

MTA-2

Manual Transaxle System

General Information

Specifications

Manual transaxle type		M6CF1
Engine type		Gasoline 1.6 GDI
Gear ratio	1st	3.769
	2nd	2.045
	3rd	1.37
	4th	1.036
	5th	0.893
	6th	0.794
	Reverse	3.545
Final gear ratio		4.563

Tightening Torques

Item	N.m	kgf.m	lb-ft
Oil drain plug bolt	58.9 ~ 78.5	6.0 ~ 8.0	43.4 ~ 57.9
Oil filler plug bolt	58.9 ~ 78.5	6.0 ~ 8.0	43.4 ~ 57.9
Shift lever assembly bolt	8.8 ~ 13.7	0.9 ~ 1.4	6.5 ~ 10.1
Back up lamp switch	29.4 ~ 34.3	3.0 ~ 3.5	21.7 ~ 25.3
Transaxle mounting bracket bolt	88.3 ~ 107.9	9.0 ~ 11.0	65.1 ~ 79.6
Start motor installation bolt	49.0 ~ 63.7	5.0 ~ 6.5	36.2 ~ 47.0
Transaxle upper mounting bolt (TM=>ENG)	42.2 ~ 53.9	4.3 ~ 5.5	31.1 ~ 39.8
Transaxle lower mounting bolt (ENG=>TM)	42.2 ~ 48.1	4.3 ~ 4.9	31.1 ~ 35.4
	42.2 ~ 53.9	4.3 ~ 5.5	31.1 ~ 39.8

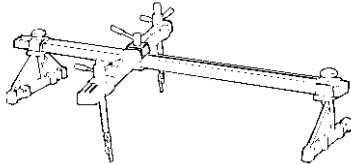
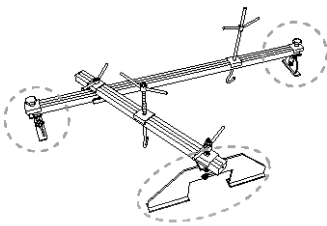
Lubricants

Item	Specified lubricants	Quantity
Manual transaxle oil	SAE 75W/85, API GL-4	1.8L(0.48 U.S. gal., 1.90 U.S. qt., 1.58 Imp. qt.)

General Information

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Special Service Tools

Tool (Number and name)	Illustration	Use
09200-38001 Engine support fixture (Beam)	 KKBF030A	Removal and installation of the transaxle. Except lower supporter, use beam only with new engine support fixture supporter (SST No.: 09200-2S000)
09200-2S000 Engine support fixture (Supporter)	 SXMAT9080D	Removal and installation of the transaxle. Use this supporter with the upper beam of the engine support fixture (SST No.: 09200-38001)

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

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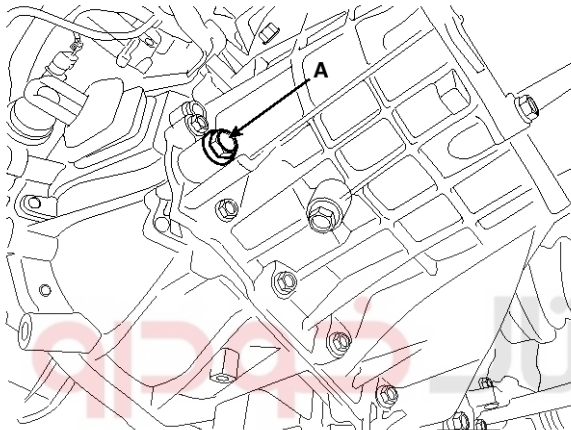
Service Adjustment Procedure

Transaxle gear oil level

 NOTICE

- 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.

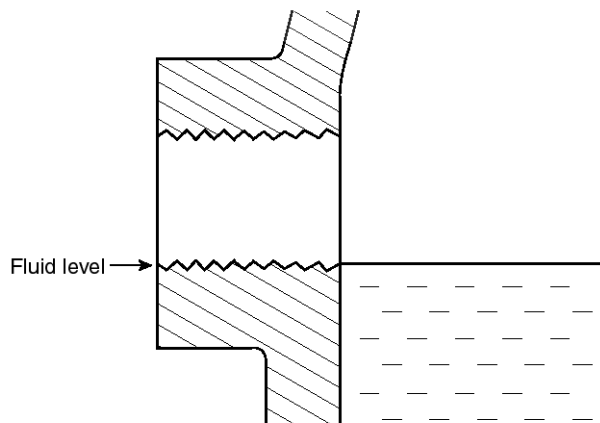
1. Remove oil filler plug (A).



SMDMT1001D

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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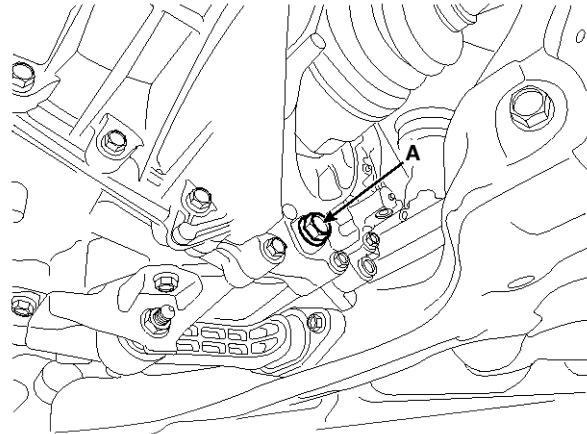
3. Install filler plug.

