



HYUNDAI

Technical Service Bulletin

GROUP ENGINE MECHANICAL	NUMBER 26-EM-004H
DATE FEBRUARY 2026	MODEL(S) TUCSON (NX4, NX4A)

SUBJECT: INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU SOFTWARE UPDATE – DTC 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 Tucson (NX4, NX4A) vehicles may have DTC P218100, P2181F0, and/or P2181F1 (Cooling System Performance) set in the Electronic Control Unit (ECU), resulting in an illuminated Check Engine warning lamp. This TSB provides instructions to replace the Integrated Thermal Management (ITM) module and update both the Engine Control Module (ECM) and Transmission Control Module (TCM), if applicable. Follow the flowchart in this bulletin to update the appropriate modules.

Applicable Vehicles:

Model Year	Model	Engine	Production Dates	VINs Start with
2022 – 2023	Tucson (NX4)	2.5L GDI	01/23/2021 - 06/24/2023	KM8
	Tucson (NX4A)		02/03/2021 - 11/21/2023	5NM

Parts Information:

Model	Part Name	Part Number	Figure	Quantity
Tucson (NX4, NX4A)	Control Assy – Coolant Temperature	25600-2S650QQH		1
	O-Ring	25462-2S000		1
	Pink Antifreeze/ Coolant	00232-19098		2 gal

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 – DTC P218100, P2181F0, P2181F1**SST Information:**

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

NOTE: VCI 2 can **NO** longer be ordered but can be used for the updates in this TSB.**GDS Information:**

Model	MY	System	Event Number*	Description
Tucson (NX4, NX4A)	2022-2023	Engine	1281	NX4/NX4A ECU DTC P2181 Improvement
Tucson with ISG (NX4)	2022	AT	1032	NX4 Theta III 2.5GDI TCU S/W Improvement for ISG Logic Improvement (2022MY ONLY – TCU for VINs starting w/ “KMH”)
Tucson with ISG (NX4A)	2022		1034	NX4A Theta III 2.5GDI TCU S/W Improvement for ISG Logic Improvement (2022MY ONLY – TCU for VINs starting w/ “5NM”)

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

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

Model	Op. Code	Operation	Op. Time	Causal Part	Nature Code	Cause Code
Tucson (NX4)	50D137R0	DTC Check, GDI ITM Replacement & ECM Update	2.0 M/H	39110-2S105	L31	ZZ4
	50D137R1	DTC Check, GDI ITM Replacement + ECM Update & TCU Update (ISG Option & Certain 22MY)	2.2 M/H	39110-2S105		
Tucson (NX4A)	50D137R4	DTC Check, GDI ITM Replacement & ECM Update	2.0 M/H	39110-2S161		
	50D137R5	DTC Check, GDI ITM Replacement, ECM Update & TCU Update (ISG Option & Certain 22MY)	2.2 M/H	39110-2S161		

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 dealer 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 dealer 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 dealer 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 event.

NOTE 5: The incident parts are subject to callback through the normal Warranty Technical Center (WTC) parts return process. **Claim is subject to debit if the part is not returned.**

NOTE 6: Engine Control Module (ECM) software update is required in all applications. The Transmission Control Module (TCM) software update is only required for the 2.5L GDI vehicles equipped with ISG.

Service Procedure:

DIGITAL DOCUMENTATION



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.

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 ECU update.



