 <b>HYUNDAI</b>   NEW THINKING. NEW POSSIBILITIES.  <b>Technical Service Bulletin</b>	GROUP <b>RECALL</b>	NUMBER <b>16-01-030-1</b>
	DATE <b>JULY, 2016</b>	MODEL(S) <b>SONATA (YF)</b>
<b>SUBJECT:</b> YF SONATA MOTOR DRIVEN POWER STEERING (MDPS) / MDPS ECU REPLACEMENT (RECALL CAMPAIGN 143)		

**THIS TSB WAS REVISED TO INCLUDE THE OP CODES IN THE PARTS INFORMATION TABLE TO CLARIFY THE OP CODE ASSOCIATED WITH THE PART NUMBER(S).**

### ★ IMPORTANT

#### \*\*\* Retail Vehicles Only \*\*\*

Dealers must perform all open recalls on used vehicles, demo and rental vehicles prior to placing them into customer use and whenever an affected vehicle is in the shop for any maintenance or repair.

When a vehicle arrives at the service department, access Hyundai Motor America's "Warranty Vehicle Information" screen via WEBDCS to identify open Campaigns.

**Description:** The 2011 Sonata vehicle features an electric motor to provide steering assist. The control module for the Electronic Power Steering system monitors various electronic inputs (including the steering wheel angle and vehicle speed) and provides a specific level of steering assist. If the control module senses a system malfunction, the "EPS" indicator lamp in the instrument cluster is illuminated, and steering assist may be disabled. Steering control can be maintained; however, the vehicle will revert to a manual steering mode potentially increasing the risk of a crash.

This bulletin describes the service procedure to inspect and repair the EPS system of some 2011MY Sonata (YF) vehicles. If the inspection of the system identifies any of the diagnostic trouble codes (DTCs) listed below, the MDPS assembly must be replaced due to a motor and/or torque sensor fault.

- C1290 Torque Sensor Signal Error
- C2400 Motor Fault – Motor Not Running
- C2401 Motor Position Sensor Error

**If present, replace MDPS assembly.**


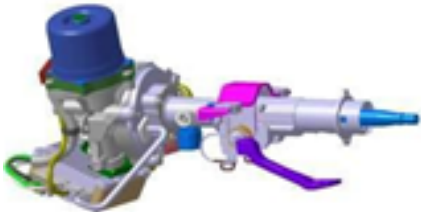
**\*For all other cases replace MDPS ECU only.**




**SUBJECT:**

SONATA (YF) MDPS RECALL #143

**Applicable Vehicles:** Certain 2011MY Sonata (YF) vehicles.**Parts Information:**

Part Name	Figure / Part Number	Remark
Column Shaft ECU ( <b><u>USE OP CODE 61C023R0</u></b> )		After replacement, must perform: 1. ASP Calibration 2. EPS Type Recognition 3. Part Exchange (Power Steering ECU)
	P/N: 56340-3Q000-QQH	
Part Name	Figure / Part Number	Remark
MDPS Assembly ( <b><u>USE OP CODE 61C023R1</u></b> )		After replacement, must perform: 1. ASP Calibration 2. EPS Type Recognition
	P/N: 56310-3Q200-QQH	
	P/N: 56310-3Q400-QQH	Tilt & Telescope, Smart Key