Tightening torque:

58.9 ~ 78.5 N.m (6.0 ~ 8.0 kgf.m, 43.4 ~ 57.8 lb-ft)

Transaxle gear oil level

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:

58.9 ~ 78.5 N.m (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

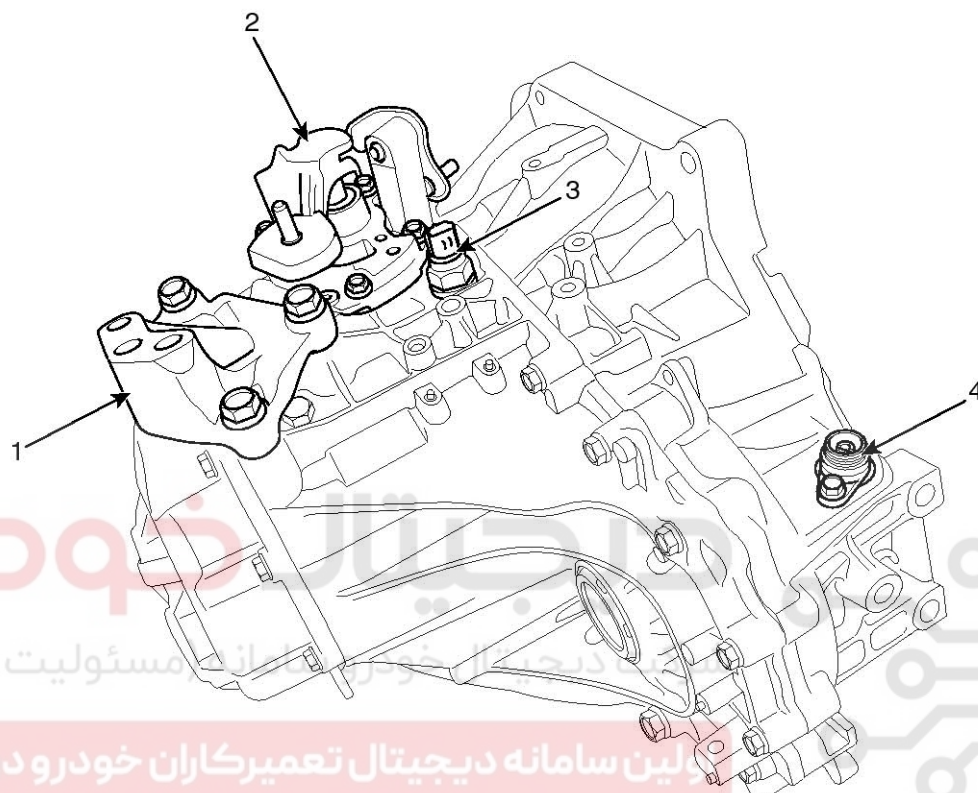
Oil capacity: 1.8L (0.48 U.S. gal., 1.90 U.S. qt., 1.58 Imp. qt.)

Manual Transaxle System

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Manual Transaxle

Components



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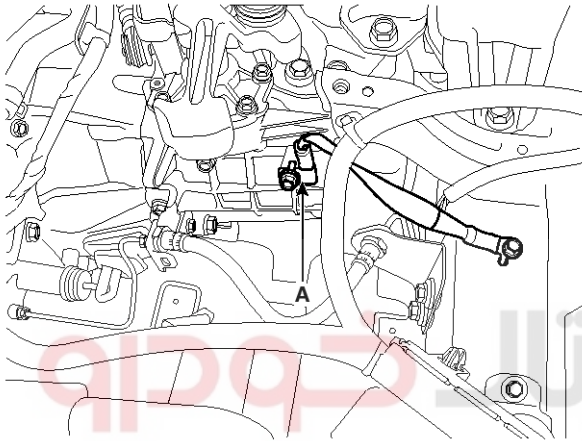
- 1. Transaxle support mounting bracket
- 2. Control shaft complete

- 3. Back up lamp switch
- 4. Vehicle speed sensor

MTA-6

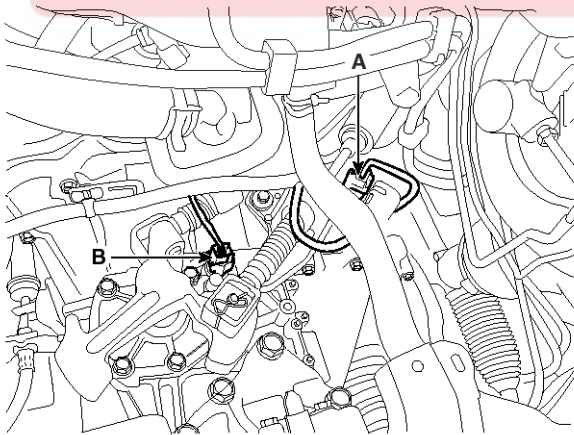
Removal

1. Remove the following items;
 - Engine cover. (Refer to "Intake and Exhaust system" in EM group.)
 - Air cleaner assembly and air duct. (Refer to "Intake and Exhaust system" in EM group.)
 - ECM (Refer to "Engine control system(Engine control module)" in FL group)
 - Battery and battery tray. (Refer to "Charging system" in EE group.)
2. Remove the ground circuit line (A) from the transaxle.



