



STAR ONLINE PUBLICATION



Case Number: S2423000045

Release Date: October 2024

Symptom/Vehicle Issue: Heated Steering Wheel Inoperative And Or Not Hot Enough.

Customer Complaint/Technician Observation: Customer may complain the heated wheel doesn't turn on, turns on or turns off unexpectedly. Complaint of the temperature being too hot, cold or inconsistent. Heated controls are not functioning.

Discussion: If the above complaints match the customers description, please review all of the supplemental diagnostic information below. If diagnostic trouble codes (DTCs) exist- follow the tests for those codes first.

1. Summarize the customers complaint, the following is a list of possible issues.
 - a. Heated steering wheel feature:
 - i. Turns on unexpectedly.
 - ii. Doesn't turn on as expected.
 - iii. Turns off unexpectedly.
 1. After 3 seconds
 2. After so many minutes / hours (how many?)
 - b. Heated steering wheel temperature is:
 - i. Too hot.
 - ii. Too cold.
 - iii. Doesn't get hot fast enough.
 - iv. Inconsistent areas (e.g., hot at top and cold at bottom).

This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

Contact STAR Center, or your Technical Assistance Center Via TechConnect, eCONTACT or Service Library entry if no solution is found.



STAR ONLINE PUBLICATION



- v. Inconsistent over time (hot initially then cold and then hot, etc.).
 - vi. Not as good as my last vehicle (which vehicle?).
- c. Heated steering wheel controls:
- i. Aren't where I expect them (where should they be?).
 - ii. Don't function the way I expect them to (how should they function?).
 - iii. Are not there.
 - 1. Screen isn't working.
 - 2. The option is not on the vehicle.
 - 3.

Diagnostic:

1. Start the vehicle and turn on the heated steering wheel. Wait for approximately 10 seconds. If the vehicle has a hard button and soft button (touch screen) then turn on the heated steering wheel again using the opposite button. Wait for approximately 10 seconds again. Turn the vehicle off.
 - A. Did the heated steering wheel light stay on? Yes, then possible issues are:
 - i. Intermittent issue.
 - ii. Auto on issue.
 - iii. Customer satisfaction issue.
 - B. Did the heated steering wheel turn off after 3 seconds? Yes, then possible issues are:
 - i. Wiring issue.
 - ii. Component issue.
 - C. If applicable, did you get different results from turning on the heated steering wheel using the different buttons?

This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

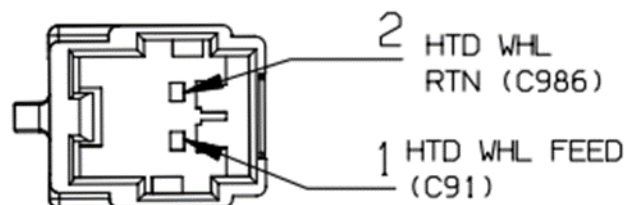
Contact STAR Center, or your Technical Assistance Center Via TechConnect, eCONTACT or Service Library entry if no solution is found.



STAR ONLINE PUBLICATION



2. Set the vehicle to run mode without the engine running.
 - A. Plug in a diagnostics tool and run a vehicle scan report. Are there reported issues (DTCs) for the following?
 - i. HVAC_FCA
 - ii. BCM
 - iii. SCCM
 - B. Check the auto comfort settings in the touch screen.
 - i. Does the customer have the vehicle set to “all starts”, “remote start only”, or “off”?
3. Check all fuses and relays associated with the heated steering wheel circuit.
4. If the issue hasn't been identified, then start checking the following:
 - A. Remove the driver airbag to access the steering wheel heat element connectors. Refer to Service Library 19 - Steering / Column / WHEEL, Steering / Removal and Installation.
 - i. Check for a loose connection for the heat element connector.
 - ii. Remove the heat element connector and check the resistance. It should be between a Min 1.31 Ω and Max 1.60 Ω (1.45 Ω Nominal). Measurements should be made when the steering wheel is approximately at room temperature (23°C/73°F).



This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

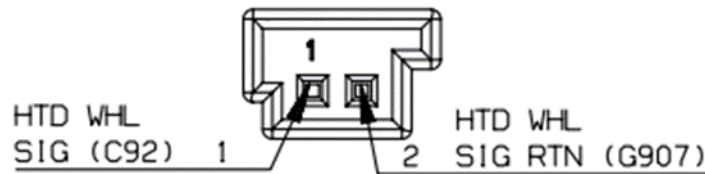
Contact STAR Center, or your Technical Assistance Center Via TechConnect, eCONTACT or Service Library entry if no solution is found.



STAR ONLINE PUBLICATION



- iii. Disconnect the NTC (heated steering wheel temperature feedback signal) connector. To check the NTC resistance reference **Table 1** for the correct resistance value. Measurements should be made when the steering wheel is approximately at room temperature (23°C/73°F).



- iv. Check for a loose connection for the main 12-pin electrical connector.
- v. Check all other steering wheel connectors for loose connection.

B. Only replace the steering wheel, if one or both measured resistances are outside of the provided values. Document the temperature and resistance in the claim write-up. Return the fully assembled steering wheel for the warranty claim including the wire harness and switches.

5. Check connectors at the CSWM ECU. Were the connections loose or damaged? Check pin alignment, and physically unplug and plug back in until a sound can be heard.

This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

Contact STAR Center, or your Technical Assistance Center Via TechConnect, eCONTACT or Service Library entry if no solution is found.



STAR ONLINE PUBLICATION



All of our heated steering wheel temperature sensors follow the attached table.
 This is for a NTC thermistor with a nominal value of 10kΩ ±5% at 25°C (77°F), with a β-value of 3988 K ±1%.
Note: The NTC temperature reading can be looked at with a diagnostic tool.

Temp. [°C]	R Nom [Ω]	R Min [Ω]	R Max [Ω]
-40	336500	306960	366664
-35	242589	222164	263184
-30	177000	162706	191294
-25	130370	120273	140468
-20	97070	89860	104280
-15	72929	67735	78153
-10	55330	51551	59144
-5	42315	39545	45155
0	32650	30601	34763
5	25388	23861	26954
10	19900	18754	21070
15	15708	14841	16591
20	12490	11831	13155
25	10000	9500	10500
30	8058	7631	8481
35	6531	6171	6890
40	5328	5021	5630
45	4369	4110	4626
50	3603	3384	3823
55	2986	2799	3174
60	2488	2328	2649
65	2083	1945	2221
70	1753	1633	1873
75	1481	1378	1585
80	1258	1168	1348
85	1072	994,1	1151
90	917,8	849,4	986,3
95	788,5	728,6	848,8
100	680	627,4	732,6
105	588,6	542,3	636,3
110	511,3	470,3	555
115	445,4	409,1	486,3
120	389,3	357,1	426,3

Table 1: NTC Resistance Values

This document does not authorize warranty repairs. This communication documents a record of past experiences. STAR Online does not provide any conclusions about what is wrong with the vehicle. Rather, it captures all previous cases known that appear to be similar or related to the vehicle symptom / condition. You are the expert, and you are responsible for deciding on the appropriate course of action.

Contact STAR Center, or your Technical Assistance Center Via TechConnect, eCONTACT or Service Library entry if no solution is found.