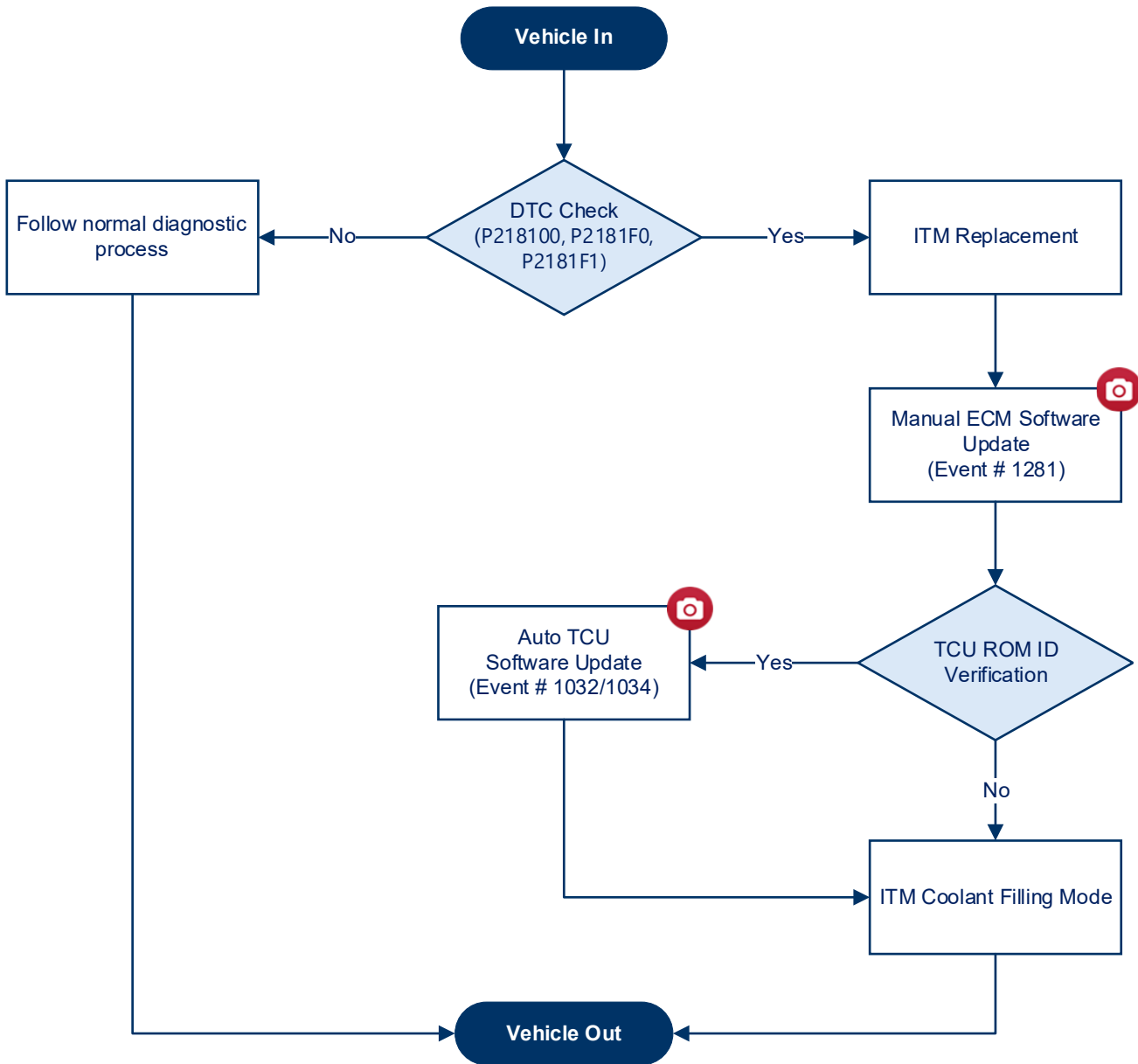
Information

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

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Flowchart

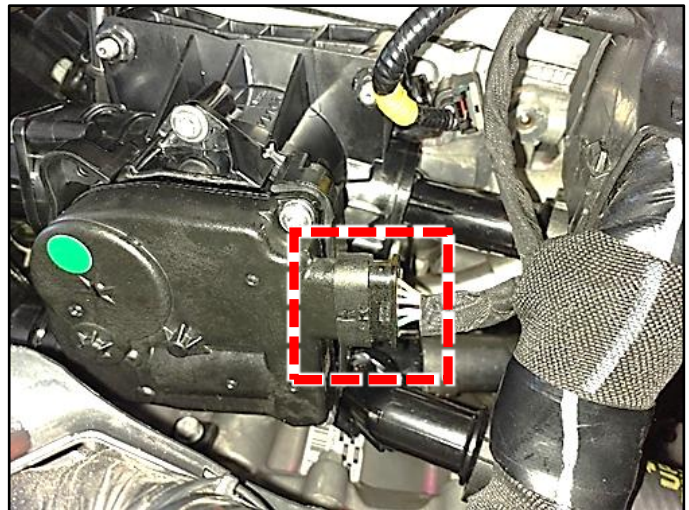
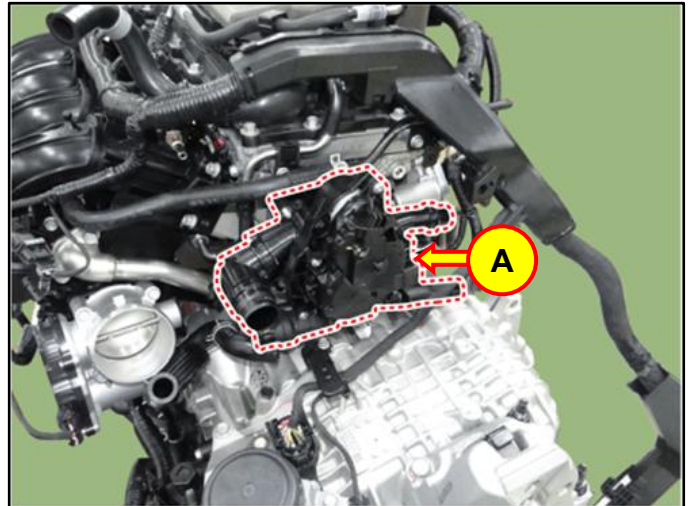


