 HYUNDAI Technical Service Bulletin	GROUP STEERING	NUMBER 23-ST-001H
	DATE MARCH 2023	MODEL(S) PALISADE (LX2) SANTA FE HYBRID (TM HEV) SANTA FE PLUG-IN HYBRID (TM PHEV)
SUBJECT: PALISADE (LX2), SANTA FE HYBRID & PLUG-IN HYBRID (TM HEV/PHEV), COLUMN TORQUE RESET		

Description: This bulletin describes the procedure to reset the steering system torque value to balance uneven steering feel when steering left vs right on some Palisade (LX2), Santa Fe Hybrid (TM HEV), and Santa Fe Plug-In Hybrid (TM PHEV) vehicles.



Applicable Vehicles:

Certain 2022MY Palisade (LX2) produced from Oct. 1, 2021 to May 18, 2022.

Certain 2022MY Santa Fe Hybrid & Plug-In Hybrid (TM HEV/PHEV) produced from Oct. 1, 2021 to May 31, 2022.

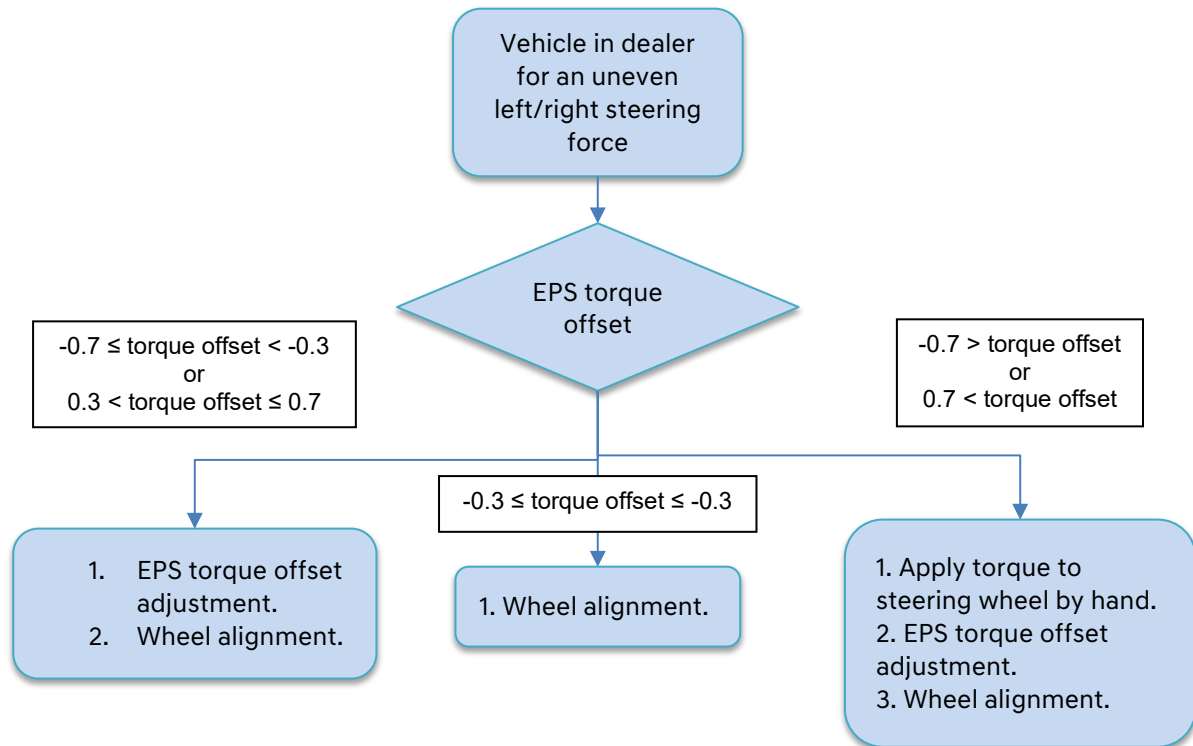
Warranty Information:

