



HYUNDAI

Technical Service Bulletin

GROUP	NUMBER
ENGINE MECHANICAL	26-EM-005H
DATE	MODEL(S)
FEBRUARY 2026	SANTA FE (TMA)

SUBJECT: INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU SOFTWARE UPDATE – DTCS P218100, P2181F0, P2181F1

★ IMPORTANT




This field action requires justification in the form of a customer concern, and a confirmed case for the related symptom outlined in the TSB, prior to any repair work. If justification requirements are not met, any submitted claims are subject to debit. 8 / 80,000 Emissions Warranty applies. See Warranty Information section for more details.

Description: Some Santa Fe (TMA) vehicles may have DTCs P218100, P2181F0, and/or P2181F1 (Cooling System Performance) set in the Electronic Control Unit (ECU), resulting in an illuminated Check Engine warning lamp. Follow the procedure in this TSB to replace the Integrated Thermal Management (ITM) module and update both the the Engine Control Module (ECM) and Transmission Control Module (TCM) if applicable. Follow the flowchart in this TSB to update the appropriate modules.

Applicable Vehicles:

Model Year	Model	Engine	Production Dates
2021 – 2023	Santa Fe (TMA)	2.5T, 2.5L GDI	10/30/2020 – 12/29/2023

Parts Information:

Model	Part Name	Part Number	Figure	Quantity
Santa Fe (TMA)	Control Assy – Coolant Temperature	25600-2S650QQH		QTY: 1
	O-Ring	25462-2S000		
	Pink Antifreeze/ Coolant	00232-19098		QTY: 2


NOTE: Do **NOT** use **100%** full strength antifreeze. Prepare coolant mixed with distilled/filtered water to refill the cooling system (**35-50%** antifreeze, diluted with distilled/filtered water).

Circulate To: General Manager, Service Manager, Parts Manager, Warranty Manager, Service Advisors, Technicians, Body Shop Manager, Fleet Repair

SUBJECT:

INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU
SOFTWARE UPDATE – DTCS P218100, P2181F0, P2181F1

SST Information:

Tool Name	Tool Number	Figure	Ordering Information
VCI 3	G0VHNNN06		Website: https://hyundaiesentialtools.com/ Email: Hyundaitools@snapon.com Phone: 1-855-763-9199 Hours: 7 AM – 7 PM CST
VCI 2	G1XDDMN001		

NOTE: VCI 2 (P/N G1XDDMN001) can **NO** longer be ordered.

GDS Information:

Model	System	Event Number*	Description
Santa Fe (TMA)	Engine	1282	TMA 2.5 GDI DTC P2181 IMPROVEMENT
		1283	TMA 2.5 T-GDI DTC P2181 IMPROVEMENT
	AT	1063	TMa F/L 2.5L GDI ROUGH SHIFT AND HESITATION IMPROVED LOGIC (TCU) GDI
		1125	TMa PE 2.5T GDI 8DCT HP EOP SENSORLESS LOGIC UPDATE WHEN MOTOR MIL ILLUMINATE

(*or use a later available event listed in the GDS **Engine** or **AT** Update screen if one is available.)

Warranty Information:

Model	Op. Code	Operation	Op. Time	Causal Part	Nature Code	Cause Code
Santa Fe (TMA)	50D138R0	T-GDI ITM Replacement, ECM & TCU Software Update, & Air Bleeding	2.7 M/H	39101-2STN0	L31	ZZ4
	50D138R1	GDI ITM Replacement, ECM & TCU Software Update	2.1 M/H	39110-2S059		
	50D138R2	GDI/T-GDI ITM Replacement & ECM Software Update	1.9 M/H	39110-2S059		

NOTE 1: Submit claim on Claim Entry Screen as "Campaign" type.

NOTE 2: 8 / 80,000 Emissions Warranty applies to the part(s) and repair procedure(s) outlined in this TSB. Prior to beginning any repair work, ensure the part(s) associated with the repair procedure are within Emissions Warranty, observing mileage and Warranty Start Date or date of first use. If the subject part(s) are out of warranty coverage, the retailer has the option to submit a PA Request for goodwill consideration on a case-by-case basis.

NOTE 3: If any part(s) not subject to this TSB are found in need of replacement while performing the repair procedure, and the affected part(s) are still under warranty, the retailer may submit a separate claim using the same repair order. If the part(s) not subject to this TSB are out of warranty coverage, the retailer has the option to submit a PA Request for goodwill consideration on a case-by-case basis.

NOTE 4: This TSB includes repair justification in the form of automatically uploaded DTC(s) via GDS e-Report at the time of diagnosis. To ensure adherence to the Digital Documentation Policy before claim submission, DTC history can be reviewed via the e-Report function within the GDS. Additionally, required photos include a capture of the ECU Update "Success" screen for the associated update events.

Service Procedure:

DIGITAL DOCUMENTATION



This TSB includes repair justification in the form of an automatically uploaded DTC via GDS e-Report at the time of diagnosis. To ensure adherence to the Digital Documentation Policy prior to claim submission, DTC history can be reviewed via the e-Report function within GDS. A photo capture of the “ECU update complete” screen is required as outlined in the Digital Documentation Policy.

NOTICE

Applying the recommended torque to all fasteners is essential to reduce potential issues from occurring after the service procedure.

