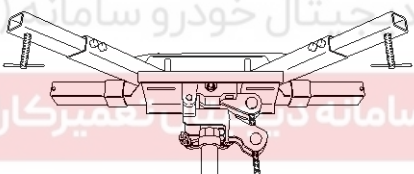
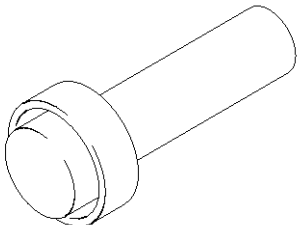
General Information

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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	2.0l(2.1US qt, 1.76Imp qt)
Air Breather	MS721-38	As required
Transaxle housing	MS721-40 or MS721-38	As required
Surface of release fork and bearing	Grease (CASMOPLY 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	 EKBF005A	Supporting of crossmember
09453-2F300 Oil seal installer	 AKGF020D	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 poppet spring	Replace shift fork or poppet spring
	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



Manual Transaxle System

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Manual Transaxle System

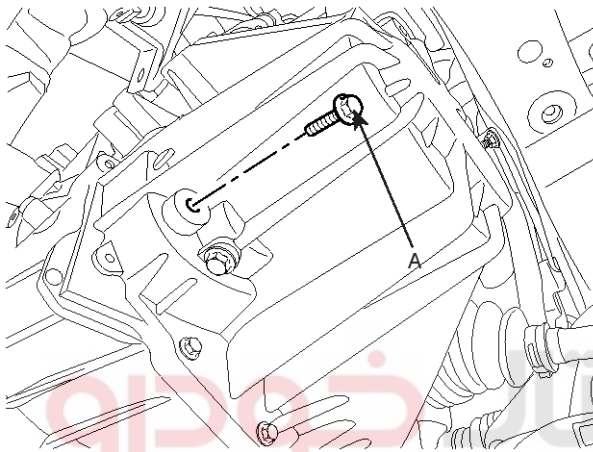
Service Adjustment Procedure

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.

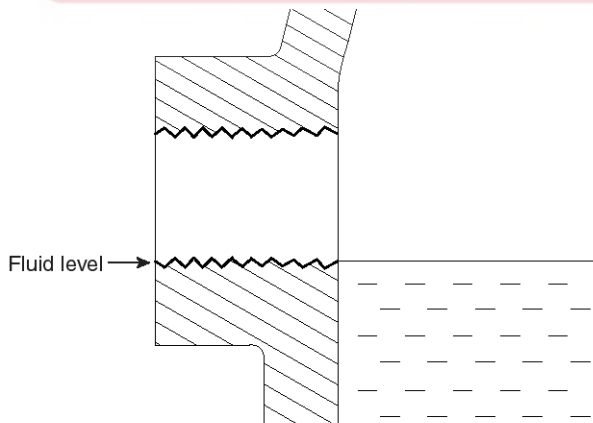
1. Remove oil filler plug(A).



SPAMT9011L

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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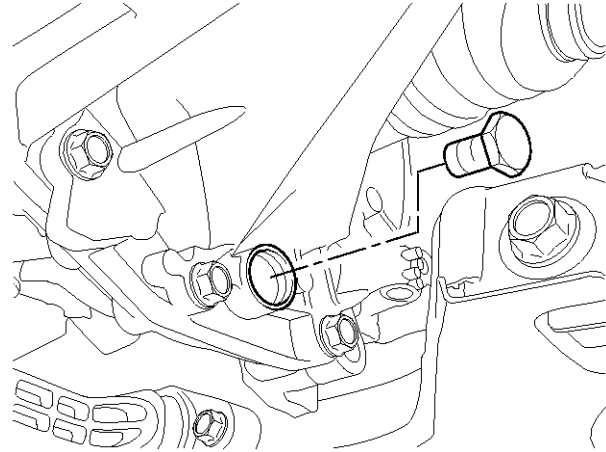
3. Install filler plug.

Tightening torque :

60-80 Nm (6.0-8.0 kgf.m, 43.4-57.8 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.



SPBMB9021L

3. Install the drain plug with new washer.

Tightening torque :

60-80 Nm (6.0-8.0 kgf.m, 43.4-57.8 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

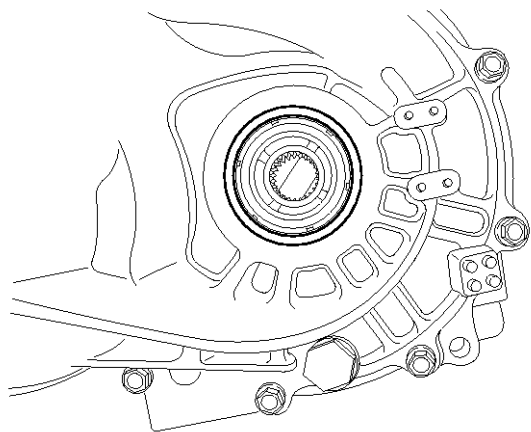
Oil capacity: 1.9 liter (2.0 US qt, 1.67 Imp qt)

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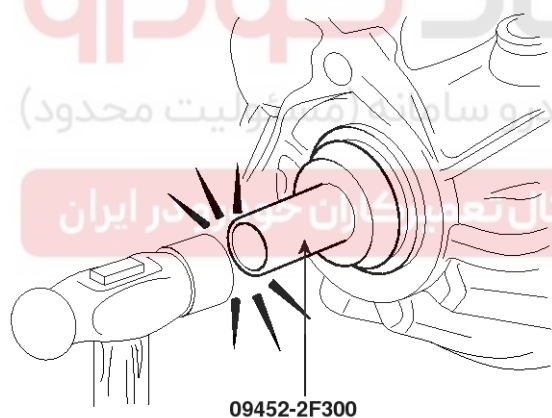
Drive Shaft Oil Seal Replacement

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.



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3. Using the special tool(09452-2F300), tap the drive shaft oil seal into the transaxle.