**SST Information**

Description	Figure / Part Number
ECU Bolt Assembly Tool*	
	P/N: 56347-3Q000-QQH

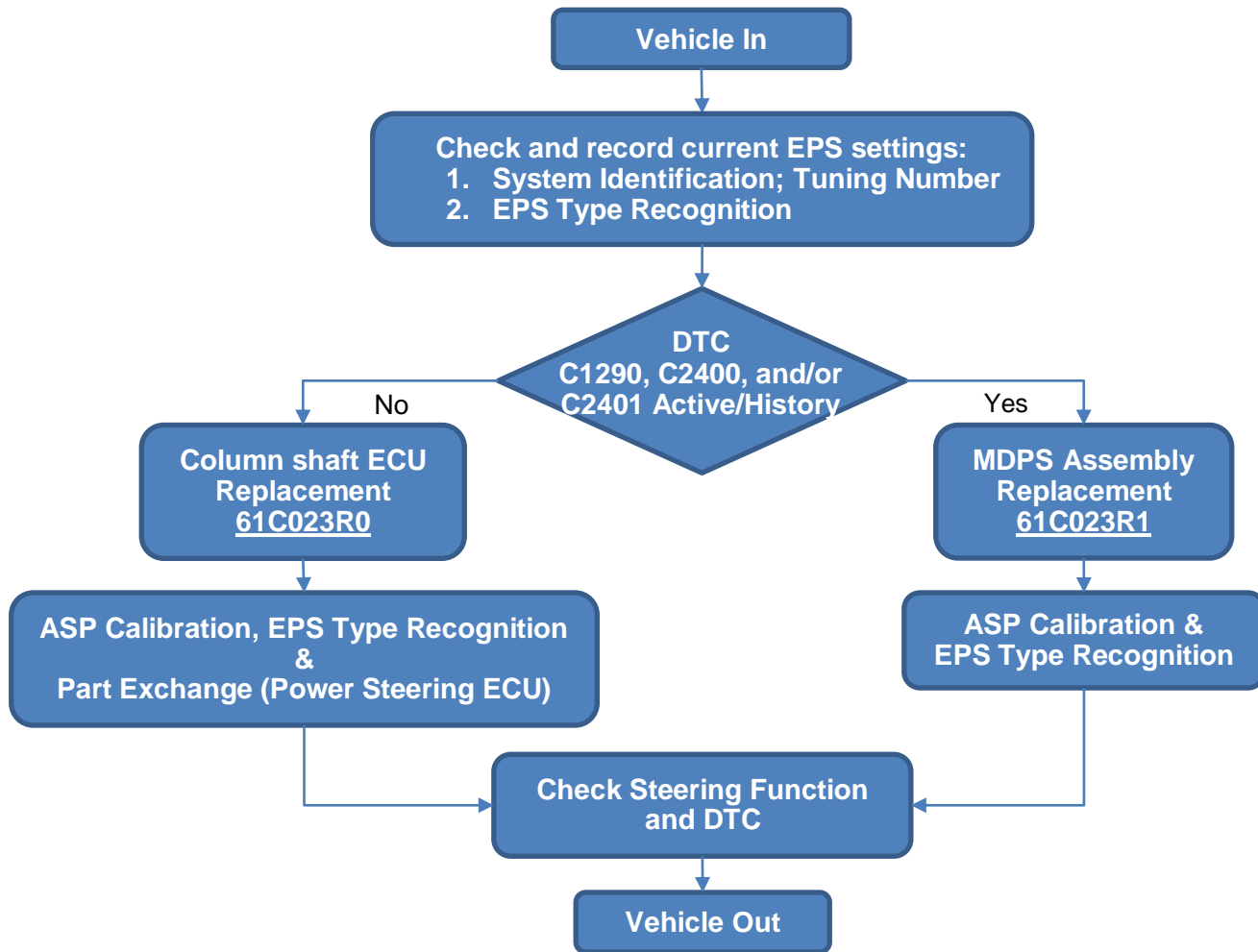
\*Each dealer will be shipped one tool free of charge.

**Warranty Information:**

Model	Op. Code	Operation	Op. Time
Sonata (YF)	61C023R0	Column Shaft ECU Replacement	0.6
	61C023R1	MDPS Replacement	1.2

**NOTE 1:** Submit Claim on Campaign Claim Entry Screen**NOTE 2:** If a part is found in need of replacement while performing Recall 143 and the affected part is still under warranty, submit a separate claim using the same Repair Order. If the affected part is out of warranty, submit a Prior Approval Request for goodwill consideration prior to performing the work.

## Service Procedure Flow Chart:



## Service Procedure: Check and Record Current EPS Settings

**NOTICE**

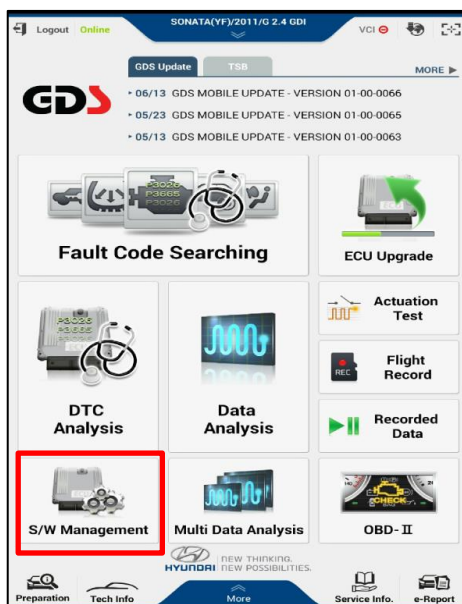
- This Service Procedure is performed using PC-based GDS, or GDS-mobile. For update information and general precautions, please refer to TSBs #15-GI-001 and #15-GI-002.
- **This Service Procedure is meant to preserve the existing steering calibration.** If the customer prefers a different steering feel, it is optional to select the calibration that suits their preference. Please refer to TSB 14-ST-001 for more information.