NOTICE

For proper engine operation, ITM replacement must be completed before the ECM update.

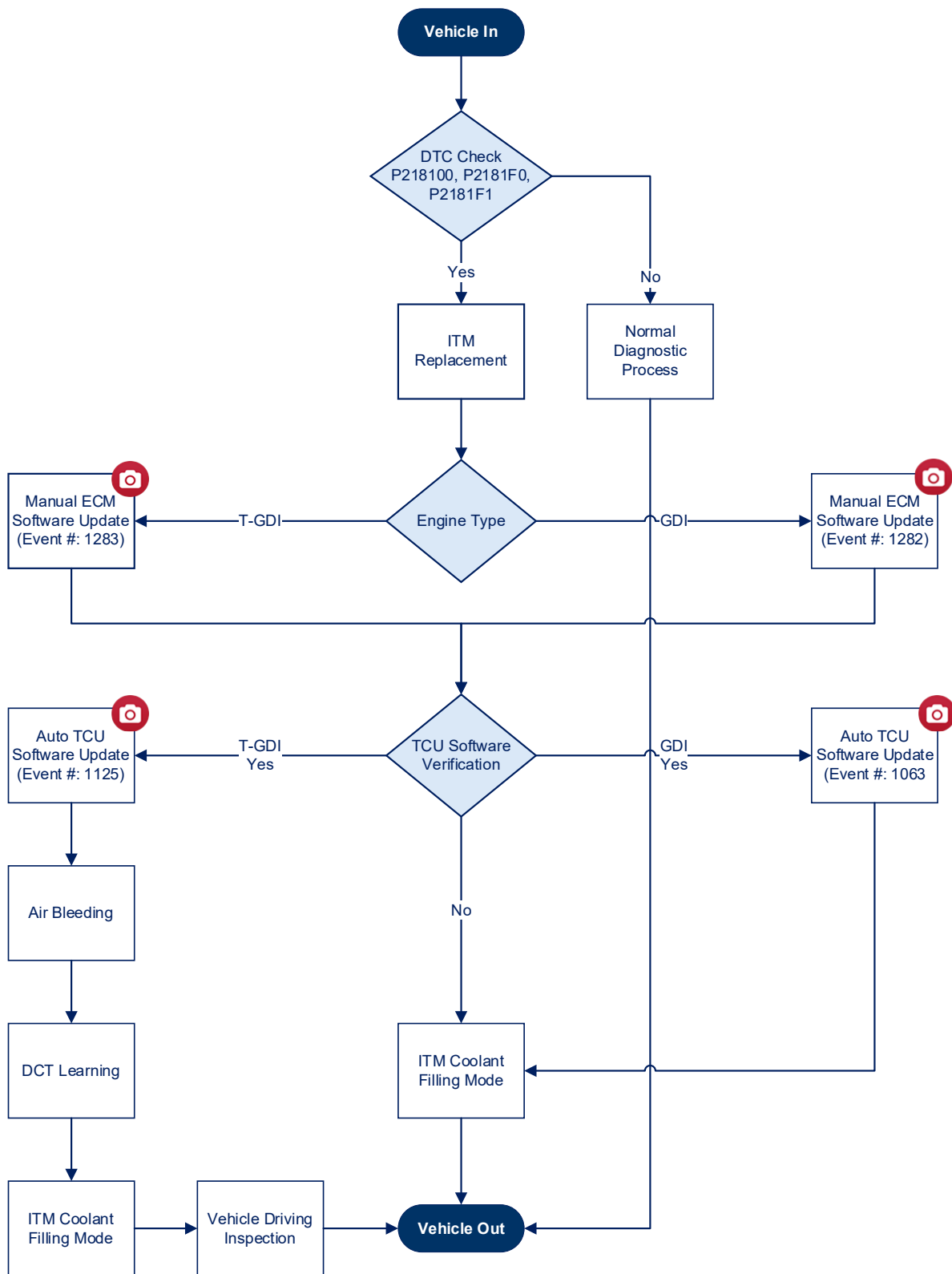
***i* Information**

This TSB **ONLY** applies if GDS fault code searching results identify DTCs P218100, P2181F0, and/or P2181F1.

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Flowchart:

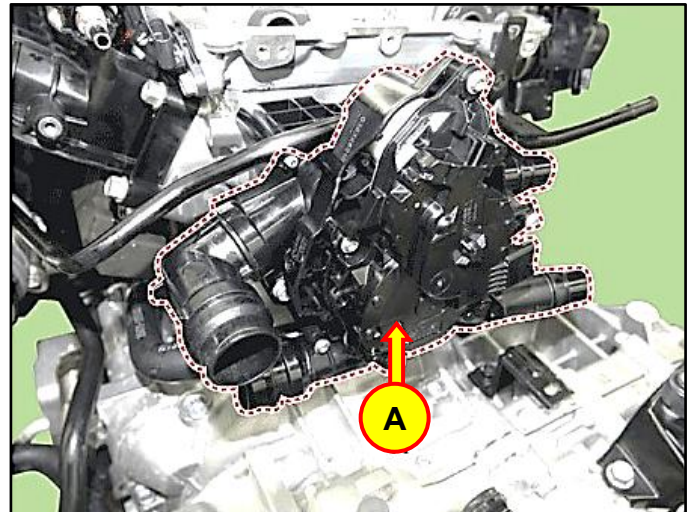


DTC Check

1. Use GDS to scan for **DTCs P218100, P2181F0, and P2181F1** (Cooling System Performance):
 - If DTCs are **NOT** detected, then this TSB does **NOT** apply. Follow the normal diagnostic process.
 - If DTCs are detected, then proceed to the **ITM Replacement** procedure.

