Tesla, Inc. Service Bulletin		Replace Refrigerant Pressure/Temperature Sensors
SB-21-18-002 March 16, 2022	R5	

Classification	Section/Group	Mobile Service
Campaign Bulletin	18 - Thermal Management	Cannot Perform

Model Year	Model	Country/Region	Version
2020 - 2021	Model 3, Model Y	All	Heat Pump

The model(s) and model year(s) listed are a general approximation of the affected VIN list. Refer to the VIN/Bulletin Tracker or Customer/Vehicle profile to determine applicability of this bulletin for a particular vehicle.

Campaign Bulletin: This campaign bulletin addresses a known non-safety-related condition and provides recommended technical diagnosis and repair procedures. Apply this procedure to all vehicles in the affected VIN list.

This Service Document supersedes SB-21-18-002 R4, dated August 11, 2021. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

Condition

Certain Model 3 and Model Y vehicles may be equipped with refrigerant pressure/temperature (P/T) sensors in the heat pump that can fault over time.

Correction

Replace all 3 refrigerant P/T sensors.

Correction Description	Correction	Time
Replace Refrigerant P/T Sensors	S012118002	1.15

	Part Number	Description	Quantity
Parts Required	1581610-00-B or later revision	PT SENSOR, HIGH PRESSURE	2
	1581608-00-B or later revision	PT SENSOR, LOW PRESSURE	1
		Or	
	1510047-00-C or later revision	PT SENSOR, HIGH PRESSURE	2
	1510048-00-C or later revision	PT SENSOR, LOW PRESSURE	1
		And if available:	
	1111738-00-A	WASHER, 1/2, STL ZN, SEAL	1
	1111740-00-A	WASHER, 3/4, STL ZN, SEAL	1
	These part numbers were current at the time of publication. Use the revisions listed **or later**, unless otherwise specified in the Parts Catalog.		
Special Tools	1588741-00-A	Model Y HVAC Socket Kit	
	1501412-00-A	Oil Injector, R1234YF	
Shop Supplies	ND-11 Oil		

Procedure

1. Remove the underhood storage unit (refer to Service Manual procedure 15240702; Model 3, Model Y.
2. Recover the A/C refrigerant (refer to Service Manual procedure for Model 3: 18200122, for Model Y: 18200102).
3. Remove the 13 mm bolt that attaches the Supermanifold–to-compressor A/C line to the Supermanifold (Figure 1).

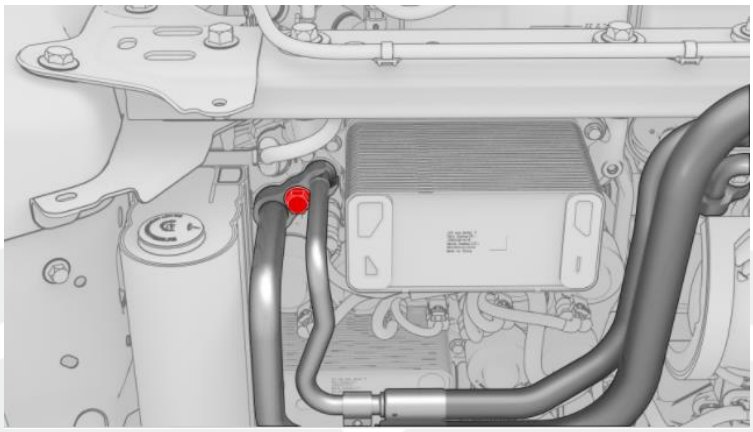

Figure 1

4. Remove the Supermanifold-to-compressor A/C line from the Supermanifold, and then use an S-hook to restrain the line to the underhood storage unit support beam (Figure 2).

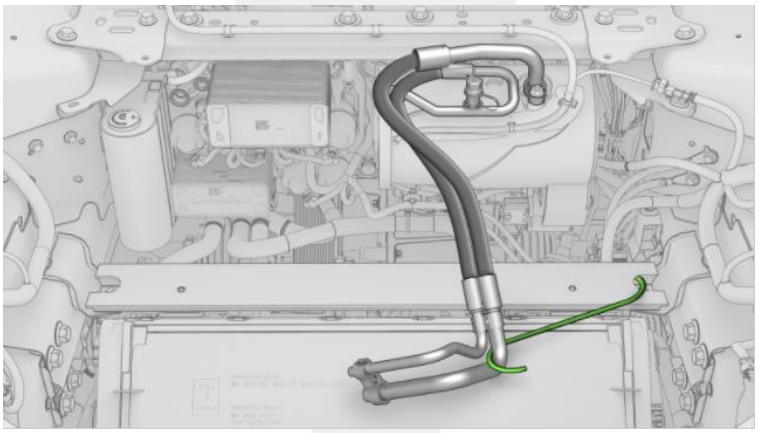

Figure 2

5. Release the locking tab, and then disconnect the electrical harness from the low pressure P/T sensor connector (Figure 3).