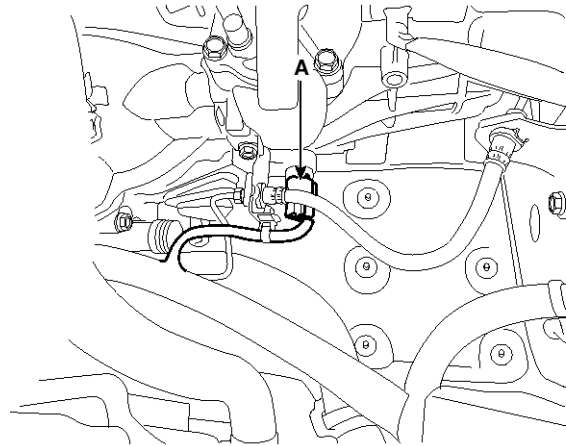
SELMT1001L

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



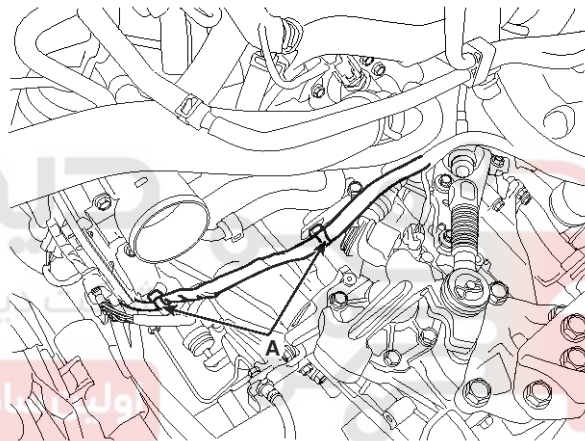
SMDMT1005D

4. Disconnect the neutral switch connector (A).



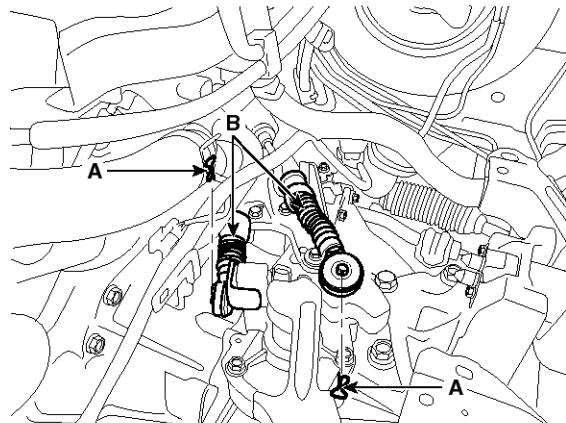
SELMA1003L

5. Remove the wiring clips (A).



SELMT1002L

6. Disconnect the cable assembly (B) after removing the pins (A).

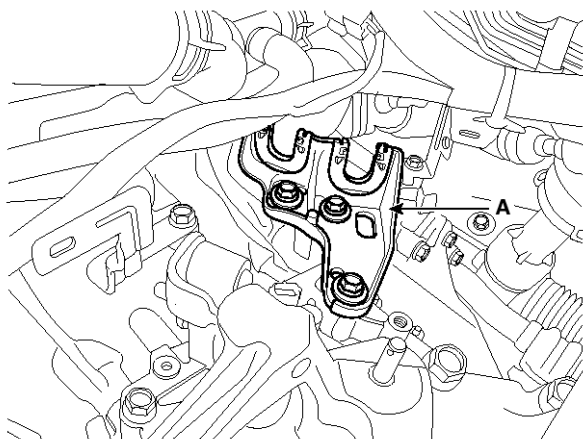


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Manual Transaxle System

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7. Remove the shift cable bracket (A).

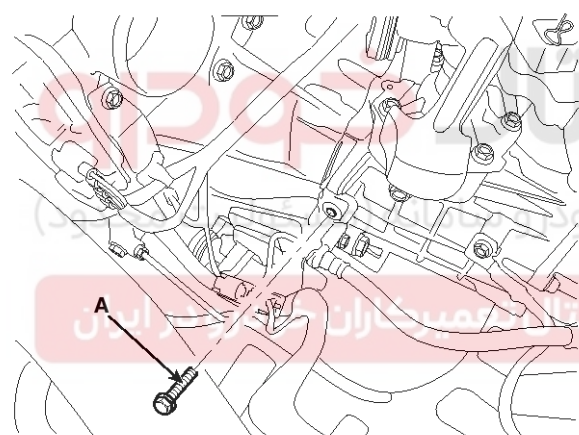


SELMT1003L

8. Remove the tube bracket bolt (A).

Tightening torque:

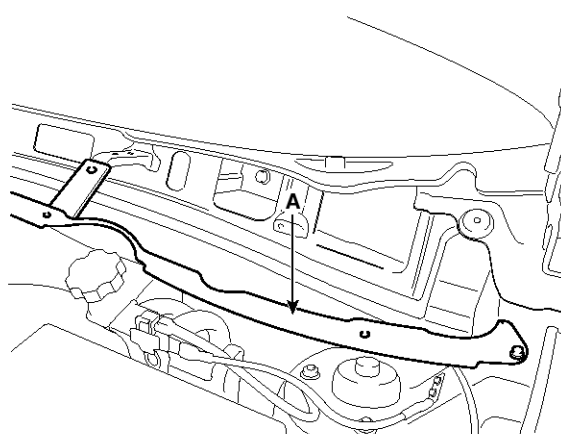
14.7 ~ 21.6 N.m (1.5 ~ 2.2 kgf.m, 10.8 ~ 15.9 lb-ft)



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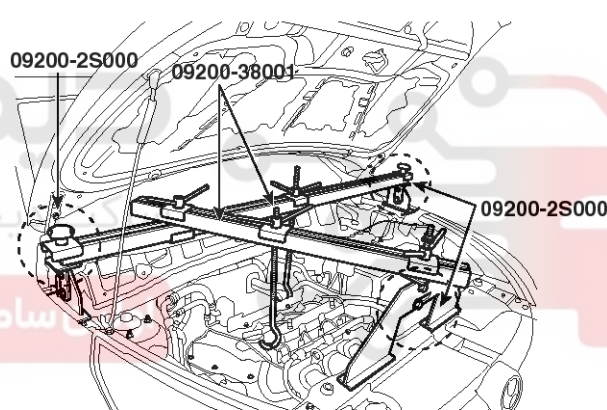
9. Remove the cowl top cover or wiper motor. (Refer to "Windshield Wiper/Washer" in BE group.)