DTC Check

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

ITM Replacement

1. Replace the ITM (A) by referring to the shop manual.
 - **Engine Mechanical System > Cooling System > Integrated Thermal Management Module (ITM) > Repair procedures**
2. Reinstall all parts in the reverse order of the removal process.

**Information**

The ITM design inverts the connector's 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 update failure.

***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 the update.
- Do **NOT** start the engine during the update.
- Do **NOT** turn **OFF** the ignition switch during the update.

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

Event	Menu	Password
1281	NX4 2.5 GDI ECU 39110-2S105/262	2105
	NX4 2.5 GDI ECU 39110-2S107/263	2107
	NX4 2.5 GDI ECU 39110-2S119/264	2119
	NX4 2.5 GDI ECU 39110-2S113/266	2113
	NX4 2.5 GDI ECU 39110-2S116/269	2116
	NX4 2.5 GDI ECU 39110-2S302	2302
	NX4 2.5 GDI ECU 39110-2S303	2303
	NX4 2.5 GDI ECU 39110-2S304	2304
	NX4 2.5 GDI ECU 39110-2S307	2307
	NX4A 2.5 GDI ECU 39110-2S161/280	2161
	NX4A 2.5 GDI ECU 39110-2S162/281	2162
	NX4A 2.5 GDI ECU 39110-2S163/283	2163
	NX4A 2.5 GDI ECU 39110-2S164/284	2164
	NX4A 2.5 GDI ECU 39110-2S170/285	2285
	NX4A 2.5 GDI ECU 39110-2S165/286	2165
	NX4A 2.5 GDI ECU 39110-2S166/287	2166
	NX4A 2.5 GDI ECU 39110-2S181/292	2181
	NX4A 2.5 GDI ECU 39110-2S182/293	2182
	NX4A 2.5 GDI ECU 39110-2S310	2310
	NX4A 2.5 GDI ECU 39110-2S311	2311
	NX4A 2.5 GDI ECU 39110-2S313	2313
	NX4A 2.5 GDI ECU 39110-2S315	2315
	NX4A 2.5 GDI ECU 39110-2S316	2316
NX4A 2.5 GDI ECU 39110-2S317	2317	

ECM Update Procedure

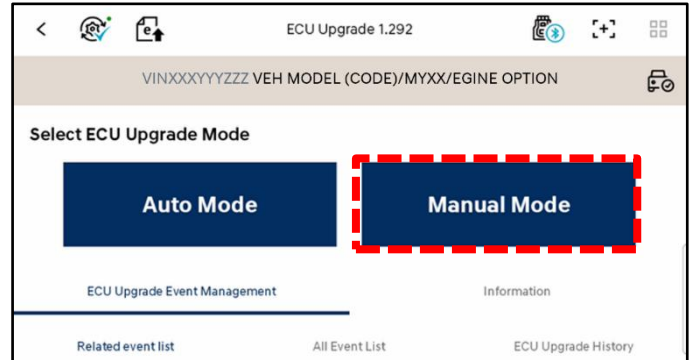
i Information

Perform the **ECM** software update in **Manual Mode (Event #1281)**. Refer to **page 8** and use the appropriate **Manual Mode** password.

