 <b>HYUNDAI</b> <b>Technical Service Bulletin</b>	<b>GROUP</b> <b>AUTOMATIC TRANSMISSION</b>	<b>NUMBER</b> <b>23-AT-008H-1</b>
	<b>DATE</b> <b>SEPTEMBER 2023</b>	<b>MODEL</b> PALISADE (LX2) SANTA FE (TMA) SANTA FE HYBRID (TM HEV) SANTA FE HYBRID (TMA HEV) SONATA (DN8/DN8A) SONATA HYBRID (DN8 HEV) TUCSON (NX4/NX4A) TUCSON HYBRID (NX4 HEV)
<b>SUBJECT:</b> <p style="text-align: center;"> AUTOMATIC TRANSAXLE (8-SPEED FWD)  POSITION SENSOR DTC P070500, P070512, P070514,  P07051C, P070600, P070661 &amp; P070696 DIAGNOSIS AND  REPLACEMENT </p>		

***This TSB supersedes TSB 23-AT-008H to add harness information for Tucson (NX4/NX4A), Step 7.***

**DESCRIPTION:** If you are servicing an 8-speed front-wheel-drive vehicle equipped with automatic transaxle with one or more of the DTC or symptoms listed below, refer to the **Service Procedure** to diagnose the condition.

• **DIAGNOSTIC TROUBLE CODES:**

- P070500 - Transmission range sensor circuit malfunction
- P070512 - Transmission range sensor circuit malfunction
- P070514 - Transmission range sensor circuit malfunction
- P07051C - Transmission range sensor circuit malfunction
- P070600 - Transmission range sensor circuit range/performance
- P070661 - Transmission range sensor circuit range/performance
- P070696 - Transmission range sensor circuit range/performance

• **SYMPTOMS:**

- Malfunction Indicator Light (MIL) illuminated
- 5<sup>th</sup> gear fail-safe
- Intermittently won't shift into D or R
- Intermittently won't shift out of Park
- Intermittently no engine crank/no start in "P" or "N" with or without MIL or DTC.

<b>APPLICABLE VEHICLES - EQUIPPED WITH AUTOMATIC TRANSMISSION:</b>	
• 2020~ Palisade (LX2)	VIN begins with KM8
• 2021~ Santa Fe (TMA) 2.5L	VIN begins with 5NM
• 2021~ Santa Fe Hybrid (TM/TMa HEV)	VIN begins with KM8/5NM
• 2020~ Sonata (DN8/DN8A) 2.5L	VIN begins with KMH/5NP
• 2022~ Sonata Hybrid (DN8 HEV)	VIN begins with KMH
• 2022~ Tucson (NX4/NX4A) 2.5L	VIN begins with KM8/5NM
• 2022~ Tucson Hybrid (NX4 HEV)	VIN begins with KM8

**PARTS INFORMATION:**

MY	Model	PNC Code	Part Number	Service Tool (SST)
2020~ 2021~ 2021~ 2022~	Palisade (LX2) Santa Fe Hybrid (TM/TMa HEV) Sonata Hybrid (DN8 HEV) Tucson Hybrid (NX4 HEV)	42700E	42700-4G6**	09459-4G100
2022~	Tucson (NX4/NX4A) 2.5L	42700E	42700-2H0**	09459-4G100
2020~ 2021~	Sonata (DN8/DN8A) 2.5L Santa Fe (TMA) 2.5L	42700G	42700-4G6**	09459-4G200