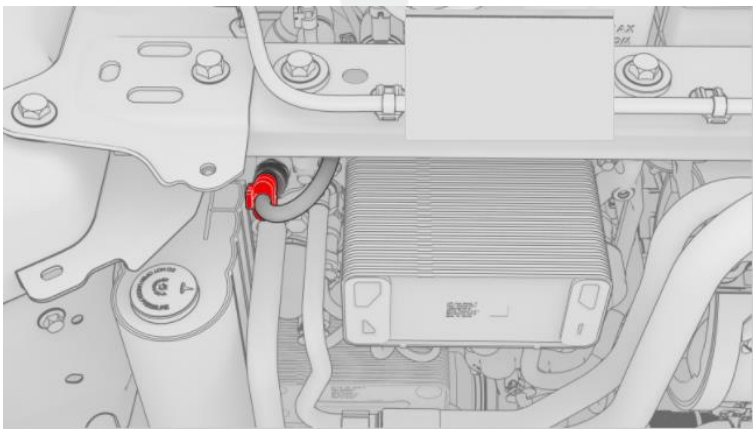

Figure 3

6. Release the locking tab, and then disconnect the electrical harness from the high pressure P/T sensor connector (Figure 4).

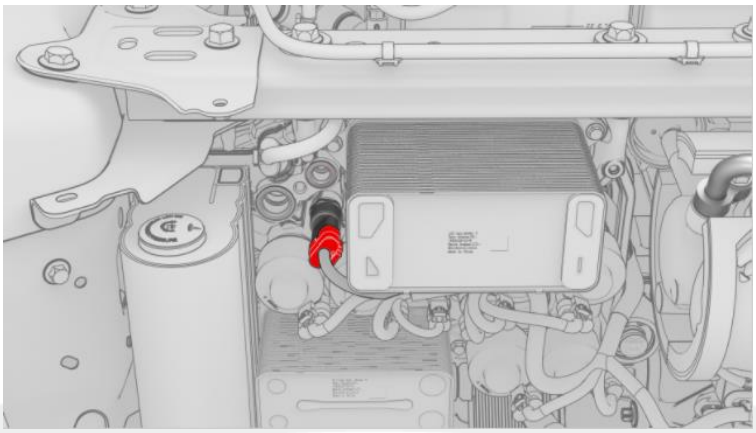

Figure 4

7. Release the locking tab, and then disconnect the electrical harness from the subcool high pressure P/T sensor connector (Figure 5).

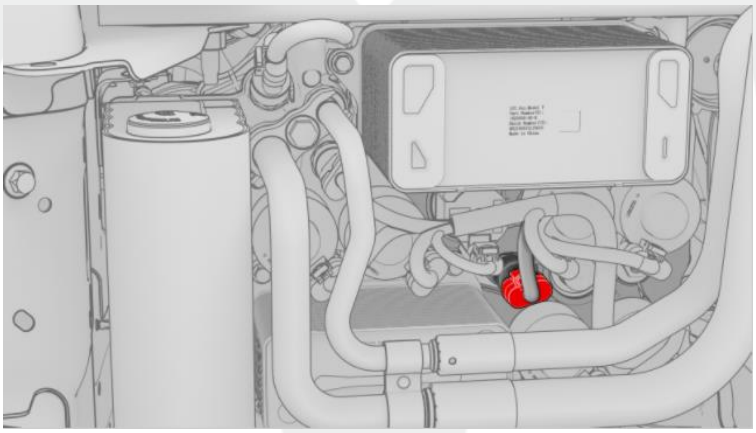

Figure 5

8. Use the HVAC socket kit special tool to remove the low pressure P/T sensor from the Supermanifold (Figure 6).

CAUTION: Use only hand tools to remove the P/T sensor. Impact and power tools will break the threads.