- 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.



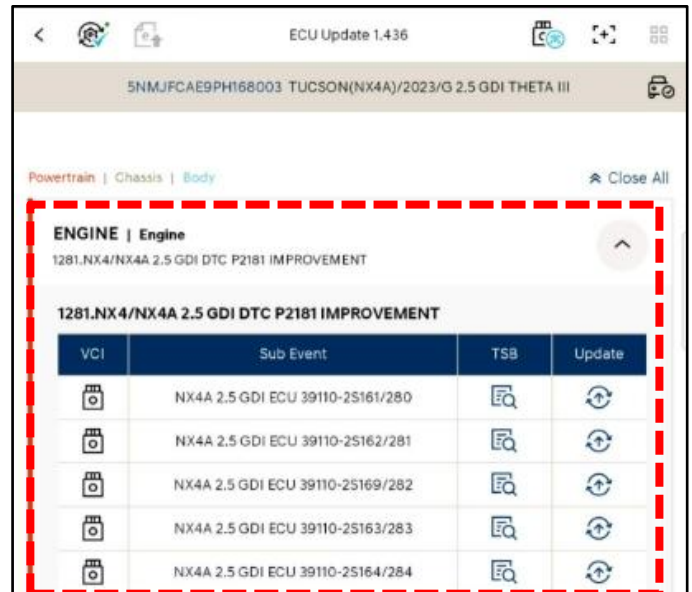
- 2. Verify the ROM ID by selecting the **ENGINE** system to scan the vehicle's current ROM IDs.

NOTICE

Check the current ROM ID version and compare it to [ROM ID Information](#) 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.



SUBJECT:

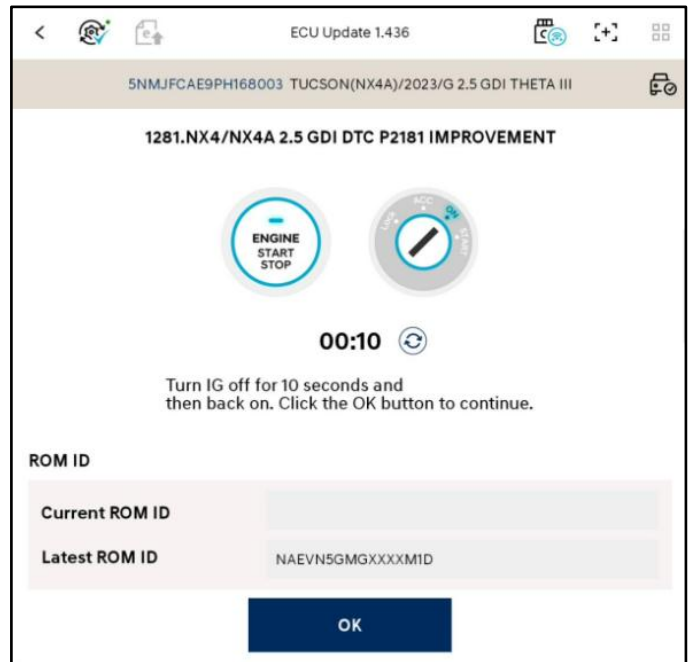
INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT & ECM/TCU SOFTWARE UPDATE – DTC P218100, P2181F0, P2181F1

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**).



Information

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



- 4.

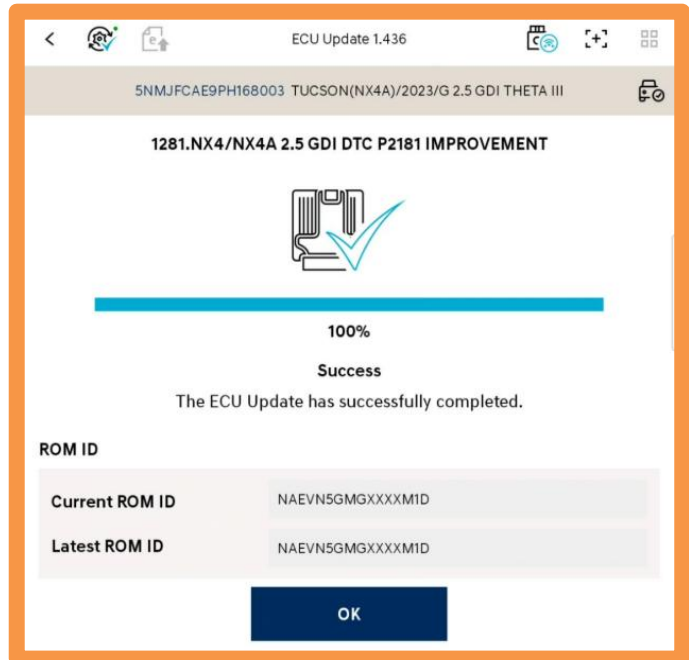
DIGITAL DOCUMENTATION



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.



