

## MTC-2

## Manual Transaxle System

## General Information

## Specifications

Manual transaxle type		M5GF1	
Engine type		Gasoline 2.0	
		2WD	4WD
Gear ratio	1st	3.636	
	2nd	2.080	
	3rd	1.333	
	4th	1.061	
	5th	0.821	
	Reverse	3.455	
Final gear ratio		4.533	
T/M oil capacity ※		2.1L (0.14 U.S.gal., 0.55 U.S.qt., 0.46 Imp.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 manual transaxle fluid.

Recommended transaxle oil			SAE75W/85 or API GL-4
Check & Replenishment			Every 30 months or every 60,000km
Replacement	Private use	Normal use	No service required
		Severe use(※)	Every 120,000 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.

# General Information

## MTC-3

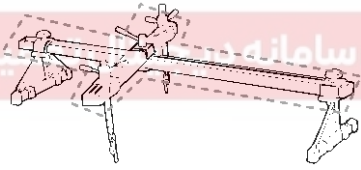
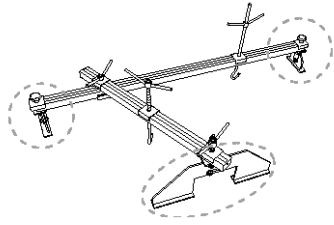
### Tightening Torques

Item	N.m	kgf.m	lb-ft
Magnetic plug	29.4~34.3	3.0~3.5	21.7~25.3
Shift control cable bracket	19.6~26.5	2.0~2.7	4.5~19.5
Oil filler plug	34.3~44.1	3.5~4.5	25.3~32.6
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	2.9~3.9	0.3~0.5	2.2~3.6
Transaxle mounting bracket assembly	59.2~78.9	6.0~8.0	43.6~58.2
Transaxle upper mounting bolt	42.2~53.9	4.3~5.5	31.1~39.8
Transaxle lower mounting bolt	42.2 ~ 48.1 42.2 ~ 53.9	4.3 ~ 4.9 4.3 ~ 5.5	31.1 ~ 35.4 31.1 ~ 39.8

### Lubricants

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

### 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)

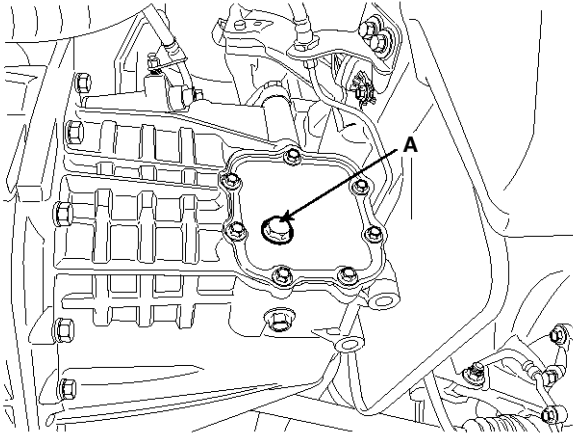
## MTC-4

## Manual Transaxle System

### Manual Transaxle System

#### Manual Transaxle Oil Inspection

1. Park the vehicle on a level ground and stop the engine.
2. Retighten the oil filler plug(A) with a new washer.

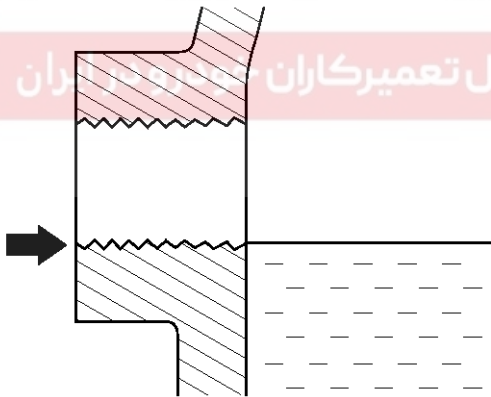


SSLMA1002L

3. Check level with finger.

#### NOTICE

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



SBKMT9018D

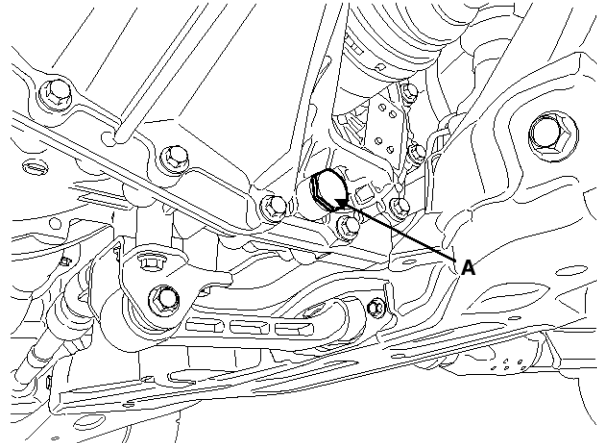
4. Retighten the oil filler plug(A) with a new washer.

#### Tightening torque :

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

#### Manual Transaxle Oil Replacement

1. Park the vehicle on a level ground and stop the engine.
2. Drain the manual transaxle oil after loosening the drain plug (A).