1. Connect a GDS-laptop or GDS-mobile to the vehicle.
2. Turn the vehicle ignition ON.
3. Select the applicable vehicle and select EPS system.

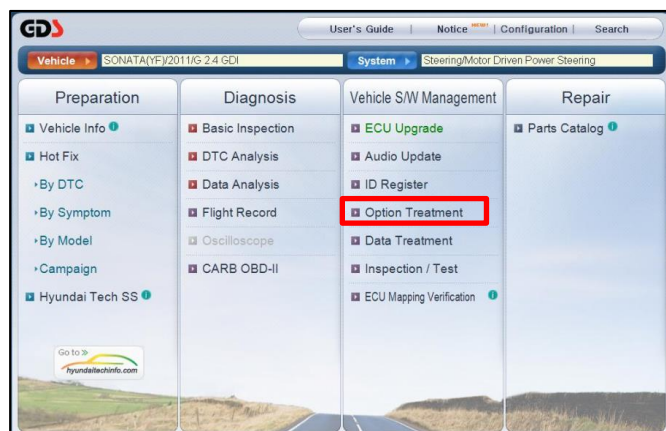
4.

**GDS-mobile**

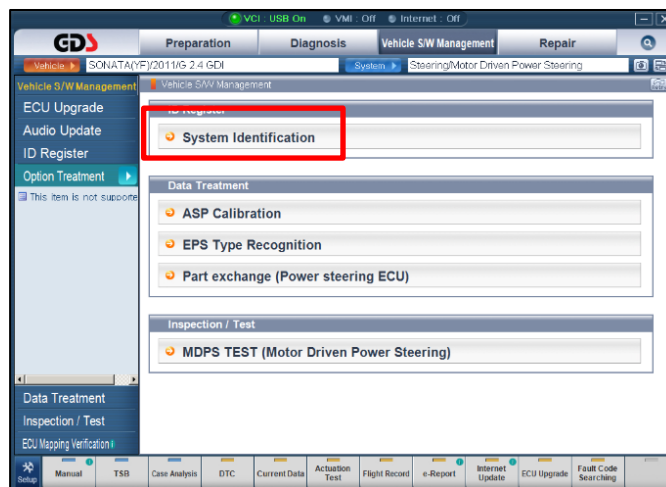
Select "S/W Management" (GDS-mobile).

**GDS-laptop**

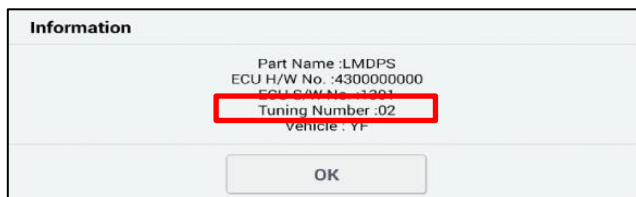
Select "Option Treatment" (GDS-laptop).



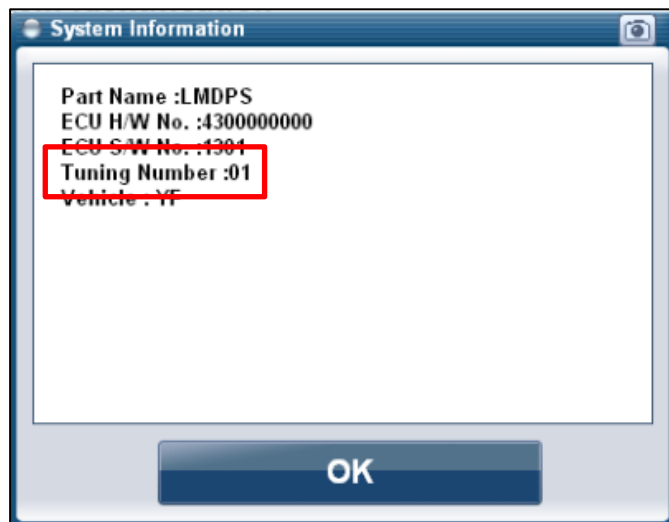
5.

Select **System Identification**.Select **System Identification**.

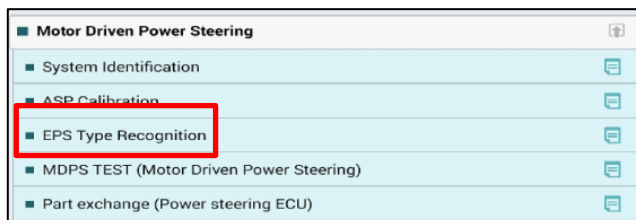
6. Note and record the Tuning Number.