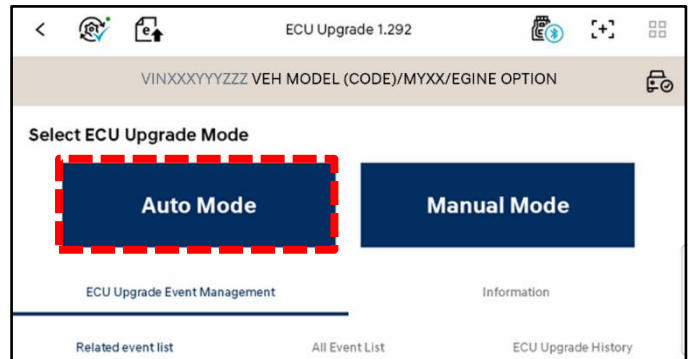
5. Perform an **All Systems Fault Code** search and erase DTC history that incidentally occurred from the ECU update.



TCU Update Procedure

1. Use GDS to check for **TCU** update in **Auto Mode**.
 - If it is **NOT** available, proceed to the **ITM Coolant Filling Mode** procedure.
 - If update is available, proceed to the **next step**.

2. Perform the TCU update in **Auto Mode**.



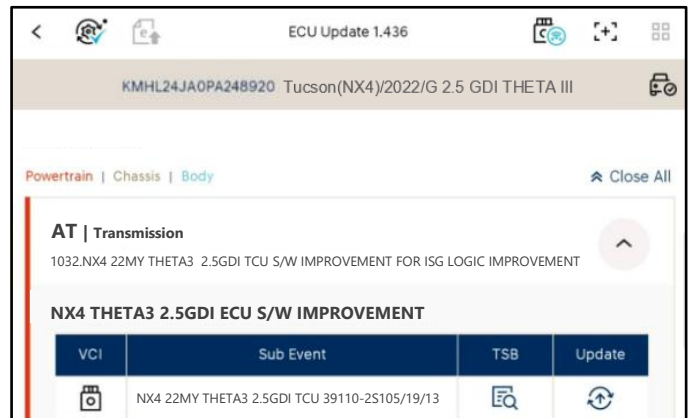
3. Verify the ROM ID by selecting the **AT** system to scan the vehicle's current ROM ID.

NOTICE

Check the current ROM ID version and compare it to [TCU ROM ID Information](#) 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.

