

MT -2

MANUAL TRANSAXLE(M5CF1)

GENERAL

SPECIFICATIONS

E56F5ABE

Engine type		Gasoline 1.6
Transaxle type		M5CF1
Gear ratio	1st	3.615
	2nd	1.950
	3rd	1.370
	4th	1.031
	5th	0.837
	Reverse	3.583
Final gear ratio		4.294

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)	0.0019T-0.0039T(0.05T-0.10T)
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	0.001L-0.0039L(0.025L-0.10L)

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

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

TIGHTENING TORQUE

Standard value	Nm	kgf.m	lb-ft
Oil drain plug	60-80	6.0-8.0	43-58
Oil filler plug	60-80	6.0-8.0	43-58
Shift control cable bracket on transaxle side	15-22	1.5-2.2	11-16
Rear roll support bracket bolt	60-80	6.0-8.0	43-58
Front roll support bracket bolt	60-80	6.0-8.0	43-58
Transaxle support bracket bolts	60-80	6.0-8.0	43-58
Transaxle mounting bracket bolts	70-95	7.0-9.5	50-69
Transaxle upper mounting bolts [Dia. 12mm (0.472in)]	60-80	6.0-8.0	43-58
Transaxle lower mounting bolts [Dia. 10mm (0.393in)]	43-55	4.3-5.5	32-40

⊗ 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

MT -3

LUBRICATIONS

EFEC3344

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	1.9L(2.0US qt, 1.67Imp 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 TOOL

E65C5E87

TOOL (Number and Name)	Illustration	Use
09200-38001 Engine support fixture	 D0038001	Removal and installation of the transaxle
09624-38000 Crossmember supporter	 EKBF005A	Removal and installation of the crossmember
09452-21200 Oil seal installer	 Y45006B	Installation of differential oil seal

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MANUAL TRANSAXLE(M5CF1)

TROUBLESHOOTING

E8DFEAF0

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
	Weakened synchronizer spring	Replace synchronizer spring
	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

شرکت دیجیتال خودرو (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

MANUAL TRANSAXLE SYSTEM

MT -5

MANUAL TRANSAXLE SYSTEM

SERVICE ADJUSTMENT
PROCEDURE

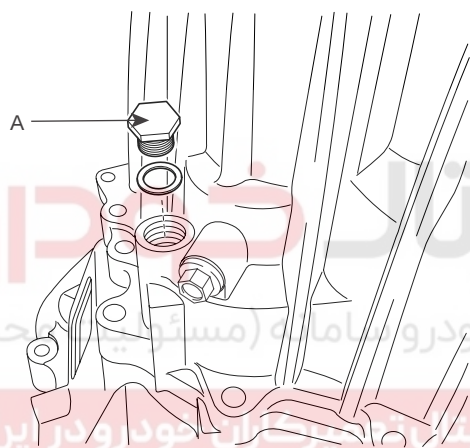
E3290E88

TRANSAXLE GEAR OIL LEVEL

INSPECTION

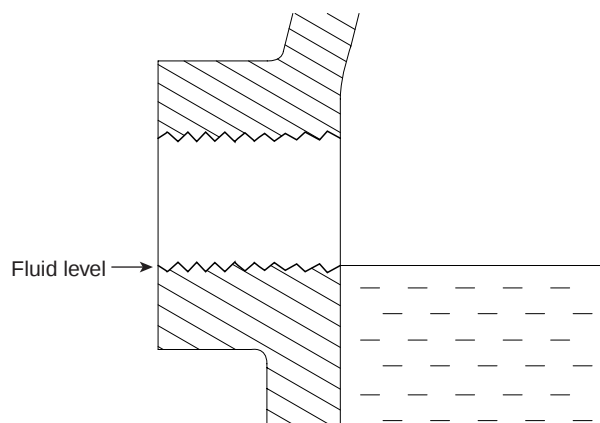
Inspect each component for evidence of leakage.
Check the gear oil level by removing the filler plug.
If the oil is contaminated, it is necessary to replace it with new oil.

1. Remove oil filler plug(A).



LKGF004J

2. Check level with finger.
Oil level must be up to fill the hole, add oil until it runs over.



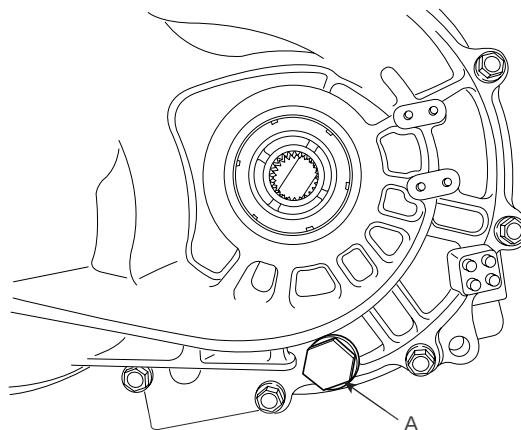
LKGF002F

3. Install filler plug.

Filler plug tightening torque :
60-80 Nm (6.0-8.0 kgf.m, 43-58 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).



LMJF001A

3. Install the drain plug with new washer.

Drain plug tightening torque:
60-80 Nm (6.0-8.0 kgf.m, 43-58 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)

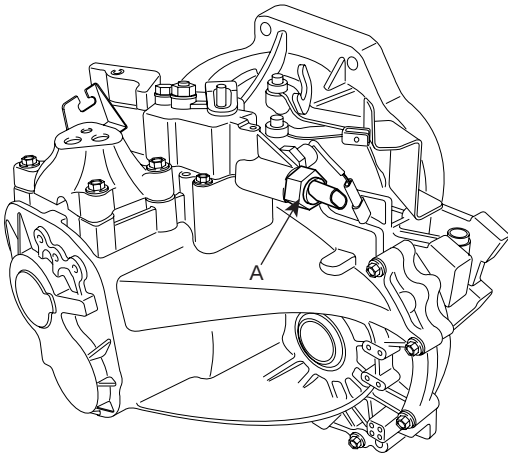
MT -6

MANUAL TRANSAXLE(M5CF1)

BACKUP LAMP SWITCH

INSPECTION

1. Disconnect the backup lamp switch(A).

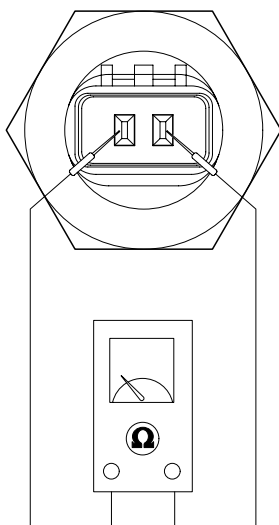


BMJF002C

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.