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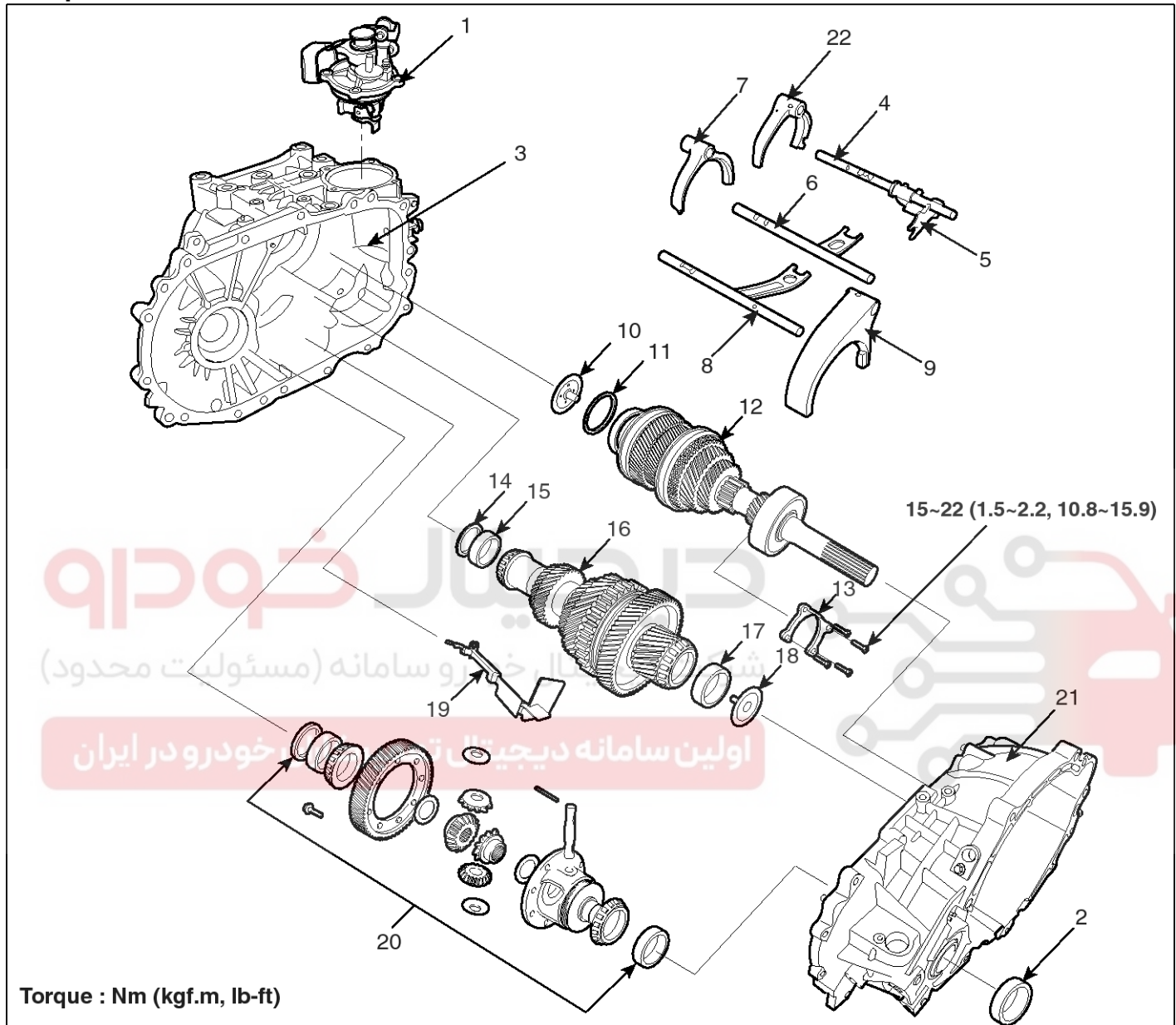


Manual Transaxle System

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Manual Transaxle

Components



Torque : Nm (kgf.m, lb-ft)

S94MT9000L

- 1. Control shaft complete
- 2. Oil seal
- 3. Transaxle case
- 4. 5&6th shift rail
- 5. Reverse shift rug
- 6. 3&4th shift rail
- 7. 3&4th shift fork

- 8. 1&2nd shift rail
- 9. 1&2nd shift fork
- 10. Input shaft oil guide
- 11. Snap ring
- 12. Input shaft assembly
- 13. Input shaft bearing retainer
- 14. Spacer

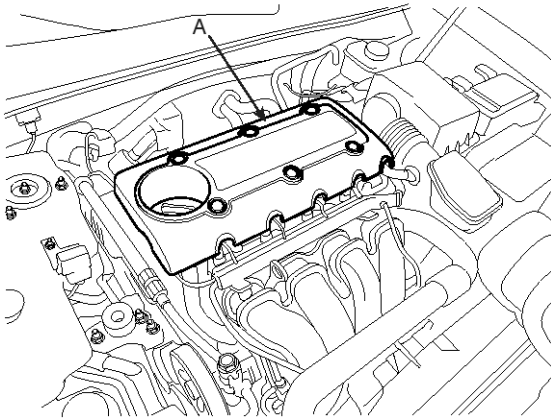
- 15. Output shaft rear outer race
- 16. Output shaft assembly
- 17. Output shaft front outer race
- 18. Output shaft oil guide
- 19. Oil guide
- 20. Differential assembly
- 21. Clutch housing
- 22. 5&6th shift fork