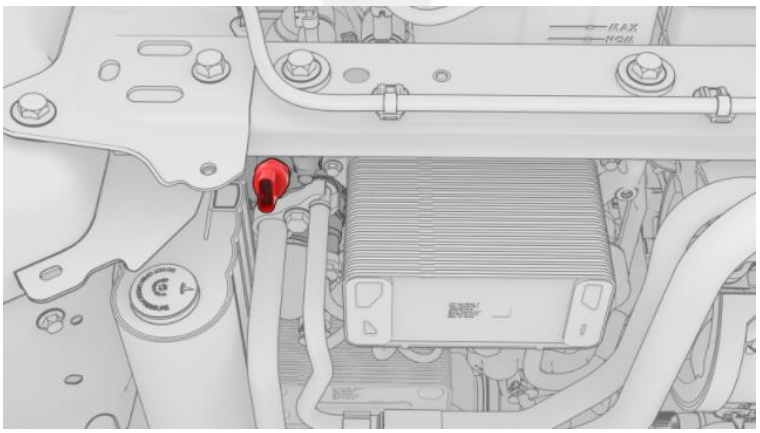

Figure 6

9. Use the HVAC socket kit special tool to remove the high pressure P/T sensor from the Supermanifold (Figure 7).

   CAUTION: Use only hand tools to remove the P/T sensor. Impact and power tools will break the threads.

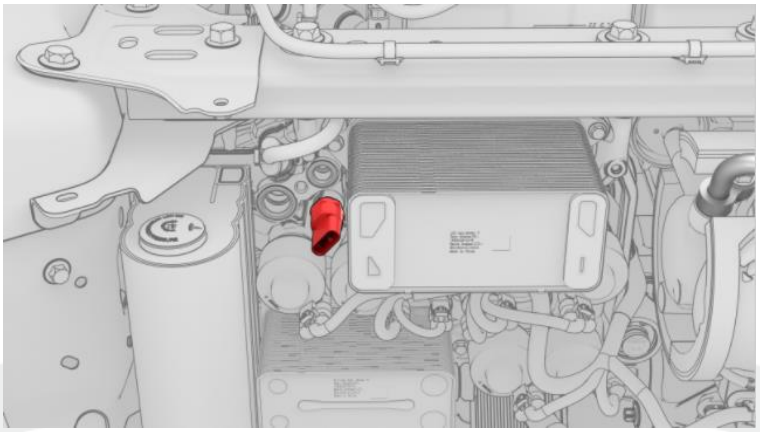

Figure 7

10. Use the HVAC socket kit special tool to remove the subcool high pressure P/T sensor from the Supermanifold (Figure 8).

    CAUTION: Use only hand tools to remove the P/T sensor. Impact and power tools will break the threads.

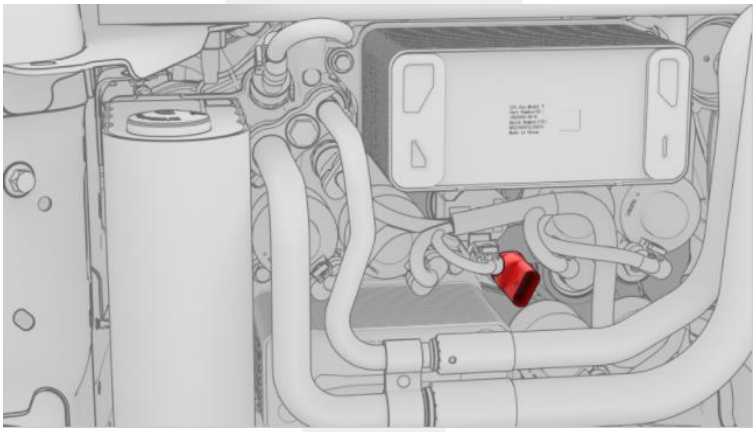

Figure 8

11. If parts are available, install new washers on the Supermanifold-to-compressor A/C line.

    NOTE: If the parts are not available, reuse the existing washers.

12. Lubricate the washers of the Supermanifold-to-compressor A/C line and the O-rings and threads of the 3 new P/T sensors with ND-11 oil.

13. Install the new subcool high pressure P/T sensor (black connector) into the Supermanifold (Figure 8):

    a. Install and hand-tighten the subcool high pressure P/T sensor until the sensor O-ring just makes contact with the Supermanifold (Figure 9).