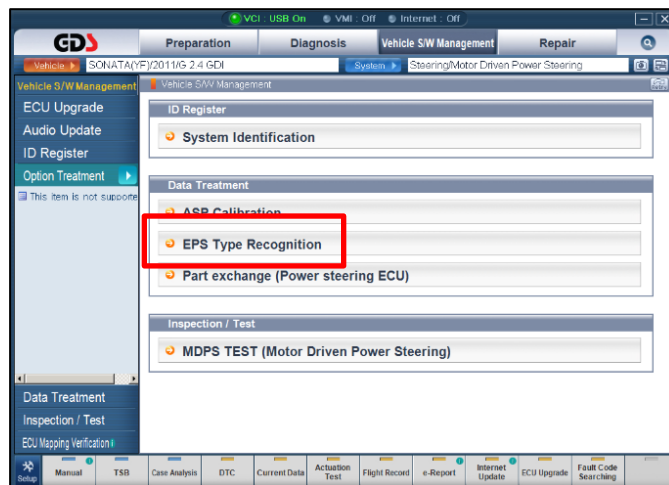
Note and record the Tuning Number.



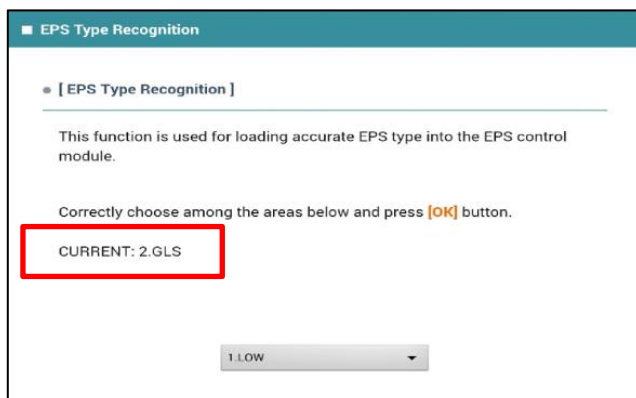
7. From the S/W Management (GDS-mobile) screen select **EPS Type Recognition**.



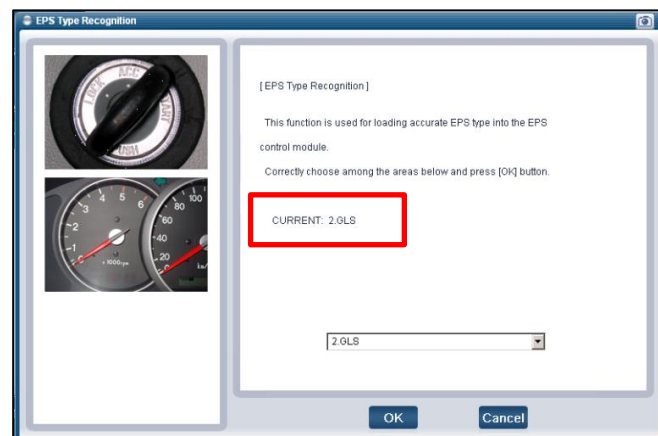
From the Option Treatment (GDS-laptop) screen select **EPS Type Recognition**.



8. Note and record the current setting.



Note and record the current setting.





## Service Procedure: DTC Inspection

**NOTICE**

This Service Procedure is performed using PC-based GDS, or GDS-mobile. For update information and general precautions, please refer to TSBs #15-GI-001 and #15-GI-002.

1. Connect a GDS-laptop or GDS-Mobile to the vehicle.
2. Turn the vehicle ignition ON.
3. Select the applicable vehicle and search for any fault codes (DTCs).

4. **DTC list:**

1. ***C1290 Torque Sensor Signal Error***
2. ***C2400 Motor Fault – Motor Not Running***
3. ***C2401 Motor Position Sensor Error***

If any of the above DTCs are present (in either active or history status):

1. Replace the **MDPS assembly** according to the applicable service manual.
2. Perform ASP Calibration using GDS.
3. Perform EPS Type Recognition using GDS. Select the choice that matches the original setting (as previously recorded).

If none of the above DTCs are present (in either active or history status):

1. Replace the **column shaft ECU** (see service procedure below).
2. Perform ASP Calibration using GDS.
3. Perform EPS Type Recognition using GDS. Select the choice that matches the original setting (as previously recorded).
4. Perform Part Exchange (Power Steering ECU) using GDS.