SSLMA1003L

3. Install the drain plug with new gasket.

#### Tightening torque :

58.9~78.5N.m (6.0~8.0kgf.m, 43.4~57.9lb-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

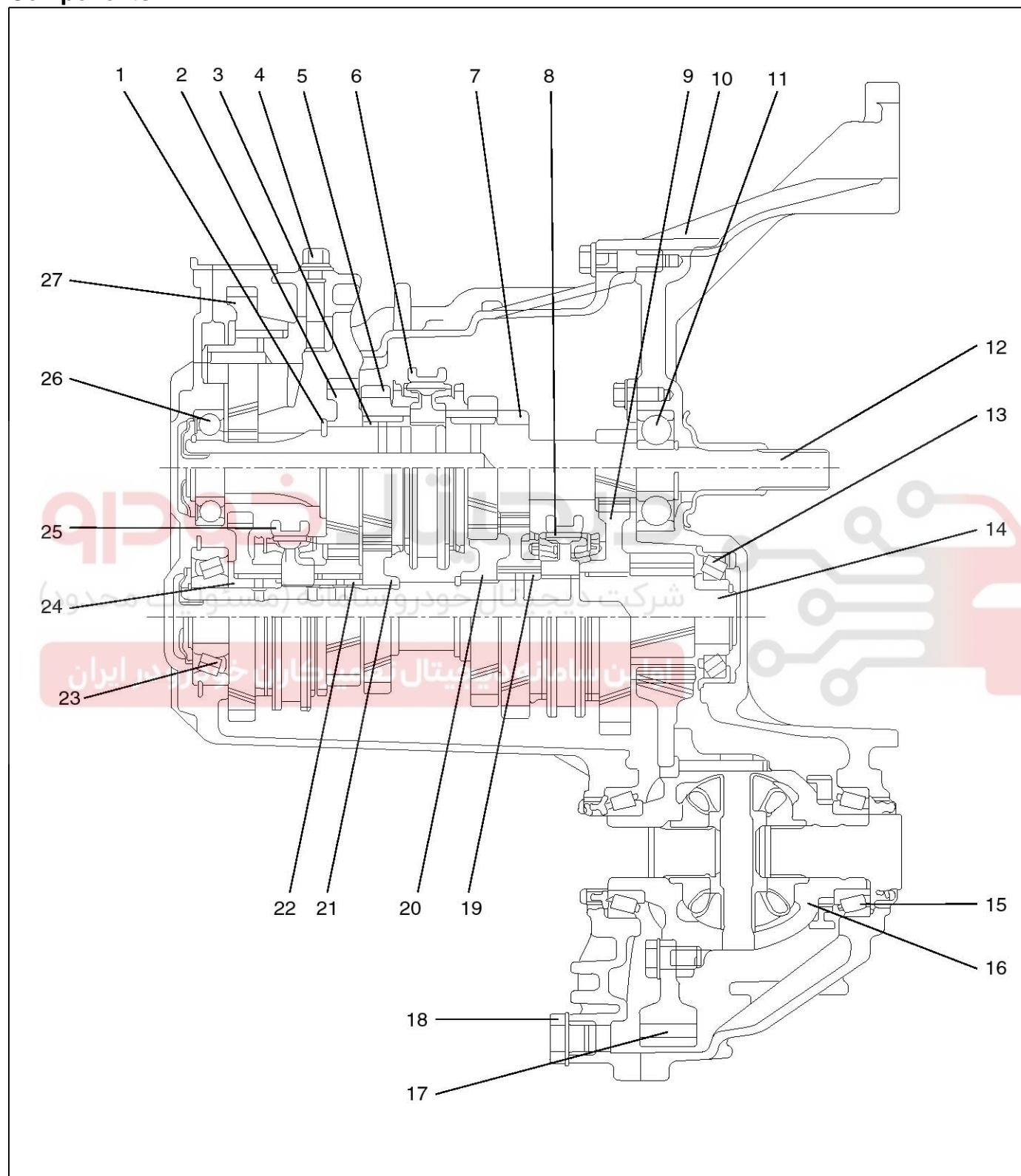
**Oil capacity :** 2.1L (0.14 U.S.gal., 0.55 U.S.qt., 0.46 Imp.qt.)

# Manual Transaxle System

**MTC-5**

## Manual Transaxle

### Components



KMBC013A

## MTC-6

## 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

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

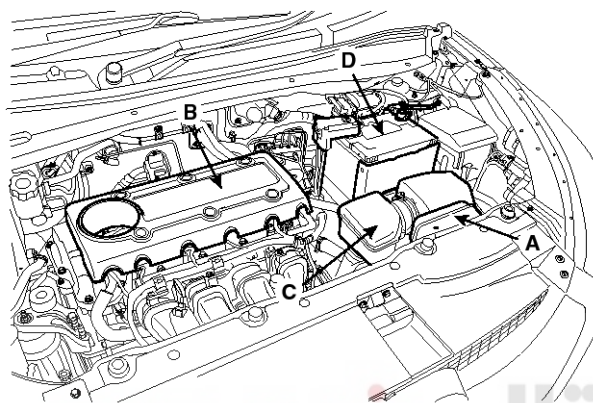


# Manual Transaxle System

## MTC-7

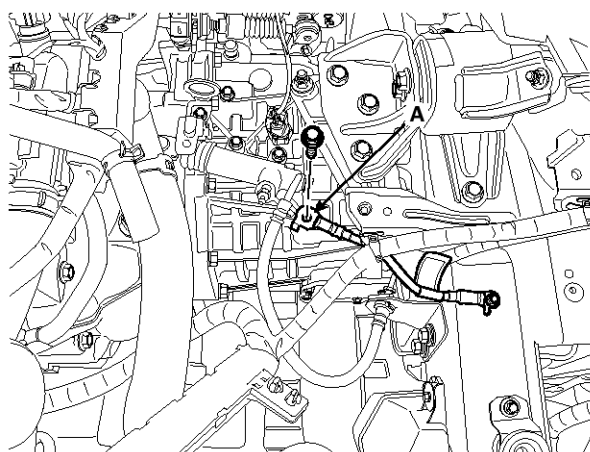
### Removal

1. Remove the battery and battery tray (D). (Refer to "Charging System" in EE group)
2. Remove the engine cover (B). (Refer to "Intake and Exhaust System" in EM group)
3. Remove the air cleaner assembly (C). (Refer to "Intake and Exhaust System" in EM group)
4. Remove the air duct(A). (Refer to "Intake and Exhaust System" in EM group)



