 <b>HYUNDAI</b> <b>Technical Service Bulletin</b>	GROUP <b>AUTOMATIC TRANSMISSION</b>	NUMBER <b>21-AT-014H</b>
	DATE <b>August, 2021</b>	MODEL(S) <b>TUCSON (TL) 1.6T, SONATA (LFa) 1.6T</b>
<b>SUBJECT: DUAL CLUTCH TRANSMISSION JUDDER DETECTION AND TCU SOFTWARE UPDATE</b>		

**This TSB supersedes 20-AT-021H by putting Tucson and Sonata models on their own TSB and provides a revised GDS-M software update for low speed judder.**

**Description:** Certain vehicles (listed below) equipped with 7-speed Double Clutch Transmissions (DCT) may exhibit abnormal vibration at low speeds. This bulletin outlines the procedures for diagnosing clutch judder, updating the Transmission Control Unit (TCU) with revised logic, and/or replacing the Double Clutch.

**Applicable Vehicles:** 2016-2018 Tucson (TL) 1.6L Turbo  
2015-2018 Sonata (LFa) 1.6L Turbo

**Parts Information:**





MODEL	DTC PART	PNC	PART NUMBER
Tucson (TL) 1.6L Turbo Sonata (LFa) 1.6L Turbo	Double Clutch	41200C	41200-2D220
	Snap Ring	44167G	41068-2D000

**Warranty Information:**

MODEL	OP CODE	OPERATION	OP TIME	CAUSAL PART	NATURE CODE	CAUSE CODE
Tucson (TL) 1.6L Turbo Sonata (LFa) 1.6L Turbo	41200F18	GDS-M Judder Inspection Only	0.3 M/H	41200-2D101	V81	ZZ3
Tucson (TL) 1.6L Turbo Sonata (LFa) 1.6L Turbo	41200F19	GDS-M Judder Inspection + TCU Upgrade + GDS-M Judder Reinspection	0.8 M/H	41200-2D101		
Tucson (TL) 1.6L Turbo	41200F20	Clutch Judder Inspection + Double Clutch Replacement + TCU Upgrade	3.8 M/H	41200-2D101		
Sonata (LFa) 1.6L Turbo	41200F21		4.4 M/H	41200-2D101		

**Note: Normal Warranty Applies**

**Special Service Tool Information:**

SPECIAL SERVICE TOOL	PART NUMBER	DESCRIPTION	PHOTO
Double Clutch Remover	09430-C1180	Used to remove the double clutch from the transmission	
Double Clutch Installer	09430-2A240	Used to install the double clutch into the transmission	
Actuator Fixing Jig & Motor Shaft Reset Tool	09430-C1302	Used to measure and reset the double clutch actuator	
Clutch Abrasion Compensation	09430-C1300	Clutch actuator adjustment tool	

(If additional SST is needed, replacement parts can be ordered from Bosch at (866) 539-4248.)

**GDS-M Information: System Selection: TCU**

Event #	Model	Description
683	TL	1.6T 7DCT - TCU UPDATE FOR ANTI JUDDER LOGIC IMPROVEMENT
684	2015-2017MY LFa	1.6T 7DCT - TCU UPDATE FOR ANTI JUDDER LOGIC IMPROVEMENT
685	2018-2019MY LFa	1.6T 7DCT - TCU UPDATE FOR ANTI JUDDER LOGIC IMPROVEMENT

**TCU Manual Mode Password Information Table:**

Menu	Vehicle Type	Password
LFa 1.6T-GDI (7-DCT) TCU 95441-2D001	1.6T	1002
LFa 1.6T-GDI (7-DCT) TCU 95441-2D002		1202
LFa 1.6T-GDI (7DCT) TCU 95441-2D040		0402
TL 1.6T(7DCT) TCU 95440-2D720		0272
TL 1.6T(7DCT) TCU 95440-2D721		1272

**NOTICE**

- If judder is detected while testing, be sure to upgrade TCU logic and retest before replacing the Dual Clutch Transmission.
- Attach the Judder inspection result when replacing the Double clutch.