ITM Replacement

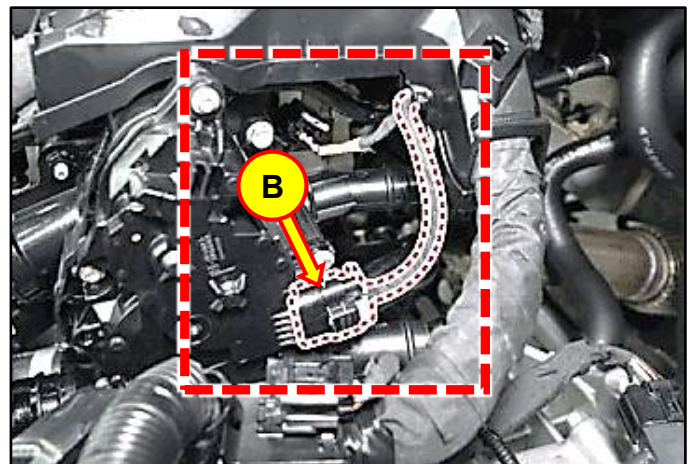
2. Replace the ITM (A) by referring to the shop manual.
 - **Engine Mechanical System > Cooling System > Integrated Thermal Management Module (ITM) > Repair procedures**



3. Reinstall parts in the reverse order of the removal process.

**Information**

The ITM design inverts the connector's (B) orientation.



Service Procedure:

NOTICE

Initially perform the **ECM update** in **Manual Mode** and **TCU update** in **Auto Mode** (if applicable).

NOTICE

Ensure the vehicle's battery charge is **above 11.0 Volts** and the tablet's battery charge is **above 30%** before performing a software update to avoid the update from failing.

i Information

- Turn **OFF** all lamps (do **NOT** leave head lamp switch in auto mode) and all accessories.
- Perform update with the ignition switch in the **ON** position.
- Do **NOT** disconnect any cables connected to the vehicle or scan tool during update.
- Do **NOT** start the engine during update.
- Do **NOT** turn **OFF** the ignition switch during update.

Manual Mode Password:

Event	ECM Menu	Password
GDI 1282	TMA 2.5GDI ECU 39110-2S059	2059
	TMA 2.5GDI ECU 39110-2S067	2067
	TMA 2.5GDI ECU 39110-2S060	2060
	TMA 2.5GDI ECU 39110-2S068	2068
	TMA 2.5GDI ECU 39110-2S092/093/274/275	2092
	TMA 2.5GDI ECU 39110-2S094/095/276/277	2094
	TMA 2.5GDI ECU 39110-2S298	2298
	TMA 2.5GDI ECU 39110-2S299	2299
T-GDI 1283	TMA 2.5T GDI ECU 39101-2STN0	1020
	TMA 2.5T GDI ECU 39101-2STN5	1025
	TMA 2.5T GDI ECU 39101-2STN6/7	1026
	TMA 2.5T GDI ECU 39101-2STN8	1028

ECM Update Procedure

i Information

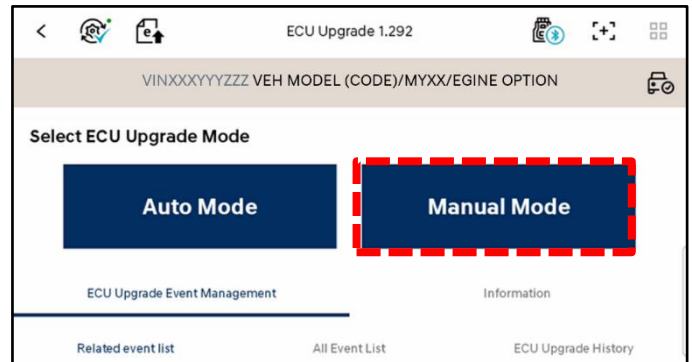
Perform the **ECM** software update in **Manual Mode** based on the engine type:

- **GDI: Event 1282**
- **T-GDI: Event 1283**

1. Perform the **ECM** update in **Manual Mode**.

i Information

Refer to **TSB # 25-GI-011H**, “**ECU Update Procedure for Tablet-Based GDS-Smart**”, for additional information.