**Service Procedure: Column Shaft ECU Replacement**

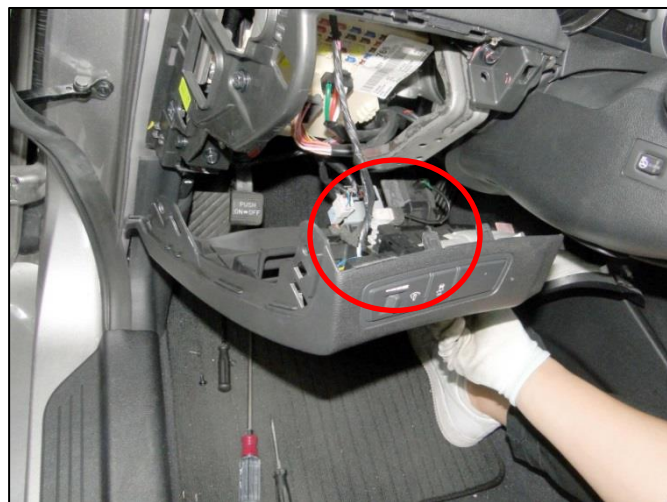
1. Disconnect negative battery terminal using a deep socket 10mm ratcheting wrench.
2. Remove the dash side panel cover by carefully pulling back the weather stripping and prying the cover off using a plastic trim tool.



3. Remove the lower dash panel screws (4) using a #2 phillips screw driver.



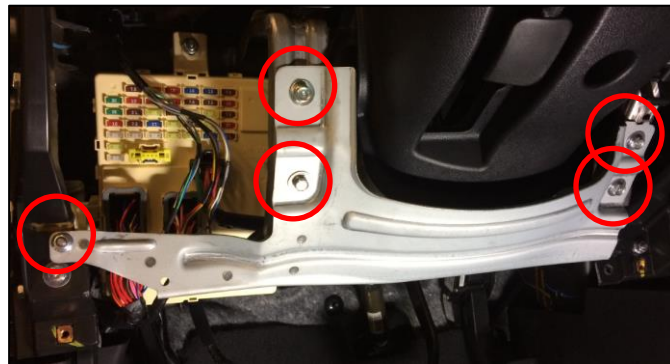
4. Disconnect the connectors and remove the lower dash panel.



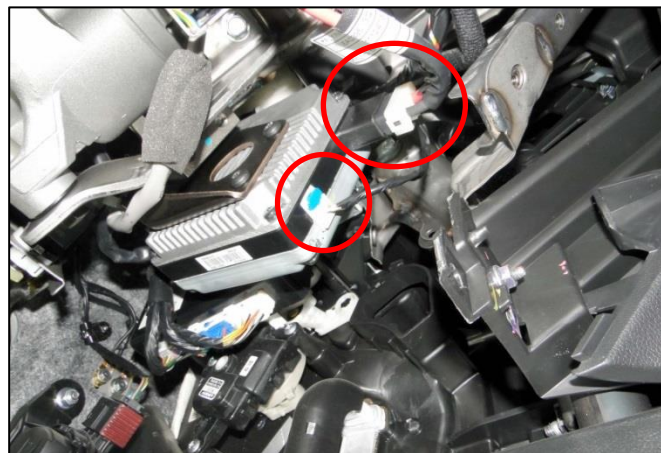
5. Remove the air duct screw and the lower air duct using a #2 phillips screw driver.



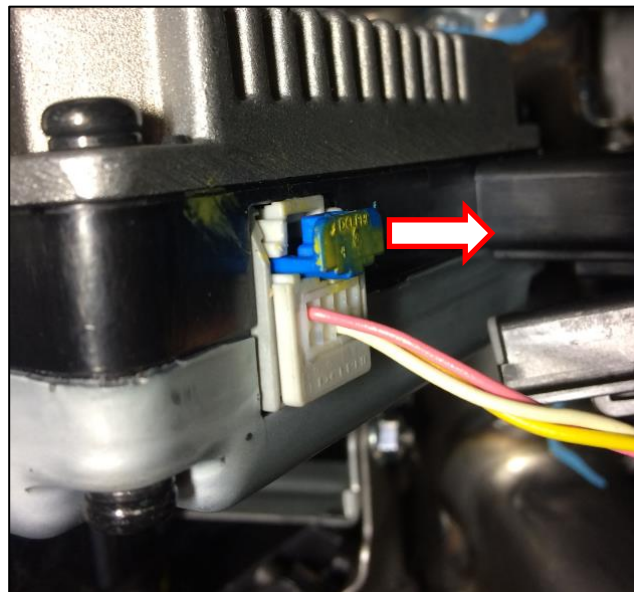
6. Remove the lower dash metal plate by removing the 4 bolts and 1 nut using a 10mm socket wrench.