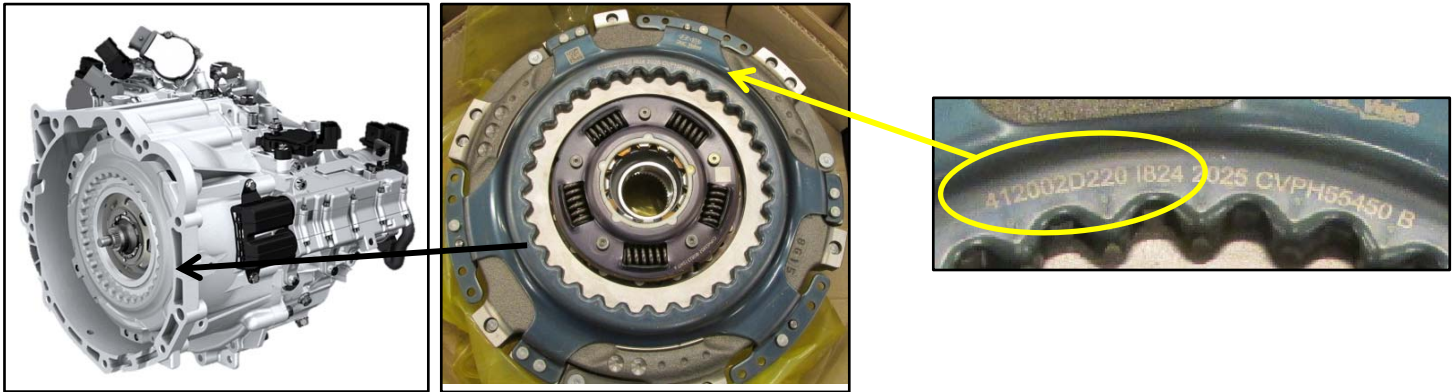
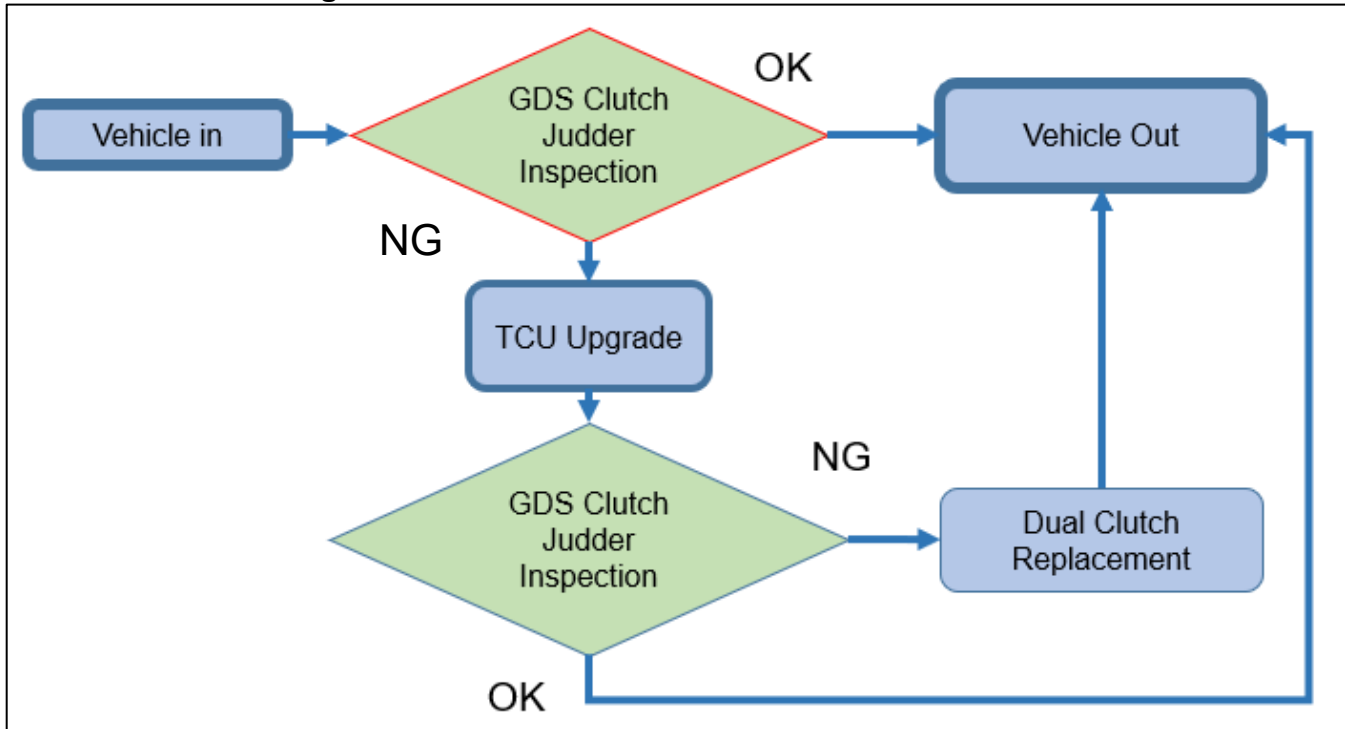
**ROM ID Information Table:**

MODEL	SYSTEM	PART NUMBER		ROM ID	
		OLD	NEW	OLD	NEW
Tucson (TL)	TCM	95441-2D720	95440-2D721	DTLOT16NS0 DTLOT16NS1 DTLOT16NS2 DTLOT16NS3 DTLOT16NS4 DTLOT16NS5 DTLOT16NS6 DTLOT16NS7 DTLOT16NS8 DTLOT16N30	DTLOT16N70
		95441-2D721		DTLOT16NS9 DTLOT16NSA DTLOT16NSB DTLOT16NSC DTLOT16NSD DTLOT16N31	DTLOT16N71
Sonata (LFa)	TCM	95441-2D000	95441-2D001	DLF0T16NS7 DLF0T16NS8 DLF0T16NS9 DLF0T16NSA DLF0T16NSB DLF0T16NSC DLF0T16N32	DLF0T16N72
		95441-2D002	95441-2D002	DLF0T16NSD DLF0T16N33	DLF0T16N73
		95441-2D040	95441-2D040	DLF0T16NL0 DLF0T16NL1 DLF0T16NL2 DLF0T16NL3 DLF0T16NL4 DLF0T16NL5 DLF0T16N34	DLF0T16N74