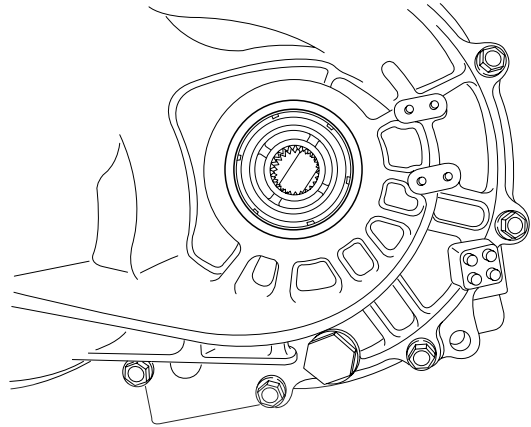
LMJF003B

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

DRIVE SHAFT OIL SEAL

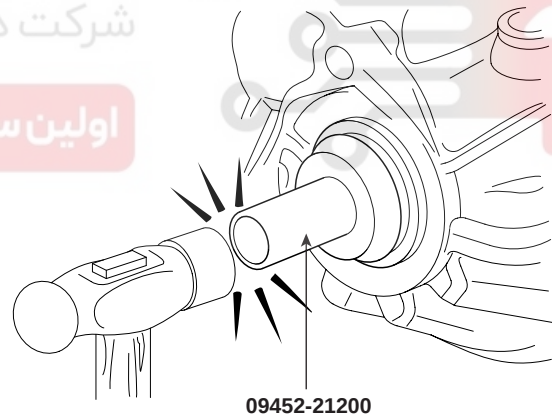
REPLACE

1. Disconnect the drive shaft from the transaxle. (see "DS" group)
2. Using a flat-tip screwdriver, remove the oil seal.



LKGf002D

3. Using the special tool(09452-21200), tap the drive shaft oil seal into the transaxle.



09452-21200

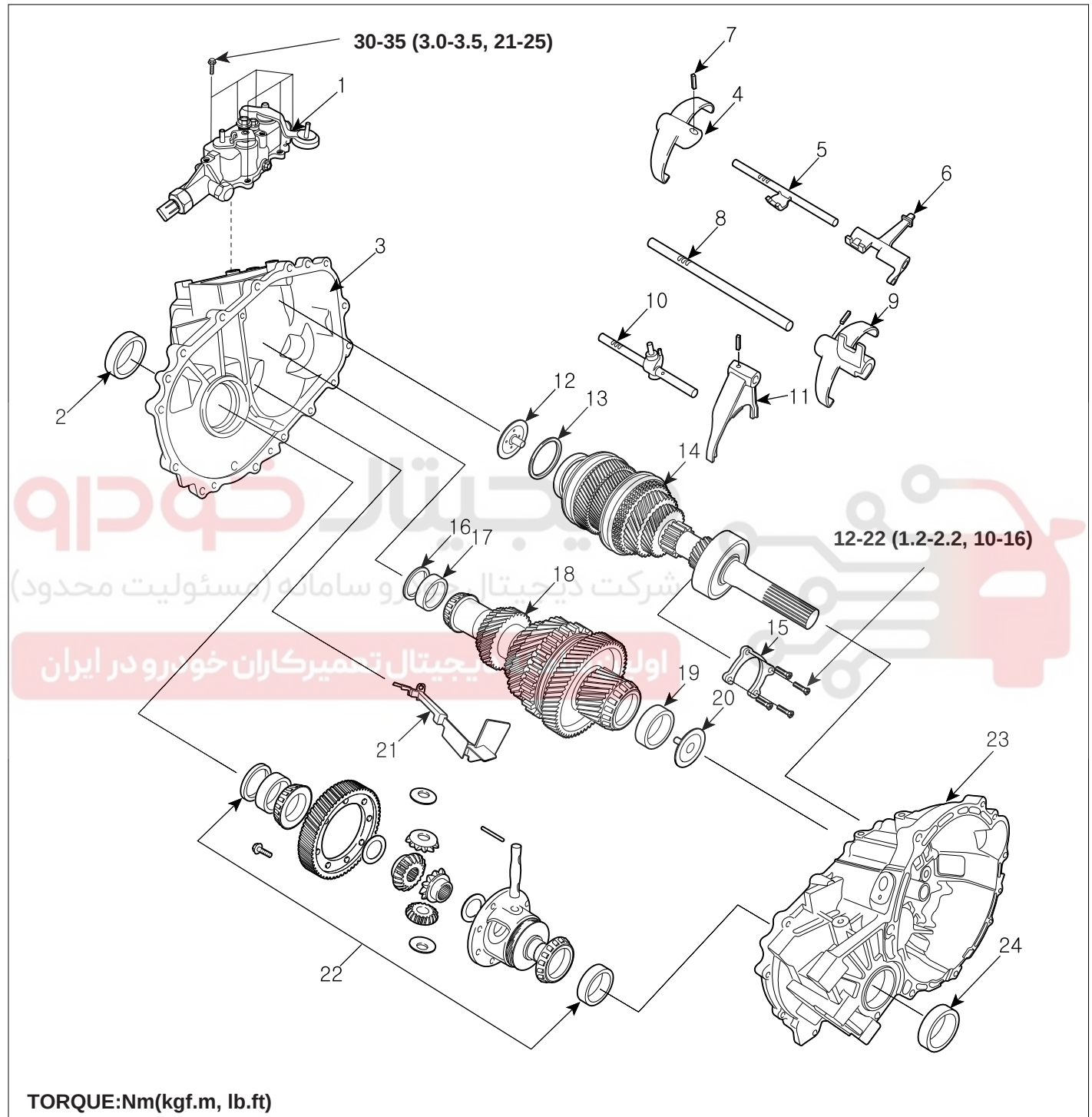
LMJF004B

MANUAL TRANSAXLE SYSTEM

MT -7

MANUAL TRANSAXLE

COMPONENTS E0CDDDDA



- | | | |
|---------------------------|----------------------------------|------------------------------------|
| 1. Control shaft complete | 9. 3rd & 4th shift lug and fork | 17. Output shaft rear outer racer |
| 2. Oil seal | 10. 1st & 2nd shift rail | 18. Output shaft assembly |
| 3. Transaxle case | 11. 1st & 2nd shift fork | 19. Output shaft front outer racer |
| 4. 5th shift fork | 12. Input shaft oil guide | 20. Output shaft oil guide |
| 5. 5th shift rail | 13. Snap ring | 21. Oil guide |
| 6. Reverse shift lug | 14. Input shaft assembly | 22. Differential assembly |
| 7. Spring pin | 15. Input shaft bearing retainer | 23. Oil seal |
| 8. 3rd & 4th shift rail | 16. Spacer | 24. Clutch housing |

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MANUAL TRANSAXLE(M5CF1)

REMOVAL

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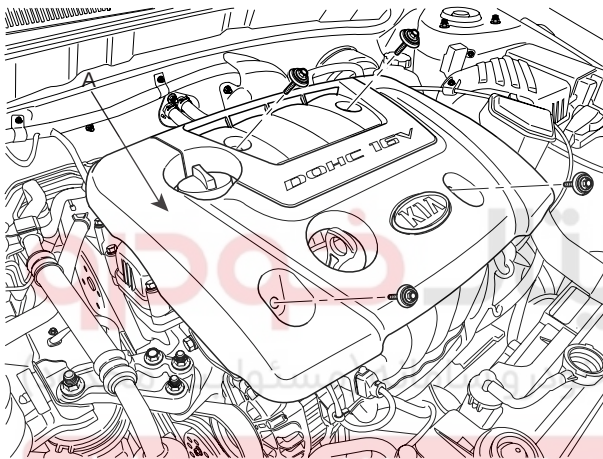
**CAUTION**

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

**NOTE**

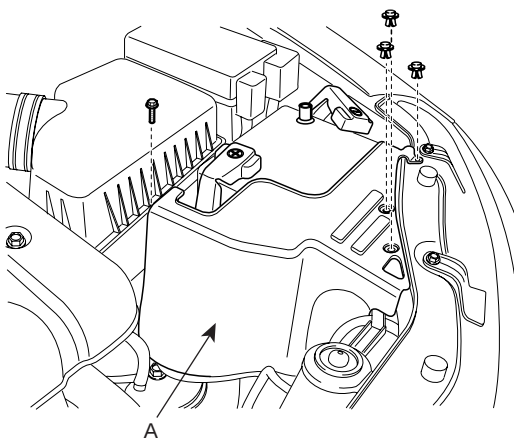
- Mark all wiring and hoses to avoid misconnection.