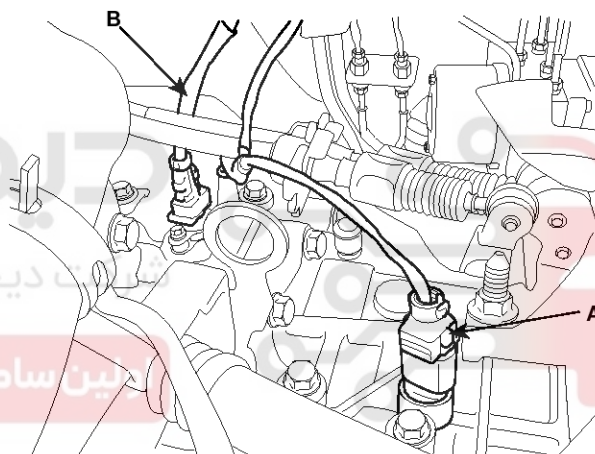
SLMMT0001N

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



SSLMA1013L

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

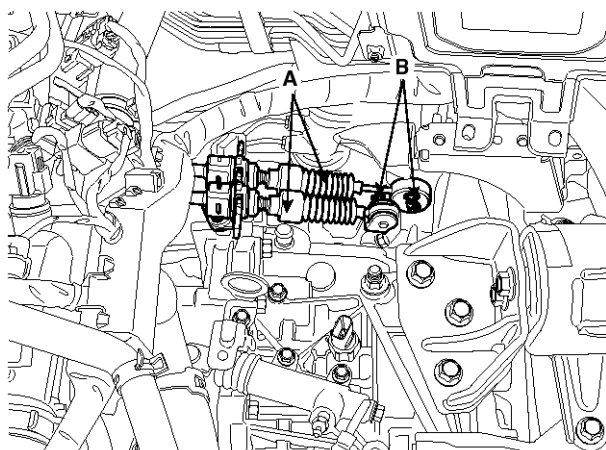


AMLF012A



## MTC-8

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

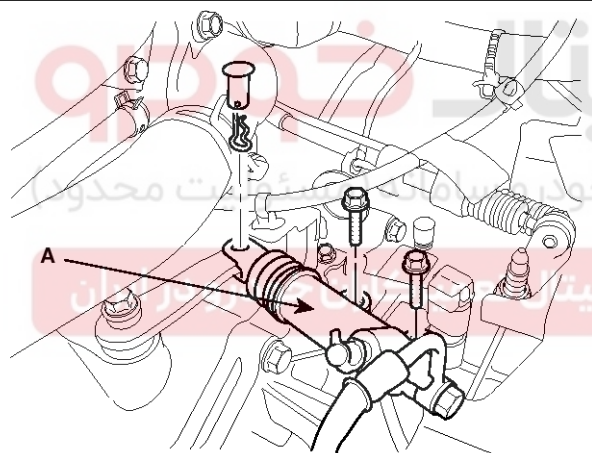


SSLMA1012L

8. Remove the clutch release cylinder(A).

### Tightening torque :

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

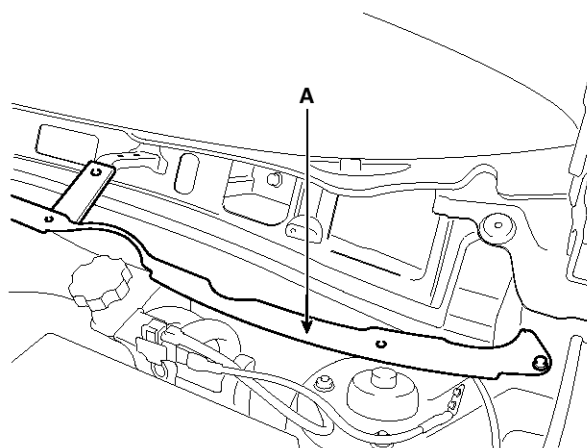


AMLF013A

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

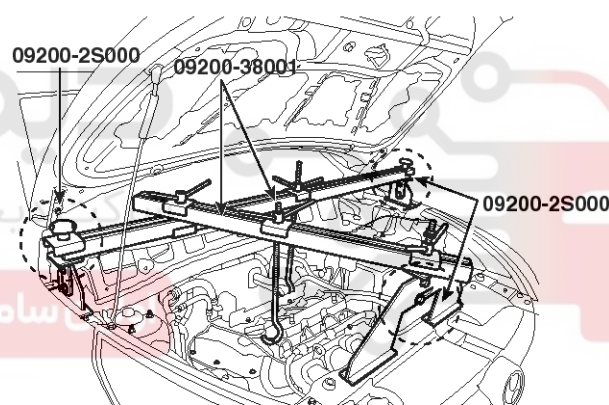
## Manual Transaxle System

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

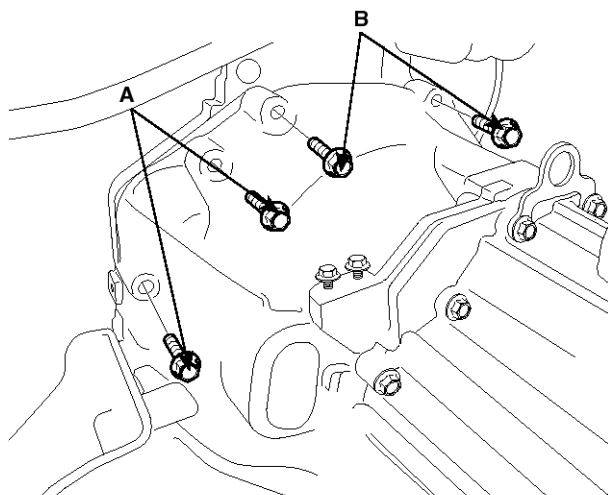
# Manual Transaxle System

## MTC-9

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