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Manual Transaxle System

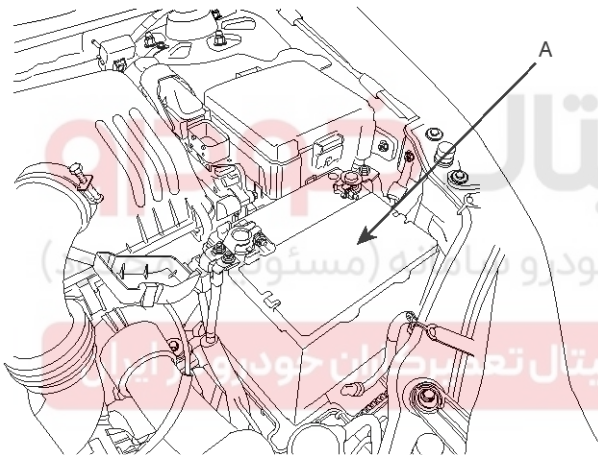
Removal

1. Remove the engine cover(A).



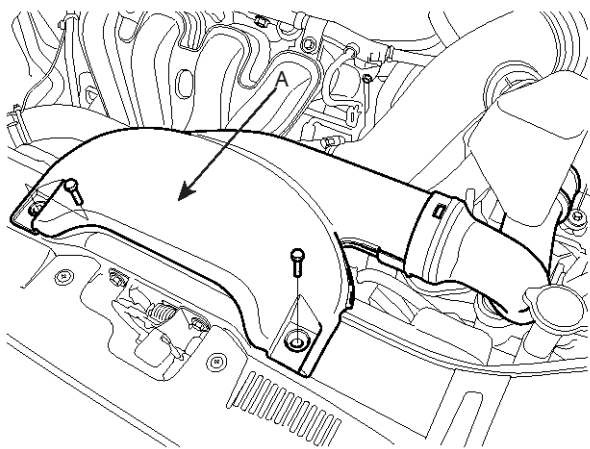
SMGMT9002D

2. Remove the battery(A).



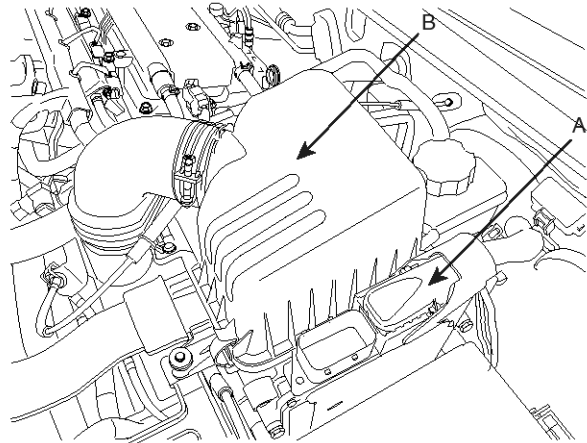
STDMT9002D

3. Disconnect the air duct (A).



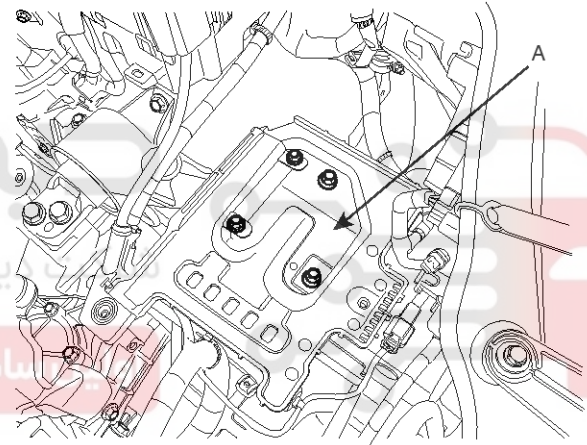
STDAT9001L

4. After disconnecting ECU connector (A), remove the air cleaner assembly (B).



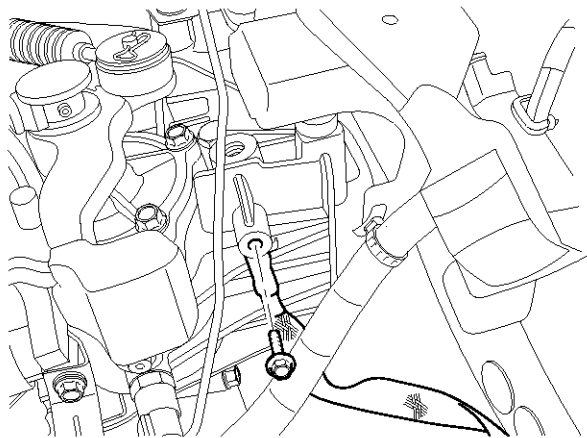
STDMT9003D

5. Remove the battery tray (A).



STDMT9004D

6. Remove the ground wire by removing a bolt.

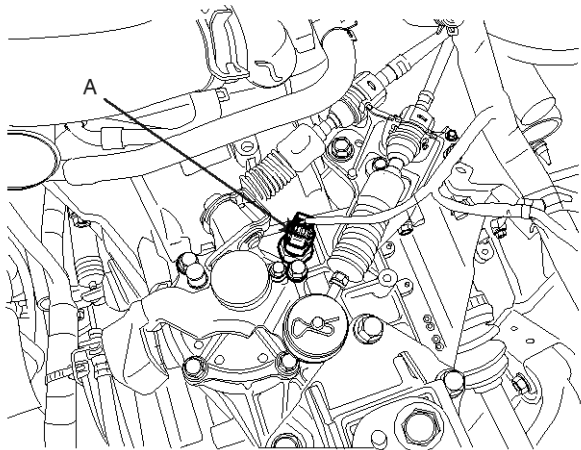


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Manual Transaxle System

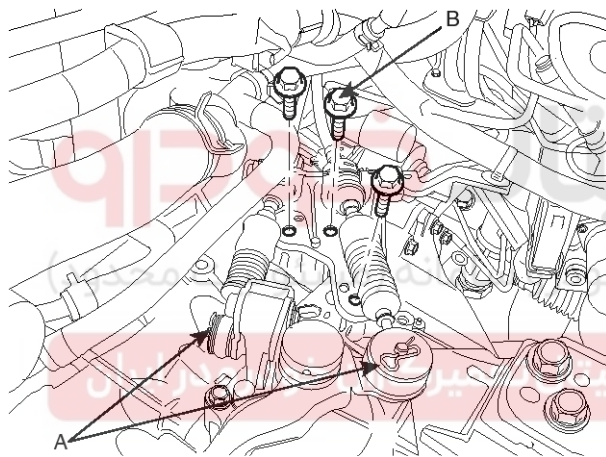
MTA-9

7. Remove the back up lamp switch connector(A).



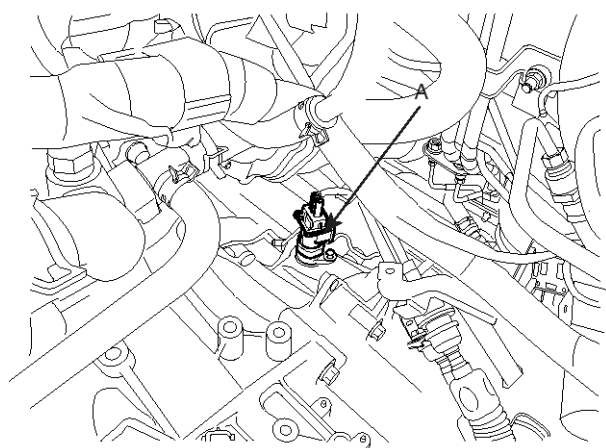
STDMT9006D

8. Remove the snap pin(A) and control cable bracket bolts(B-3ea).



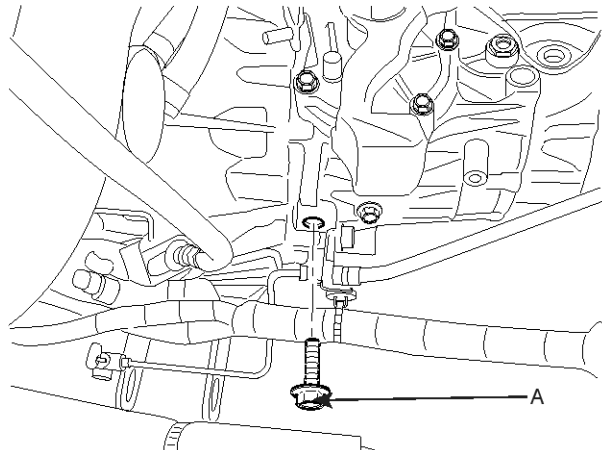
STDMT9007D

9. Disconnect the vehicle speed sensor(A).



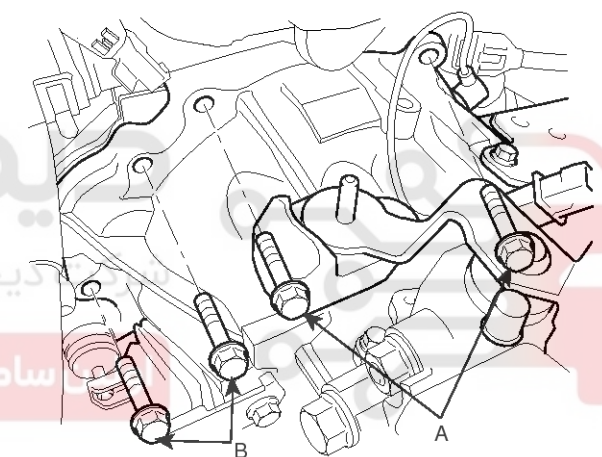
STDMT9008D

10. Remove the clutch hose bracket bolt(A).