**Updated F850 Clutch Material Identification:**

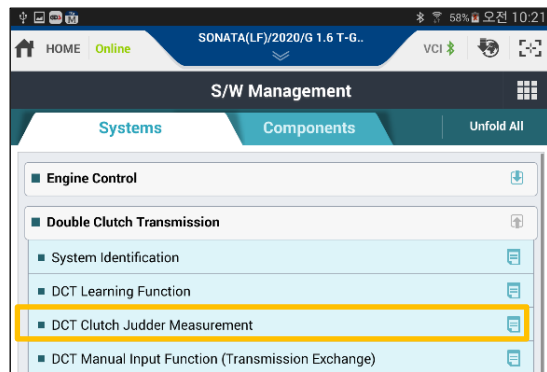
MODEL	PREVIOUS CLUTCH PART NUMBER (F833DS)	NEW CLUTCH PART NUMBER (F850)
2016-2017 Tucson (TL) 1.6L Turbo 2015-2017 Sonata (LFa) 1.6L Turbo	41200-2D101	41200-2D220

**Troubleshoot Flow Diagram:**

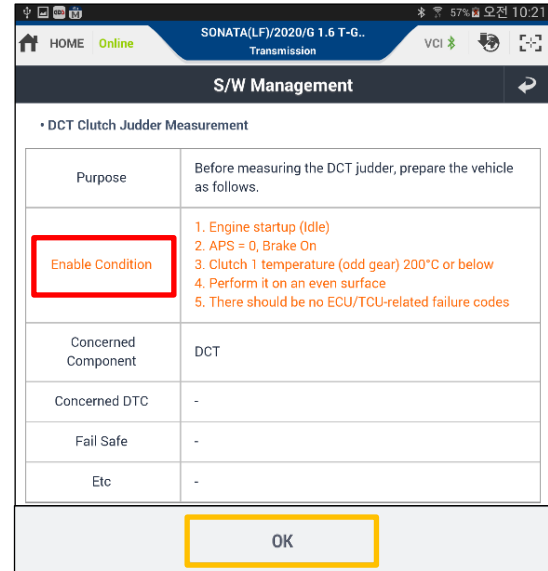


**A. GDS-M Clutch Judder Inspection**

1. Using the GDS-M-M, enter the vehicle information, select **S/W Management**, and then select **DCT Clutch Judder Measurement**.



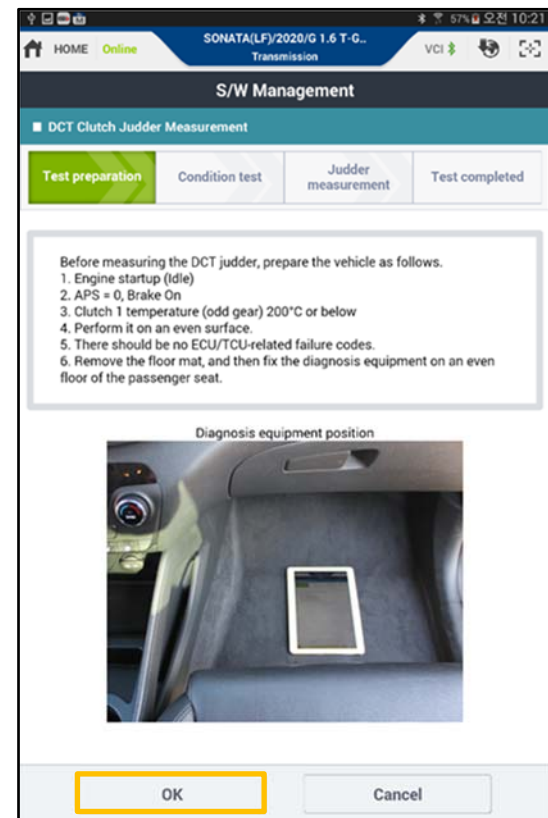
- 2. Follow the information specified in **Enable Condition** and select **OK**.



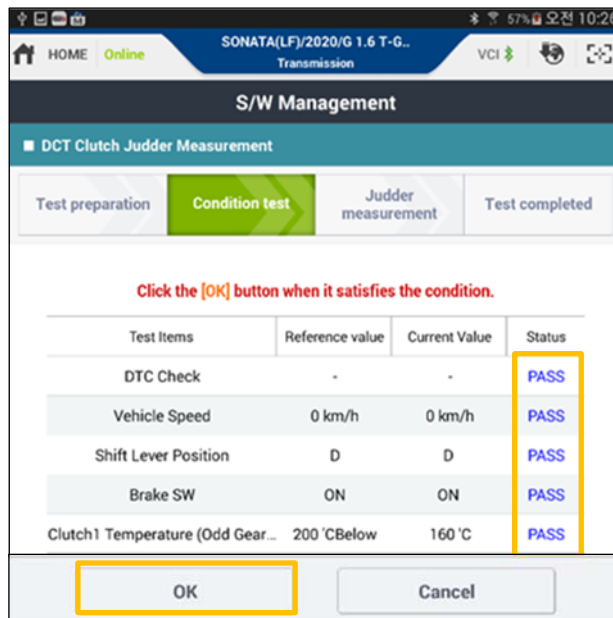
- 3. Follow the instructions on the **Test Preparation** screen to prepare the vehicle for **DCT Judder Measurement**.