Model	Op. Code	Operation	Op. Time	Causal Part	Nature	Cause
Palisade (LX2) Santa Fe Hybrid (TM HEV) Santa Fe Plug-In Hybrid (TM PHEV)	20D08F00	EPS Torque Offset Adjustment and Wheel Alignment $[-0.7 \leq \text{Torque Offset} < -0.3]$ OR $[0.3 < \text{Torque Offset} \leq 0.7]$	1.3 M/H	71110-S8xxx* (LX2) 71110-S1xxx* (TM HEV/PHEV)	I11	ZZ3
	20D08F01	Wheel Alignment $[-0.3 \leq \text{Torque Offset} \leq 0.3]$	1.3 M/H	ALIGN-00000		
	20D08F02	EPS Torque Offset Adjustment and Wheel Alignment $[-0.7 > \text{Torque Offset}]$ OR $[0.7 < \text{Torque Offset}]$	1.3 M/H	71110-S8xxx* (LX2) 71110-S1xxx* (TM HEV/PHEV)		

NOTE: Normal warranty applies

*Refer to the applicable parts catalog for the full causal part number.

Service Procedure:

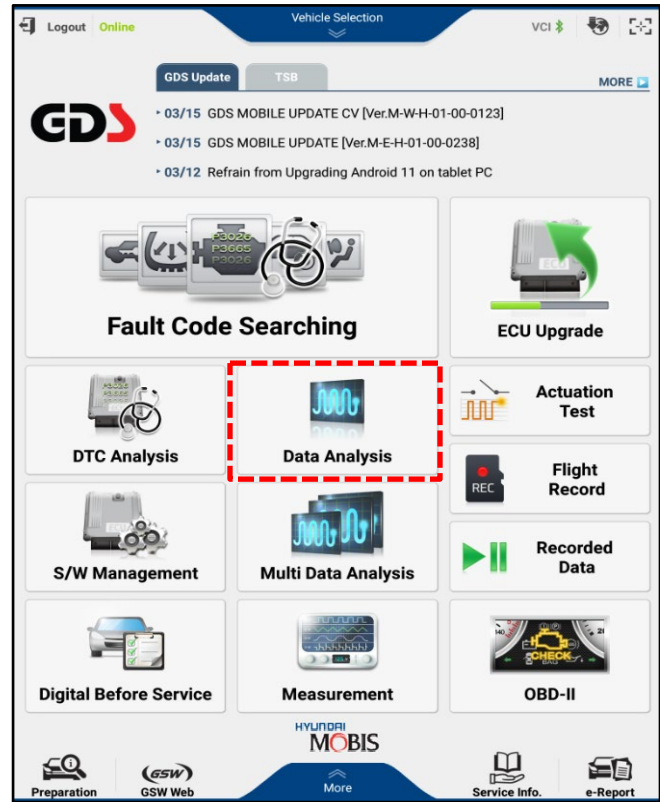


EPS Torque Offset Inspection:

INFORMATION

- 1) When performing the torque offset adjustment function:
 - a. Park on a flat surface.
 - b. Position the steering wheel straight ahead.
 - c. Do not apply any force to the steering wheel (unless the torque value is above 0.7 Nm, or below -0.7 Nm – see service procedure details).
- 2) After completion of the torque zeroing function, check and adjust the vehicle's alignment, per the applicable service manual procedures.

- Connect to the vehicle using GDS-M.
Enter Data Analysis, EPS system.
 - LX2 : Engine ON state
 - TM HEV : IG ON, HEV not ready state



- Check and record the “Column Torque” value.