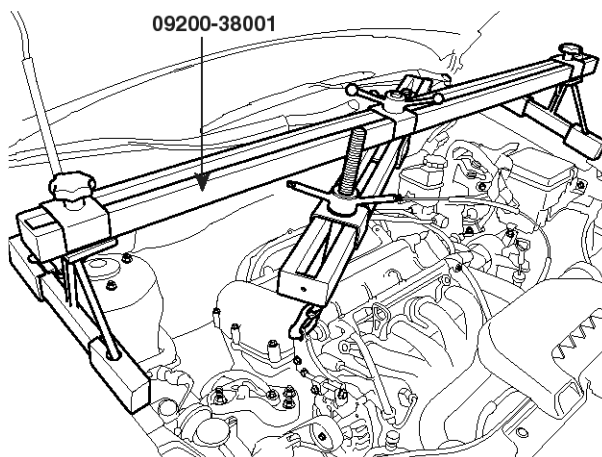
STDMT9012D

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



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

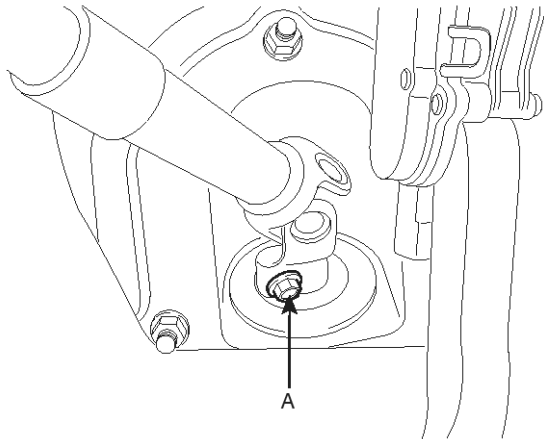


SHDAT6012D

MTA-10

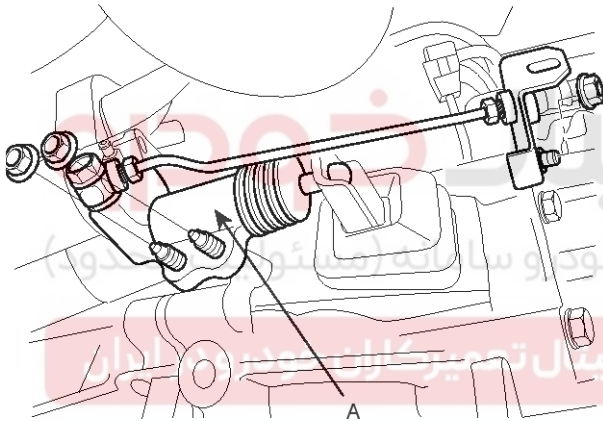
Manual Transaxle System

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



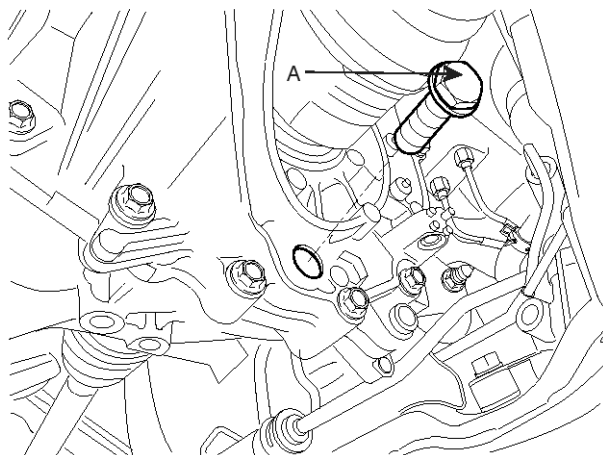
AKGF032S

14. Remove the under cover(A).



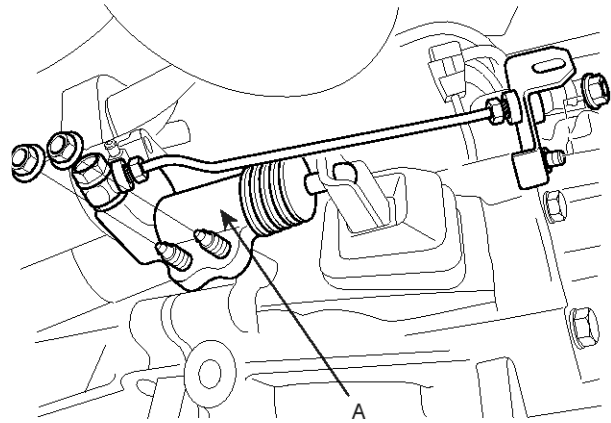
SFDMT8002L

15. Drain the manual transaxle fluid after removing the transaxle drain plug(A).



STDMT9009D

16. Remove the clutch release cylinder assembly (A)



SFDMT8002L

17. Remove the front wheels and tires.

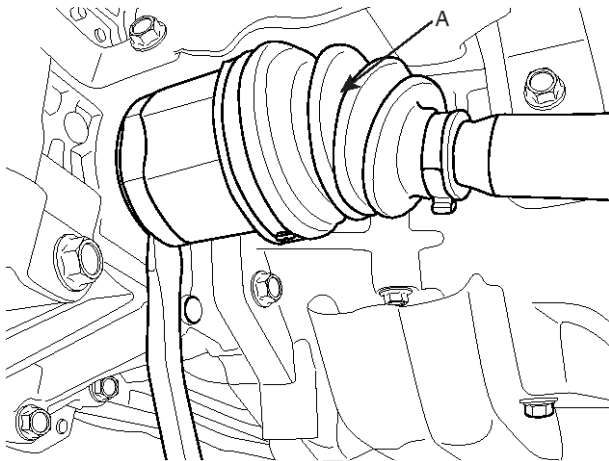
18. Remove the lower arm ball joint mounting nut, the stabilizer link mounting nut, and the tie rod end mounting nut from the front knuckles. (refer to Front suspension system in SS group)



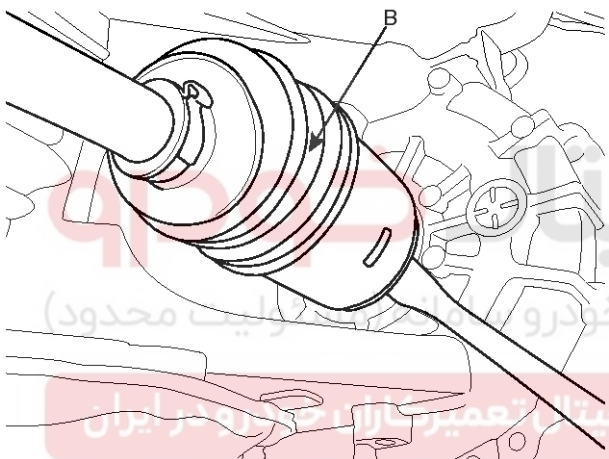
Manual Transaxle System

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19. Disconnect the drive shafts (A,B) from the transaxle.(refer to DS group)