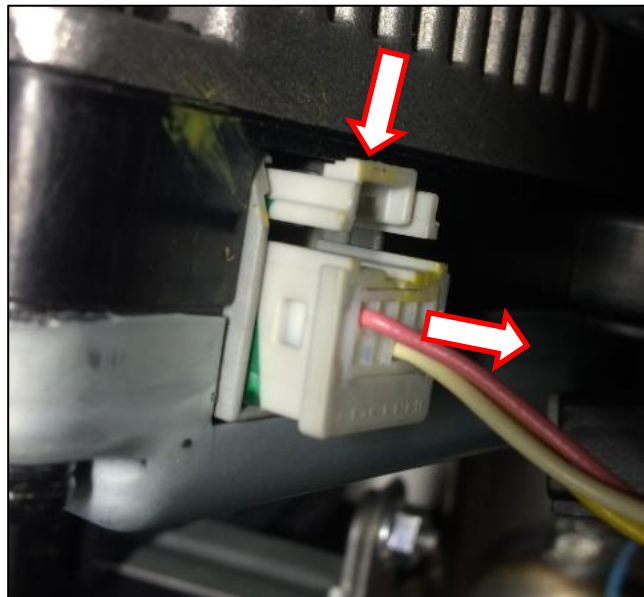
7. Disconnect the 2 connectors on the lower side of the column shaft ECU.



- 7a. To remove connector M26, use a small flat blade screwdriver to pull the blue locking tab outwards to remove it. Then squeeze the release tab and pull outwards.



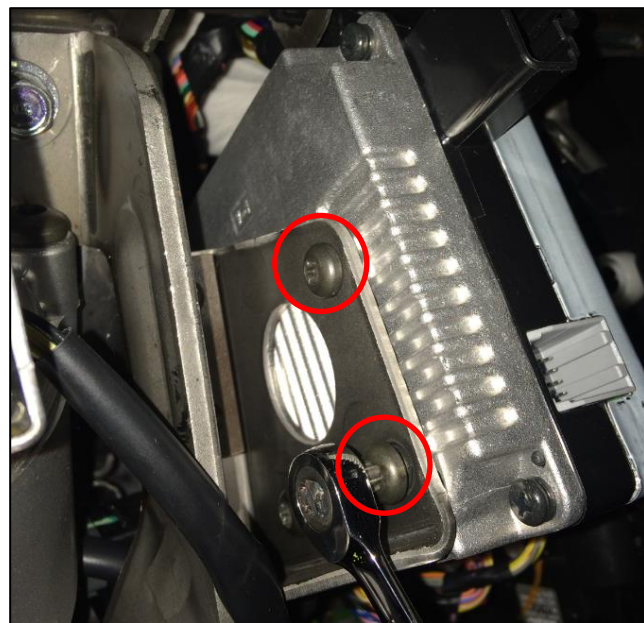




8. Remove the 2 circled Torx bolts mounting the ECU to the bracket using the SST.

**NOTICE**

The SST has a ratcheting mechanism. One side is for tightening, one side is for loosening.