1. Remove the engine cover (A).



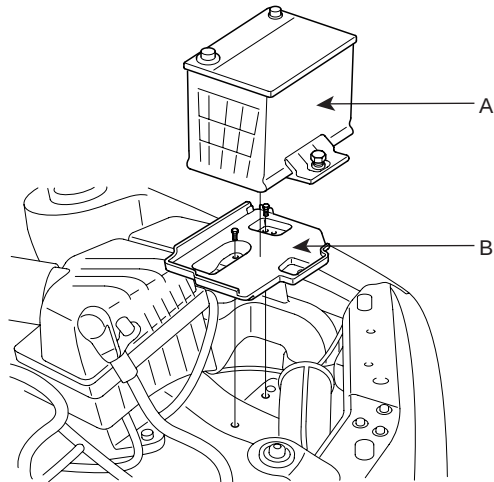
SLDAT7001D

2. Remove the battery heat shield(A).



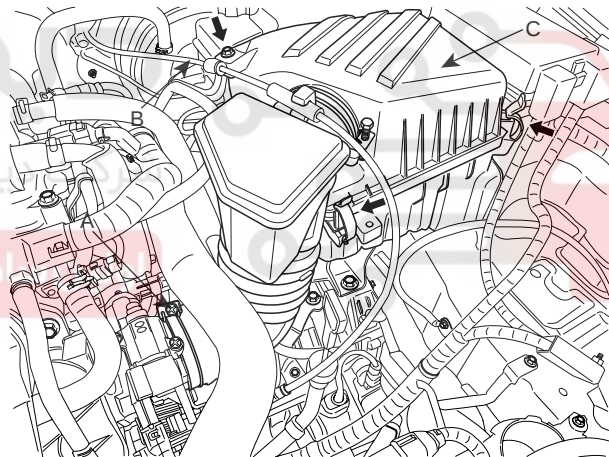
SLDAT7002D

3. Remove the battery (A) and the battery tray (B).



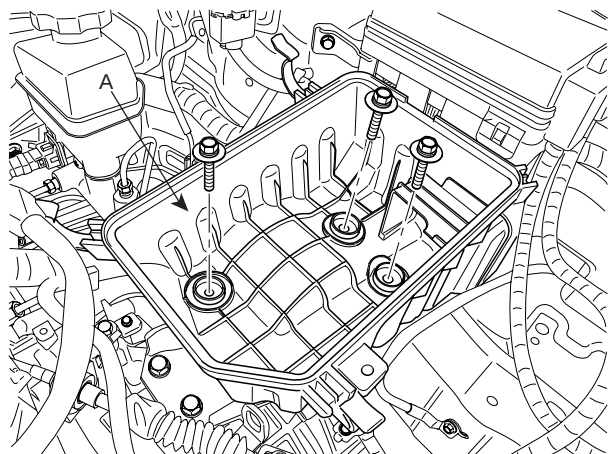
SLDAT7003D

4. Remove the upper cover(C) of the air cleaner assembly by loosening the clamp (A) and disconnecting the accelerating cable (B).