Remove the passenger side floor mat and place the GDS-M flat and straight on the passenger floor.

Select **OK**.



4. Verify that all vehicle conditions are **PASS** and select **OK**.

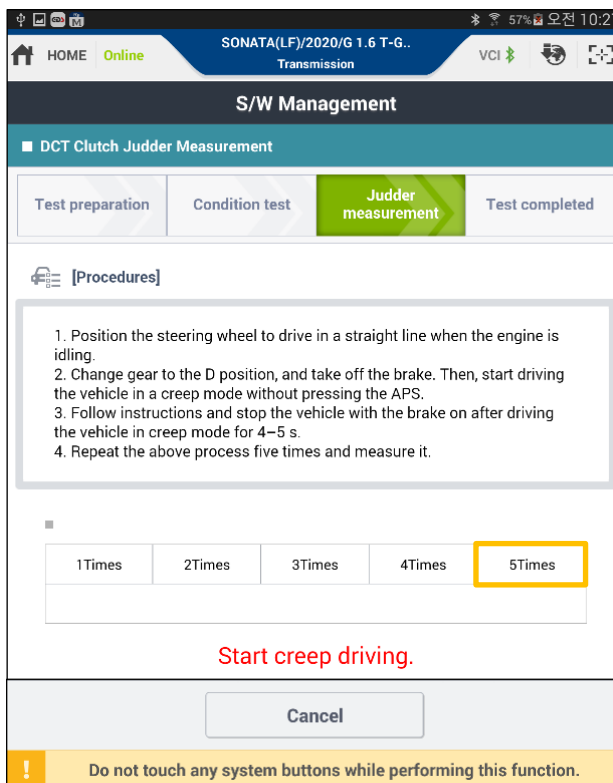


5. Follow the instructions from the Judder Measurement screen to perform the judder clutch inspection.

The inspection is complete when the **5Times** reading appears.

**NOTICE**

Do not brake or operate the accelerator during the inspection.



6. After the measurement is complete, apply the brakes for 4-5 seconds.

7. If the result is **“PASS, No Judder Detected”**, the service procedure is complete.



8. If the result is, **“Judder Detected, Replace Double Clutch,”** reflash TCU with latest update by referring to section **B. Automatic TCU Upgrade Procedure**.

**NOTICE**

Update the TCU with the latest software and retest before replacing the **Double Clutch**.

9. After updating the TCU, retest for Judder following GDS-M Clutch Judder Inspection steps 1-8, starting on Pages 4-7.

If the result is still **“Judder Detected, Replace Double Clutch,”** replace the double clutch assembly by referring to section **D. Clutch Replacement Procedure** on page 13.



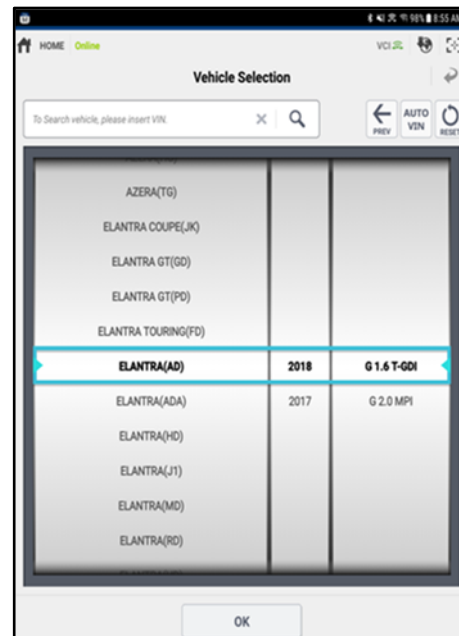
**B. Automatic TCU Upgrade Procedure**

1. Verify that the vehicle battery has enough battery to perform the software upgrade.
2. Turn off all accessories and lamps.
3. Perform the upgrade with the ignition switch in the ON position.
4. Do **not** disconnect any cables connected to the vehicle or scan tool during upgrade.
5. Do **not** start the engine during the upgrade.
6. Do **not** turn off the ignition switch during upgrade.
7. Connect the VCI-II into the vehicle's DLC connector.
8. Enter the vehicle information and select **ECU Upgrade**.