### Tightening torque :

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

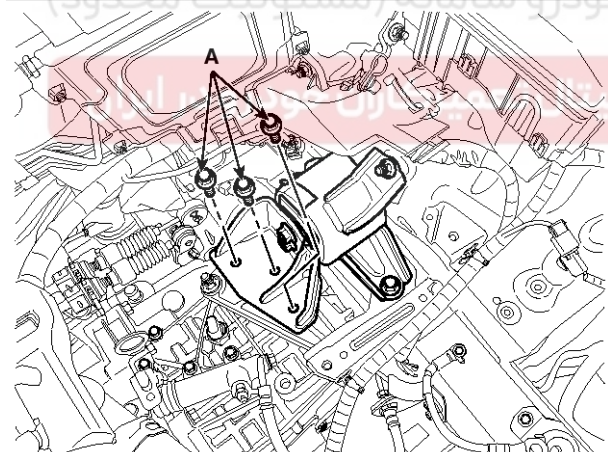


SSLMA1020L

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

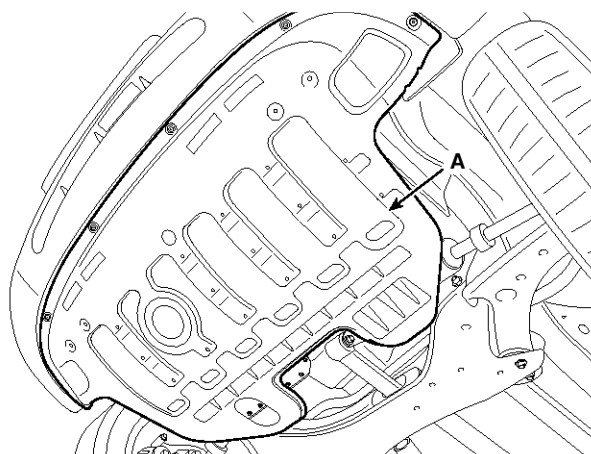
### Tightening torque :

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



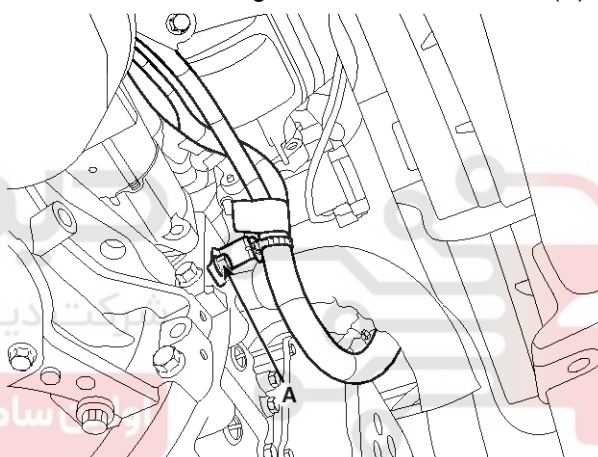
SSLMA1004L

14. Remove the under shield cover(A).



SLMAT0022D

15. Remove the wiring bracket installation bolt (A).

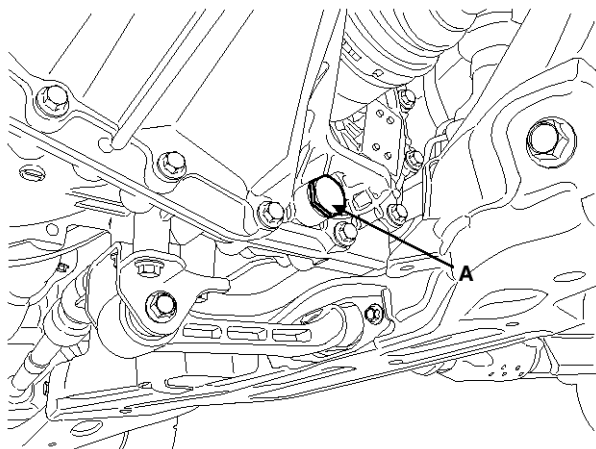


SSLAT0043D

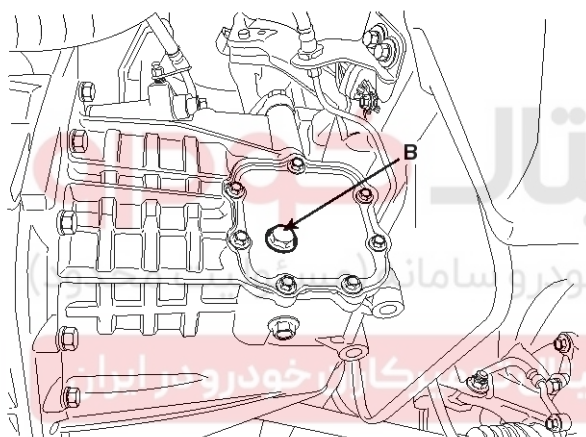


## MTC-10

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



SSLMA1003L



SSLMA1016L

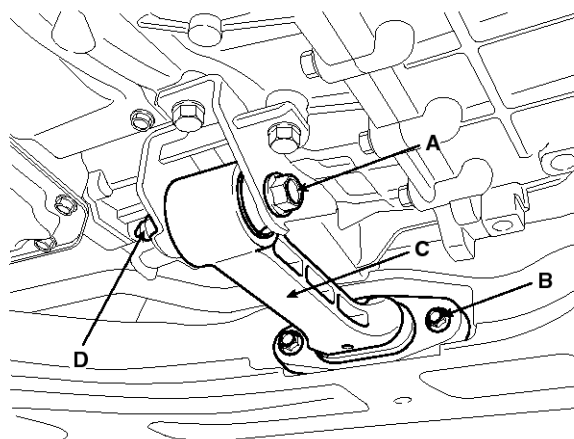
## Manual Transaxle System

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

### Tightening torque :

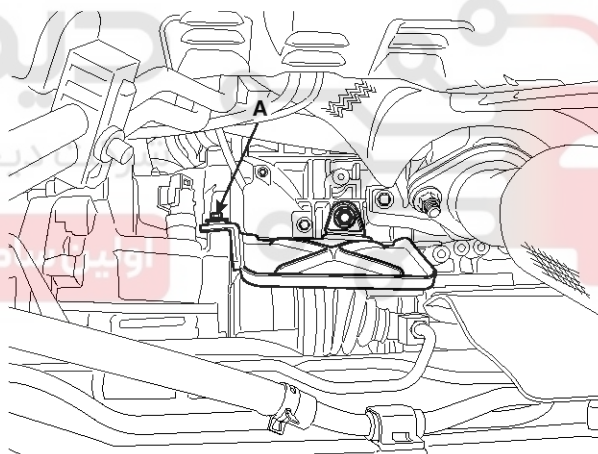
(B) 49.0~63.7N.m (5.0~6.5kgf.m, 36.2~47.0lb-ft)