SLDAT7004D

5. Remove the lower cover (A) of the air cleaner assembly.

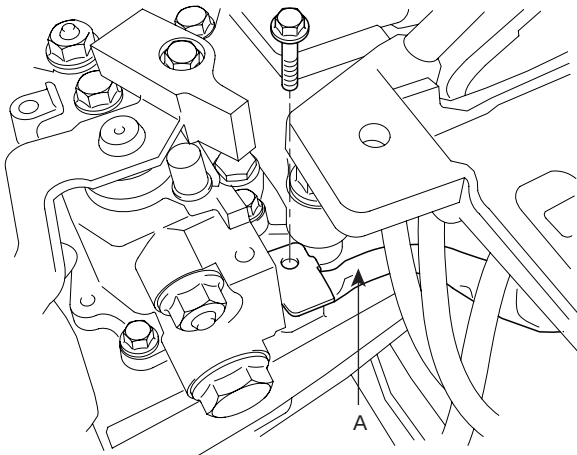


SLDAT7005D

MANUAL TRANSAXLE SYSTEM

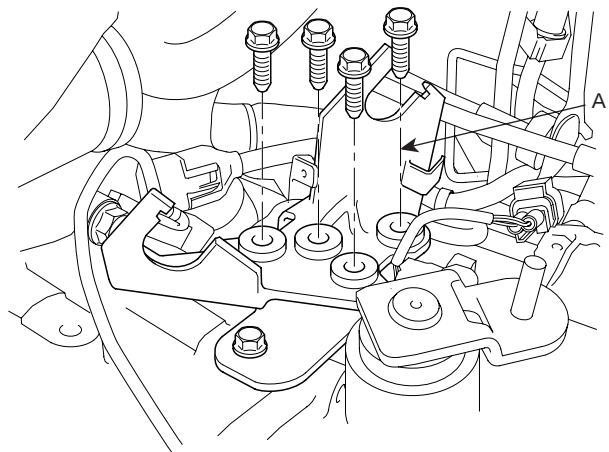
MT -9

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



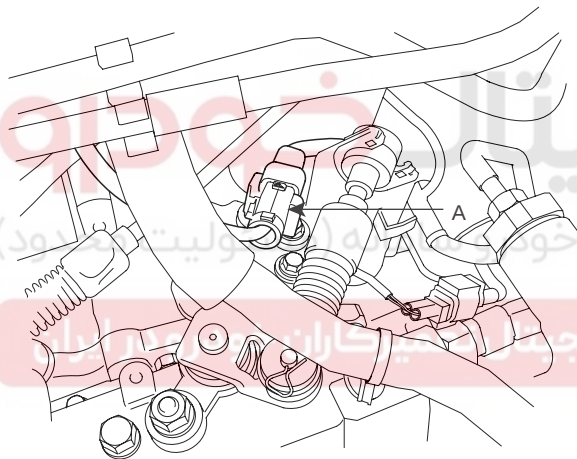
SHDMB6004D

9. Remove the control cable bracket (A).



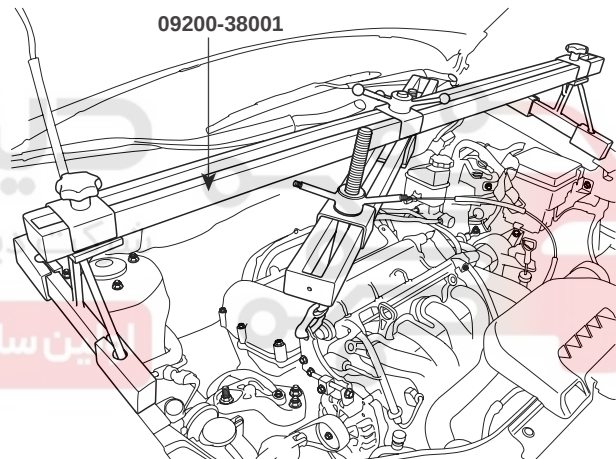
SHDMB6006D

7. Disconnect the vehicle speed sensor and the back lamp switch integrated connector (A).



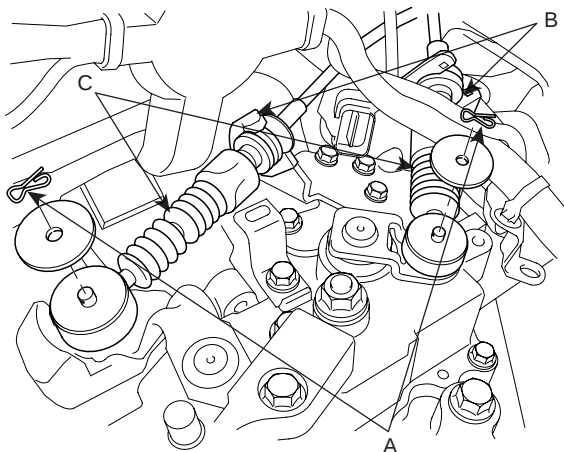
SHDMB6005D

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



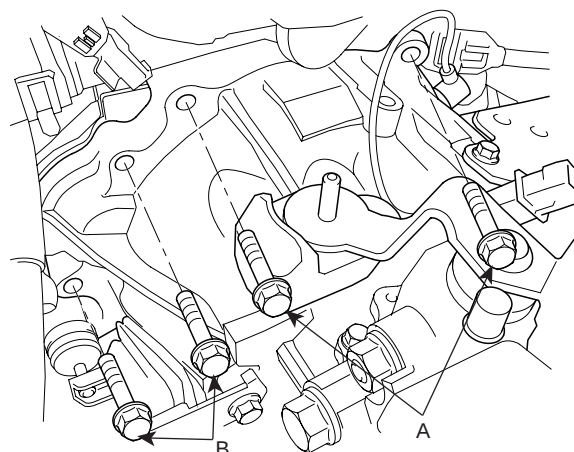
SHDAT6012D

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



SHDMA6003D

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

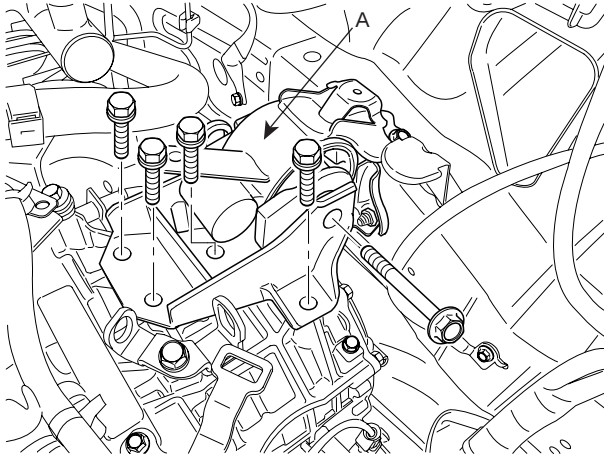


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MT -10

MANUAL TRANSAXLE(M5CF1)

12. After removing the bolts, take the transaxle support bracket (A) off.



SLDAT7008D

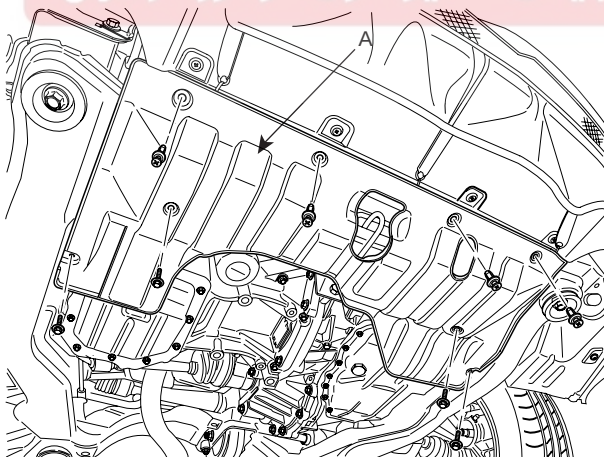
13. Remove the steering joint assembly bolt. (refer to Steering column/shaft in ST group)

14. Lifting up the vehicle.

15. Remove the front wheels and tires.

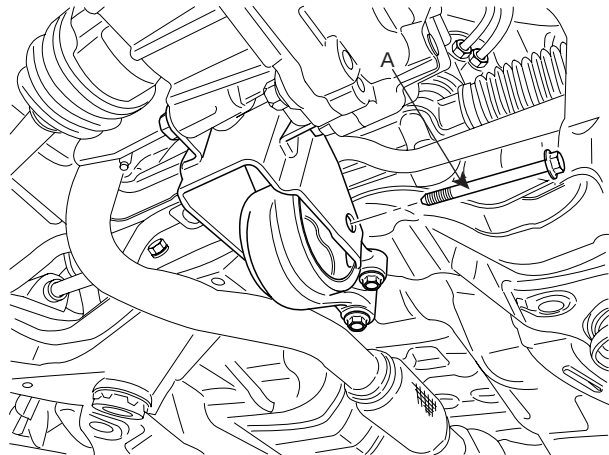
16. Remove the lower arm ball joint mounting nut, the stabilizer link mounting nut, and the tie rod end mounting nut from the front knuckles. (refer to Front suspension system in SS group)