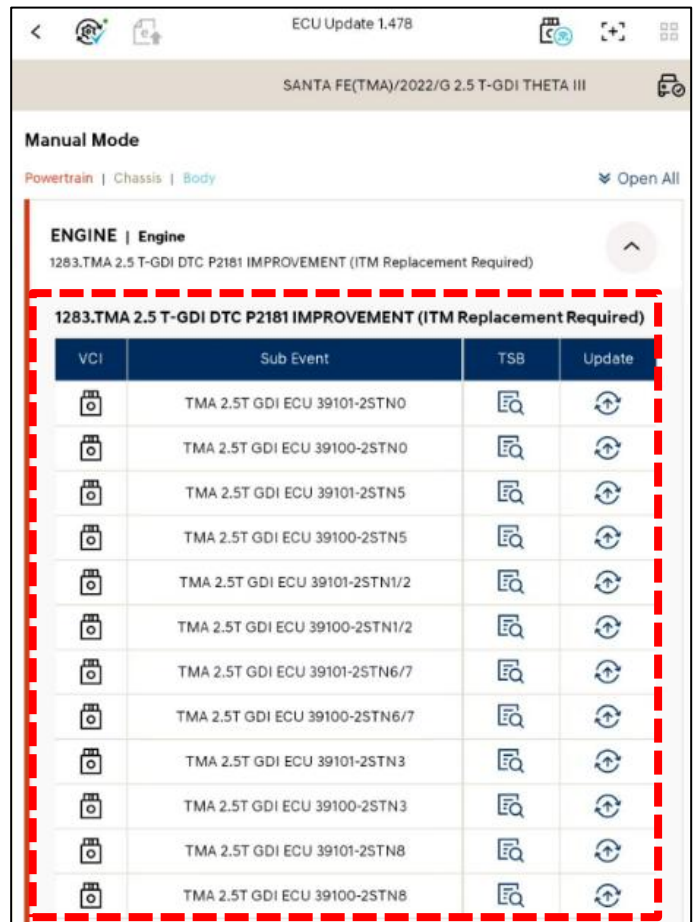
2. Verify the ROM ID by selecting the **ENGINE** system to scan the vehicle’s current ROM ID.

NOTICE

Check the current ROM ID version and compare it to the [ROM ID Information](#) table before attempting to perform the software update.

NOTICE

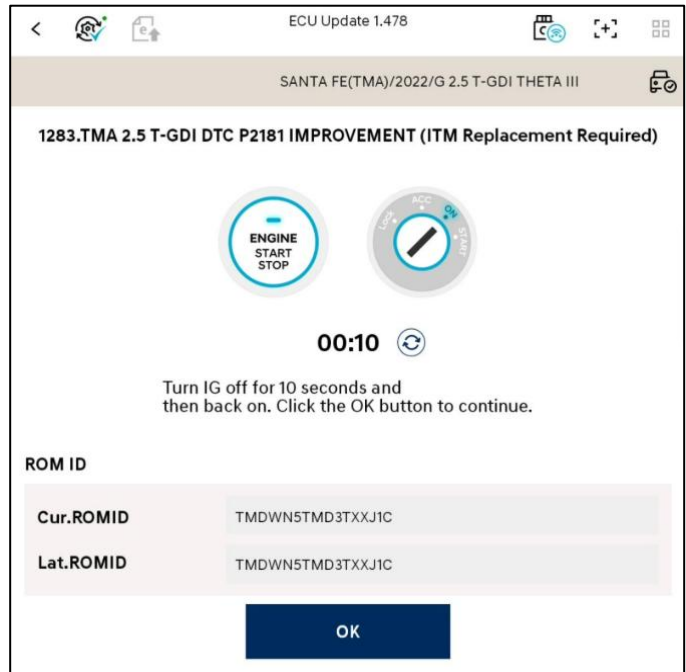
If the update fails, remove the power connector from the in-cabin fuse box for at least **5 seconds**. Reassemble and retry the update.



- 3. After the ECU update process shows 100% complete, follow the prompts on the screen to cycle the ignition **OFF** for at least **10 seconds** to reset the control unit (certain models may take up to **30 seconds**).

i Information

Use the **Refresh** button to reset the timer.



- 4.

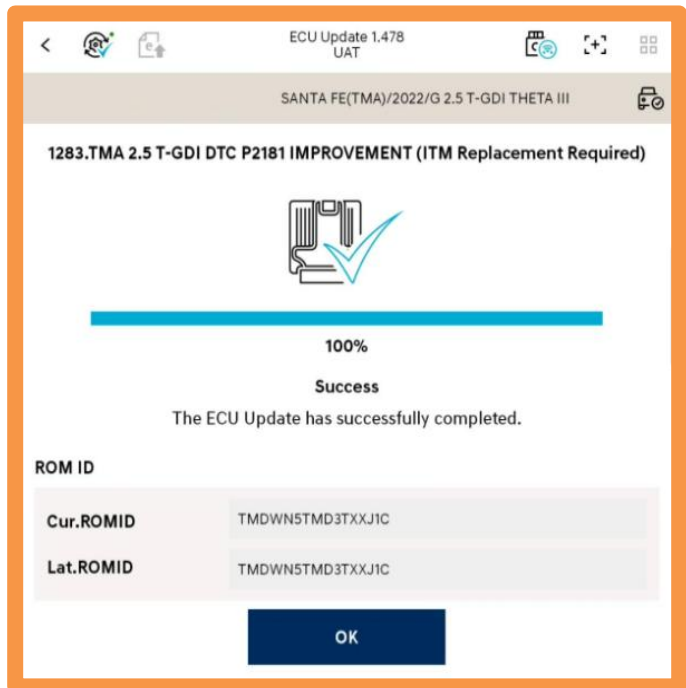
DIGITAL DOCUMENTATION



Using the tablet or GDS screen capture function, take a screenshot of the ECU Update "Success" result screen.

Upload the photo to STUI.

NOTE: The VIN/Date/Time/Mileage photo imprint is **NOT** required for GDS screenshots.

