



HYUNDAI Technical Service Bulletin

Group	CAMPAIGN
Number	10-01-032
Date	SEPTEMBER, 2010
Model	2011 SONATA (YF)

Subject **STEERING COLUMN INTERMEDIATE SHAFT CONNECTIONS INSPECTION (CAMPAIGN 097)**

CIRCULATE TO:	<input type="checkbox"/> GENERAL MANAGER	<input checked="" type="checkbox"/> PARTS MANAGER	<input checked="" type="checkbox"/> TECHNICIAN
<input checked="" type="checkbox"/> SERVICE ADVISOR	<input checked="" type="checkbox"/> SERVICE MANAGER	<input checked="" type="checkbox"/> WARRANTY MGR	<input type="checkbox"/> SALES MANAGER

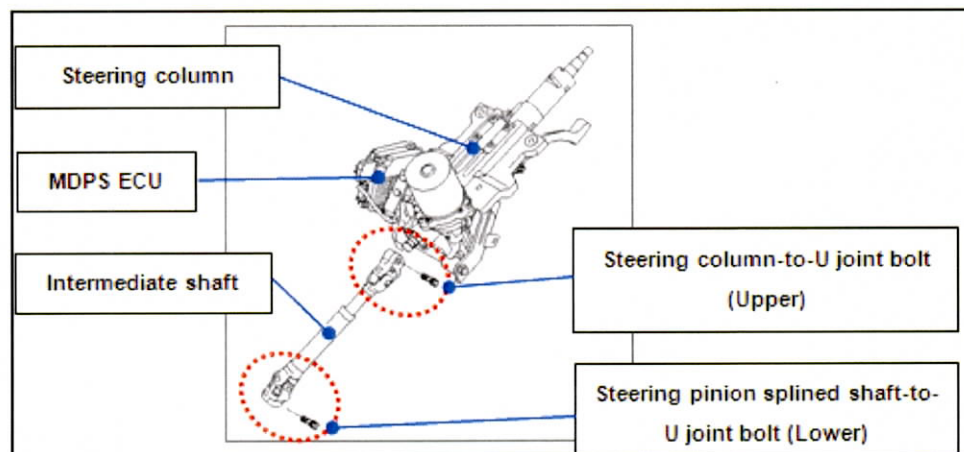
IMPORTANT: DEALERS MUST PERFORM THIS CAMPAIGN ON ALL AFFECTED VEHICLES IN STOCK BEFORE RETAIL DELIVERY AND WHENEVER AN AFFECTED VEHICLE IS IN THE SHOP FOR ANY MAINTENANCE OR REPAIR.

IMPORTANT: WHEN A VEHICLE ARRIVES AT THE SERVICE DEPARTMENT, ACCESS HYUNDAI MOTOR AMERICA'S "WARRANTY VEHICLE INFORMATION" SCREEN VIA WEBDCS TO IDENTIFY OPEN CAMPAIGNS.

IMPORTANT: GDS UNIT MUST BE UPDATED TO VERSION 1.09.05. UPDATING INSTRUCTIONS CAN BE FOUND AT WWW.HMASERVICE.COM OR CONTACT GIT AMERICA AT 1-888-437-0308.

DESCRIPTION:

This bulletin provides the recall Campaign 097 procedure for inspecting to ensure that the steering column and the upper intermediate shaft universal joint (U joint), and the steering pinion splined shaft and the lower intermediate shaft U joint are properly connected and that both attaching bolts are tightened to the specified torque.



Additionally, a procedure is provided to update the MDPS software.





VEHICLES AFFECTED:

Model: 2011MY Sonata (YF) 2.4L

Production Date Range: December 11, 2009 through September 10, 2010

VIN Range: 5NPEC4AC6BH000216 ~ 5NPEB4AC8BH151446

PARTS REQUIRED:

PART	FIGURE	REMARK
White paint pen Examples: - Markal Pro-Line HP 96960 - White - Other white touch up paint pens such as 00284-02011JR (YF Sonata White Pearl)		Mark the steering shaft U-joint pinch bolt heads (upper and lower) after inspection. For information on local parts availability for Markal paint pens visit: http://www.markal.com
Steering column intermediate shaft P/N: 56400-3Q000		Inspect the threads in the upper and lower U-joints for damage.
Bolt, upper intermediate shaft universal joint. P/N: 56415-3W000		Inspect for damage and torque to spec: 39.8~47.0 lb-ft
Bolt, lower intermediate shaft universal joint. P/N: 56415-1C000		Inspect for damage and torque to spec: 23.9~27.5 lb-ft