17. Remove the under shield cover. (A)

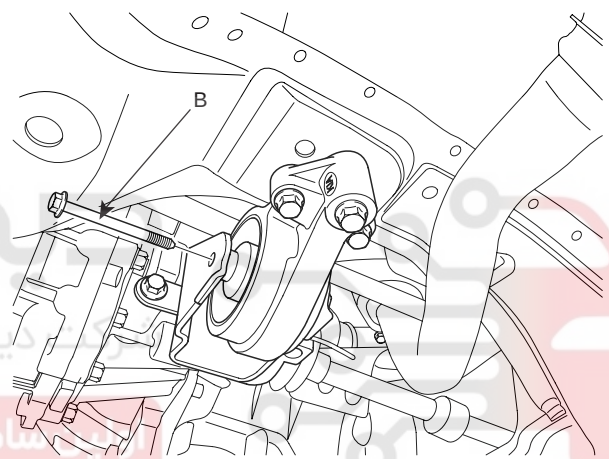


SLDAT7009D

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

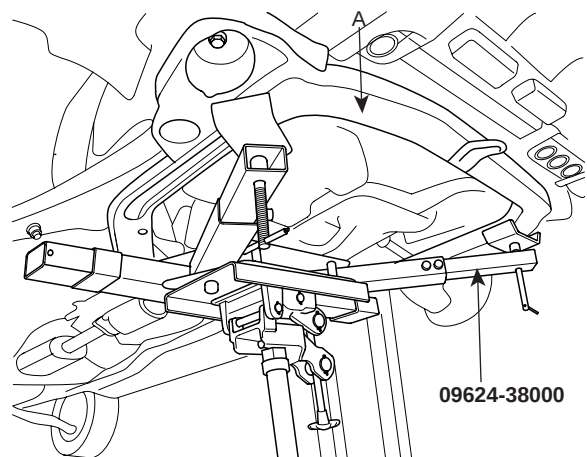


SLDAT7010D



SLDAT7011D

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

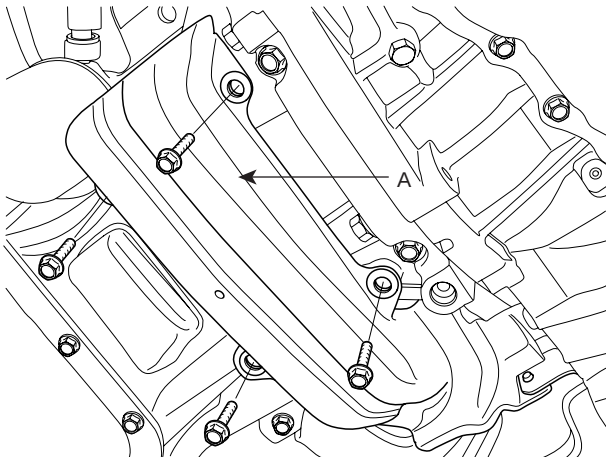


SHDAT6051D

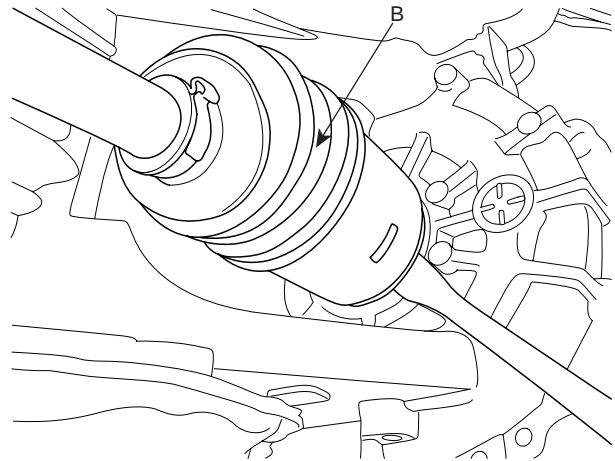
MANUAL TRANSAXLE SYSTEM

MT -11

20. Remove the brackets (A, B).

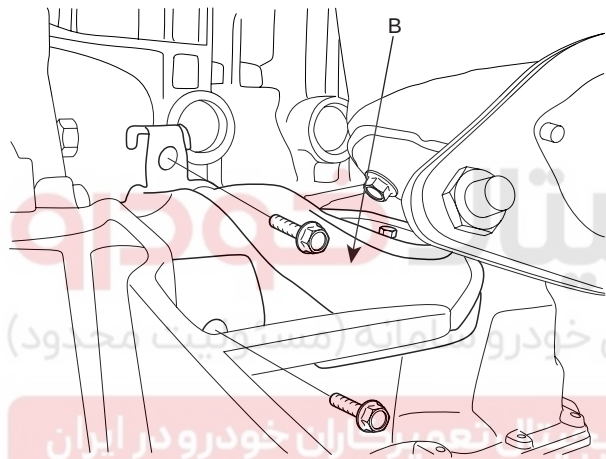


SHDAT6022D

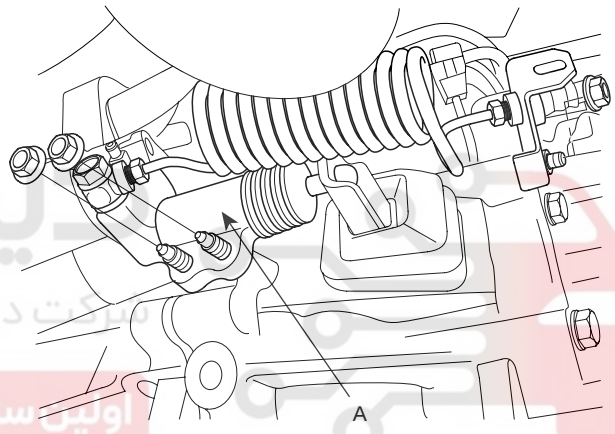


SHDAT6021D

22. Remove the clutch release cylinder assembly (A).

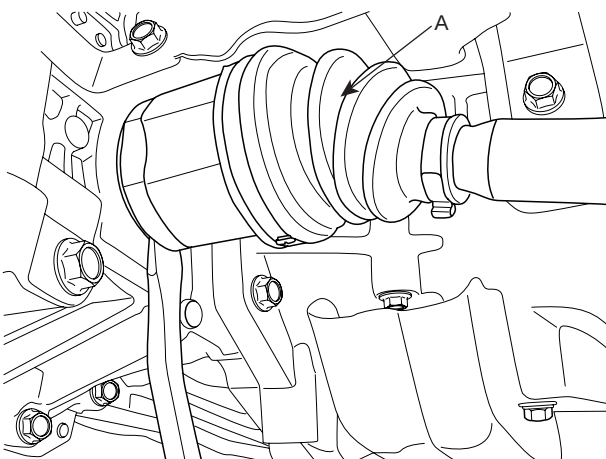


SHDAT6023D



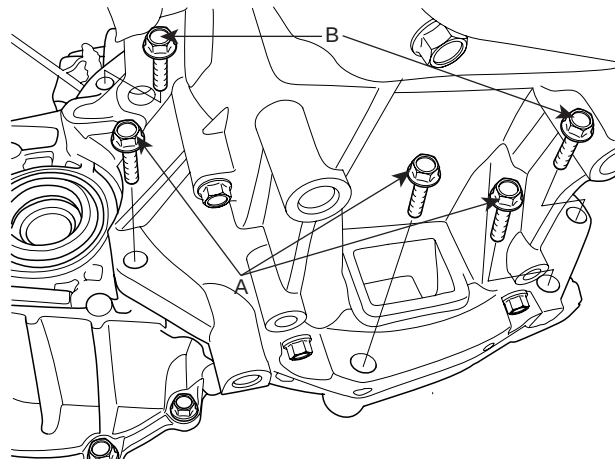
SHDMB6016D

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



SHDAT6020D

23. Supporting the transaxle with a jack, remove the transaxle lower mounting bolts (A-3ea, B-2ea).



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24. Lowering the jack slowly, remove the transaxle.

MT -12

MANUAL TRANSAXLE(M5CF1)

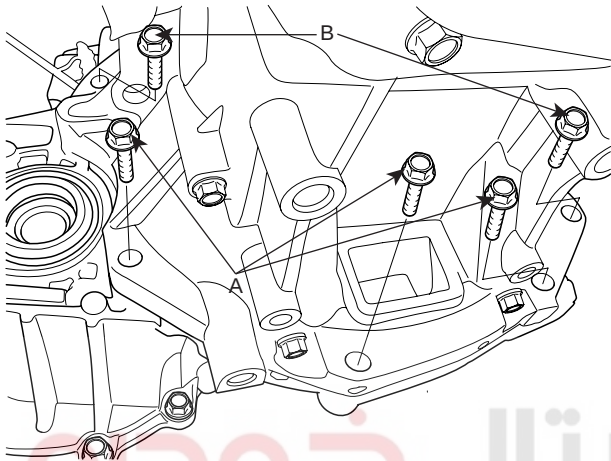
INSTALLATION E9609C59

1. Install the transaxle lower mounting bolts (A-3ea,B-2ea) after fitting the transaxle assembly into the engine assembly.