**NOTE:** If you need replacement SST, contact Bosch at 866-539-4248.

**WARRANTY INFORMATION:**

MY	Model	Op Code	Operation	Op Time	Causal Part	Nature Code	Cause Code
2020~ 2021~ 2021~ 2023~ 2020~ 2021~ 2022~ 2022~	Palisade (LX2) Santa Fe (TMA) 2.5L Santa Fe Hybrid (TM HEV) Santa Fe Hybrid (TMa HEV) Sonata (DN8/DN8A) 2.5L Sonata Hybrid (DN8 HEV) Tucson (NX4/NX4A) 2.5L Tucson Hybrid (NX4 HEV)	42700R00	Replace position sensor	Refer to WEBLTS for current LTS time	See Parts Information table above	I3A	ZZ3
2021~ 2023~ 2021~ 2022~	Santa Fe Hybrid (TM HEV) Santa Fe Hybrid (TMa HEV) Sonata Hybrid (DN8 HEV) Tucson Hybrid (NX4 HEV)	42700RH1 Additional	Hybrid				
	All	42700RQ0	GDS				

**NOTE 1:** Normal warranty applies.

**NOTE 2:** Submit claim on Claim Entry Screen as “Warranty” type.

**NOTE 3:** Refer to the latest Digital Documentation Policy for repair validation requirements.

**NOTE 4:** 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 requested is not returned.**

**NOTE 5:** If a part is found in need of replacement while performing this TSB 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.

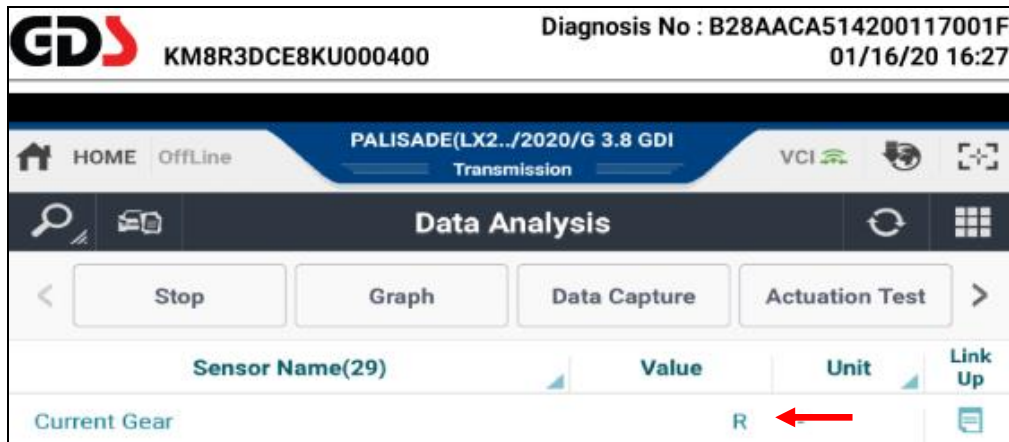
**SERVICE PROCEDURE:**

**STUI**



Refer to the latest Warranty Digital Documentation Policy for requirements.

1. Start the engine.
2. Attach a GDS and check for DTC in the “Automatic Transaxle” menu. **Record the DTC and description.** Delete the DTC.
3. Select **Data Analysis, A/T** menu and **Current Gear**. Depress the brake pedal and move the shift lever through all gears (P, R, N and D) and monitor the **Current Gear**. Confirm the GDS and the indicator on the cluster shows all gears. Turn the ignition **OFF**.



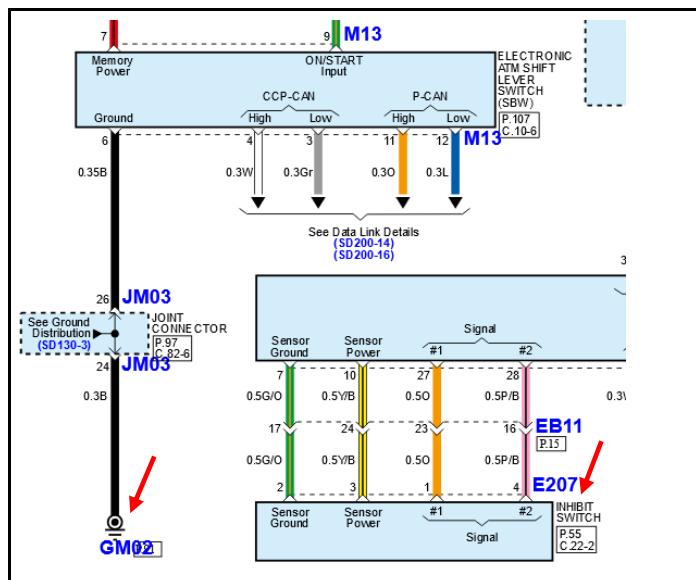
4. If the GDS shows:
  - The correct **Current Gear**, the wiring **currently** has no open/short circuits - Go to Step 6.
  - Does not show the correct **Current Gear**, go to Step 5.
5. Visually check the wiring harness between the ECU and position sensor (inhibitor switch) for a damaged wire or open circuit/short circuit to ground. Check for a damaged pin or pin not fully inserted into the connector.
  - If damage is found, repair or replace the control wiring and drive the vehicle to confirm the repair.
  - If no damage or open/short circuit is found, go to Step 6.