10. Remove the cowl complete assembly panel (A).



SLMAT0013D

11. Using the engine support fixture (Support SST No.: 09200-2S000, Beam SST No.: 09200-38001), hold the engine and transaxle assembly safely.



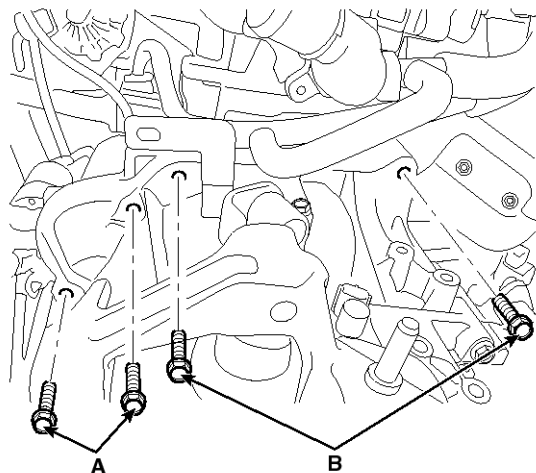
SXMAT9082D

MTA-8

12. Remove the transaxle upper mounting bolt (B-2ea) and the start motor mounting bolt (A-2ea).

Tightening torque:

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

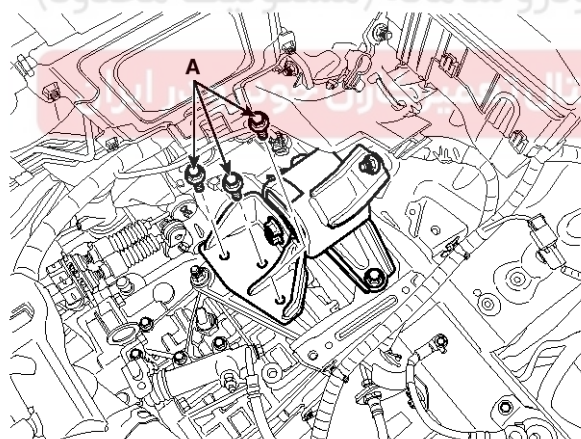


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13. Remove the transaxle mounting support bracket bolt (A).

Tightening torque:

88.3 ~ 107.9 N.m (9.0 ~ 11.0 kgf.m, 65.1 ~ 79.6 lb-ft)



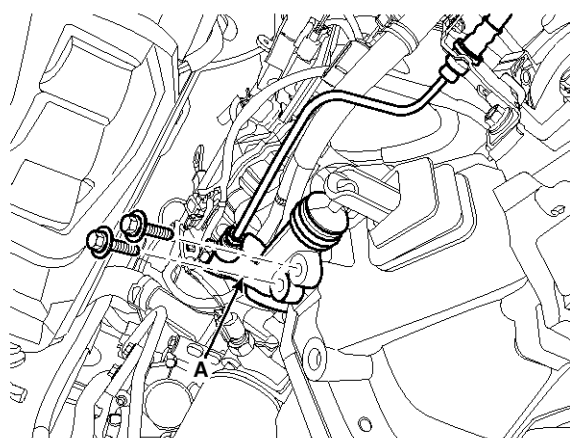
SSLMA1004L

Manual Transaxle System

14. Remove the clutch release cylinder (A).

Tightening torque:

14.7 ~ 21.6 N.m (1.5 ~ 2.2 kgf.m, 10.8 ~ 15.9 lb-ft)



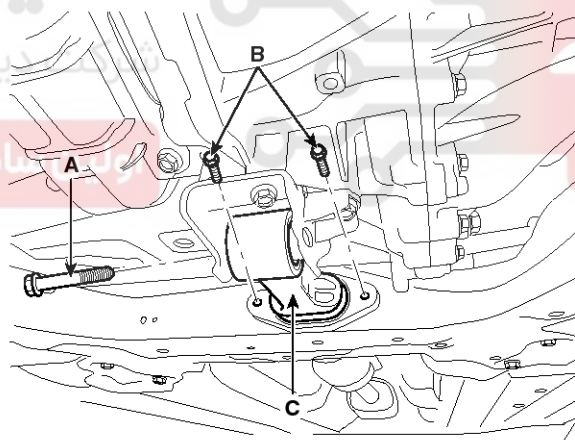
SELMA1022L

15. Remove the roll rod bracket (C) after removing bolt (A,B).

Tightening torque:

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

(D) 107.9 ~ 127.5 N.m (11 ~ 13 kgf.m, 79.6 ~ 94.1 lb-ft)

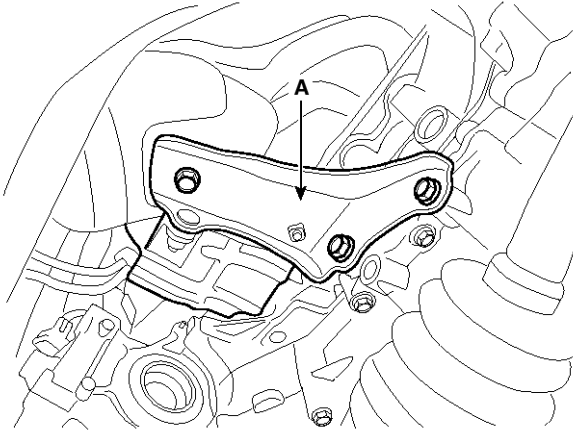


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Manual Transaxle System

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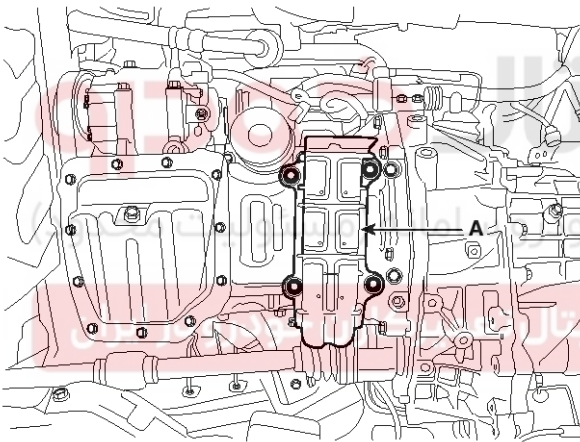
16. Remove the drive shaft cover (A).