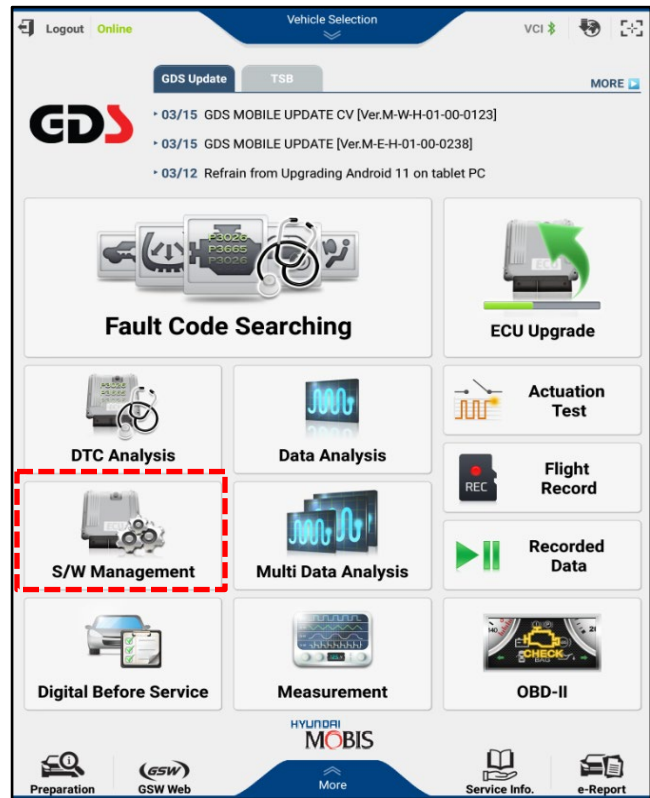
NOTICE

If the column torque value is above 0.7 Nm, or below -0.7 Nm, it will be necessary to apply some torque to the steering wheel by hand in the service procedures below.

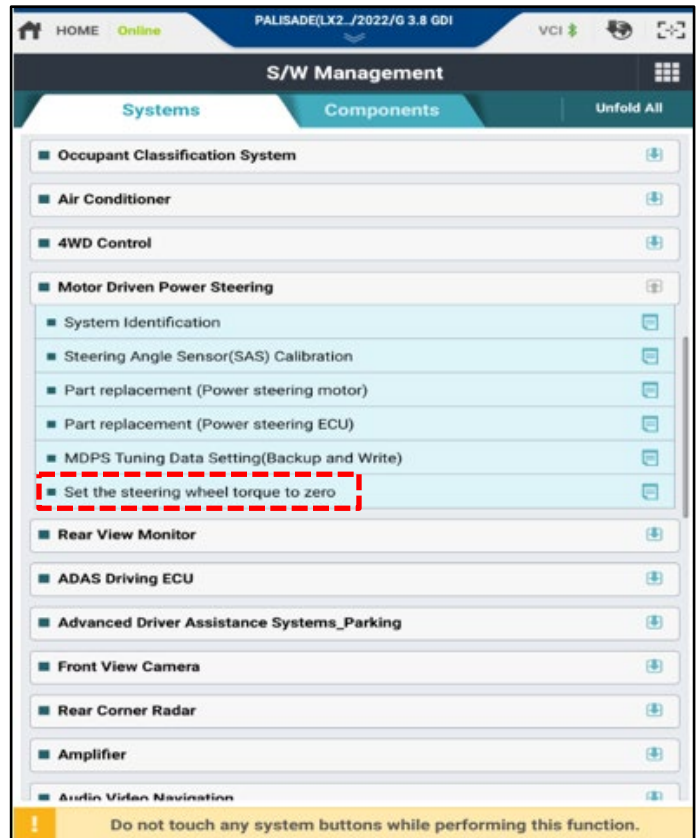
Sensor Name(12)	Value	Unit	Link Up
Battery Voltage	14.60	V	
Ignition Voltage	15.00	V	
Column Torque	0.8	Nm	
Absolute Steering Angle	0.0	'	
Column Velocity	0.7	/s	
Motor Current	-4	A	
Vehicle Speed	0	MPH	
Filtered Vehicle Speed	0.0	MPH	
Engine Status	Running	-	
Filtered Engine Status	Running	-	
ECU Temperature	72	'F	
Calibration Status	Calibrated	-	