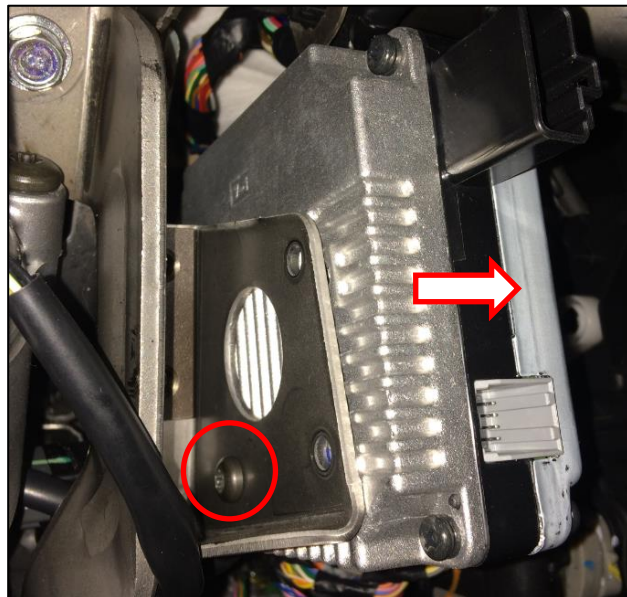


9. Remove the remaining 3<sup>rd</sup> Torx bolt.

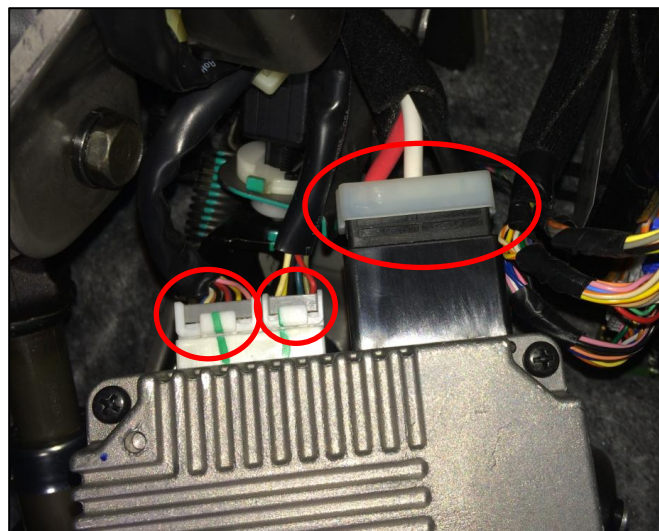
**NOTICE**

Completely remove the two bolts closest to the driver before loosening the third bolt (circled).

This will provide more clearance to remove the third bolt by allowing the ECU body to be moved off of the mounting bracket as the bolt is loosened.

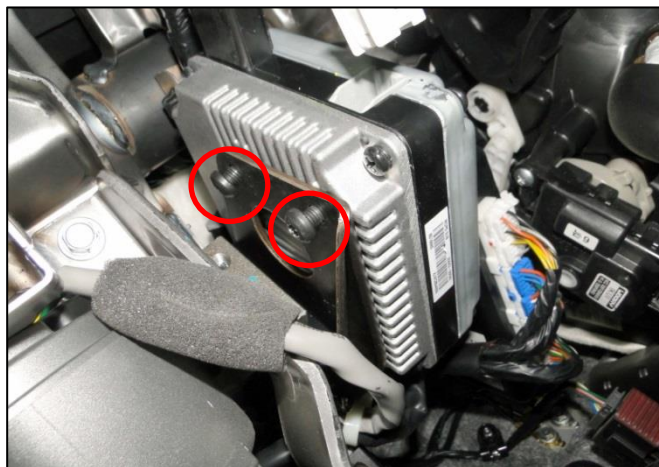


10. Disconnect the remaining 3 ECU connectors on the upper side (adjacent to the stop lamp switch) and remove the ECU.



11. Begin installing the new ECU by first connecting the upper connectors.

Then, insert the two Torx bolts into the ECU through the mounting bracket. Lightly tighten these bolts to hold the ECU in place.



12. With the two bolts holding the ECU in place, insert the remaining Torx bolt using a pair of long nose pliers.

Lightly tighten all 3 Torx bolts using the SST until hand-tight. Then, turn the 3 bolts an additional 30 degrees using the SST.



13. Install the remainder of the removed parts in reverse order of removal.
14. After installation is complete, inspect the steering column area for adequate clearance between any wiring harness (including non-factory installed accessories) and the steering column shaft.

If extra clearance is required, use a cable tie to secure the harness away from the moving parts of the steering column.

15. Set ASP Calibration and EPS Type Recognition using GDS.

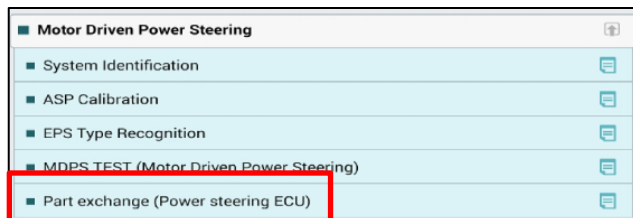
### NOTICE

- **ASP Calibration must be performed before Part Exchange (Power Steering ECU) procedure.**
- **Set EPS Type Recognition to the original setting, as recorded earlier.**

16. Perform Part Exchange (Power Steering ECU) procedure using GDS, as described in steps 16a-16d below.

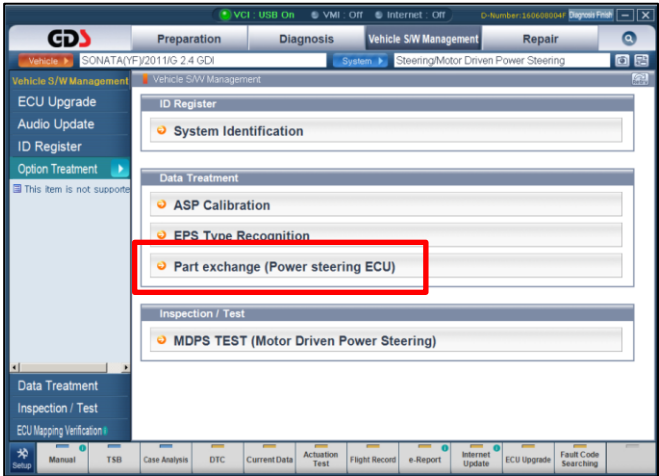
#### 16a. GDS-mobile

From the S/W Management screen, select “Part exchange (Power steering ECU)” under the “Motor Driven Power Steering” menu.