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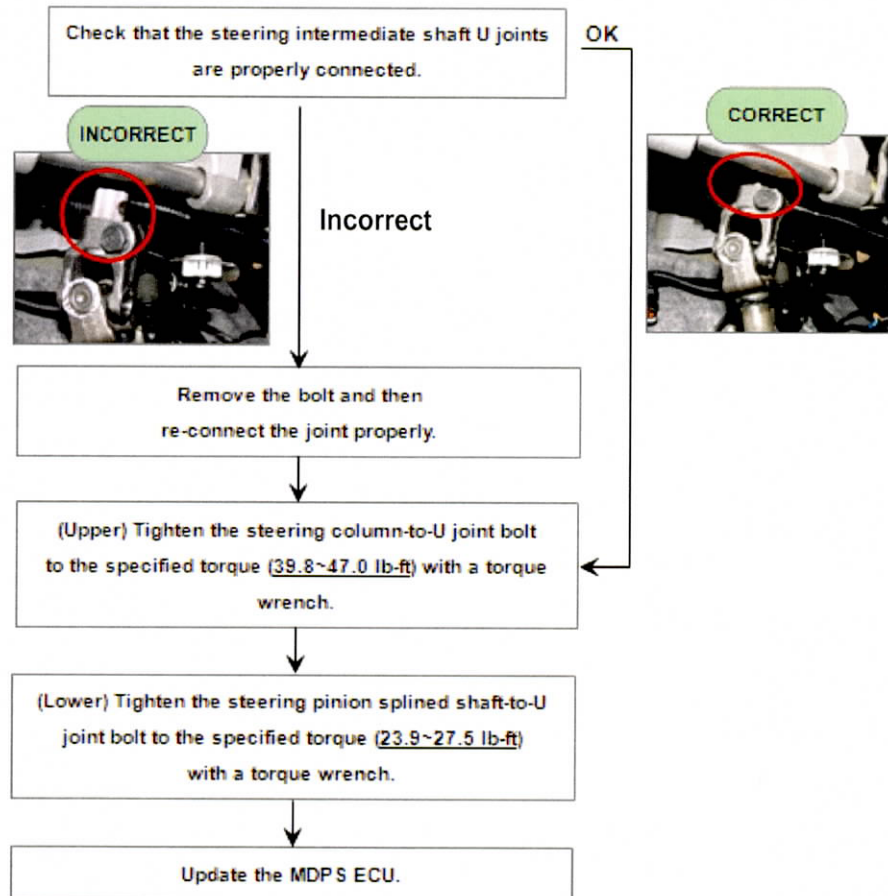
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SERVICE PROCEDURE:

FLOW CHART



STEERING COLUMN INSPECTION PROCEDURE - STEERING COLUMN TO U-JOINT

(UPPER END OF STEERING INTERMEDIATE SHAFT)

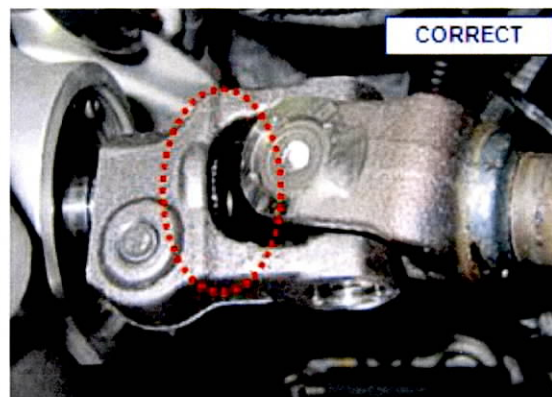
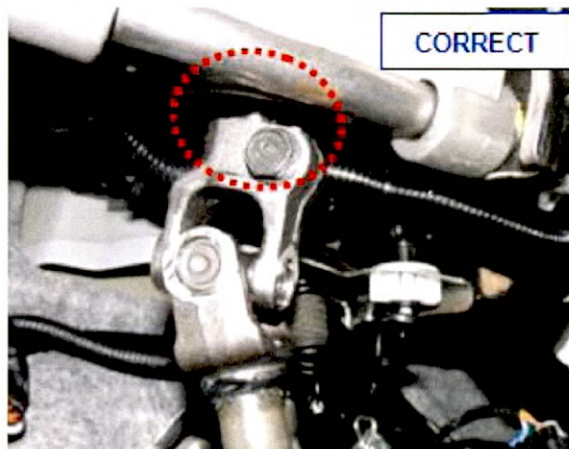
1. Inspect all 4 U-joint bearing caps. Turn the steering wheel to visually access them. Ensure they are properly fixed in the yoke by the four indentations. If the caps are loose, replace the steering intermediate shaft assembly.