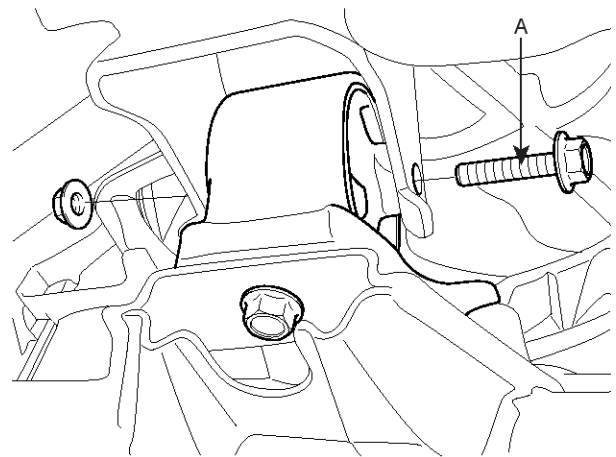


SHDAT6020D

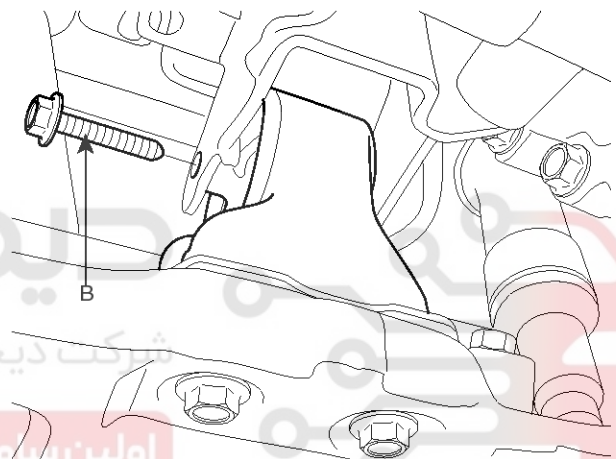


SHDAT6021D

20. Install the roll stopper insulator mounting bolts.(A,B)

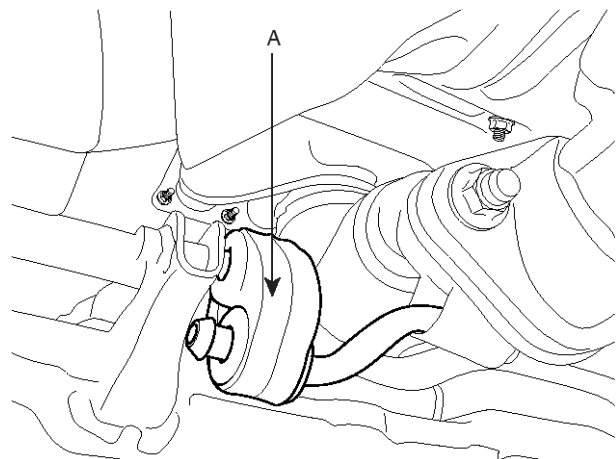


SHDAT6017D



SHDAT6018D

21. Disconnect the muffler hanger rubber (A)

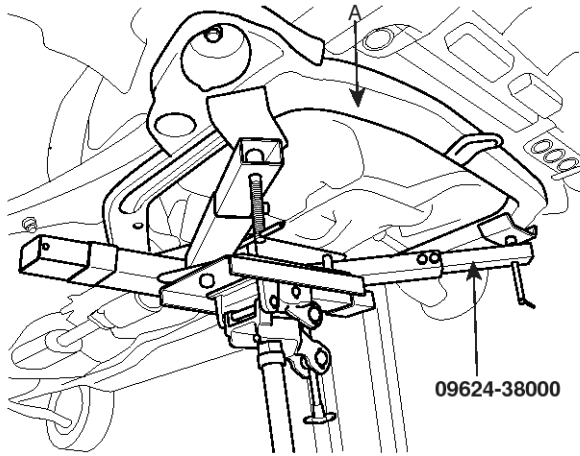


SHDAT6019D

MTA-12

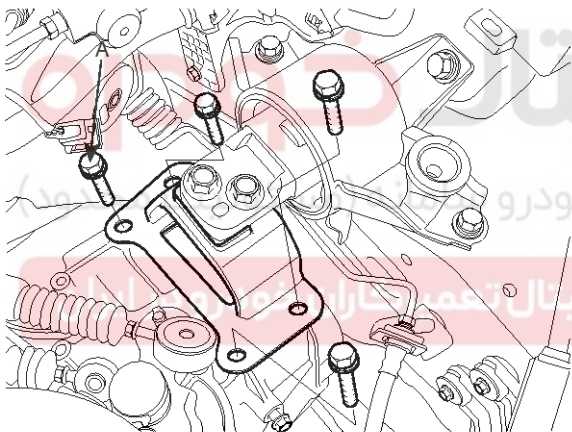
Manual Transaxle System

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



SHDAT6051D

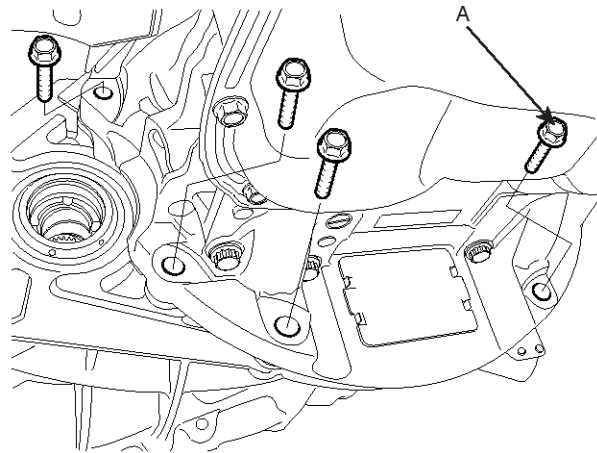
23. Remove the transaxle mounting support bracket bolts(A-4ea).



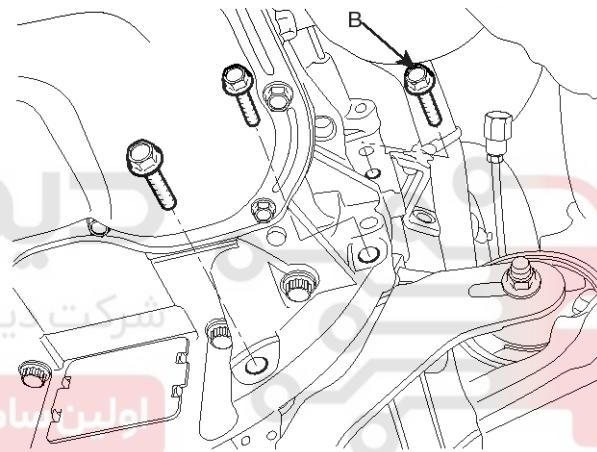
STDMT9003L

24. Remove the heat cover. (refer to Exhaust Manifold in EM group)

25. Remove the transaxle lower mounting bolts(A-4ea, B-2ea)



STDMT9004L



STDMT9005L

26. Lowering the jack slowly, remove the transaxle.

⚠ CAUTION

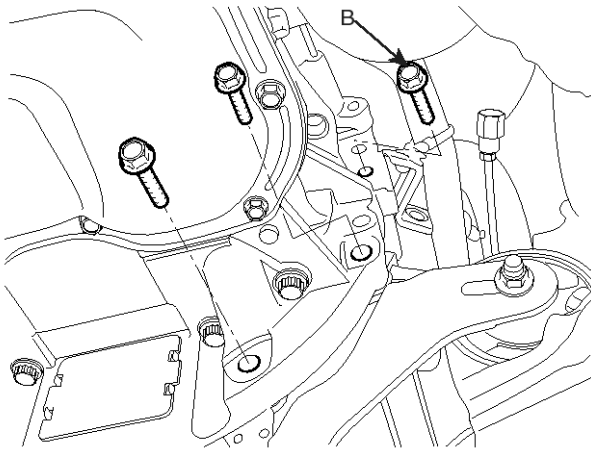
When removing the transaxle assembly, be careful not to damage any surrounding parts or body components.