#### GDS-laptop

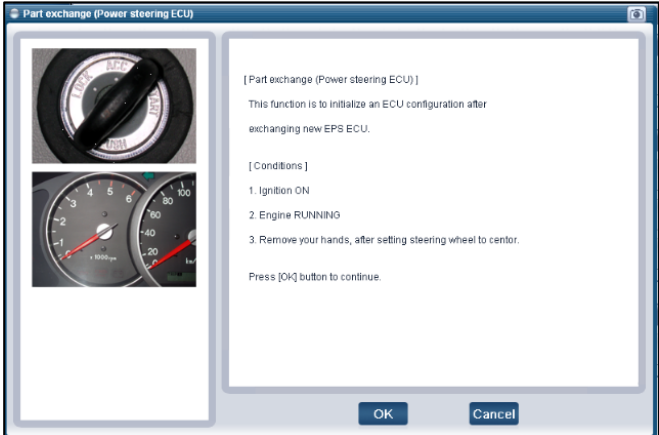
From the Option Treatment screen, select “Part exchange (Power steering ECU).”



16b. Read the enable conditions (engine off, ignition on) and click OK to continue.

Read the enable conditions.

• Part exchange (Power steering ECU)	
Purpose	To initialize the ECU after ECU is replaced.
Enable Condition	1. Engine Off 2. Ignition Switch On
Concerned Component	MDPS ECU
Concerned DTC	-
Fail Safe	MDPS performance decreased
Etc	-



16c. Start the engine, set the steering wheel to center, remove your hands, and click OK to continue.

Start the engine, set the steering wheel to center, remove your hands, and click OK to continue.

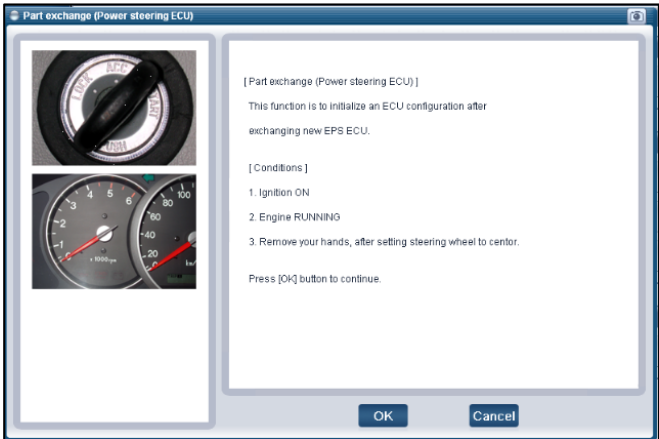
• [ Part exchange (Power steering ECU) ]

This function is to initialize an ECU configuration after exchanging new EPS ECU.

•[ Conditions ]

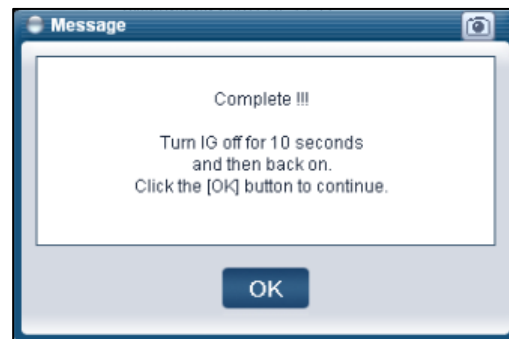
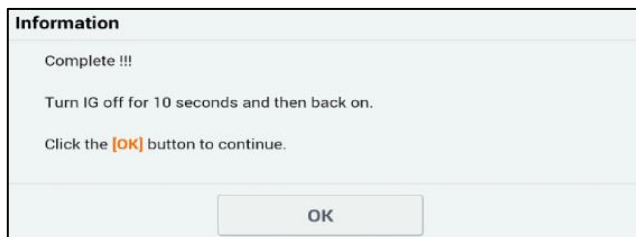
1. Ignition ON
2. Engine RUNNING
3. Remove your hands, after setting steering wheel to center.

Press [ok] button to continue.





- 16d. Turn the ignition OFF for 10 seconds, then back ON, and click OK to complete the procedure.
- Turn the ignition OFF for 10 seconds, then back ON, and click OK to complete the procedure.



17. Start engine to confirm proper operation of steering.
18. Check and clear incidental DTCs.