6. Check the grounds for the electronic shift lever. (Refer to ETM, SD450-1).  
Turn the ignition and headlights on. Use a DVOM to check the voltage drop between the wiring terminal and ground.

**Specification: Less than 0.2 V.**

- If more than 0.2V, clean the terminal and bolt threads and tighten the bolt.
- If less than 0.2V, go to Step 7.

**Torque: 7~9 lb-ft, 1.0~1.2kgf.m, 10~12 N.m**

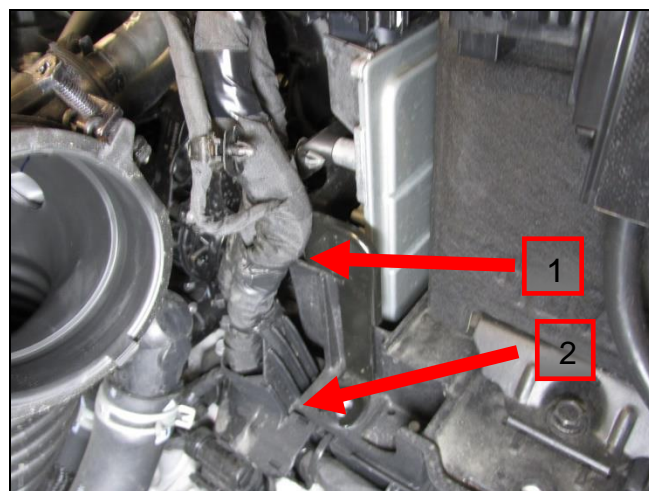


7. If Steps 3~6 do not show a fault, visually check the wiring harness between the PCM or TCU and transmission for a damaged wire or open/short circuit. Check for a damaged pin or pin not fully inserted into the connector.

- If damage or open/short circuit is found, repair or replace the related harness.
- If no damage or open/short circuit is found:
  - ✓ For Santa Fe (TMa) 2.5L or Tucson (NX4/NX4A) 2.5L vehicles, continue to the section below.
  - ✓ For all other vehicles, go to Step 8.

**Santa Fe (TMa) 2.5L – VINs begin with 5NM**  
Carefully unwrap the harness protector in the area shown below. Check the insulation on the wires to see if the insulation has been damaged by contact with the battery tray. If so, repair or replace the control harness.

**Tucson (NX4/NX4A) 2.5L –VINs KM8 or 5NM**  
Carefully unwrap the harness protector in the areas shown below:  
1. Check if the insulation has been damaged by contact with the metal bracket.  
2. Check for broken wires in the area of the 90 degree bend in the harness.  
If so, repair or replace the control harness.