Tablet PC



VCI-II



9. Select Auto Mode. GDS-M will read the current vehicle ROM ID and check for the newest upgrade event.

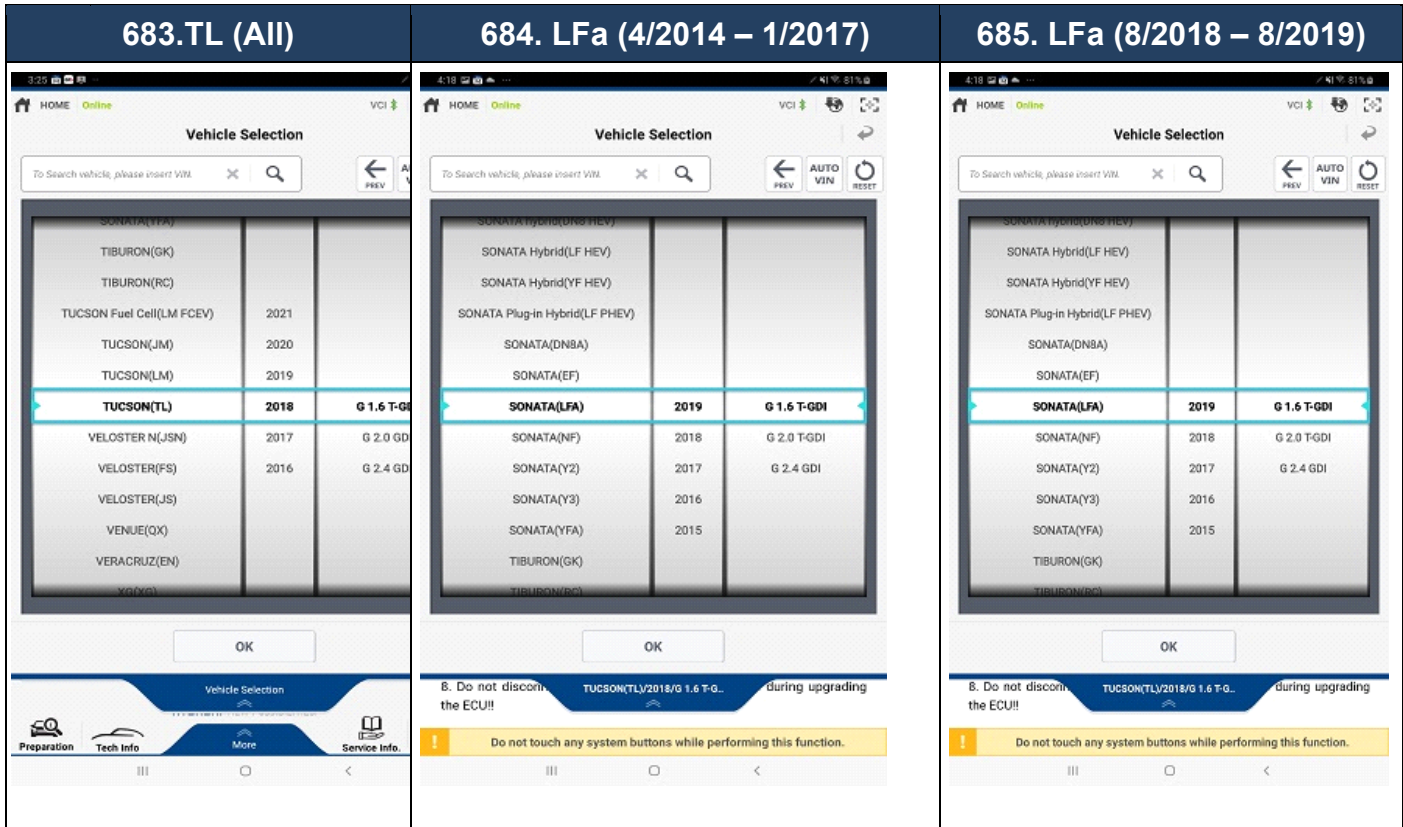


10. Select the upgrade event.

**10-1) 683.TL 1.6T(7DCT) -TCU UPDATE FOR ANTI JUDDER LOGIC IMPROVEMENT**

**10-2) 684.LFa 1.6T(7DCT) -TCU UPDATE FOR ANTI JUDDER LOGIC IMPROVEMENT**

**10-3) 685.LFa PE 1.6T(7DCT) -TCU UPDATE FOR ANTI JUDDER LOGIC IMPROVEMENT**



11. Ensure that battery voltage is at least 12 Volts before TCM upgrade. If battery voltage is adequate, click OK to begin TCU upgrade.

**⚠ WARNING**

**GDS-M Vehicle Battery Low Voltage Warning:**

When the vehicle battery is lower than 12 volts, the GDS-M will trigger a Low Battery Voltage Warning. If this Warning occurs,

**A.** Connect the battery to a fully charged battery jump pack or GR8 charger using “Power Supply Mode” to continue the software update.

**OR**

**B.** Select “BACK” to exit the SW update. Then, start the engine and idle with the headlights on for 20 minutes. Return to the SW update after charging the battery.



12. Upgrade (1/2) and (2/2) will begin. Upgrade progression will be visible on screen until completion.

13. After upgrade (2/2) is complete,
  - Turn the ignition key OFF for **10 seconds**
  - Position key ON
  - Press OK to continue
14. Check for Diagnostic Trouble Codes in ALL menus and erase any DTC.
15. If applicable, erase the DTC in the BlueLink system according to TSB **12-BE-005-2**.
16. Use GDS-M to perform the double clutch learning function.
17. Repeat step **A. GDS Clutch Judder Inspection** to confirm normal vehicle operation. If judder inspection fails, proceed to step **D. Double Clutch Replacement Procedure** on Page 13.

### C. Manual TCU Upgrade Procedure

#### NOTICE

- Manually upgrading the TCU should only be performed when the automatic upgrade fails
- If automatic upgrade fails,
  - Turn the ignition key OFF for **10 seconds**.
  - Position it into to the ON position to reset control unit before performing the manual upgrade.