Manual Transaxle System

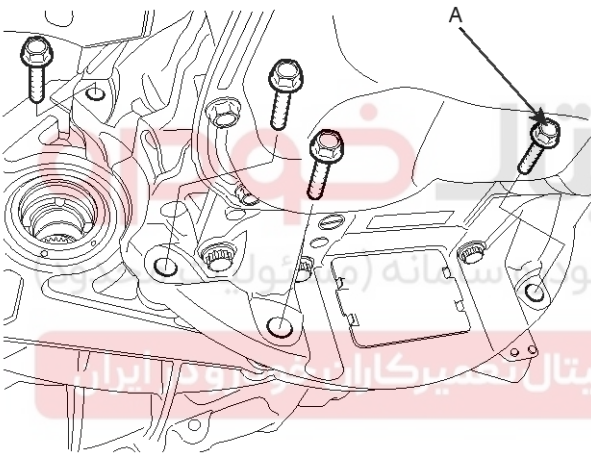
MTA-13

Installation

1. Install the transaxle lower mounting bolts(A-4ea, B-2ea)



STDMT9005L



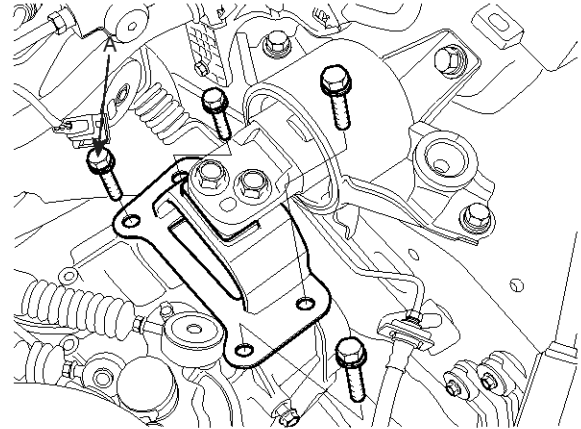
STDMT9004L

2. Install the heat cover. (refer to Exhaust Manifold in EM group)

3. Install the transaxle mounting support bracket bolts(A-4ea).

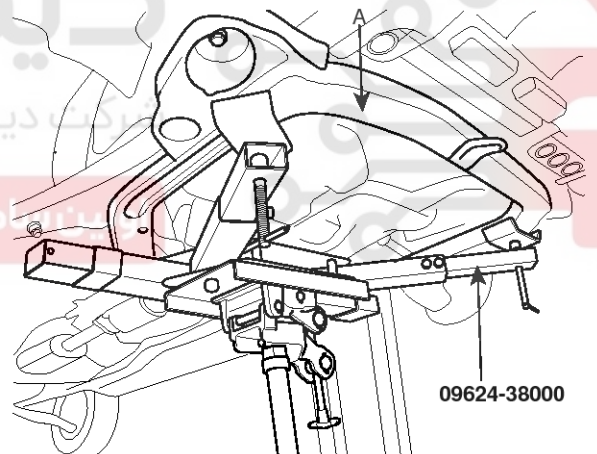
Tightening torque :

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



STDMT9003L

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



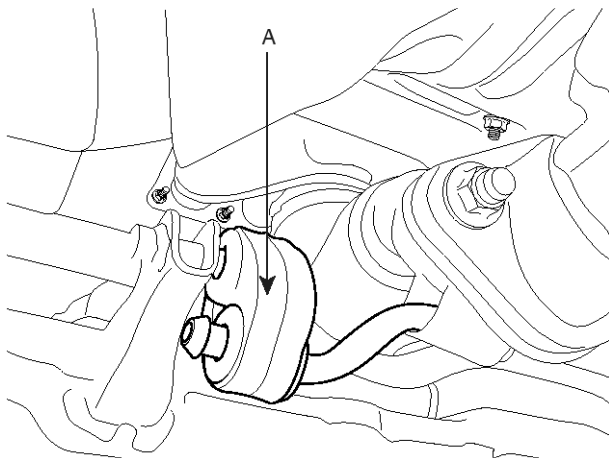
09624-38000

SHDAT6051D

MTA-14

Manual Transaxle System

5. Install the muffler hanger rubber (A).

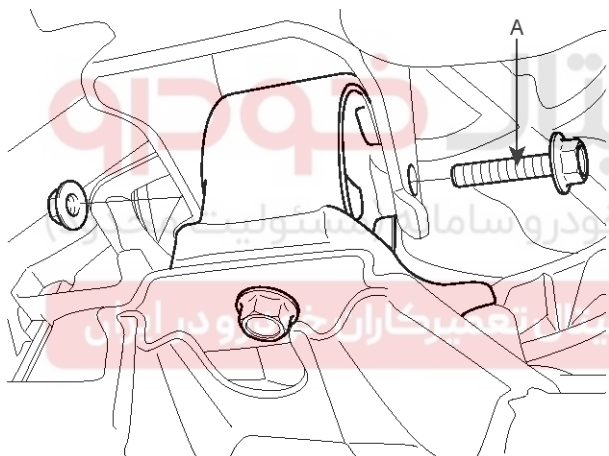


SHDAT6019D

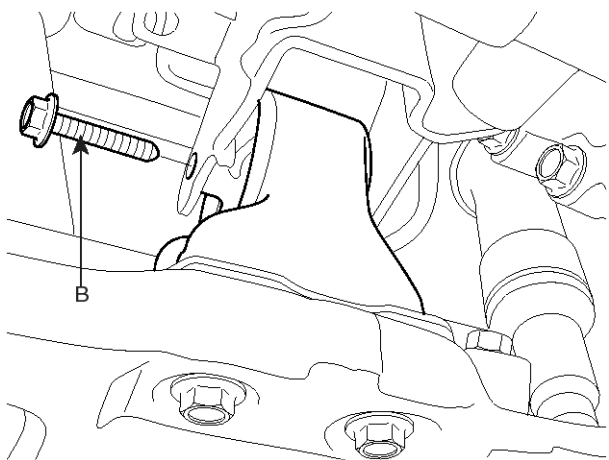
6. Install the roll stopper insulator mounting bolts.(A,B)

Tightening torque :