NOTE: If the shaft is replaced, submit a claim (in addition to the campaign claim) under normal warranty.



2. Visually check that the steering column and the U joint are properly connected as shown in the picture on the right.

NOTE: Look to verify that the end of the steering shaft protrudes about 1/8" into the void of the U-joint (see image). It is not seated properly if it does not protrude slightly.





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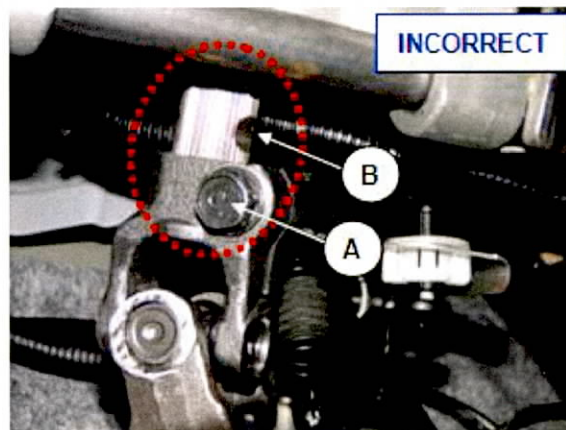
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3. If the steering column and the U joint are improperly connected as shown in the picture on the right, re-connect the U joint to the steering column according to the steps below. If properly connected, go to step 8.

NOTE: The steering column-to-U joint bolt (A) must be fastened through the groove (B) in the end of the steering column.



4. Remove the steering column-to-U joint bolt.



5. Inspect the bolt for damage/ stripping/cross-threading. Inspect the corresponding threads in the U-joint. Replace both if damage is found.

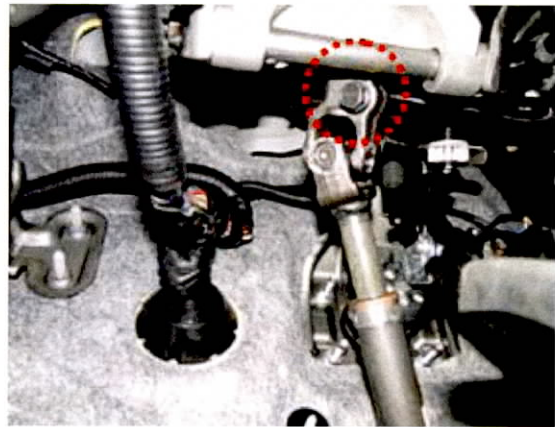
NOTE: If the bolt and intermediate shaft are replaced, submit a claim (in addition to the campaign claim) under normal warranty.



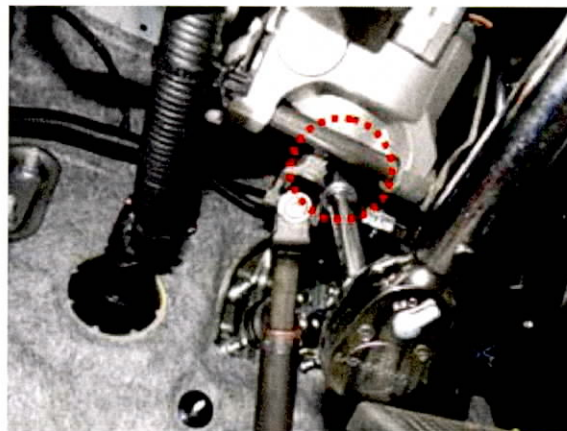
6. Pull the U joint up until the bolt hole in the U joint is aligned with the groove in the end of the steering column.