EPS Torque Offset Adjustment

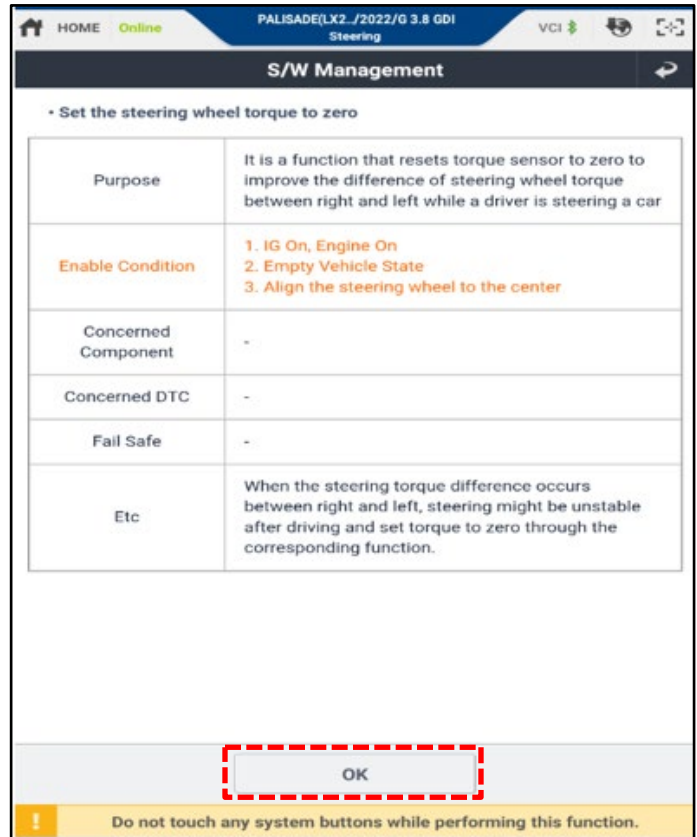
1. Connect to the vehicle using GDS-M.
Enter S/W Management.
 - LX2 : Engine ON state
 - TM HEV / PHEV : IG ON, HEV not ready state



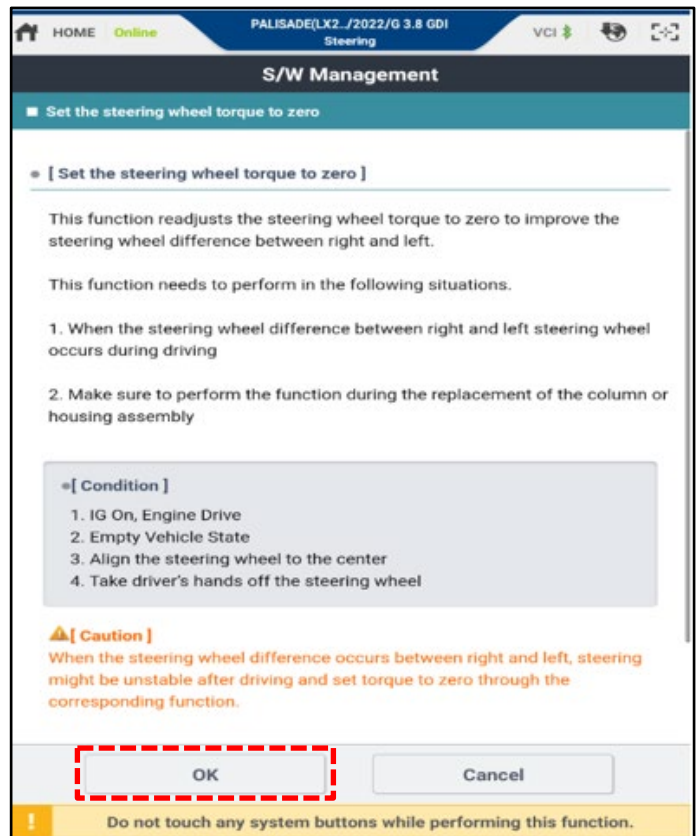
2. Under **Motor Driven Power Steering**, select the function: **Set the steering wheel torque to zero**.