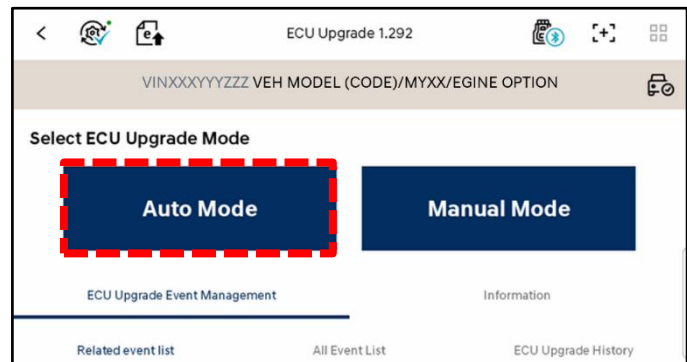


TCU Update Procedure

1. Use GDS to check for TCU update in Auto Mode:
 - If the update is **NOT** available, then go to the **ITM Coolant Filling Mode** procedure.
 - If the update is available, then go to the **next step**.
 - **T-GDI: Event 1125**
 - **GDI: Event 1063**
2. Perform the TCU update in **Auto Mode**.

Information

Refer to **TSB # 25-GI-011H**, “**ECU Update Procedure for Tablet-Based GDS-Smart**”, for additional information.



3. Verify the ROM ID by selecting the **TCU** system to scan the vehicle's current ROM ID.

NOTICE

Check the current ROM ID version and compare it to the [ROM ID Information](#) table before attempting to perform the software update.



NOTICE

If the update fails, remove the power connector from the in-cabin fuse box for at least **5 seconds**. Reassemble and retry the update.

4.

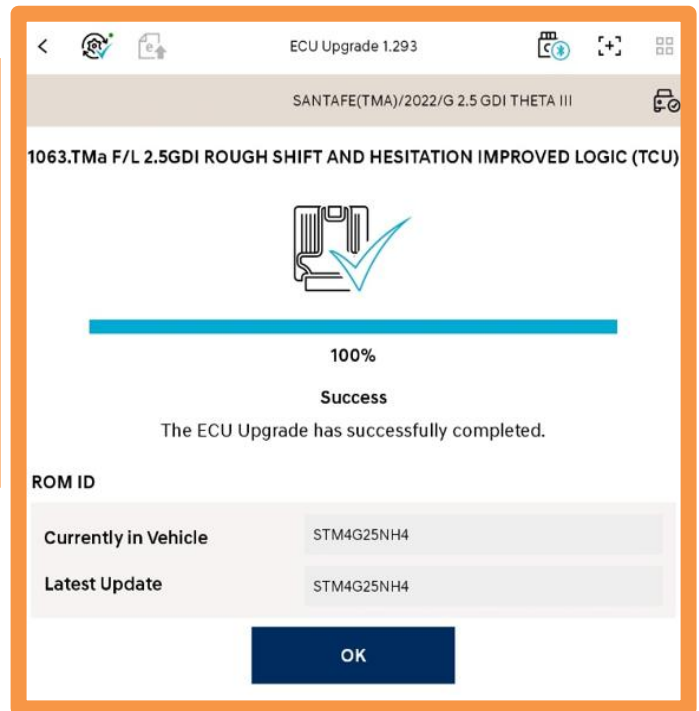
DIGITAL DOCUMENTATION



Using the tablet or GDS screen capture function, take a screenshot of the TCU Update “Success” result screen.

Upload the photo to STUI.

NOTE: The VIN/Date/Time/Mileage photo imprint is **NOT** required for GDS screenshots.



5.

Perform an **All Systems Fault Code** search and erase DTC history that had incidentally occurred from the ECU update.



6.

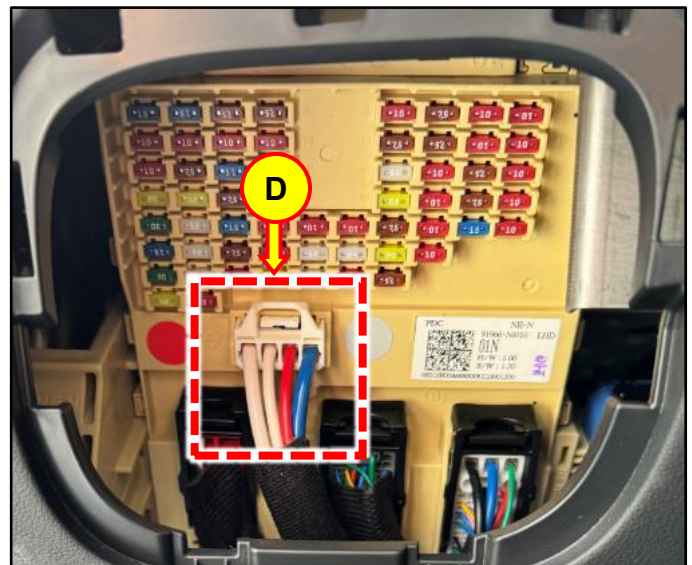
Disconnect the power connector (D) of the indoor fuse box, wait at least **5 seconds**, then reconnect it.

i Information

Alternatively, disconnect the negative (-) **12V** battery terminal, wait at least **5 seconds**, then reconnect it.

i Information

For **Event 1063**, proceed to the [ITM Coolant Filling Mode](#) procedure.