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

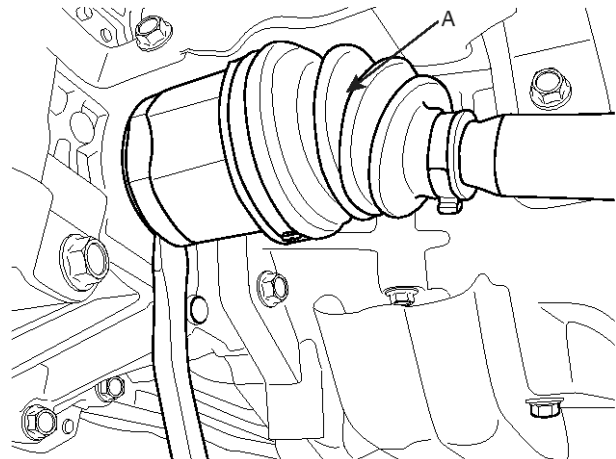


SHDAT6017D

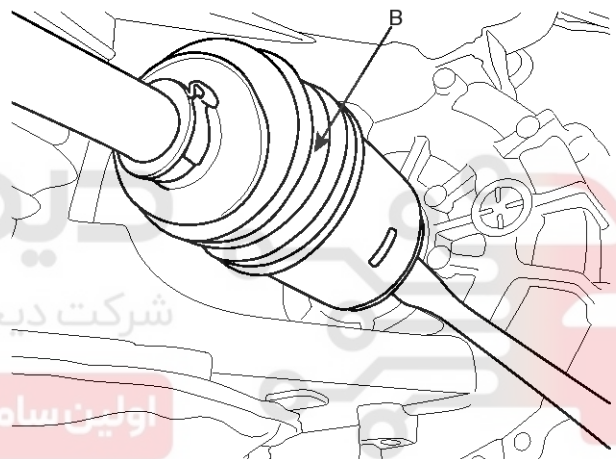


SHDAT6018D

7. Connect the drive shafts (A,B) from the transaxle.(refer to DS group)



SHDAT6020D



SHDAT6021D

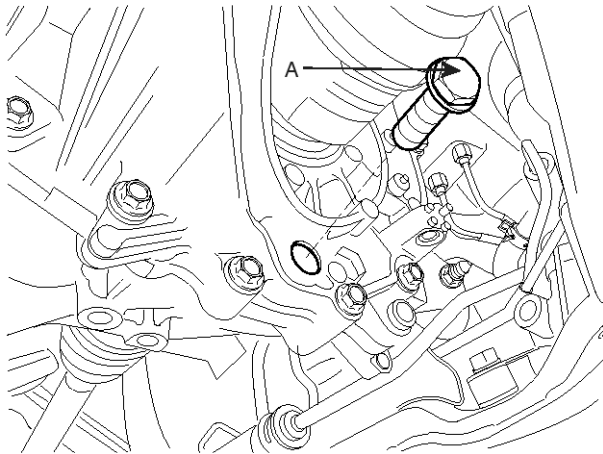
8. Install the lower arm ball joint mounting nut, the stabilizer link mounting nut, and the tie rod end mounting nut to the front knuckles. (refer to Front suspension system in SS group)

9. Install the front wheels and tires.

Manual Transaxle System

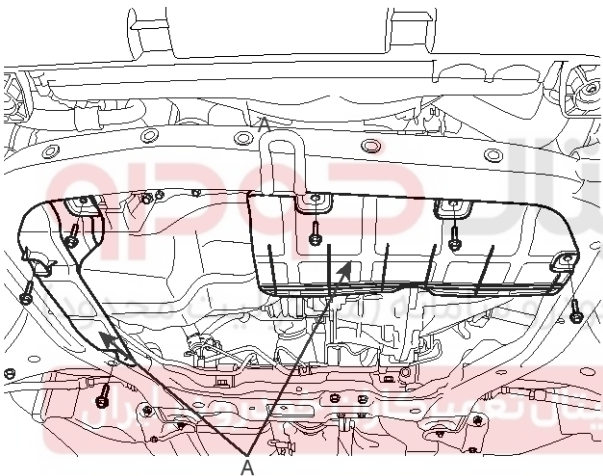
MTA-15

10. Install the clutch release cylinder assembly (A).



STDMT9009D

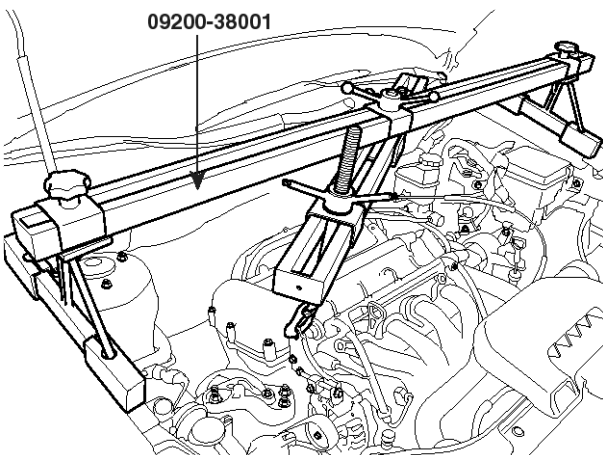
11. Install the under cover(A).



STDAT9002L

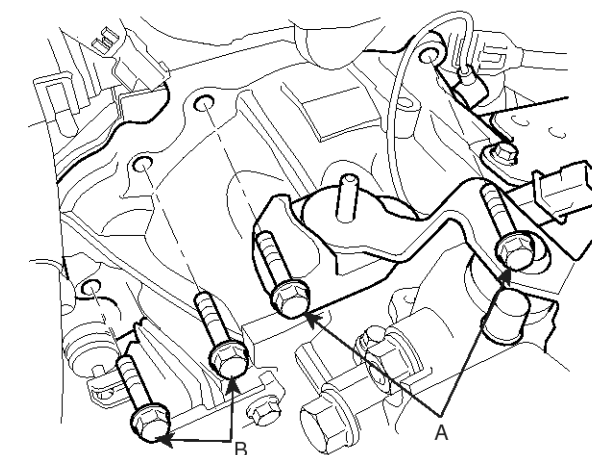
12. Install the steering joint assembly bolt. (refer to Steering column/shaft in ST group)