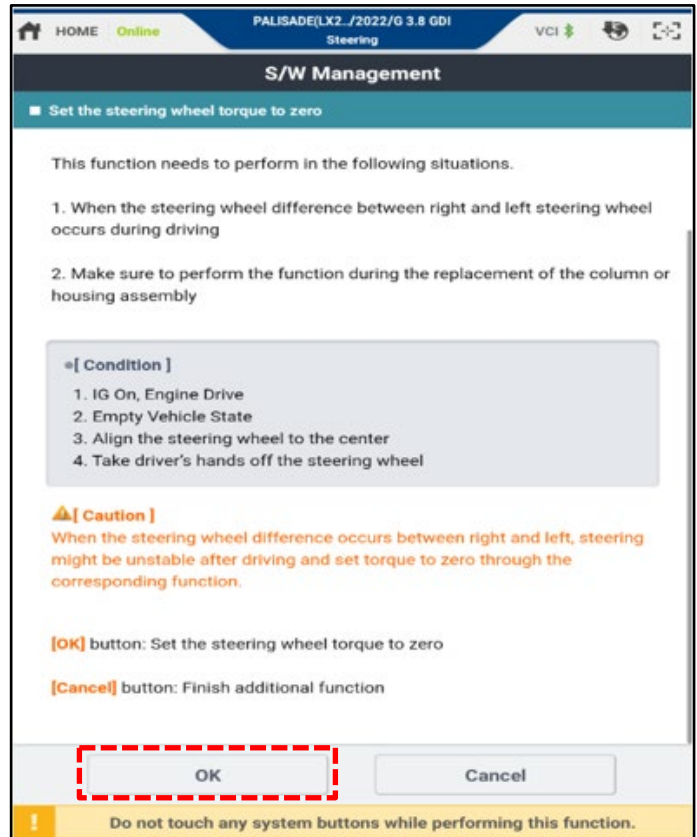
3. Review the information and enable conditions, then select **OK**.



4. Review the information and conditions, then select **OK**.



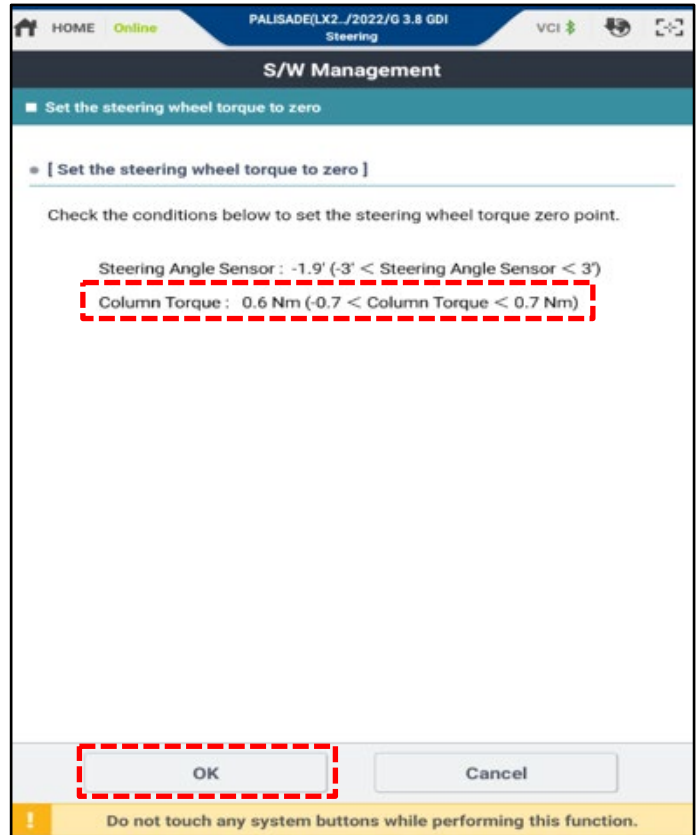
5. Review the information and conditions, then select **OK**.