Air Bleeding Procedure for Event 1125 (T-GDI)

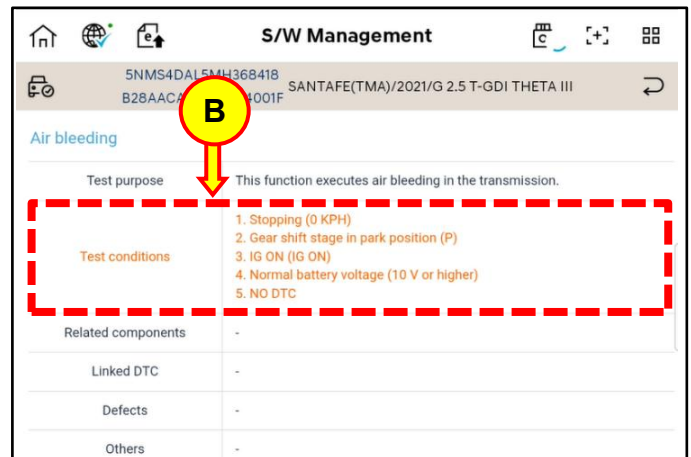
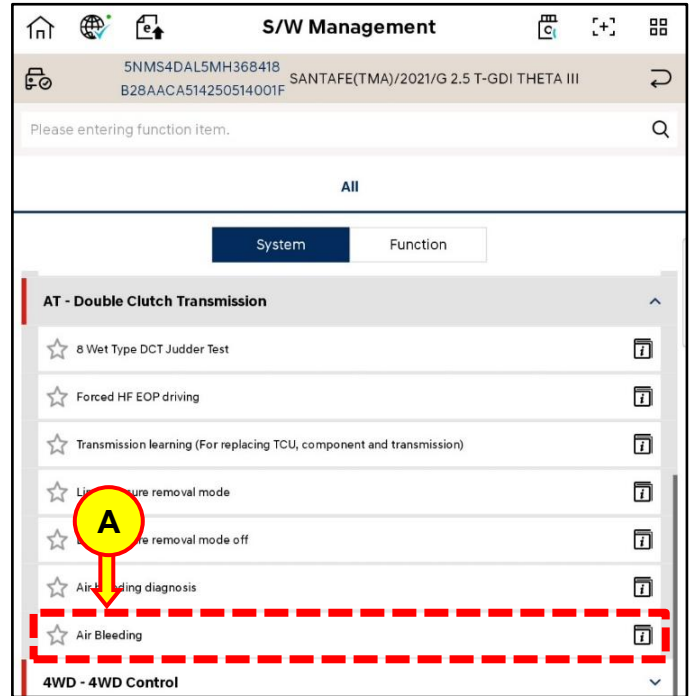
1. Confirm vehicle is set to the following parameters:
 - Vehicle stopped with transmission in Park (**P**).
 - Ignition switch **ON** (IG ON).
2. Connect GDS to the vehicle.

3. Under **AT – Double Clutch Transmission**, select **Air Bleeding (A)**.

i Information

Do **NOT** operate any other functions while performing air bleeding.

4. Confirm the **Test conditions (B)** on the screen, then select **Run (C)**.



SUBJECT:

**INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU
SOFTWARE UPDATE – DTCS P218100, P2181F0, P2181F1**

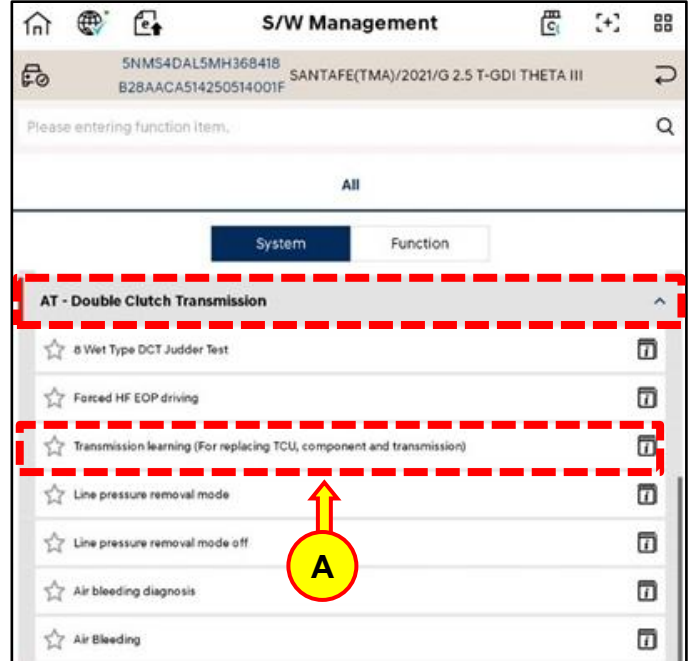
DCT Learning Procedure for Event 1125 (T-GDI)

- 1. Select **AT – Double Clutch Transmission**, then select **Transmission learning (A)**.