#### ⚠ WARNING

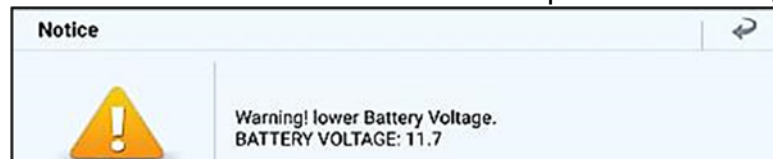
##### **GDS-M Vehicle Battery Low Voltage Warning:**

When the vehicle battery is lower than 12 volts, the GDS-M will trigger a Low Battery Voltage Warning. If this Warning occurs,

**A.** Connect the battery to a fully charged battery jump pack or GR8 charger using “Power Supply Mode” to continue the software update.

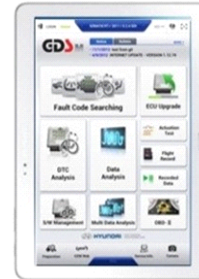
**OR**

**B.** Select “BACK” to exit the SW update. Then, start the engine and idle with the headlights on for 20 minutes. Return to the SW update after charging the battery.



1. Turn off all accessories and lamps.
2. Perform the upgrade with the ignition switch in the ON position.
3. Do **not** disconnect any cables connected to the vehicle or scan tool during upgrade.
4. Do **not** start the engine during the upgrade.
5. Do **not** turn off the ignition switch during upgrade.
6. Connect the VCI-II into the vehicle's DLC connector.