7. Insert the steering column-to-U joint bolt into the bolt hole and check that the bolt passes through the groove.



8. Torque the steering column-to-U joint bolt to **39.8~47.0 lb-ft, (53.9~63.7 N-m, 5.5~6.5 kgf-m)** with a torque wrench.

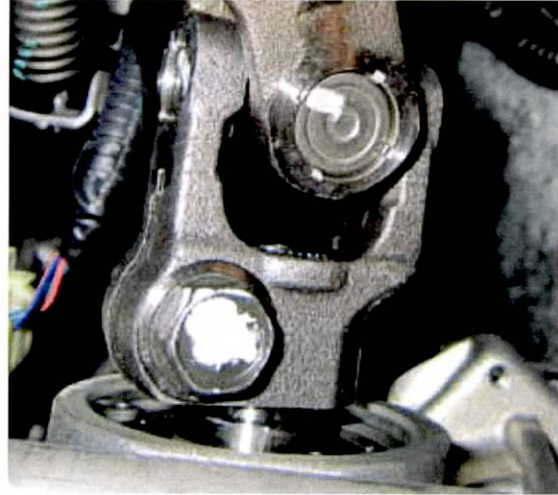




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9. Mark the bolt head with a white paint pen to complete inspection procedure.

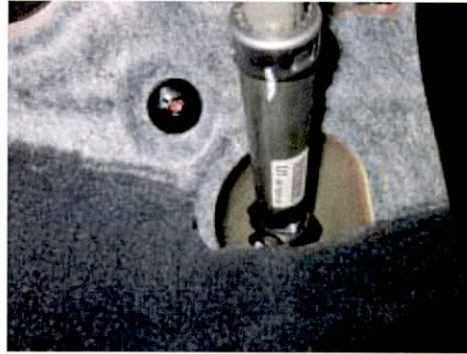


STEERING COLUMN INSPECTION PROCEDURE - STEERING PINION SPLINED SHAFT TO U-JOINT

(LOWER END OF STEERING INTERMEDIATE SHAFT)

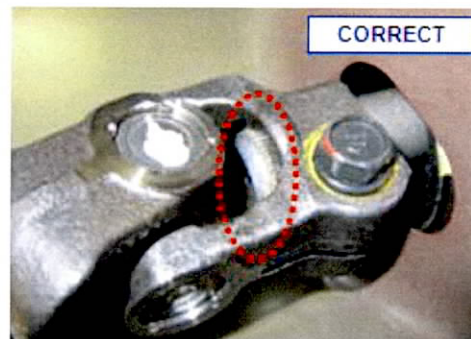
1. Pull back carpet to access lower end of steering intermediate shaft.
2. Inspect all 4 U-joint bearing caps. Turn the steering wheel to visually access them. Ensure they are properly fixed in the yoke by the four indentations. If the caps are loose, replace the steering intermediate shaft assembly.

NOTE: If the shaft is replaced, submit a claim (in addition to the campaign claim) under normal warranty.



3. Visually check that the steering pinion splined shaft and the U joint are properly connected as shown in the picture on the right.

NOTE: Look to verify that the end of the splined shaft protrudes about 1/4" into the void of the U-joint (see image). It is not seated properly if it does not protrude slightly.



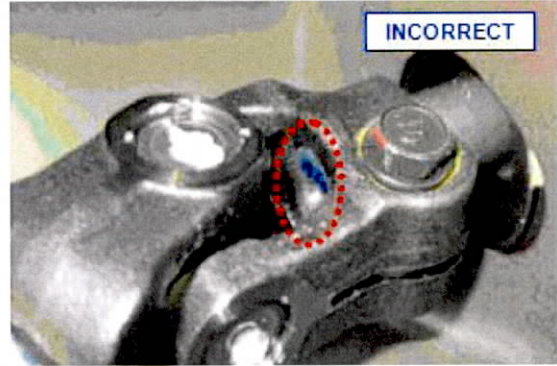


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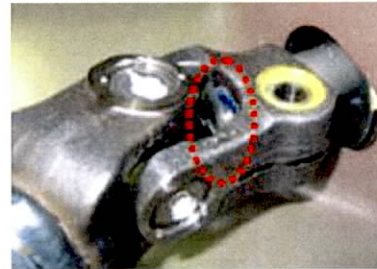
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4. If the splined shaft and the U joint are improperly connected as shown in the picture on the right, re-connect the U joint to the steering column according to the below steps. If properly connected, go to step 9.