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



SSLWD1030N

18. Remove the drive shaft cover mounting bolt (A).



SSLMA1005L

# Manual Transaxle System

## MTC-11

19. Remove the following items;

### 2WD

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

### 4WD

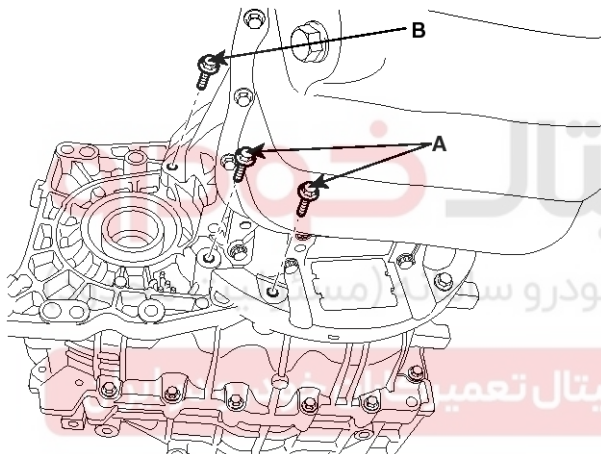
- Sub frame assembly. (Refer to "Front suspension system" in SS group.)
- Drive shaft assembly. (Refer to "Drive shaft assembly" in DS group.)
- Transfer assembly. (Refer to "Transfer assembly" in WD group)

20. Remove the manual transaxle with a jack after removing the mounting bolt (A-4ea, B-2ea).

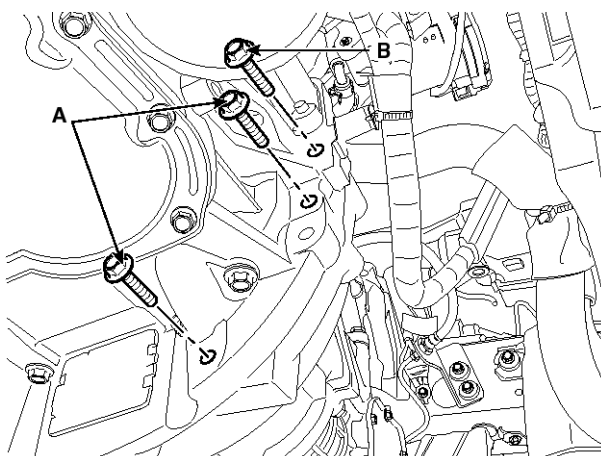
### Tightening torque :

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

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



SXMAT9010D



SSLMA1006L

### Installation

1. Installation is reverse of removal.

- 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)

# MTC-12

# Manual Transaxle System

## Manual Transaxle Control System

### Back-up Lamp Switch

#### Description

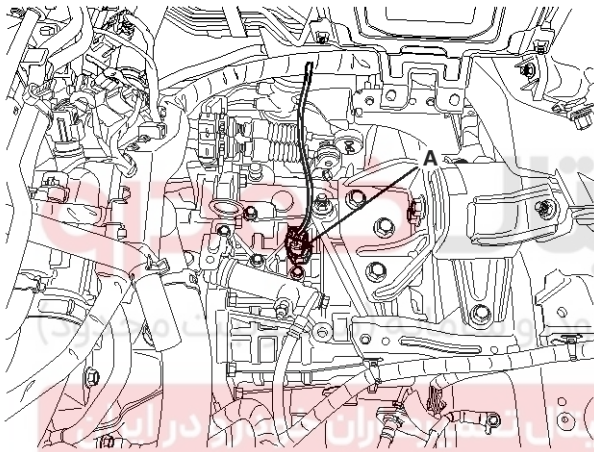
Back up lamp switch is pushed by the reverse lug sliding when select arm, and switches the back up lamp.

#### 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).

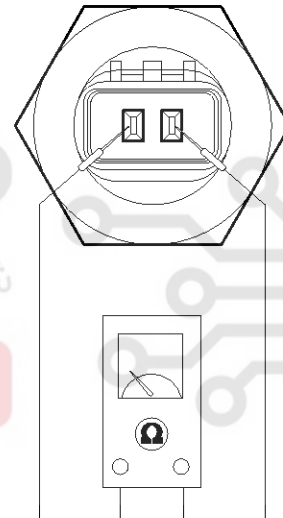


SSLMA1014L

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.