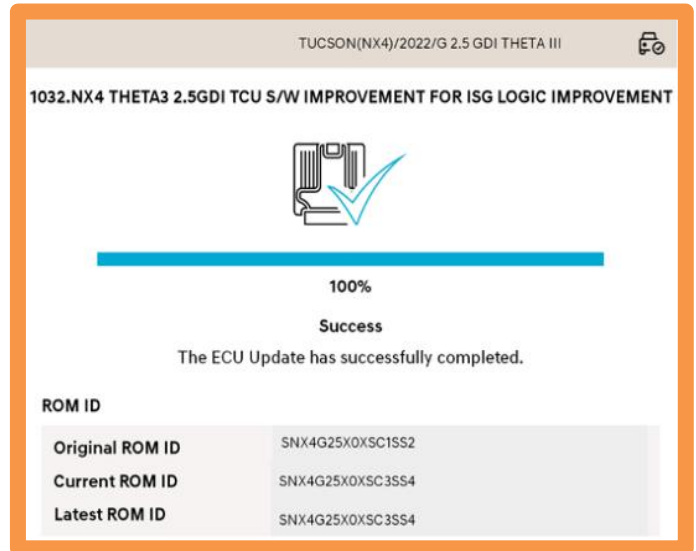
DIGITAL DOCUMENTATION



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

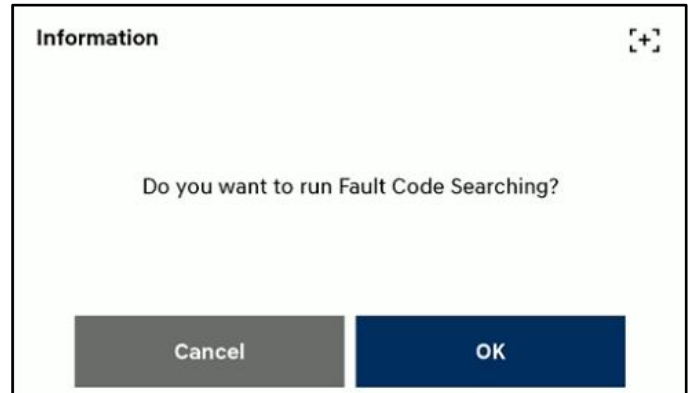
Upload the photo to STUI.

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.

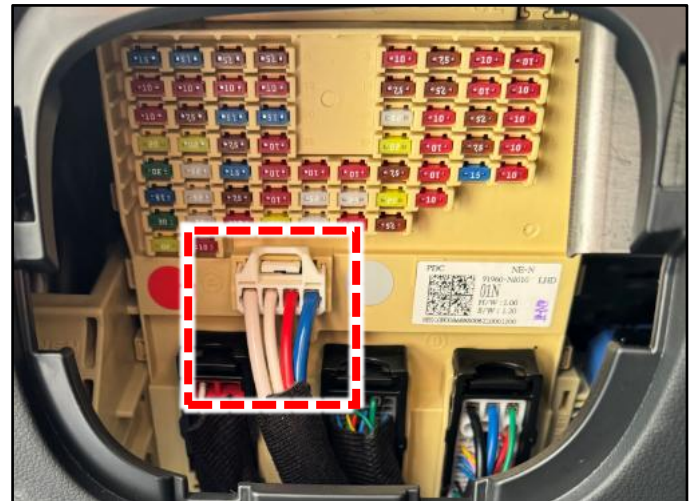


6.

Disconnect the power connector 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.



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 occur by hot fluid under high pressure escaping 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 normal operation.
3. The service procedure is now complete.

TCU Manual Mode Passwords:

Event	Menu	Password
1032	NX4 22MY THETA3 2.5GDI TCU 39110-2S105/19/13	9105
	NX4 22MY THETA3 2.5GDI TCU 39110-2S107/20/14	9107
	NX4 22MY THETA3 2.5GDI TCU 39110-2S116/22/18	9116
1034	NX4A 22MY THETA3 2.5GDI TCU 39110-2S161/62/65/66/81/82	9061
	NX4A 22MY THETA3 2.5GDI TCU 39110-2S163/64/67/68/84/85	9163
	NX4A 22MY THETA3 2.5GDI TCU 39110-2S170/76/86	9170

SUBJECT:INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT &
ECM/TCU SOFTWARE UPDATE – DTC P218100, P2181F0, P2181F1**ROM ID Information: Event #1281**

Model	Drivetrain	ECU Part Number	ROM ID	
			Current	Latest
Tucson (NX4) 2022MY	2/4 Wheel Drive	39110-2S105	NXDWD5GMAXXXXJ0A NXDWD5GMAXXXXJ1A NXDWD5GMAXXXXJ1B	NXDWD5GMAXXXXL8D
		39110-2S107	NXDWD5GMCXXXJ0A NXDWD5GMCXXXJ1A NXDWD5GMCXXXJ1B	NXDWD5GMCXXXL8D
		39110-2S119	NXDWD5GKAXXXXJ0A NXDWD5GKAXXXXJ1A NXDWD5GKAXXXXJ1B	NXDWD5GKAXXXXL8D
		39110-2S113	NXDWD5GSAXXXXJ0A NXDWD5GSAXXXXJ1A NXDWD5GSAXXXXJ1B	NXDWD5GSAXXXXL8D
	4 Wheel Drive	39110-2S116	NXDWD5GMKXXXJ0A NXDWD5GMKXXXJ1A NXDWD5GMKXXXJ1B	NXDWD5GMKXXXL8D
Tucson (NX4) 2022MY	2/4 Wheel Drive	39110-2S262	NXDWD5GMAXXXXL6A NXDWD5GMAXXXXL6B NXDWD5GMAXXXXL8A NXDWD5GMAXXXXL8B	NXDWD5GMAXXXXL8D
		39110-2S263	NXDWD5GMCXXXL6A NXDWD5GMCXXXL6B NXDWD5GMCXXXL8A NXDWD5GMCXXXL8B	NXDWD5GMCXXXL8D
		39110-2S264	NXDWD5GKAXXXXL6A NXDWD5GKAXXXXL6B NXDWD5GKAXXXXL8A NXDWD5GKAXXXXL8B	NXDWD5GKAXXXXL8D
		39110-2S266	NXDWD5GSAXXXXL6A NXDWD5GSAXXXXL6B NXDWD5GSAXXXXL8A NXDWD5GSAXXXXL8B	NXDWD5GSAXXXXL8D
	4 Wheel Drive	39110-2S269	NXDWD5GMKXXXL6A NXDWD5GMKXXXL6B NXDWD5GMKXXXL8A NXDWD5GMKXXXL8B	NXDWD5GMKXXXL8D