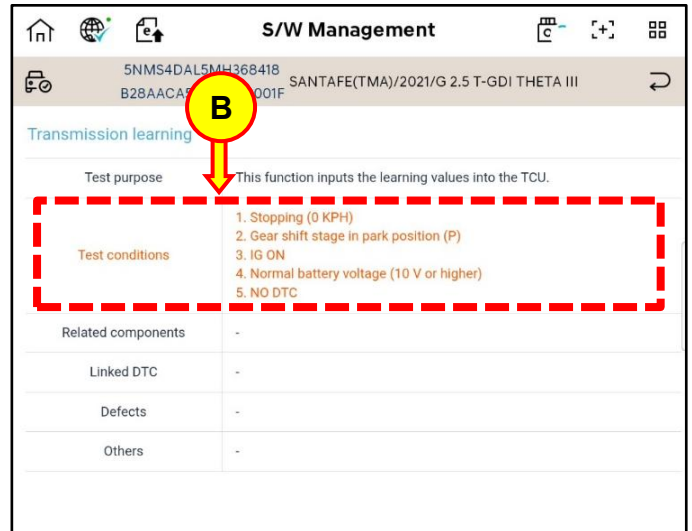
Information

Do **NOT** operate any other functions while performing Transmission learning.



- 2. Confirm the **Test conditions (B)** on the screen, then select **Run (C)**.

Proceed to **Vehicle Driving Inspection**.



ITM Coolant Filling Mode

1. Use GDS to perform the **Integrated Thermal Module Coolant Filling Mode**.

Refer to the shop manual:

- **Engine Mechanical System > Cooling System > Coolant > Repair procedures**

WARNING

Do **NOT** remove the radiator cap when the engine is hot. Serious scalding could be caused by high-pressured, hot fluid from the radiator.

NOTICE

Failure to follow the ITM bleeding procedure under **S/W Management** in GDS may result in air pockets and overheating of the engine.

2. Start the vehicle to confirm proper operation.
3. The service procedure is now complete.

Information

T-GDI vehicles that received **Event 1125**, proceed to the **Vehicle Driving Inspection** procedure on the next page.
The service procedure is now complete for GDI vehicles.

The screenshot shows the 'S/W Management' screen for a Santa Fe (TMA)/2022/G 2.5 T-GDI THETA III. The title is 'Integrated Thermal Module Coolant Filling Mode'. Below the title is a table with the following details:

Purpose	This mode assists coolant refilling by opening the coolant flow line for the engine equipped with an ITM.
Enable Condition	<ol style="list-style-type: none"> 1. IG ON, ENG RUN 2. Transmission position P / Parking brake ON 3. Vehicle speed 0km/h (0 mile/h) 4. Coolant temperature is 90°C or under
Concerned Component	ITM
Concerned DTC	-
Fail Safe	-
Etc	-

Vehicle Driving Inspection for Event 1125 (T-GDI)

1. Static test:
 - a) Vehicle ignition **ON**.
 - b) With brake pedal depressed, shift the gears as follows:
N > D/N > R/P > D/P > R
 - c) Confirm vehicle does **NOT** exhibit abnormal shock.
 - d) Repeat **steps b & c** above **3 times**.

2. Creep test:
 - a) Vehicle ignition **ON**.
 - b) With brake pedal depressed, shift gear from **P** to **D**.
 - c) With brake pedal depressed, shift gear from **P** to **R**.
 - d) Confirm that vehicle starts moving within **1-2 seconds**, without engine hesitation or juddering.
 - e) Repeat steps **b-d** above **3 times**.

3. Check for DTCs and any concerns during the tests in **steps 1 & 2**, such as brake signal, gear tightening, hydraulic pressure, etc.

4. Diagnose and repair per shop manual. Replace the transmission if issues are found after a detailed inspection.

5. The service procedure is now complete.

SUBJECT:INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU
SOFTWARE UPDATE – DTCS P218100, P2181F0, P2181F1**TCU Manual Mode Passwords:**

Event	Menu	Password
1063	TMa F/L 2.5GDI TCU 39110-2S059	2300
	TMa F/L 2.5GDI TCU 39110-2S060	
	TMa F/L 2.5GDI TCU 39110-2S092	
	TMa F/L 2.5GDI TCU 39110-2S094	
	TMa F/L 2.5GDI TCU 39110-2S274	
	TMa F/L 2.5GDI TCU 39110-2S276	
	TMa F/L 2.5GDI TCU 39110-2S298	
	TMa F/L 2.5GDI TCU 39110-2S067	3301
	TMa F/L 2.5GDI TCU 39110-2S068	
	TMa F/L 2.5GDI TCU 39110-2S093	
	TMa F/L 2.5GDI TCU 39110-2S095	
	TMa F/L 2.5GDI TCU 39110-2S275	
	TMa F/L 2.5GDI TCU 39110-2S277	
	TMa F/L 2.5GDI TCU 39110-2S299	
1125	TMa PE 2.5T 8DCT 954A1-2N250	2250

SUBJECT: INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU SOFTWARE UPDATE – DTCS P218100, P2181F0, P2181F1