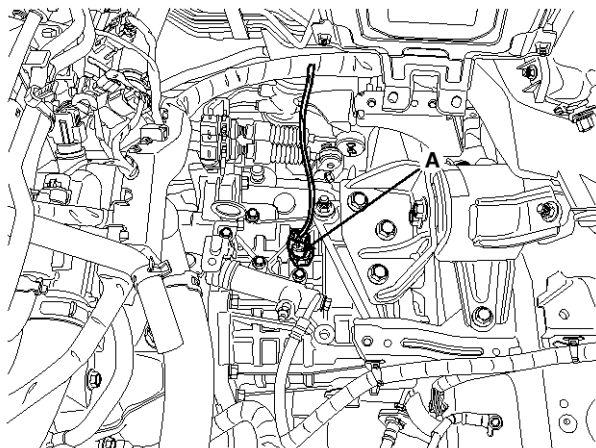
LMJF003B

# Manual Transaxle Control System

## MTC-13

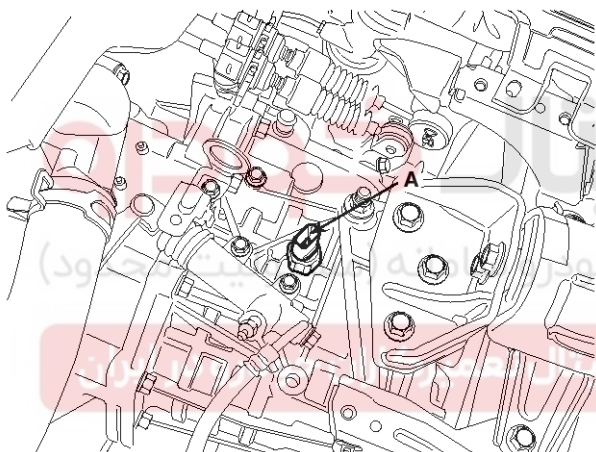
### Replacement

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



SSLMA1014L

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



SSLMA1015L

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

### Tightening torque :

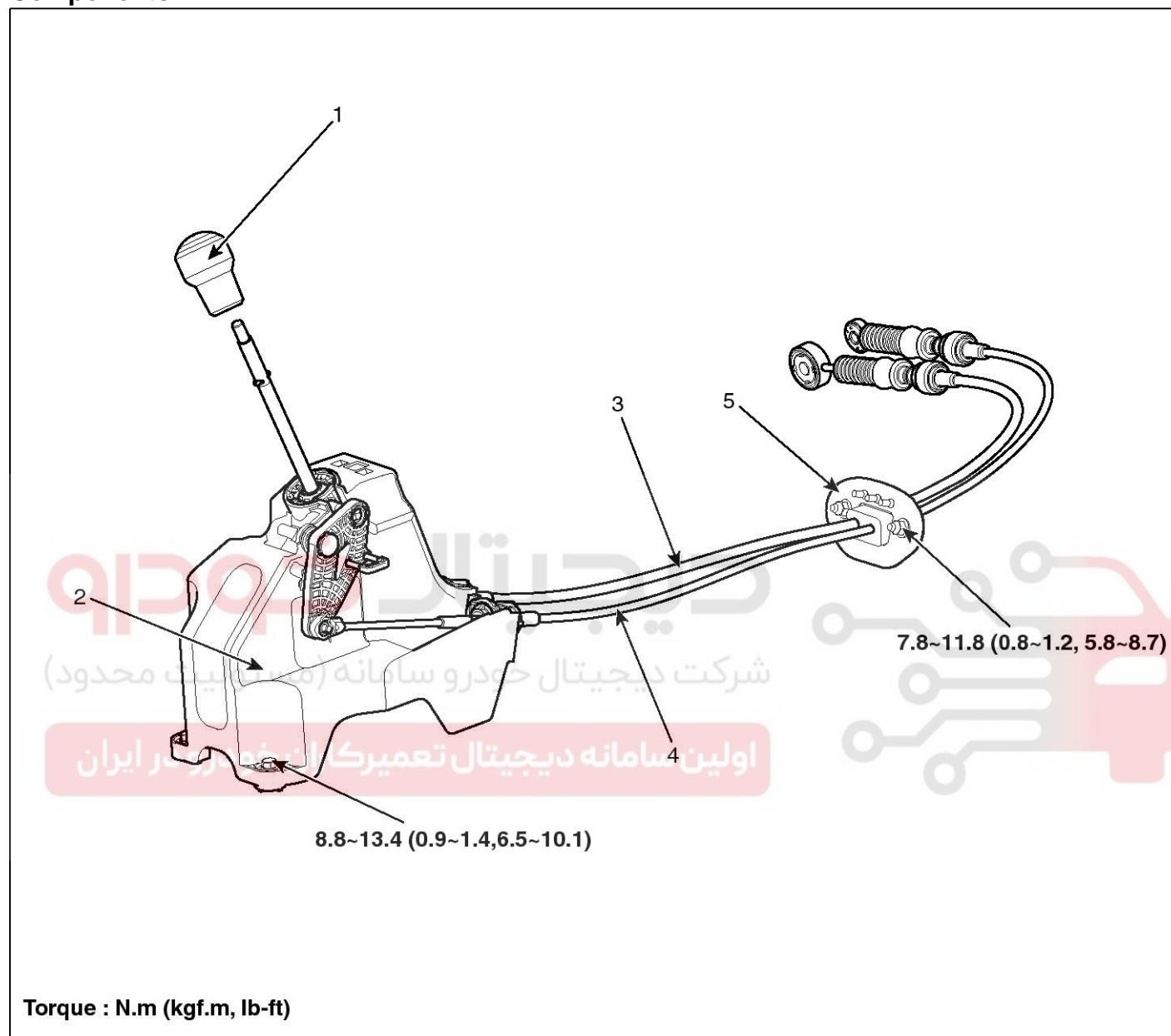
29.4~34.3N.m (3.0~3.5kgf.m, 21.7~25.3lb-ft)