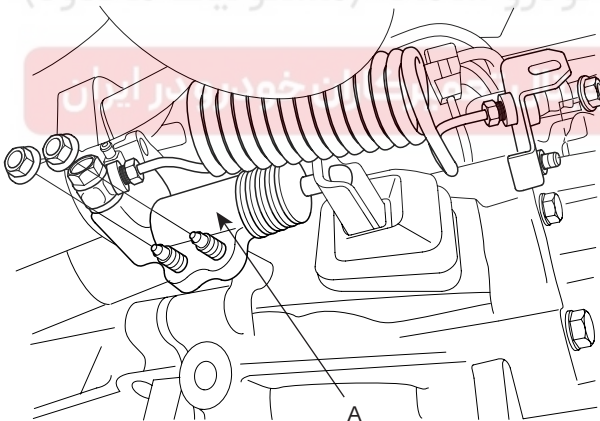
Torque :

[A] 30-42Nm (3.0-4.2kgf.m, 21.7-30.4lb-ft)

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

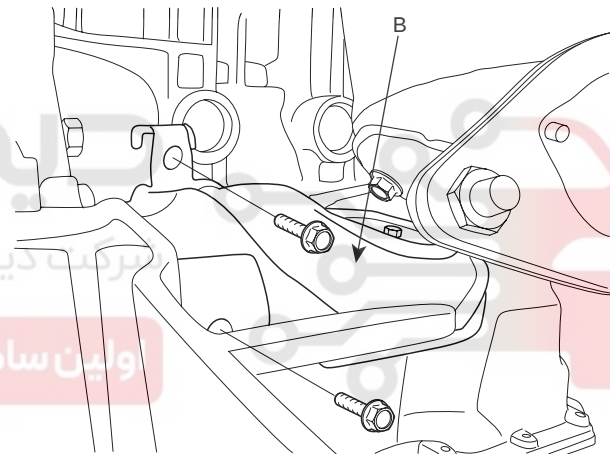
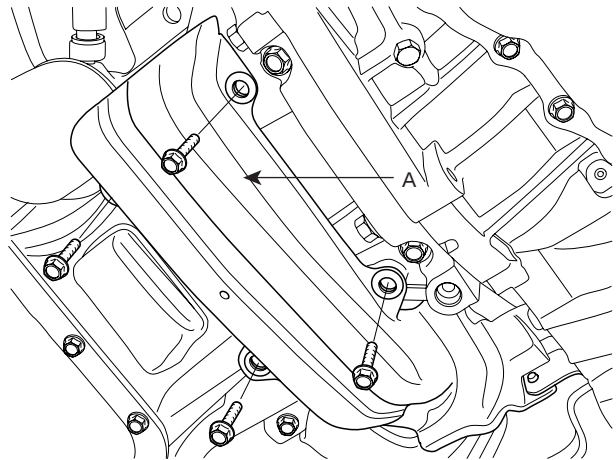


2. Install the clutch release cylinder assembly (A).



3. Install the bracket (A,B)

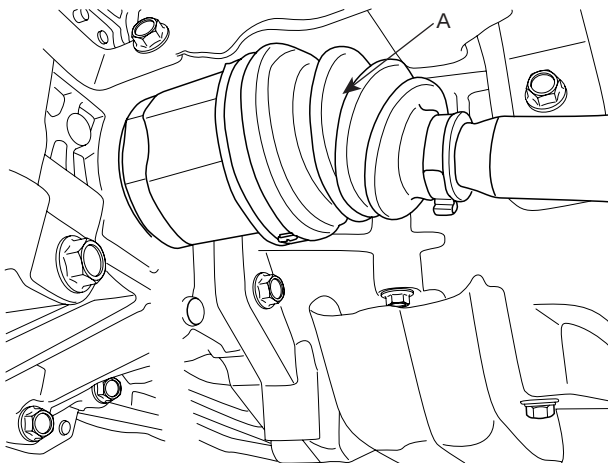
Torque : 46-53Nm (4.6-5.3kgf.m,33.3-38.3lb-ft)



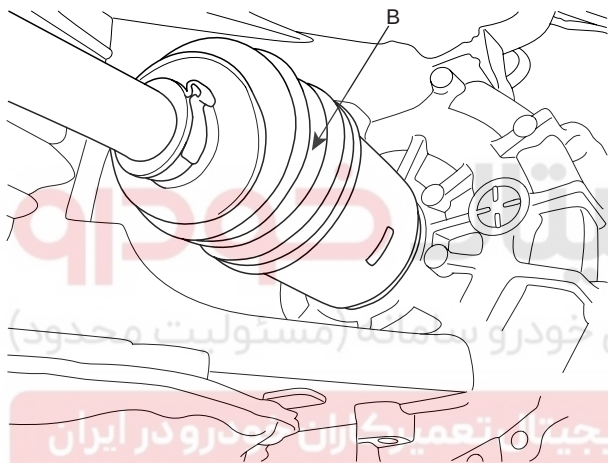
MANUAL TRANSAXLE SYSTEM

MT -13

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



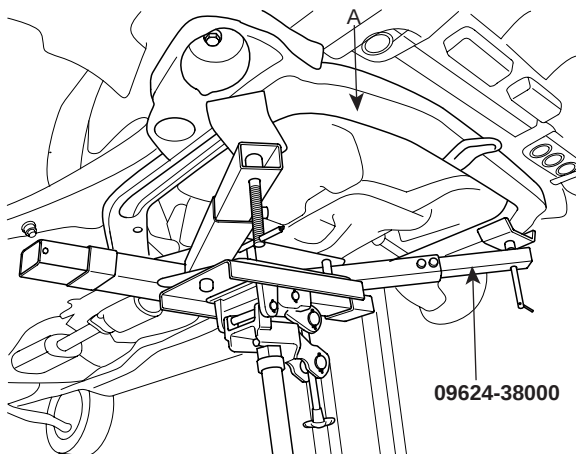
SLDMT7002D



SLDMT7003D

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

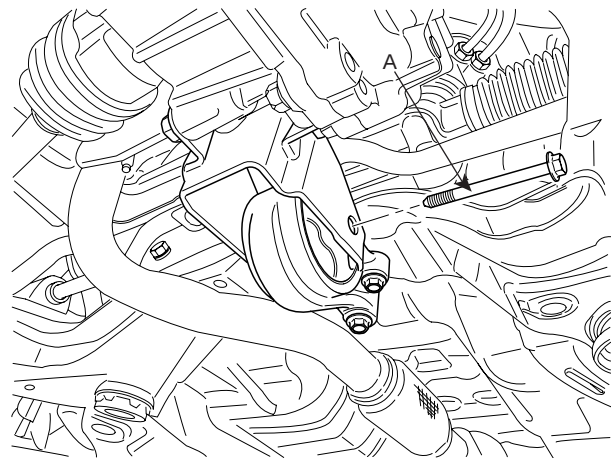
Torque : 140-160Nm (14-16kgf.m, 101-118lb-ft)