SMDMT1014D

17. Remove the drive shaft assembly. (Refer to "Drive shaft assembly" in DS group.)

18. Remove the bracket (A).



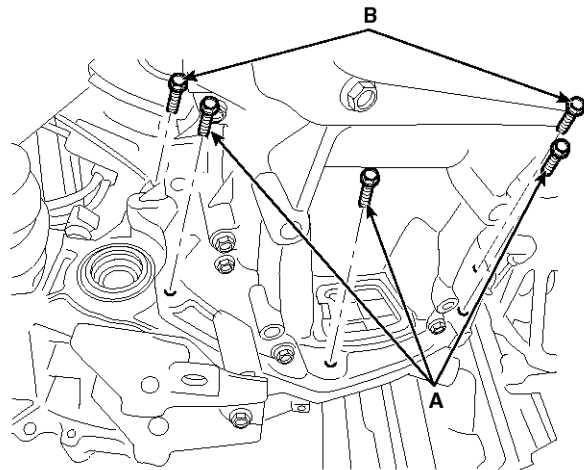
SELMT1004L

19. Remove the manual transaxle with a jack after removing the mounting bolt (A-3ea, B-2ea).

Tightening torque:

(A) 42.2 ~ 48.1 N.m (4.3 ~ 4.9 kgf.m, 31.1 ~ 35.4 lb-ft)

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



SMDMT1015D

Installation

1. Installation is reverse of removal.

NOTICE

- Refill the transaxle fluid. (Refer to "manual transaxle system" in this group.)
- Refill the power steering fluid and bleed the air. (Refer to "general information" in ST group)
- Refill the brake fluid and bleed the clutch hydraulic system. (Refer to "clutch system" in CH group)

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Manual Transaxle System

Manual Transaxle Control System

Back-up Lamp Switch

Description

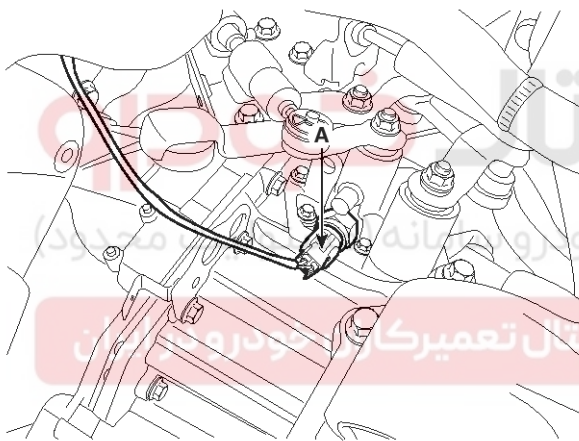
Back up lamp switch is pushed by the reverse lug sliding when select arm, and switches the back up lamp.

Specifications

1. Working voltage : DC 10~15V
2. Operating force : 3.0kg Max.
3. Voltage drop : - 0.4V
4. Working temperature : -30°C ~ 100°C [-30°F ~ 212°F]

Inspection

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

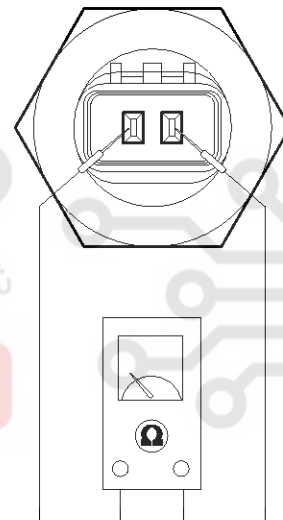


SXMMMA0001L

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

Condition	1	2
Reverse Range	●	●
Other Range		

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



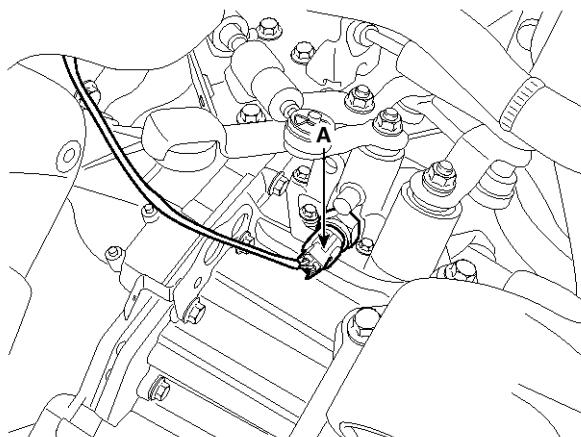
LMJF003B

Manual Transaxle Control System

MTA-11

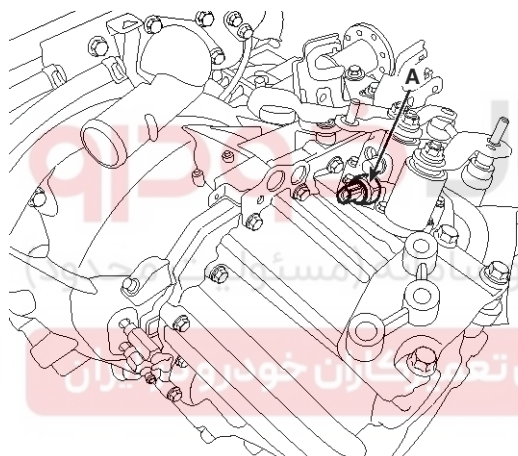
Replacement

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



SXMMMA0001L

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



SSLMT1010D

3. Replace a new one and install the back up lamp switch.

Tightening torque:

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



MTA-12

Manual Transaxle System

Neutral Switch

Description

Neutral position switch is pushed when shifting neutral, and send the signal to ECU.