## MTC-14

## Manual Transaxle System

## Shift Lever

## Components



SSLMA1001L

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

4. Select cable assembly
5. Retainer



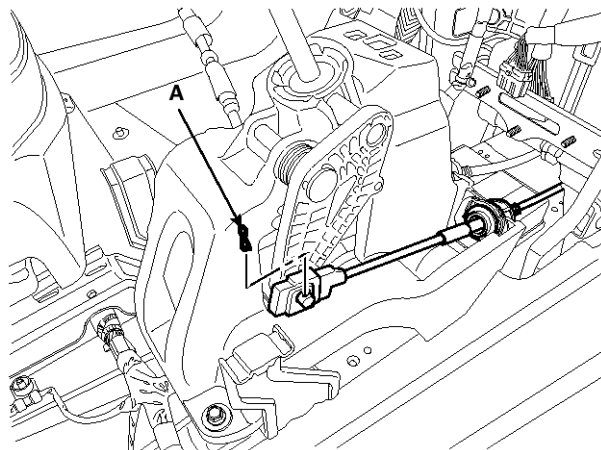
# Manual Transaxle Control System

## MTC-15

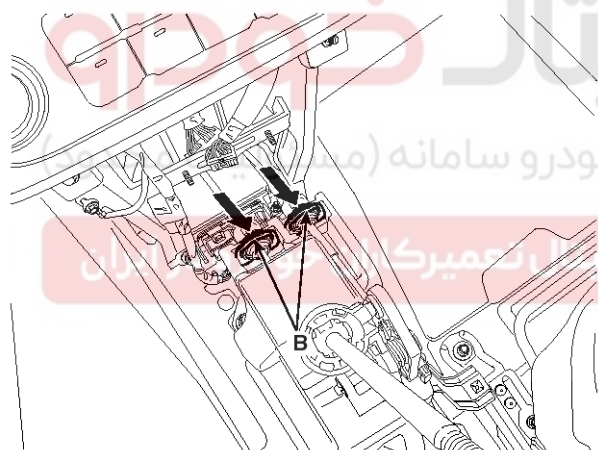
### Removal

#### 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.

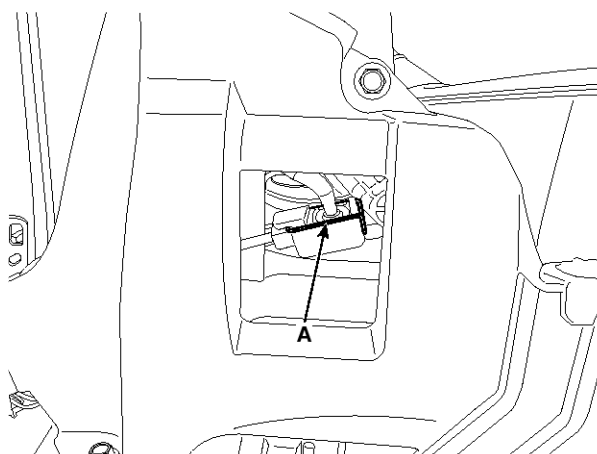


SSLMA1007L



SSLMA1008L

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

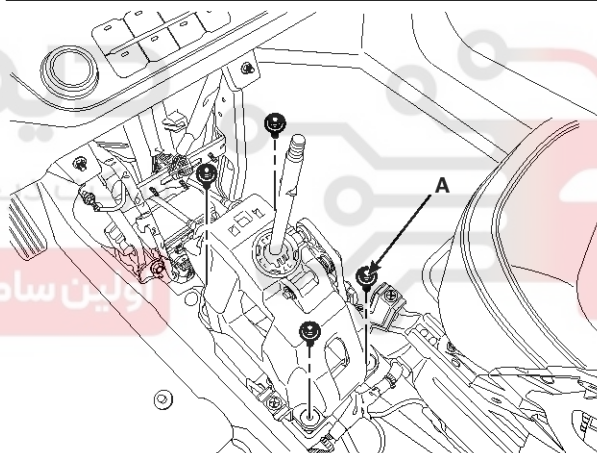


SSLMA1009L

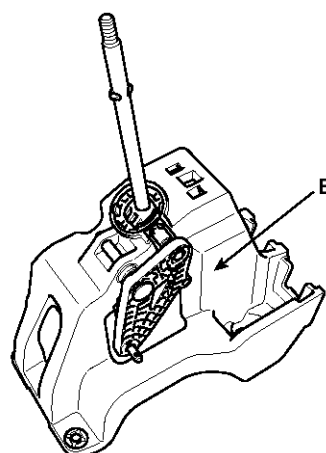
4. Remove the shift lever assembly(B) after removing shift lever assembly installation bolt(A-4ea).

#### Tightening torque :

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



SSLMA1010L



SSLMA1011L

## MTC-16

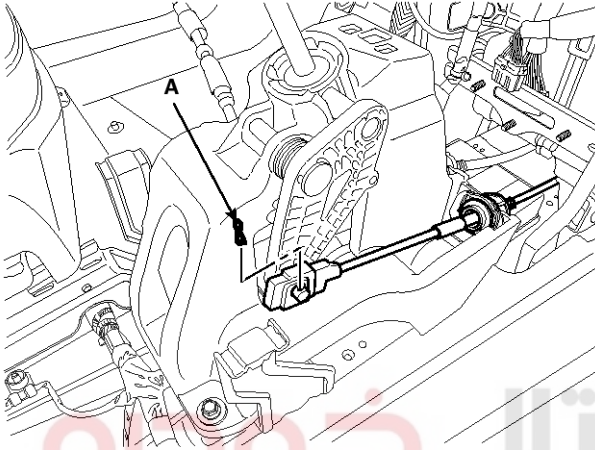
5. Installation is the reverse of removal.

### NOTICE

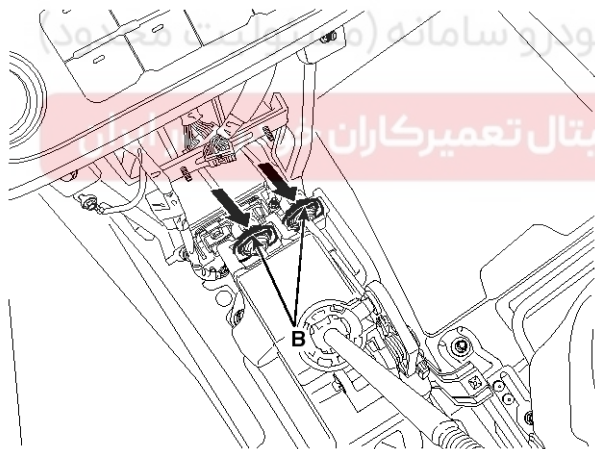
Set room side lever and T/M side lever to "Neutral" position.