**i** Information

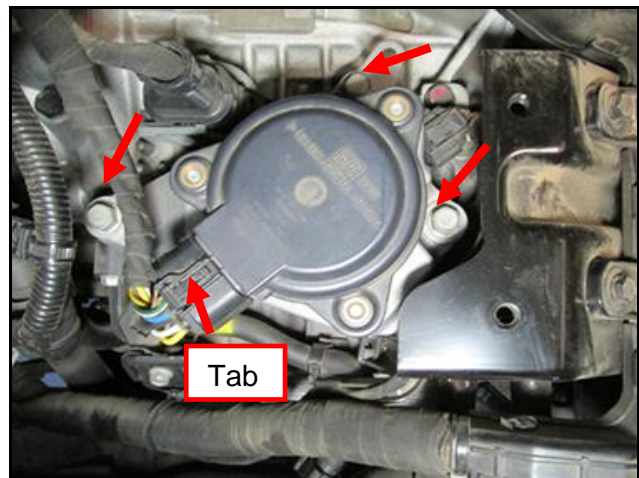
Damage to the wiring harness may still be present, even if there is no external damage to the harness protector. Even slight damage to the wiring harness can cause these faults.

**NOTICE**

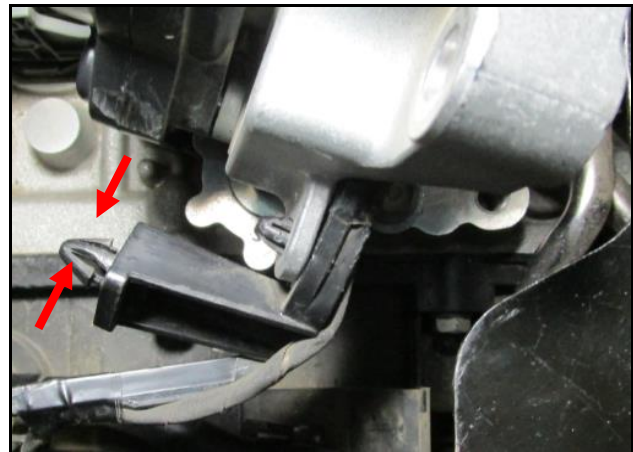
If replacing the control harness, make sure the replacement harness does not contact the battery tray/other components. Otherwise, the harness may become damaged again.

8. Remove retaining clips and remove the air intake duct.  
Remove the air cleaner and hoses.  
Record the preset radio stations.  
Remove the battery and battery tray. Torque: 7~9 lb-ft, 1.0~1.2 kgf.m, 10~12 M.m

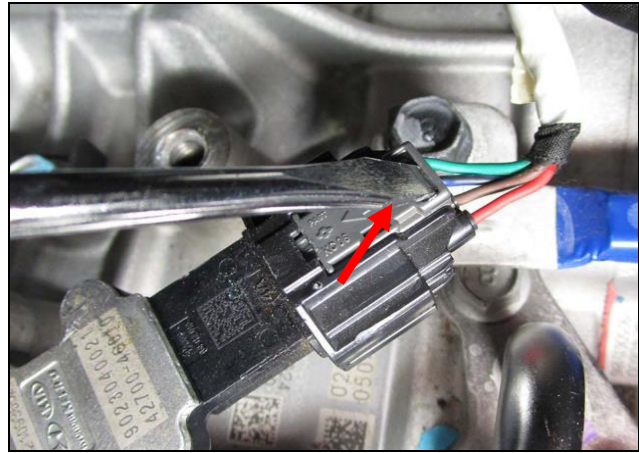
9. Press down on the tab and disconnect the shift by wire (SBW) actuator connector.  
Remove 3 bolts and remove the SBW actuator.



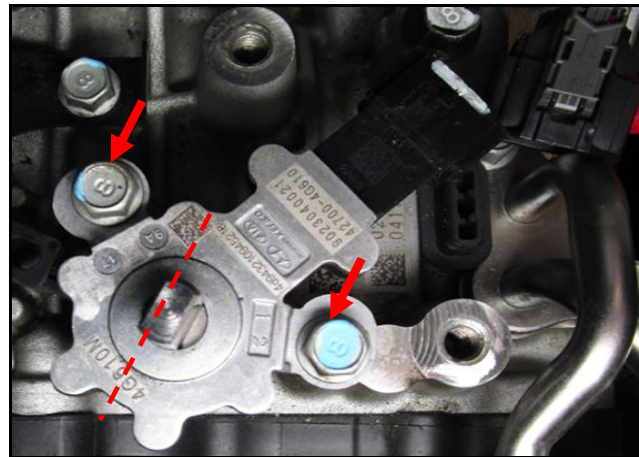
10. **For some models:**  
Use pliers to pinch the tabs and disconnect the harness from the SBW actuator.