NOTE: The steering pinion splined shaft-to-U joint bolt must be fastened through the groove in the end of the splined shaft.



5. Remove the steering column-to-U joint bolt.



6. Inspect the bolt for damage/ stripping/cross-threading. Inspect the corresponding threads in the U-joint. Replace both if damage is found.

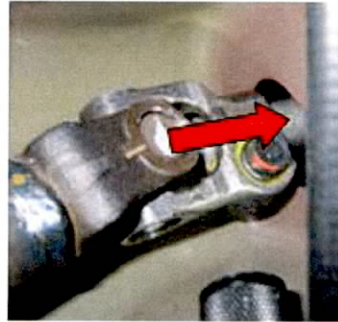
NOTE: If the bolt and intermediate shaft are replaced, submit a claim (in addition to the campaign claim) under normal warranty.



7. Push the U joint onto the splined shaft until the bolt hole in the U joint is aligned with the groove in the splined shaft.

8. Insert the bolt into the bolt hole and check that the bolt passes through the groove.

9. Torque the steering pinion splined shaft-to-U joint bolt to **23.9~27.5 lb-ft, (32.4~37.3 N-m, 3.3~3.8 kgf-m)** with a torque wrench.



10. Mark the bolt head with a white paint pen to complete the inspection procedure.





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SERVICE PROCEDURE - MDPS SOFTWARE UPDATE

NOTE: To verify the vehicle is affected, be sure to check the version of the MDPS ECU ROM ID with reference to the table below before attempting to update the MDPS ECU.

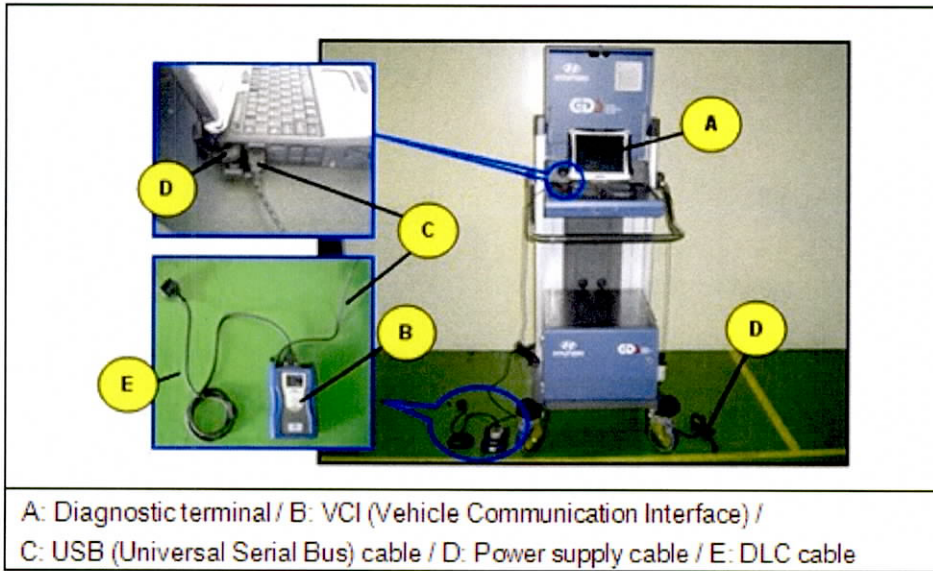
MDPS ECU ROM ID TABLE

MODEL	STEERING COLUMN P/N	ROM ID	
		PREVIOUS	NEW
2011 Sonata (YFA 2.4L)	56310-3Q200	4YFH0911	4YFJ1008
	56310-3Q400	4YFH0912	

CAUTION: During MDPS ECU update:

1. Make sure the vehicle's battery has reasonable charge by connecting a power supply to the vehicle's battery.
2. Turn off all lamps (do not leave head lamp switch in auto mode) and all accessories (including heater, A/C, blower, radio, seat warmer, defroster, etc.) to prevent battery discharge during the update.
3. Perform update with the ignition switch in the ON position.
4. Be careful not to disconnect any cables connected to the vehicle or scan tool during update.
5. Do not start the engine during update.
6. Do not turn off the ignition switch during update.