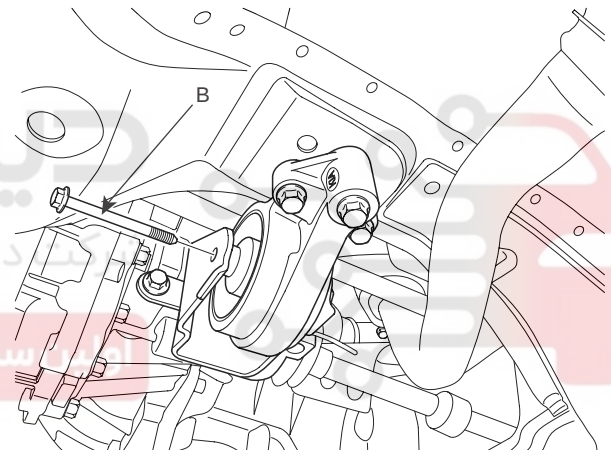
SHDAT6051D

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

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

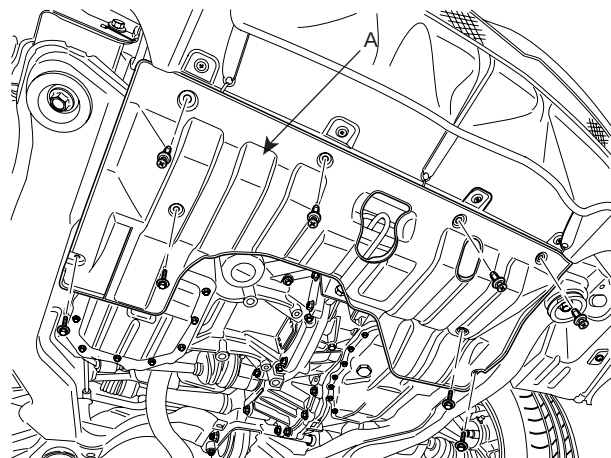


SLDAT7010D



SLDAT7011D

7. Install the under shield cover. (A,B)



SLDAT7009D

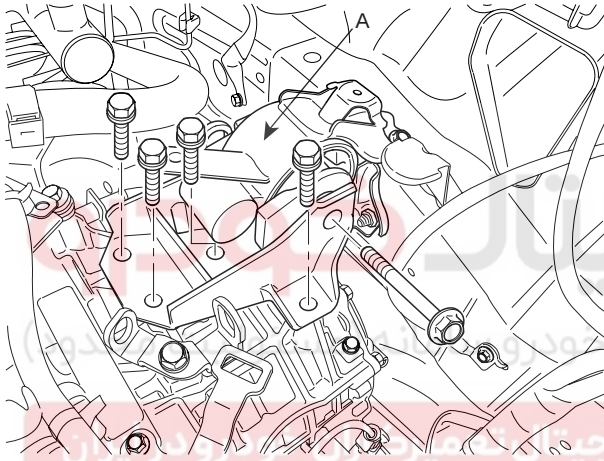
MT -14**MANUAL TRANSAXLE(M5CF1)**

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 installation in SS group)
10. Install the steering joint assembly bolt (A). (refer to Steering column/shaft in ST group)

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

11. Install the transaxle support bracket (A).

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



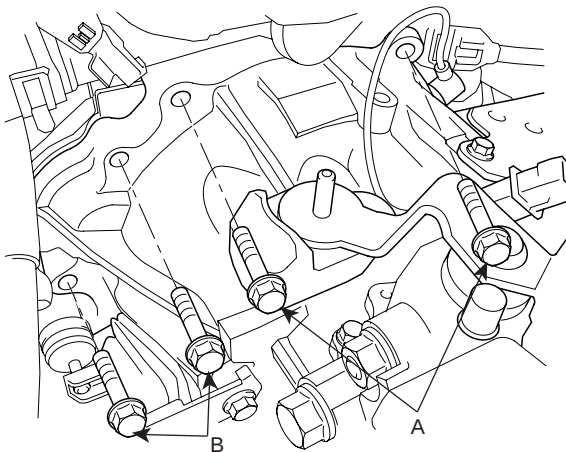
SLDAT7008D

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

Torque :

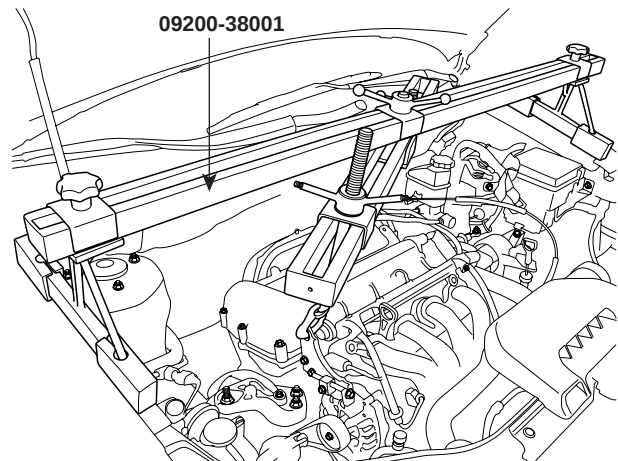
[A] 60-80Nm (6.0-8.0kgf.m, 43.4-57.9lb-ft)

[B] 39-60Nm (3.9-6.0kgf.m, 28.2-43.4lb-ft)



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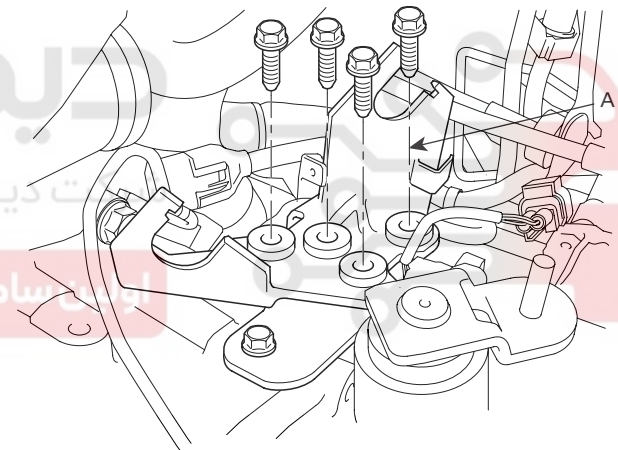
13. Remove the special tool (09200-38001).