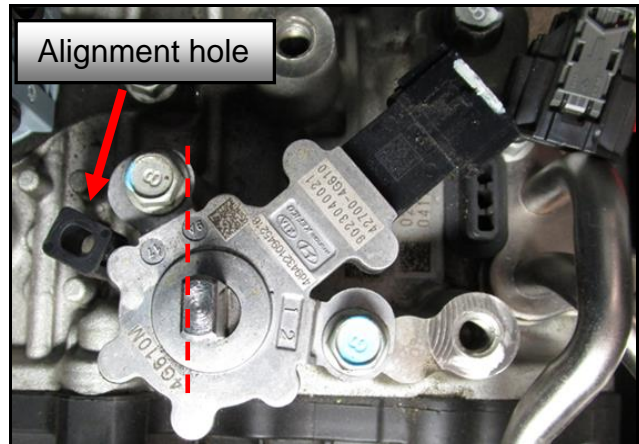
11. Push down on the tab on the position sensor connector and push the lock tab in the direction shown.  
Disconnect the position sensor connector.



12. Remove 2 mounting bolts and remove the position sensor.  
Install a new position sensor.  
Install 2 bolts and loosely tighten the bolts.  
**NOTE:** The manual valve is shown in the Park position.

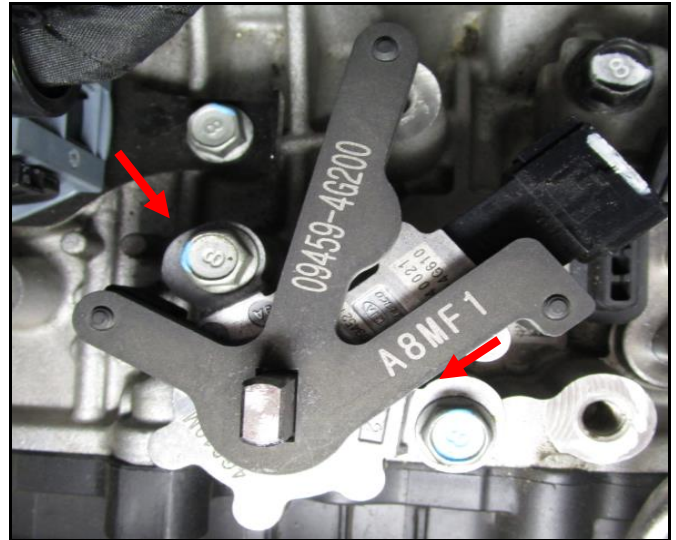
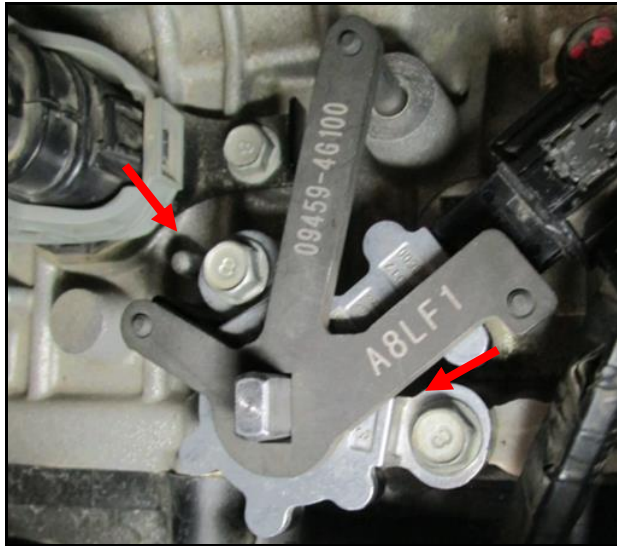


13. Turn the manual valve 2 detents in the counter-clockwise direction to place the manual valve in the Neutral position.  
**NOTE:** The manual valve will be aligned 90° to the radiator.