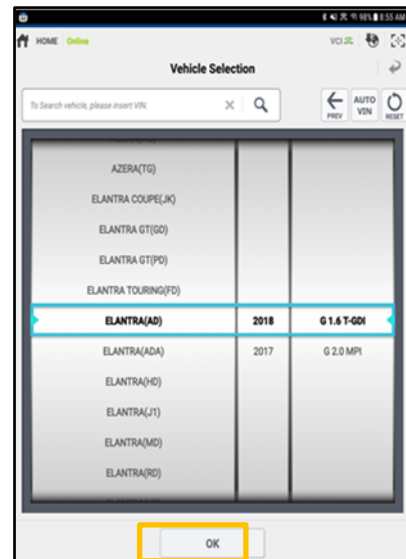
Tablet PC



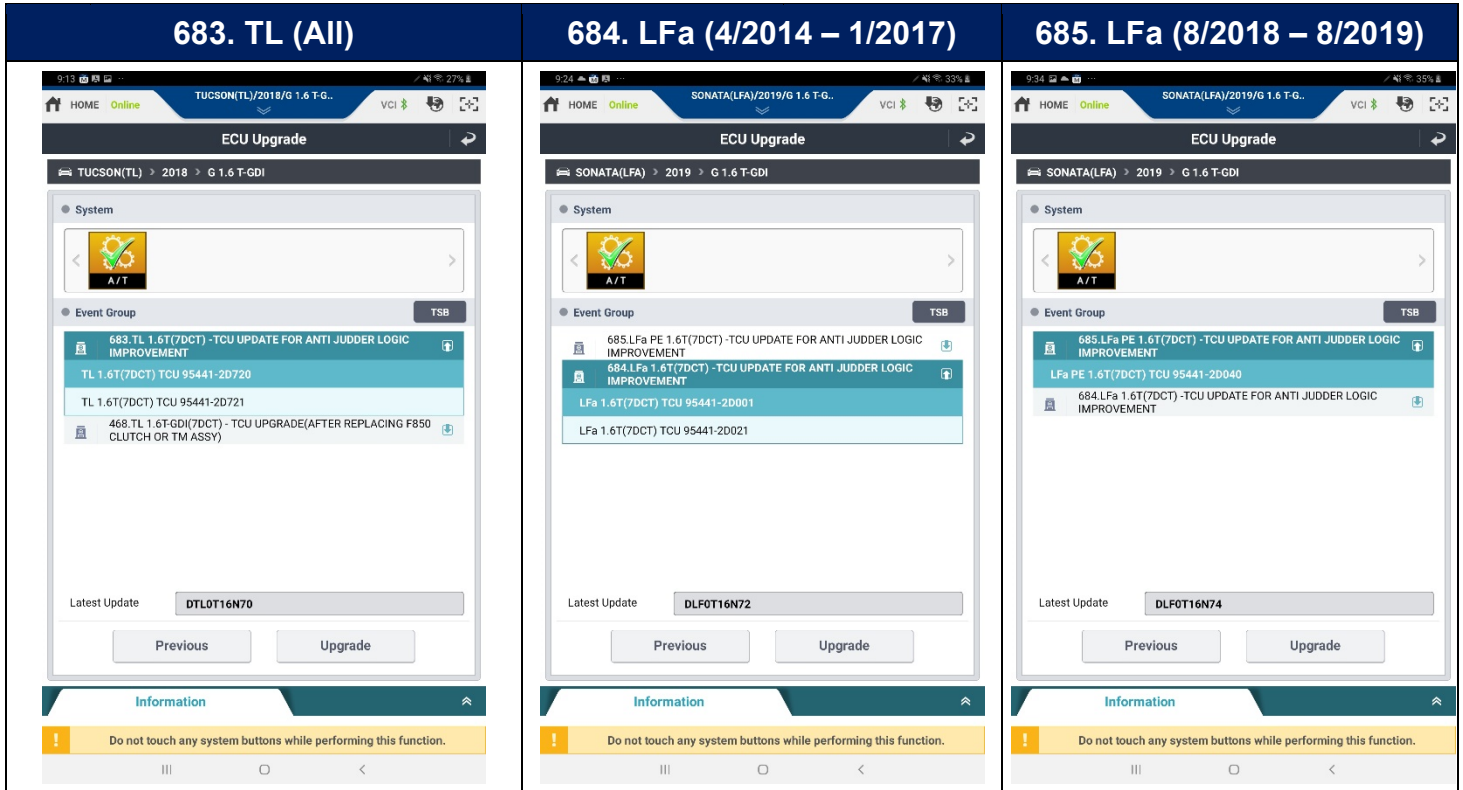
VCI-II



7. Enter the vehicle information and select **ECU Upgrade**.



- Select Manual Mode, then select Upgrade Event.



- Enter the password provided on the TCU Manual Mode Password Information Table on Page 2.
- Ensure that battery voltage is at least 12 Volts before TCM upgrade. If battery voltage is adequate, click OK to begin TCU upgrade.

**⚠ WARNING**

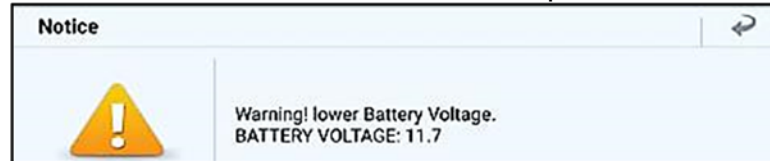
**GDS-M Vehicle Battery Low Voltage Warning:**

When the vehicle battery is lower than 12 volts, the GDS-M will trigger a Low Battery Voltage Warning. If this Warning occurs,

**A.** Connect the battery to a fully charged battery jump pack or GR8 charger using “Power Supply Mode” to continue the software update.

**OR**

**B.** Select “BACK” to exit the SW update. Then, start the engine and idle with the headlights on for 20 minutes. Return to the SW update after charging the battery.



11. Upgrade (1/2) and (2/2) will begin and upgrade progression will be visible on the screen until completion.

**NOTICE**

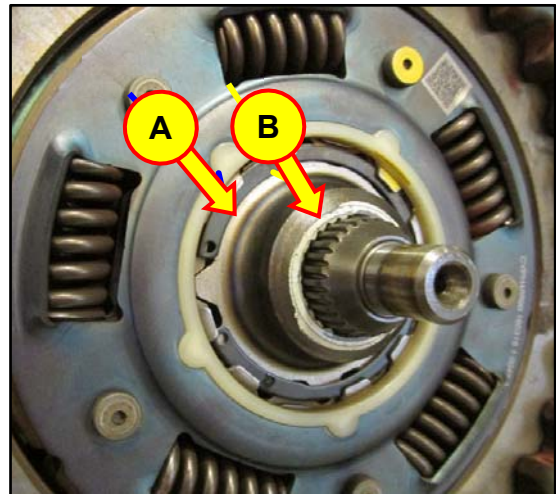
Do not make any selections until the upgrade is complete.

12. After upgrade (2/2) is complete,
  - Turn the ignition key OFF for **10 seconds**
  - Position key ON
  - Press OK to continue
13. Check for Diagnostic Trouble Codes in ALL menus and erase any DTC.
14. If applicable, erase the DTC in the BlueLink system according to TSB **12-BE-005-2**.
15. Use the GDS to perform the double clutch learning function.
16. Repeat step **A. GDS Clutch Judder Inspection** to confirm normal vehicle operation. If judder inspection fails, proceed to step **D. Double Clutch Replacement Procedure**.

**D. Double Clutch Replacement Procedure**

1. Remove the Dual-Clutch Transmission following the shop manual procedure.
2. Remove the retaining ring (A) (41126-2D100) and the splined hub (B).

The snap ring can become deformed in the removal process. Do not reuse the existing snap rings when reinstalling the Double Clutch into the transmission.



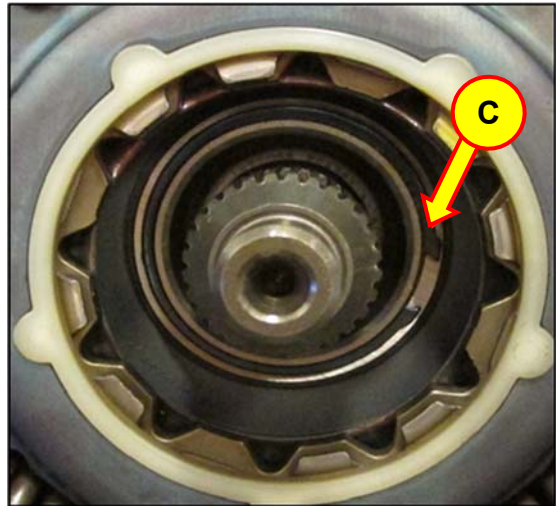
- Remove the snap ring (C) (41068-2D000).