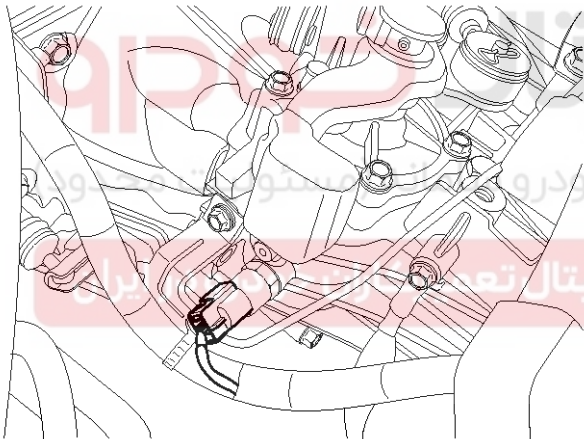
Neutral position switch is only for diesel engines.

Specifications

1. Current voltage : 12V
2. Working voltage : 10~15V
3. Operating force : 1.0 kg +0.2kg Max. (at 2mm stroke position)
4. Voltage drop : Max 0.15V with rated load before test, Max 0.24V with rated load after test
5. Working temperature : -30°C ~ 80°C

Inspection

1. Disconnect the neutral position switch connector.



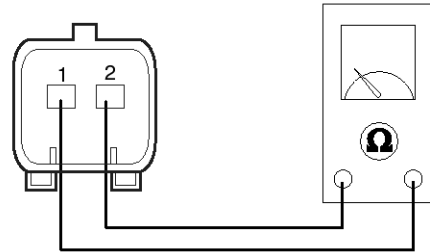
SPBMB9006L

2. Check the continuity between no. 1 and 2 terminals of neutral position switch.

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

3. If necessary, repair or replace the neutral position switch.

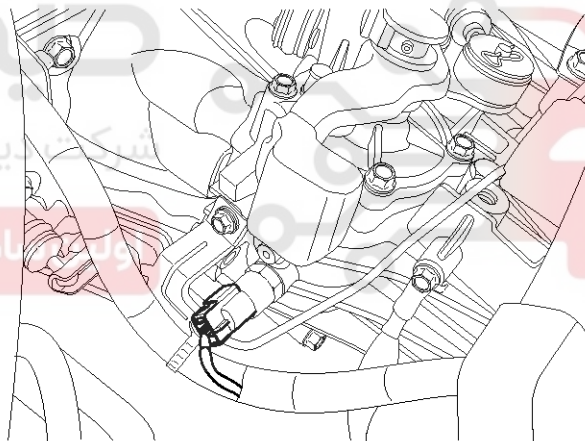
Condition	1	2
Neutral	●	●
Other		



LMJF100B

Replacement

1. Disconnect the neutral position switch connector.



SPBMB9006L

2. Remove the neutral position switch.
3. Replace a new one and install the neutral position switch, then connect the connector.

Tightening torque :

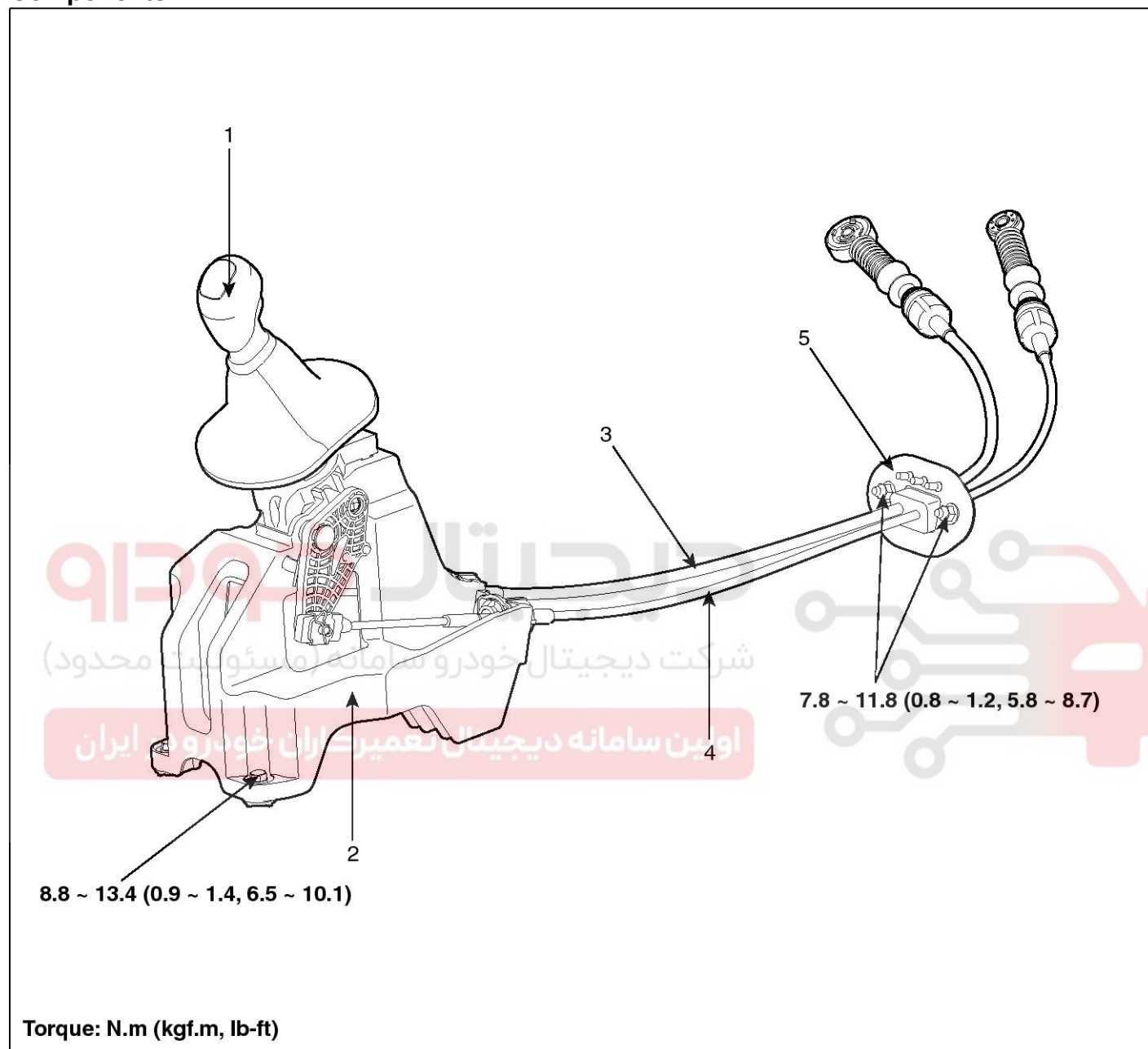
30~35 N.m (3.0~3.5 kgf.m, 21.7~25.3 lb-ft)