SUBJECT:INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT &
ECM/TCU SOFTWARE UPDATE – DTC P218100, P2181F0, P2181F1**ROM ID Information: Event #1281 (Continued)**

Model	Drivetrain	ECU Part Number	ROM ID	
			Current	Latest
Tucson (NX4) 2023MY 2.5L GDI Engine	2/4 Wheel Drive	39110-2S302	NXEVD5GMAXXXXM0A NXEVD5GMAXXXXM1A NXEVD5GMAXXXXM1B	NXEVD5GMAXXXXM1D
		39110-2S303	NXEVD5GMCXXXM0A NXEVD5GMCXXXM1A NXEVD5GMCXXXM1B	NXEVD5GMCXXXM1D
		39110-2S304	NXEVD5GKAXXXXM0A NXEVD5GKAXXXXM1A NXEVD5GKAXXXXM1B	NXEVD5GKAXXXXM1D
	4 Wheel Drive	39110-2S307	NXEVD5GMKXXXM0A NXEVD5GMKXXXM1A NXEVD5GMKXXXM1B	NXEVD5GMKXXXM1D
Tucson (NX4A) 2022MY 2.5L GDI Engine	2/4 Wheel Drive	39110-2S161	NADWN5GMFXXXXJ1A NADWN5GMFXXXXJ1B	NADWN5GMFXXXXL8D
		39110-2S162	NADWN5GMGXXXXJ1A NADWN5GMGXXXXJ1B	NADWN5GMGXXXXL8D
		39110-2S163	NADWN5GMHXXXXJ1A NADWN5GMHXXXXJ1B	NADWN5GMHXXXXL8D
		39110-2S164	NADWN5GMIXXXXXJ1A NADWN5GMIXXXXXJ1B	NADWN5GMIXXXXXL8D
	4 Wheel Drive Limited	39110-2S170	NADWN5GMKXXXXJ1A NADWN5GMKXXXXJ1B	NADWN5GMKXXXXL8D
	2/4 Wheel Drive	39110-2S165	NADWN5GSFXXXXJ1A NADWN5GSFXXXXJ1B	NADWN5GSFXXXXL8D
		39110-2S166	NADWN5GSGXXXXJ1A NADWN5GSGXXXXJ1B	NADWN5GSGXXXXL8D
		39110-2S181	NADWN5GKFXXXXJ1A NADWN5GKFXXXXJ1B	NADWN5GKFXXXXL8D
		39110-2S182	NADWN5GKGXXXXJ1A NADWN5GKGXXXXJ1B	NADWN5GKGXXXXL8D

SUBJECT:INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT &
ECM/TCU SOFTWARE UPDATE – DTC P218100, P2181F0, P2181F1**ROM ID Information: Event #1281 (Continued)**