### 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.



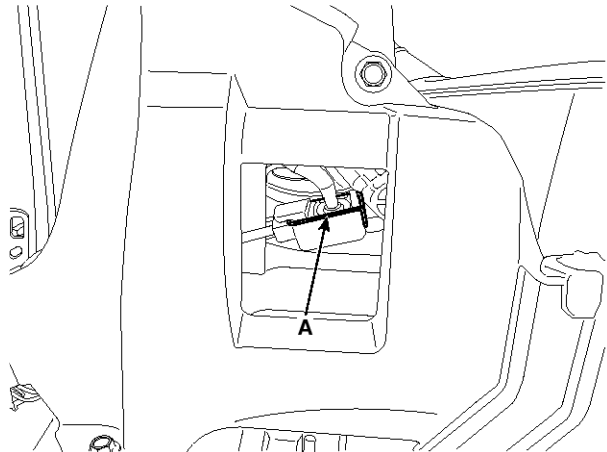
SSLMA1007L



SSLMA1008L

## Manual Transaxle System

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

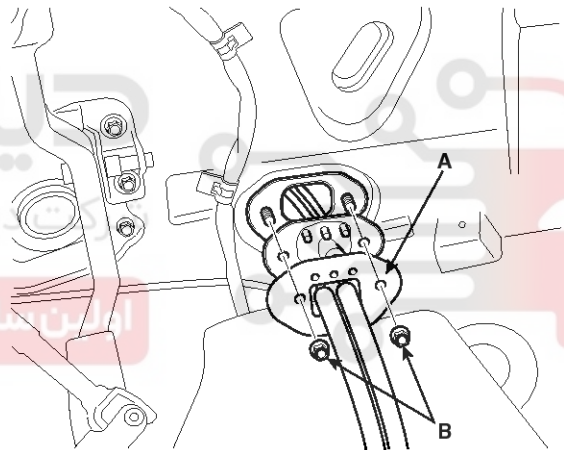


SSLMA1009L

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)

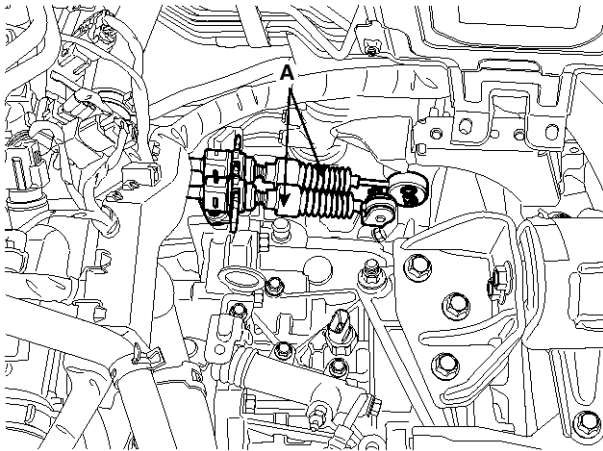


AMJF500A

# Manual Transaxle Control System

## MTC-17

5. Remove the cable from the bracket at transaxle assembly side (Refer to "Manual Transaxle" in this group).



SSLMA1017L

6. Remove the shift cable at cabin room.
7. Installation is the reverse of removal.

### NOTICE

Set room side lever and T/M side lever to "Neutral" position.

### 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.



## MTC-18

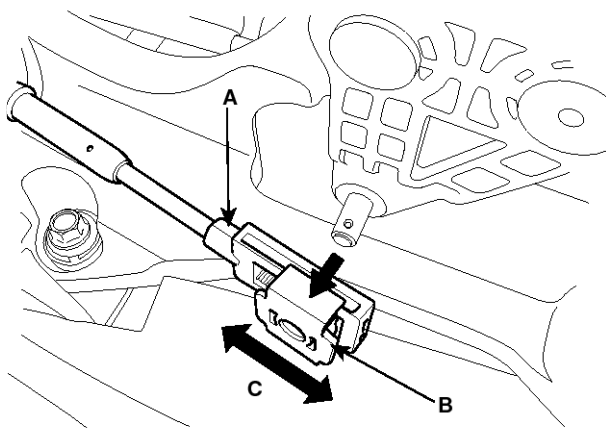
## Manual Transaxle System

### Installation

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

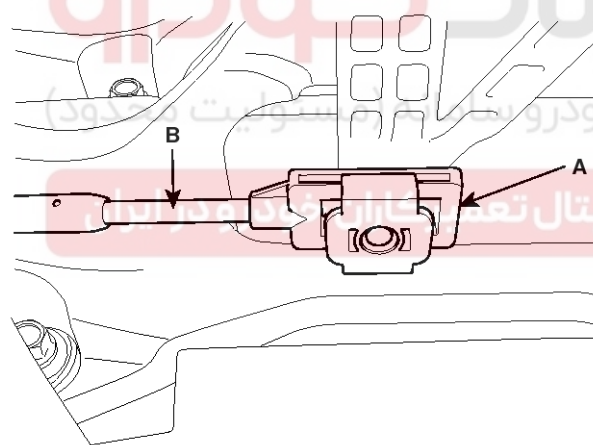
#### NOTICE

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



AMLF005A

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

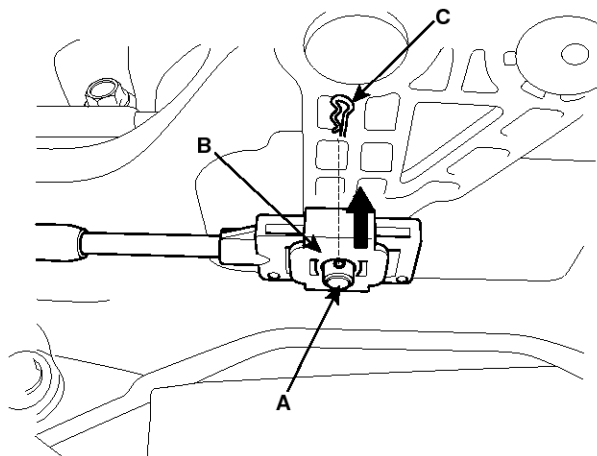


AMLF006A

3. 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