Manual Transaxle Control System

MTA-13

Shift Lever

Components



SSLMT1011N

1. Shift lever knob & boot assembly
2. Shift lever assembly
3. Shift cable assembly

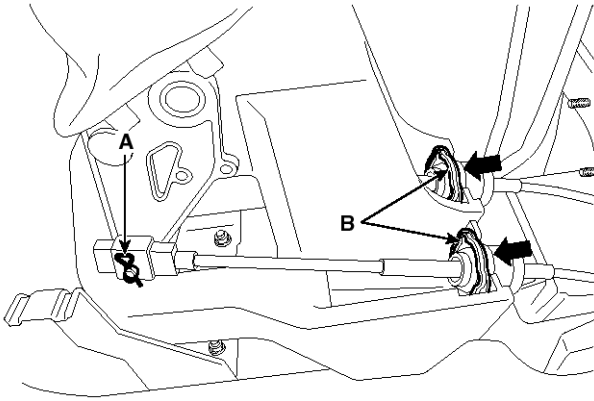
4. Select cable assembly
5. Retainer

MTA-14

Removal

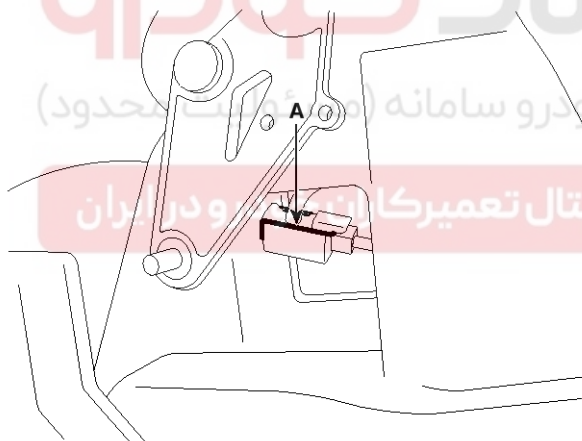
Shift Lever Assembly Replacement

1. Remove the floor Interior console assembly. (Refer to "Interior(Console)" in BD group)
2. Remove the select cable snap pin (A) and the clip (B) from the select cable assembly.



SSLMT1003D

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



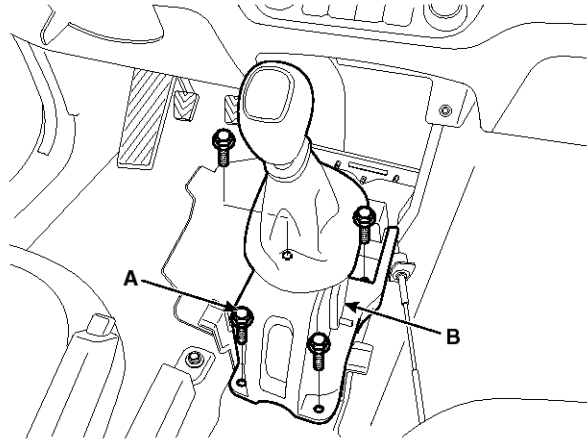
SSLMT1001D

Manual Transaxle System

4. Remove the shift lever assembly(B) after removing shift lever assembly installation bolt(A).

Tightening torque :

8.8~13.7N.m (0.9~1.4kgf.m, 6.5~10.1lb-ft)



SSLMT1002D

5. Installation is the reverse of removal.

NOTICE

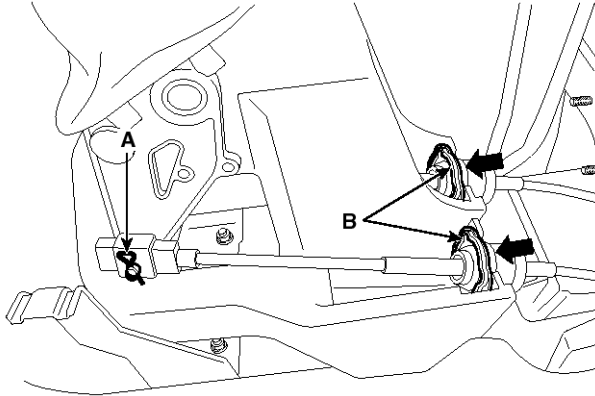
- Make sure vehicle does not roll before setting room side shift lever and T/M side manual control lever to "N" position.