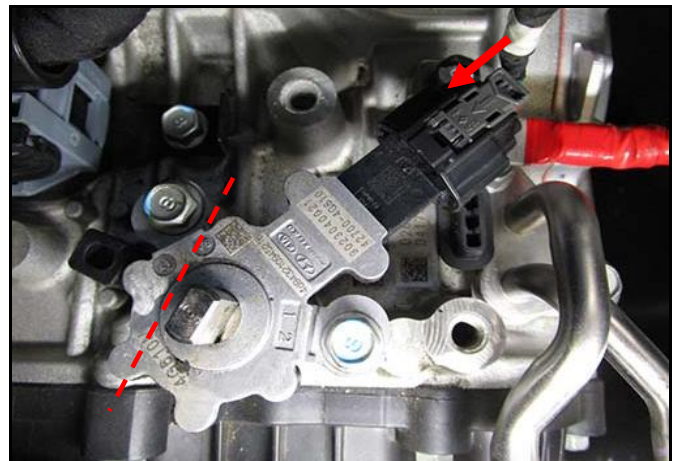


14. Install the correct alignment tool in the hole on the transmission and the alignment hole on the position sensor. Tighten both bolts that secure the position sensor.  
**Torque: 7~9 lb-ft, 1.0~1.2 kgf.m, 10~12 N.m**

<b>Model:</b> Palisade (LX2) Santa Fe (TM HEV) Santa Fe (TMa HEV) Sonata (DN8 HEV) Tucson (NX4/NX4A) Tucson (NX4 HEV)	<b>SST:</b> 09459-4G100	<b>Model:</b> Sonata DN8/DN8A) Santa Fe (TMA)	<b>SST:</b> 09459-4G200
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15. Reconnect the position switch connector.  
Turn the manual valve clockwise 2 detents to the Park position.



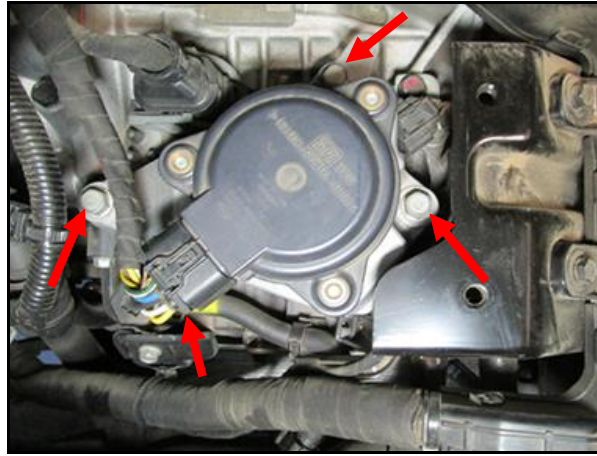
16. Reinstall the electronic shift actuator.

Reconnect the harness tab to the electronic shift actuator as shown in Step 9.

Install 3 bolts and torque to specification.

**Torque: 15~19 lb-ft, 2~3 kgf.m, 21~26 N.m**

Reconnect the connector.



17. Reinstall all the removed parts in reverse order of removal.  
Reset the preset radio stations.
18. Clear the DTC and test drive the vehicle for two drive cycles (two key-on to key-off driving cycles). If the DTC:
- Does not occur again, return the vehicle to the customer.
  - If the DTC occurs again, repair or replace the control wiring between the PCM or TCU and position sensor. If the DTC occurs again after repairing or replacing the control wiring, replace the PCM (ECU/TCU) or TCU, depending on model.
19. The Service Procedure is complete. Return the vehicle to the customer.