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



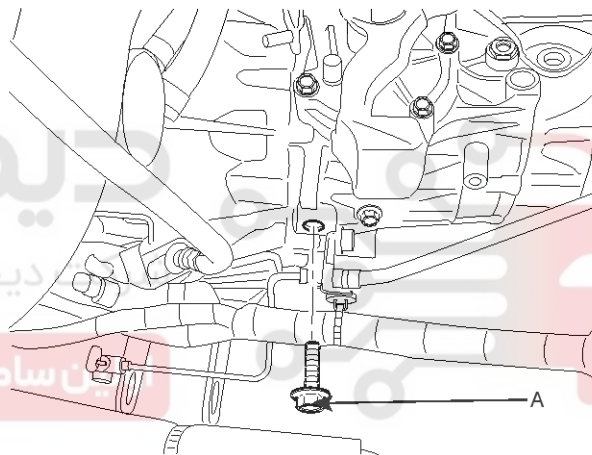
SHDAT6012D

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



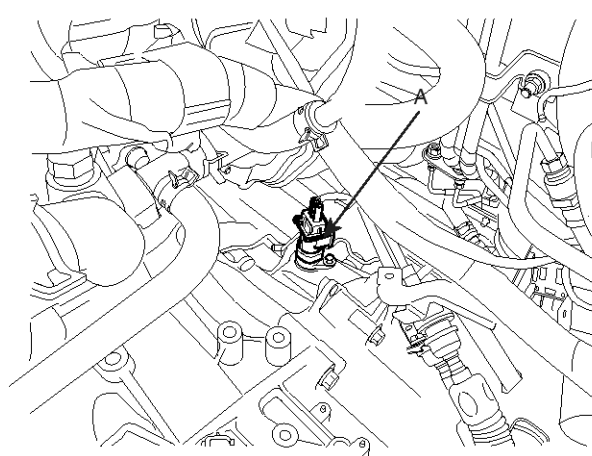
SHDMB6007D

15. Install the clutch hose bracket bolt(A).



STDMT9012D

16. Connect the vehicle speed sensor(A).

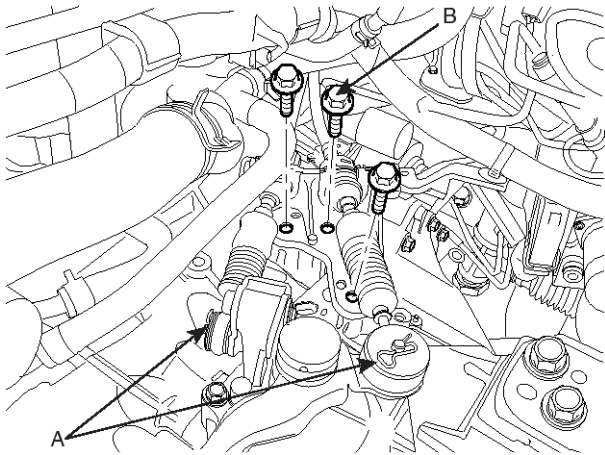


STDMT9008D

MTA-16

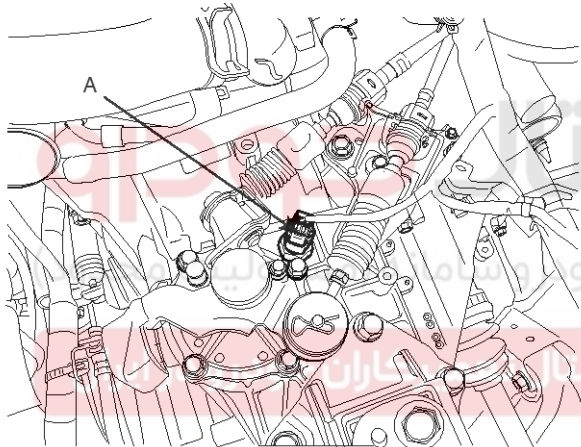
Manual Transaxle System

17. Install the snap pin(A) and control cable bracket bolts(B-3ea).



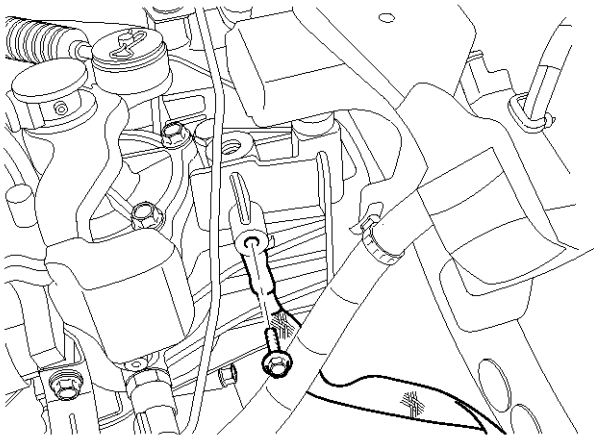
STDMT9007D

18. Install the back up lamp switch connector(A).



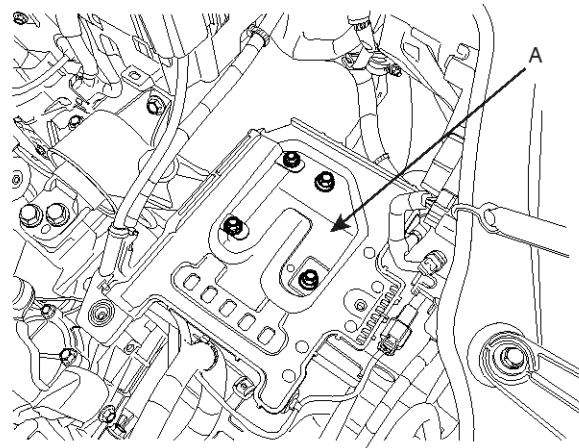
STDMT9006D

19. Install the ground wire by removing a bolt.



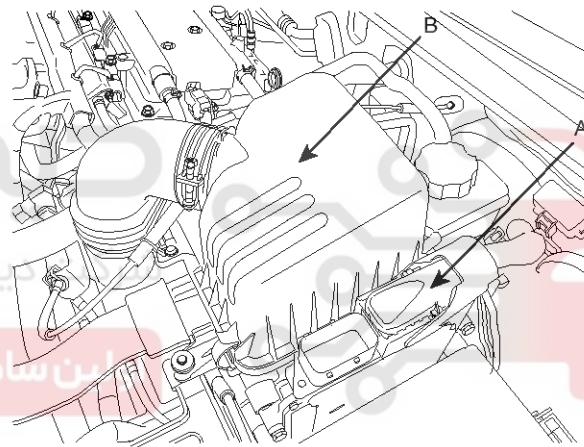
SPBMB9007L

20. Install the battery tray (A).



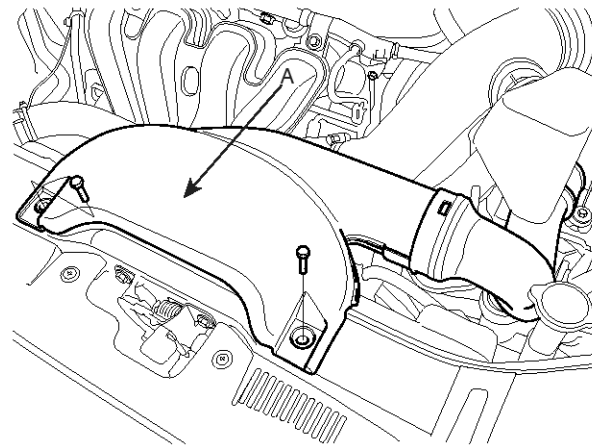
STDMT9004D

21. After installing the air cleaner assembly (B), connect ECU connector (A).



STDMT9003D

22. Connect the air duct (A).

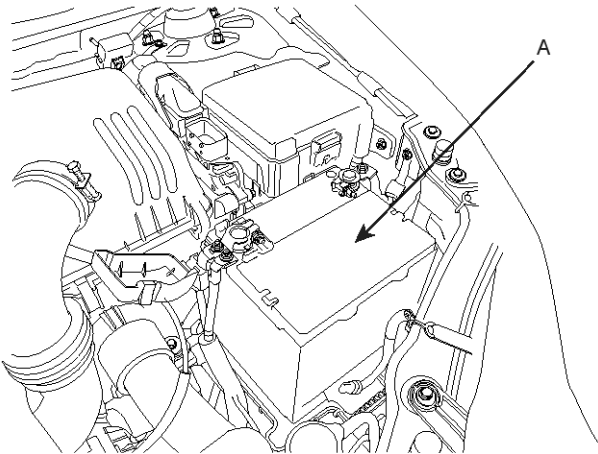


STDAT9001L

Manual Transaxle System

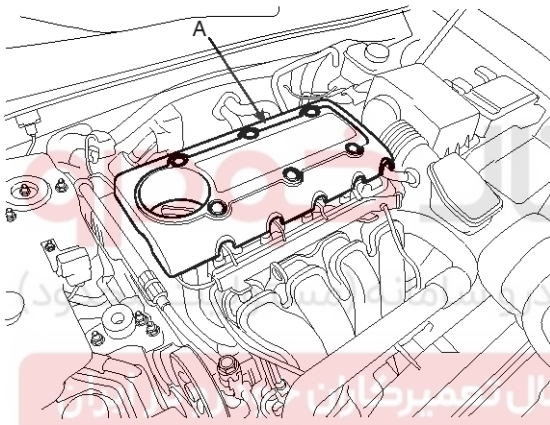
MTA-17

23. Install the battery(A).



STDMT9002D

24. Install the engine cover(A).



SMGMT9002D

25. After completing the installation perform the following procedure;

- Adjust the shift cable.
- Refill the transaxle fluid.
- Clean the battery posts and cable terminals with sandpaper and grease them to prevent corrosion before installing.