6. Note the Column Torque value.

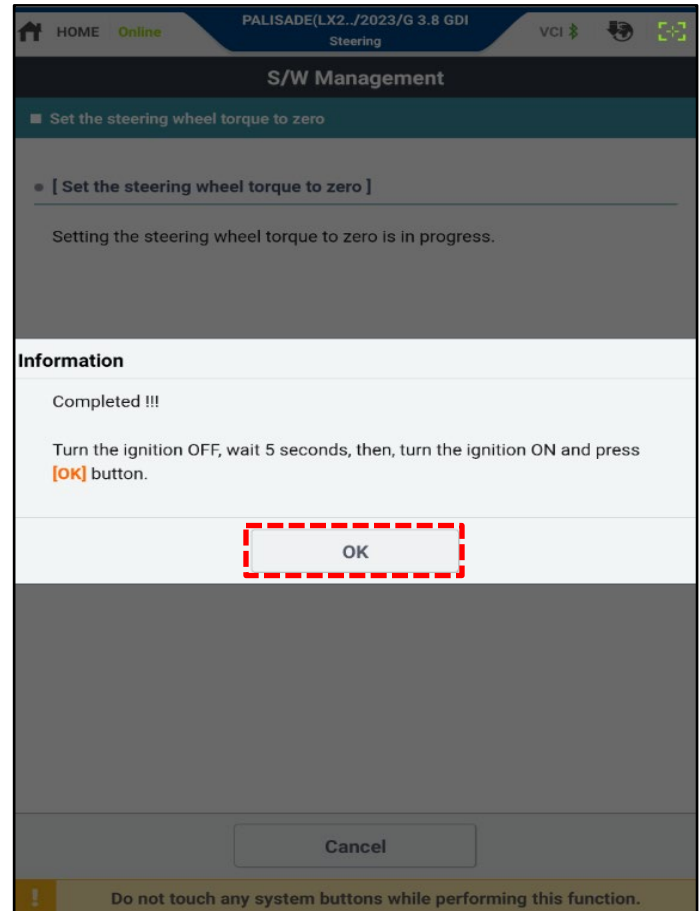
- A) If the column torque value is:
 $-0.7 \text{ Nm} < \text{column torque} < 0.7 \text{ Nm}$
 - Press **OK** without touching the steering wheel.

- B) If the column torque value is:
 $-0.7 \text{ Nm} > \text{column torque}$
 $0.7 \text{ Nm} < \text{column torque}$
 - Apply a small amount of force to the steering wheel by hand until the value is less than 0.7 Nm, or greater than -0.7 Nm. Then press **OK** while holding the steering wheel in place.



7. Turn the ignition **OFF**, wait 5 seconds, then turn the ignition back **ON**.

Press **OK**.

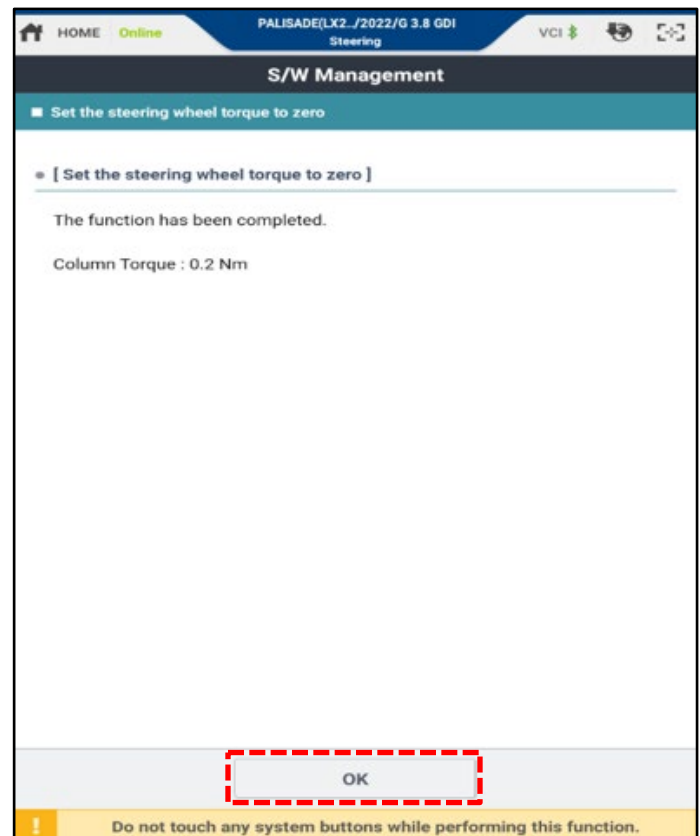


8. Upon completion of the function, note the new value of the column torque.
- If the value is within the range below, the torque zeroing function is complete.

If the value is outside of the range below, perform the zeroing function again until it is within specification.

Column torque specification:

$-0.3 \text{ Nm} \leq \text{column torque value} \leq 0.3 \text{ Nm}$



9. After completion of the torque zeroing function, check and adjust the vehicle's alignment. Then use GDS to reset steering angle sensor SAS calibration. Follow the applicable service manual procedures.

The service procedure is now complete.