**CAUTION**

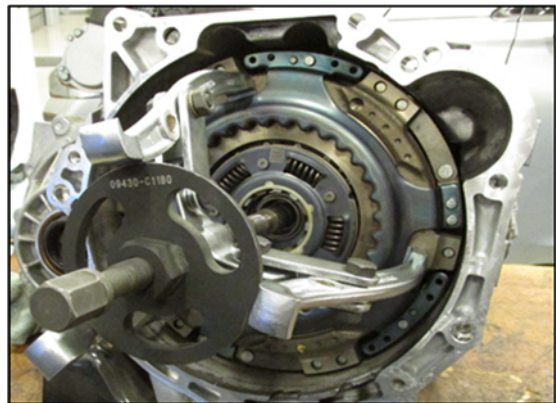
When installing the new snap ring, make sure it is fully seated and can be easily rotated left and right.

**NOTICE**

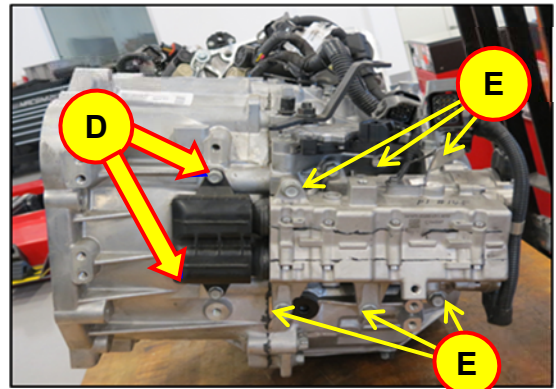
This operation requires special service tools. Refer to SST Table on Page 2.



- Using the special service tool (SST 09430-C1180), remove the double clutch from the transmission assembly.



- Remove the 2 bolts (D) securing the fork cover. Remove the 6 bolts (E) retaining the clutch actuator assembly to the transmission.



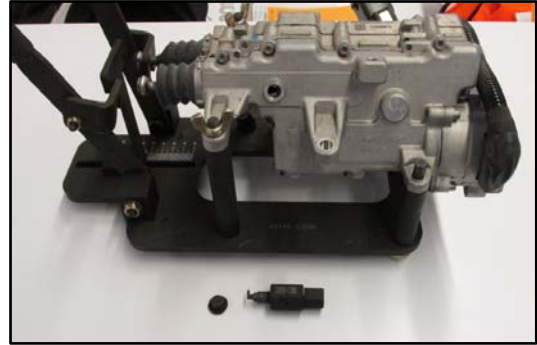
- Remove the clutch actuator and place it on the actuator fixing jig (SST 09430-C1302).



7. Follow the service shop manual procedure to initialize the rod length for both odd and even clutch actuator rods.

**CAUTION**

When installing a new Double-Clutch, the clutch actuator rod length must be reset back to the factory zero. If the rod length is not adjusted correctly, the GDS-M DCT relearn procedure will not complete.



8. Reinstall the clutch actuator in the order that it was removed.

**Torque: Fork Cover - 2.9-4.3 lb-ft (3.9-5.9 N.m)**

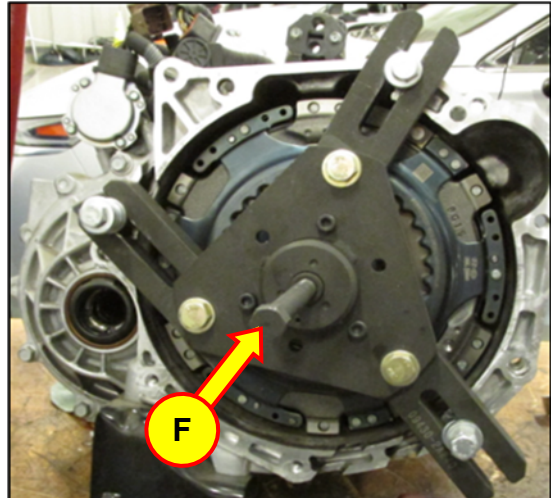
**Torque: Clutch Actuator - 14.5-19.5 lb-ft (19.6-26.5 N.m)**



9. Install the new Double-Clutch using the special service tool (SST 09430-2A240) to fully seat the Double-Clutch.

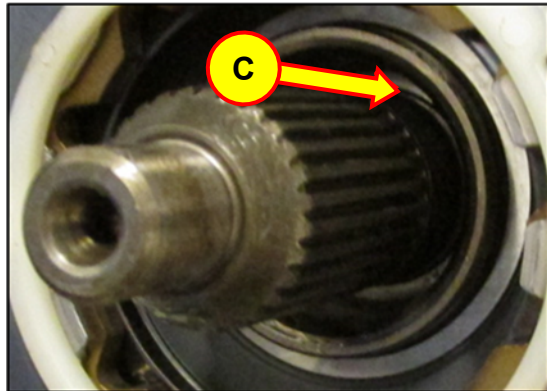
**NOTICE**

(SST 09430-2A240) may appear different than the reference photo.



10. Turn bolt (F) clockwise. When the force needed to turn the bolt increases, the Double-Clutch is fully seated.

11. Verify the Double-Clutch is fully seated on the input shafts. The snap ring groove (C) will be fully exposed.



12. Install new snap ring (C), splined hub (B) and retaining ring (A).

**⚠ CAUTION**

When installing the new snap ring, make sure it is fully seated and can be easily rotated left and right.



13. Reinstall the Dual Clutch Transmission into the vehicle by following the service shop manual procedure.
14. The Service Procedure is now complete.