GDS Installation Procedure



1. Connect a power supply to the vehicle's battery to ensure adequate voltage during the update.
2. Connect the power supply cable to the diagnostic terminal.

NOTE: If attempting to perform the update with the power supply cable disconnected from the diagnostic terminal, make certain that the diagnostic terminal is charged enough for the update. If not, the update may fail in progress. Therefore, it is strongly recommended to connect the power supply cable to the diagnostic terminal during the update procedure.

3. Connect the USB cable between the VCI and the diagnostic terminal.

NOTE: When performing the update using the GDS, wireless communication between the VCI and the diagnostic terminal is NOT available. Therefore, be sure to connect the USB cable between the VCI and the diagnostic terminal.

4. Connect the 16-pin DLC cable from the VCI into the vehicle's 16-pin connector under the driver side instrument panel.
5. Turn on the VCI and diagnostic terminal with the ignition key in the ON position. If equipped with button engine start system, push the engine start button twice WITHOUT depressing the brake pedal.

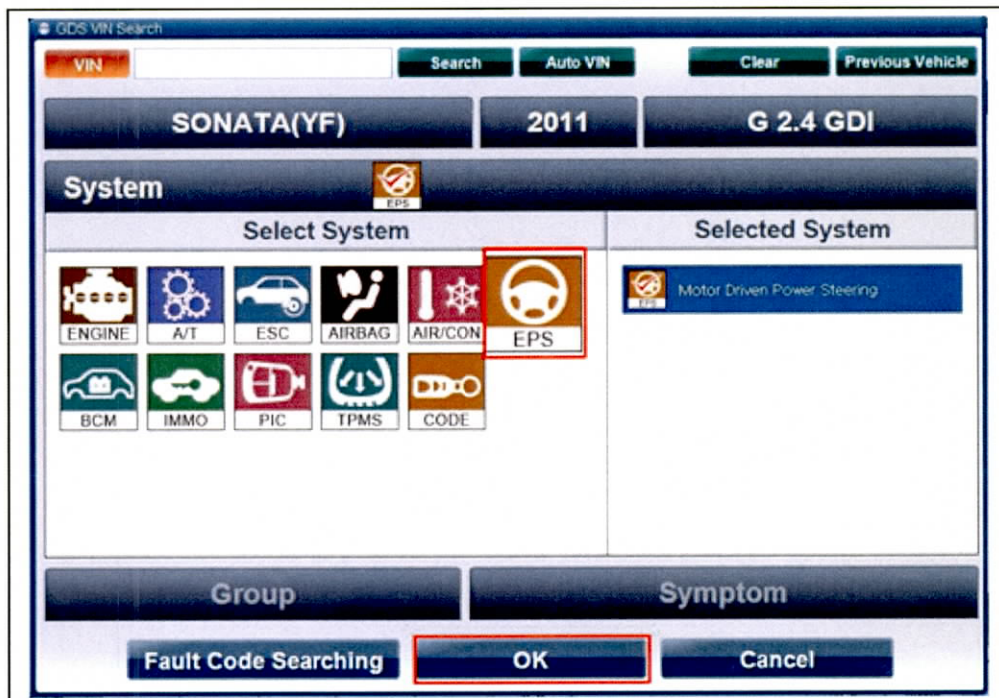
CAUTION: Do not start the engine.



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AUTOMATIC UPDATE PROCEDURE

1. Choose **VIN** or **ECU Update** on the initial screen.
2. Enter the vehicle information by pressing the **VIN Auto Detect** button, entering the vehicle's VIN or selecting the vehicle model, model year, engine/fuel type and **EPS** as the system and then click **OK**.