Model	Drivetrain	ECU Part Number	ROM ID	
			Current	Latest
Tucson (NX4A) 2022MY 2.5L GDI Engine	2/4 Wheel Drive	39110-2S280	NADWN5GMFXXXXL6A NADWN5GMFXXXXL6B NADWN5GMFXXXXL8A NADWN5GMFXXXXL8B	NADWN5GMFXXXXL8D
		39110-2S281	NADWN5GMGXXXXL6A NADWN5GMGXXXXL6B NADWN5GMGXXXXL8A NADWN5GMGXXXXL8B	NADWN5GMGXXXXL8D
		39110-2S283	NADWN5GMHXXXXL6A NADWN5GMHXXXXL6B NADWN5GMHXXXXL8A NADWN5GMHXXXXL8B	NADWN5GMHXXXXL8D
	4-Wheel Drive Limited	39110-2S285	NADWN5GMKXXXXL6A NADWN5GMKXXXXL6B NADWN5GMKXXXXL8A NADWN5GMKXXXXL8B	NADWN5GMKXXXXL8D
	2/4 Wheel Drive	39110-2S286	NADWN5GSFXXXXL6A NADWN5GSFXXXXL6B NADWN5GSFXXXXL8A NADWN5GSFXXXXL8B	NADWN5GSFXXXXL8D
		39110-2S287	NADWN5GSGXXXXL6A NADWN5GSGXXXXL6B NADWN5GSGXXXXL8A NADWN5GSGXXXXL8B	NADWN5GSGXXXXL8D
		39110-2S292	NADWN5GKFXXXXL6A NADWN5GKFXXXXL6B NADWN5GKFXXXXL8A NADWN5GKFXXXXL8B	NADWN5GKFXXXXL8D
		39110-2S293	NADWN5GKGXXXXL6A NADWN5GKGXXXXL6B NADWN5GKGXXXXL8A NADWN5GKGXXXXL8B	NADWN5GKGXXXXL8D

SUBJECT:INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT &
ECM/TCU SOFTWARE UPDATE – DTC P218100, P2181F0, P2181F1**ROM ID Information: Event #1281 (Continued)**

Model	Drivetrain	ECU Part Number	ROM ID	
			Current	Latest
Tucson (NX4A) 2023MY 2.5L GDI Engine	2/4 Wheel Drive	39110-2S310	NAEVN5GMFXXXXM0A NAEVN5GMFXXXXM1A NAEVN5GMFXXXXM1B	NAEVN5GMFXXXXM1D
		39110-2S311	NAEVN5GMGXXXXM0A NAEVN5GMGXXXXM1A NAEVN5GMGXXXXM1B	NAEVN5GMGXXXXM1D
		39110-2S313	NAEVN5GMHXXXXM0A NAEVN5GMHXXXXM1A NAEVN5GMHXXXXM1B	NAEVN5GMHXXXXM1D
	4 Wheel Drive Limited	39110-2S315	NAEVN5GMKXXXXM0A NAEVN5GMKXXXXM1A NAEVN5GMKXXXXM1B	NAEVN5GMKXXXXM1D
	2/4 Wheel Drive	39110-2S316	NAEVN5GKFXXXXM0A NAEVN5GKFXXXXM1A NAEVN5GKFXXXXM1B	NAEVN5GKFXXXXM1D
		39110-2S317	NAEVN5GKGXXXXM0A NAEVN5GKGXXXXM1A NAEVN5GKGXXXXM1B	NAEVN5GKGXXXXM1D

SUBJECT:INTEGRATED THERMAL MANAGEMENT (ITM) REPLACEMENT &
ECM/TCU SOFTWARE UPDATE – DTC P218100, P2181F0, P2181F1**TCU ROM ID Information: Event #1032 (2022MY ONLY – TCU for VINs starting w/ “KMH”)**

Model	ECU Part Number	ROM ID	
		Current	Latest
Tucson (NX4) 2022MY	39110-2S105	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S107	SNX4G25X0XSC1SS2	SNX4G25X0XSC3SS4
	39110-2S119	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S113	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S116	SNX4G25X0XSC1SS2	SNX4G25X0XSC3SS4

TCU ROM ID Information: Event #1034 (2022MY ONLY – TCU for VINs starting w/ “5NM”)

Model	ECU Part Number	ROM ID	
		Current	Latest
Tucson (NX4) 2022MY	39110-2S161	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S162	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S163	SNX4G25X0XSC1SS2	SNX4G25X0XSC3SS4
	39110-2S170	SNX4G25X0XSC1SS2	SNX4G25X0XSC3SS4
	39110-2S165	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S166	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S181	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4
	39110-2S182	TNX4G25X0XSC1SS2	TNX4G25X0XSC3SS4