ROM ID Information: GDI Event 1282

Model	MY	Axle	System	ECU Part Number	ROM ID	
					Current	Latest
Santa Fe (TMA)	2021	2WD	ECU	39110-2S059	TACVN5GMH3XXXG2C TACVN5GMH3XXXH0A TACVN5GMH3XXXH0B TACVN5GMH3XXXH0C	TACVN5GMH3XXXL8A
				39110-2S060	TACVN5GSH3XXXG2C TACVN5GSH3XXXH0A TACVN5GSH3XXXH0B TACVN5GSH3XXXH0C	TACVN5GSH3XXXL8A
		4WD		39110-2S067	TACVN5GMI3XXXG2C TACVN5GMI3XXXH0A TACVN5GMI3XXXH0B TACVN5GMI3XXXH0C	TACVN5GMI3XXXL8A
				39110-2S068	TACVN5GSI3XXXG2C TACVN5GSI3XXXH0A TACVN5GSI3XXXH0B TACVN5GSI3XXXH0C	TACVN5GSI3XXXL8A
	2022	2WD		39110-2S092	TADV5GMH3XXXJ1A TADV5GMH3XXXJ1B	TADV5GMH3XXXL8C
				39110-2S094	TADV5GSH3XXXJ1A TADV5GSH3XXXJ1B	TADV5GSH3XXXL8C
				39110-2S274	TADV5GMH3XXXL5A TADV5GMH3XXXL5B TADV5GMH3XXXL8A TADV5GMH3XXXL8B	TADV5GMH3XXXL8C
				39110-2S276	TADV5GSH3XXXL5A TADV5GSH3XXXL5B TADV5GSH3XXXL8A TADV5GSH3XXXL8B	TADV5GSH3XXXL8C
		4WD		39110-2S093	TADV5GMH3XXXJ1A TADV5GMH3XXXJ1B	TADV5GMH3XXXL8C
				39110-2S095	TADV5GSH3XXXJ1A TADV5GSH3XXXJ1B	TADV5GSH3XXXL8C
				39110-2S275	TADV5GMH3XXXL5A TADV5GMH3XXXL5B TADV5GMH3XXXL8A TADV5GMH3XXXL8B	TADV5GMH3XXXL8C
				39110-2S277	TADV5GSH3XXXL5A TADV5GSH3XXXL5B TADV5GSH3XXXL8A TADV5GSH3XXXL8B	TADV5GSH3XXXL8C
	2023	2WD		39110-2S298	TAEVN5GMH3XXXM0A TAEVN5GMH3XXXM1A TAEVN5GMH3XXXM1B	TAEVN5GMH3XXXM1C
		4WD		39110-2S299	TAEVN5GMI3XXXM0A TAEVN5GMI3XXXM1A TAEVN5GMI3XXXM1B	TAEVN5GMI3XXXM1C

ROM ID Information: T-GDI Event 1283

Model	MY	System	ECU Part Number	ROM ID	
				Current	Latest
Santa Fe (TMA)	2021	ECU	39101-2STN0	TMBWN5TMD3XXXG2C TMBWN5TMD3XXXG2D TMBWN5TMD3XXXG2E	TMBWN5TMD3XXXG2F
			39101-2STN5	TMBWN5TMD3TXXG2C TMBWN5TMD3TXXG2D TMBWN5TMD3TXXG2E	TMBWN5TMD3TXXG2F
	2022		39101-2STN6	TMDWN5TMD3TXXJ1A	TMDWN5TMD3TXXJ1C
	2022		39101-2STN7	TMDWN5TMD3TXXJ1B	TMDWN5TMD3TXXJ1C
	2023		39101-2STN8	TMEWN5TMD3TXXM0B TMEWN5TMD3TXXM0C	TMEWN5TMD3TXXM0D

SUBJECT: INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU SOFTWARE UPDATE – DTCS P218100, P2181F0, P2181F1

ROM ID Information: GDI Event 1063

Model	MY	Axle	System	ECU Part Number	ROM ID	
					Current	Latest
Santa Fe (TMA)	2021	2WD	TCU	39110-2S059	STM2G25NH1	STM2G25NH4
				39110-2S060		
		4WD		39110-2S067	STM4G25NH1	STM4G25NH4
				39110-2S068		
	2022	2WD		39110-2S092	STM2G25NH1	STM2G25NH4
				39110-2S094	STM2G25NH1	STM2G25NH4
		4WD		39110-2S093	STM4G25NH1	STM4G25NH4
				39110-2S095	STM4G25NH1	STM4G25NH4
	2022	2WD		39110-2S274	STM2G25NH2 STM2G25NH3	STM2G25NH4
				39110-2S276	STM2G25NH2 STM2G25NH3	STM2G25NH4
		4WD		39110-2S275	STM4G25NH2 STM4G25NH3	STM4G25NH4
				39110-2S277	STM4G25NH2 STM4G25NH3	STM4G25NH4
	2023	2WD		39110-2S298	STM2G25NH3	STM2G25NH4
		4WD		39110-2S299	STM4G25NH3	STM4G25NH4

SUBJECT: INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU SOFTWARE UPDATE – DTCS P218100, P2181F0, P2181F1

ROM ID Information: T-GDI Event 1125

Model	MY	System	ECU Part Number	ROM ID	
				Current	Latest
Santa Fe (TMA)	2021-2023	TCU	954A1-2N250	VTMPT25XXX720NS0	VTMPT25XXX920NSC
				VTMPT25XXX720NS1	
				VTMPT25XXX730NS2	
				VTMPT25XXX800NS3	
				VTMPT25XXX800NS4	
				VTMPT25XXX800NS5	
				VTMPT25XXX832NS6	
				VTMPT25XXX900NS8	
				VTMPT25XXX900NSA	
				VTMPT25XXX920NSB	