3. Select **ECU Update** on the initial screen after entering the vehicle information.
4. Select **Auto Mode** then **EPS** in the left **ECU Update** column.
5. Read **Preparation** and click **OK**.
6. The GDS will read the vehicle's **ROM ID**.
7. After the **Current ROM ID** is displayed, select the **Update Event, "207.YFA MDPS UPDATE."**
8. After clicking the **Update** button, read Information then click **OK**.
9. The vehicle battery voltage is checked to make sure it is at least 12 volts to ensure reliable update results. Click **OK** if the results indicate Voltage is OK.

CAUTION: If voltage is below 12 volts, click Cancel and then connect a power supply to the vehicle's battery to ensure adequate battery charge state for reliable update results.

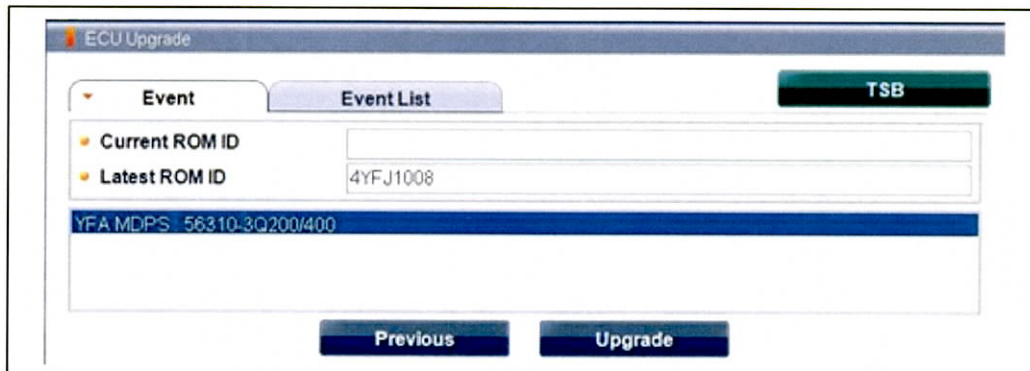
10. Update will begin and the progress of the update will appear on the bar graph. Progress bar will update every few seconds. Check to ensure proper update progress. Update will occur until 100% is reached on the bar graph.
11. Turn the ignition key OFF for 10 seconds, place it back in the ON position and then click **OK** to continue according to Information displayed on the screen.
12. Click **OK** on the final screen, which indicates update is complete.
13. Check if any incidental **Diagnostic Trouble Codes (DTC)** have been created by the update and clear the **DTC(s)** present.
14. Start the engine to confirm proper operation of the vehicle.

MANUAL UPDATE PROCEDURE

CAUTION: Manual update should be performed only when automatic update fails.

CAUTION: If automatic update fails, turn the ignition key OFF for about 10 seconds, place it back in the ON position to reset the control unit before performing manual update.

1. Within the **ECU Update screen**, select **Manual Mode** in the left column, then select **Update Event #207**. Select the appropriate control unit part number with reference to the ROM ID Information Table and click **OK**.





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2. Enter the appropriate password from the table below then click **OK**.

MENU	PASSWORD
YFA MDPS : 56310-3Q200/400	3400

3. The vehicle battery voltage is checked to make sure it is at least 12 volts to ensure reliable update results. Click **OK** if the results indicate Voltage is OK.

CAUTION: If voltage is below 12 volts, click Cancel and then connect a power supply to the vehicle's battery to ensure adequate battery charge state for reliable update results.

4. Update will begin and the progress of the update will appear on the bar graph. Progress bar will update every few seconds. Check to ensure proper update progress. Update will occur until 100% is reached on the bar graph.

5. Turn the ignition key OFF for 10 seconds, place it back in the ON position and then click **OK** to continue according to Information displayed on the screen.

6. Click **OK** on the final screen, which indicates update is complete.

7. Check if any incidental **Diagnostic Trouble Codes (DTC)** have been created by the update and clear the **DTC (s)** present.

8. Start the engine to confirm proper operation of the vehicle.

WARRANTY INFORMATION:

OP CODE	OPERATION	OP TIME
10BA28R0	STEERING COLUMN INSPECTION AND MDPS ECU UPDATE	0.4 M/H

NOTE: If the steering intermediate shaft and U-joint pinch bolts are replaced, submit an additional claim under normal warranty.

NOTE: Submit claim on campaign claim entry screen.