SHDAT6012D

14. Install the control cable bracket (A).

Torque : 15-22Nm (1.5-2.2 kgf.m, 10.8-15.9lb-ft)

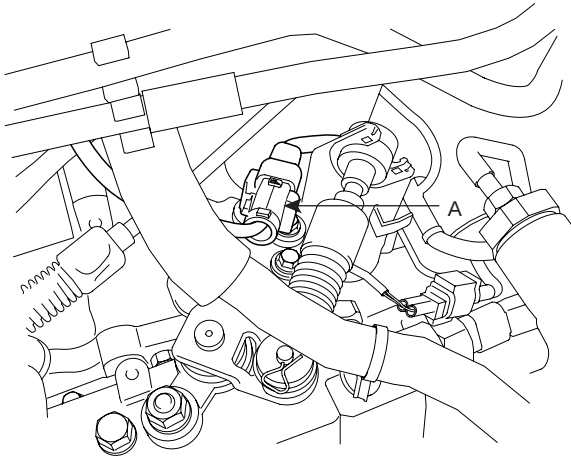


SHDMB6006D

MANUAL TRANSAXLE SYSTEM

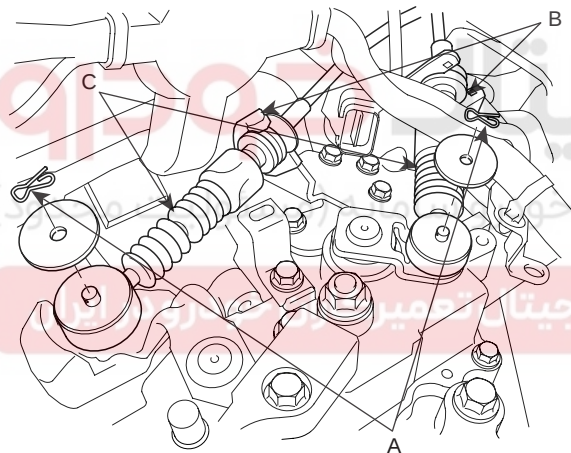
MT -15

15. Connect the vehicle speed sensor and the back lamp switch integrated connector (A).



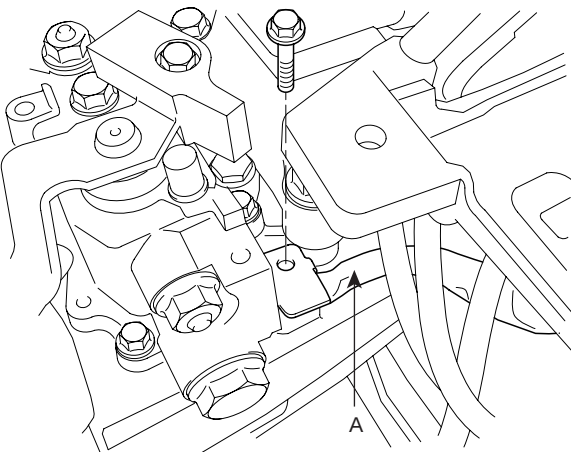
SHDMB6005D

16. Install the control cable assembly (A) by installing the clips (B) and pins (C).



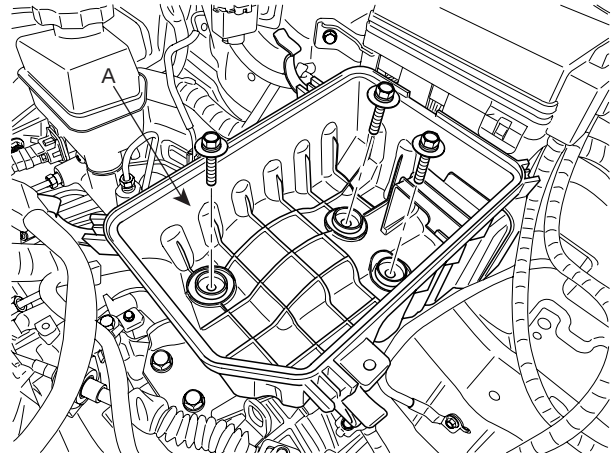
SHDMA6003D

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



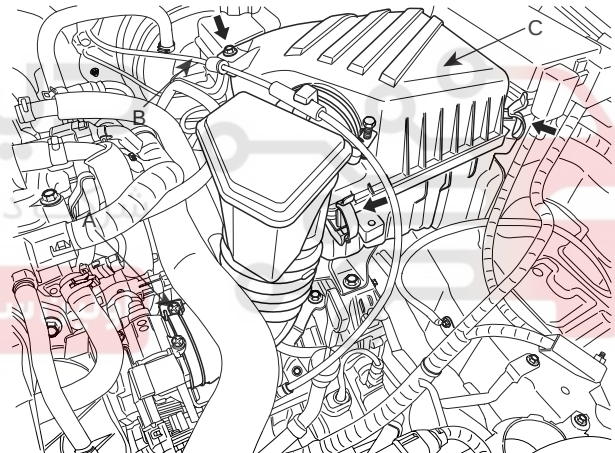
SHDMB6004D

18. Install the lower cover (A) of the air cleaner assembly.



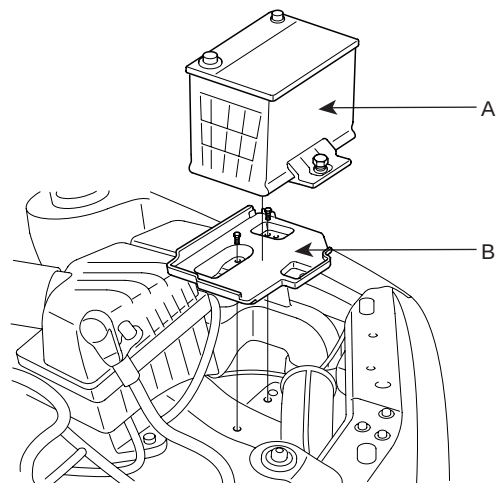
SLDAT7005D

19. Install the upper cover (C) of the air cleaner assembly by connecting the accelerating cable (B) and tightening the clamp (A).



SLDAT7004D

20. Install the battery (A) and the battery tray (B).

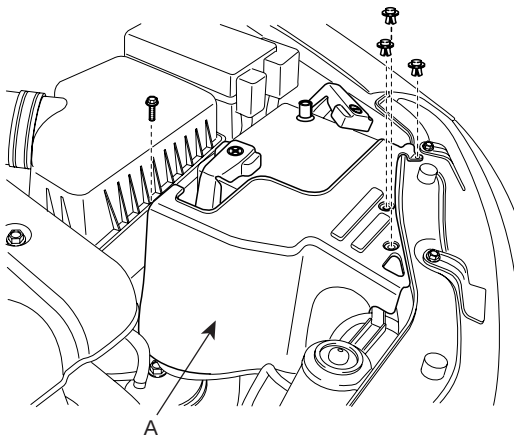


SLDAT7003D

MT -16

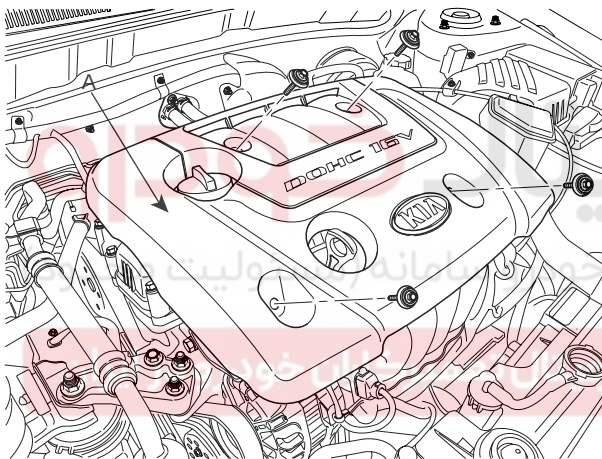
MANUAL TRANSAXLE(M5CF1)

21. Install the battery heat shield (A).



SLDAT7002D

22. Install the engine cover (A).



SLDAT7001D