Manual Transaxle Control System

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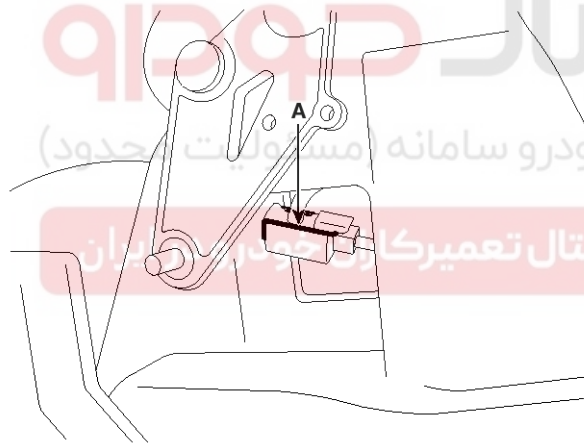
Shift Cable Replacement

1. Remove the floor Interior console assembly. (Refer to "Interior(Console)" in BD group)
2. Remove the select cable snap pin (A) and the clip (B) from the select cable assembly.



SSLMT1003D

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

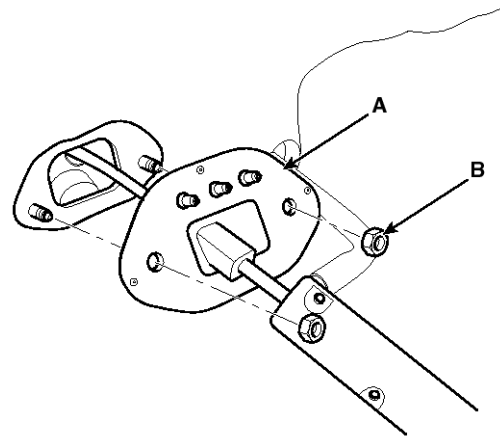


SSLMT1001D

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

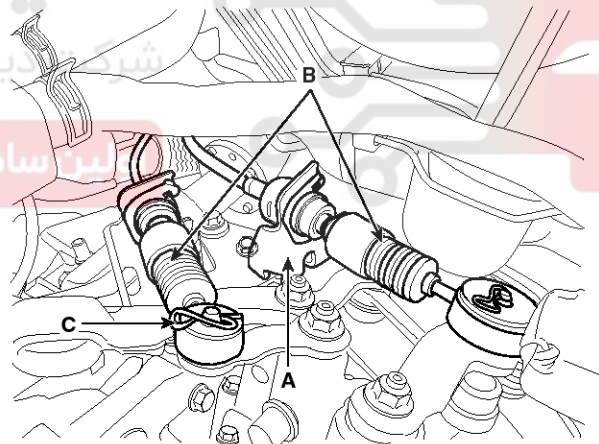
Tightening torque :

7.8~11.8N.m (0.8~1.2kgf.m, 5.8~8.7lb-ft)



SHDAT6108D

5. Remove the cable(B) from the cable bracket(A) at manual transaxle assembly side.
6. Remove the pins(C).
7. Remove the shift cable and select cable at cabin room.



SSLMT1051D

8. Installation is the reverse of removal.

NOTICE

- Make sure vehicle does not roll before setting room side shift lever and T/M side manual control lever to "N" position.

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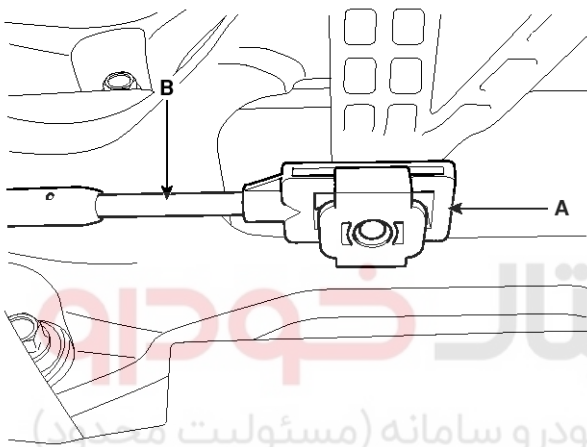
Manual Transaxle System

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.

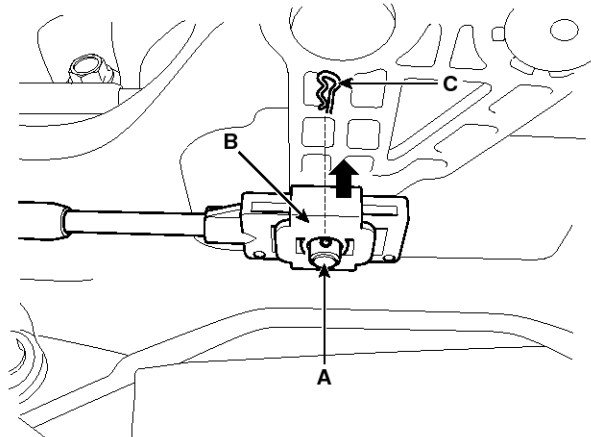
Adjustment

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



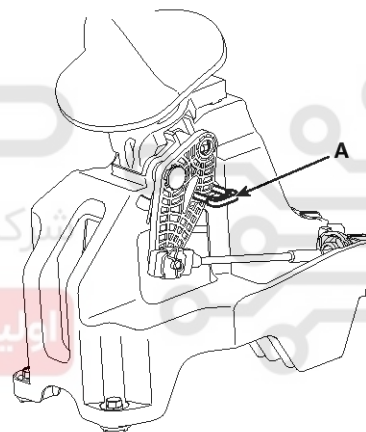
AMLF006A

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



AMLF007A

3. Remove neutral position pin (A) after shift lever assemble.



SSLMT1033D