    NOTE: Use an inspection mirror to visualize this and subsequent steps.

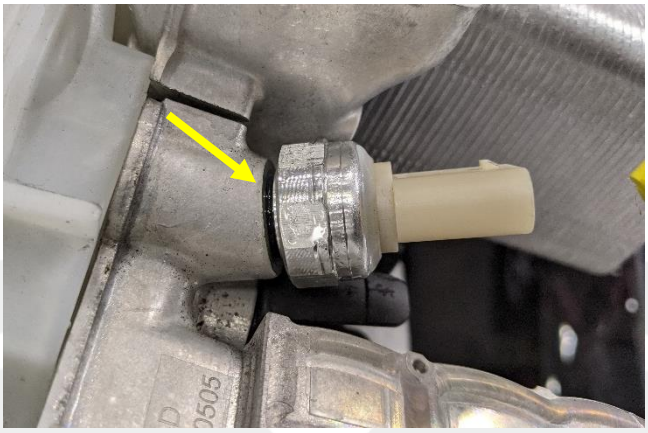

Figure 9 – O-ring just makes contact

    b. Manually back off and tighten the subcool high pressure P/T sensor in an incremental manner so that the sensor O-ring properly slides into the chamfer in the Supermanifold (Figures 10 and 11).

Figure 10 – Back off little

Figure 11 – Tighten more

    c. If the subcool high pressure P/T sensor O-ring appears to pinch (Figure 12), or no longer slides into the chamfer, stop and reverse thread the P/T sensor until the O-ring no longer appears to be pinched.

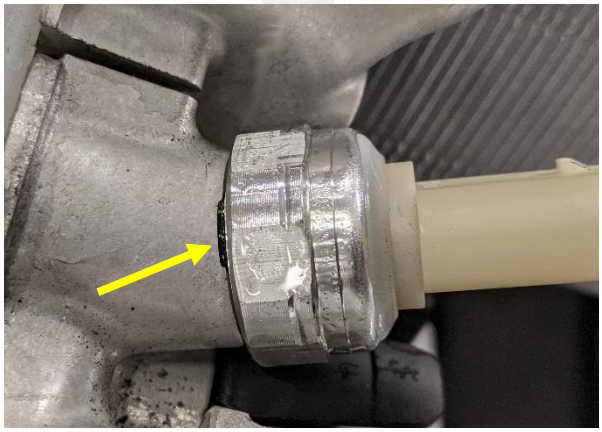

Figure 12 – O-ring pinched

d. Continue to back off and tighten the subcool high pressure P/T sensor until the O-ring slides completely into the chamfer and is no longer visible.

NOTE: There should be no gap, and the sensor body should be bottomed out against the Supermanifold (Figure 13).

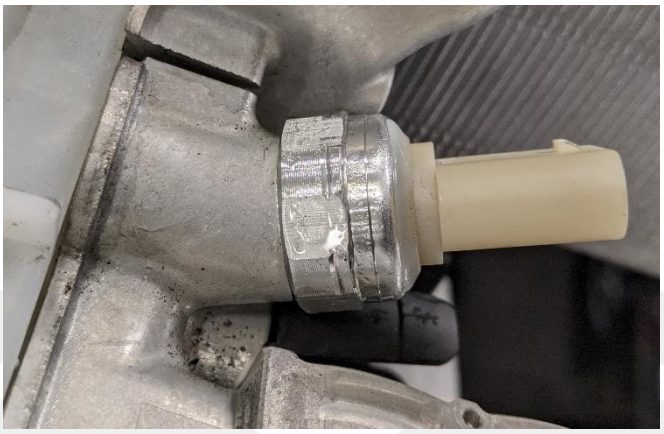

Figure 13 – P/T sensor properly seated

e. Use the HVAC socket kit to tighten the subcool high pressure P/T sensor (torque 9 Nm).

CAUTION: Use only hand tools to install the P/T sensor. Impact and power tools will break the threads.

14. Install the new high pressure P/T sensor (black connector) into the Supermanifold (Figure 7):

a. Install and hand-tighten the high pressure P/T sensor until the sensor O-ring just makes contact with the Supermanifold (Figure 9).

b. Manually back off and tighten the high pressure P/T sensor in an incremental manner so that the sensor O-ring properly slides into the chamfer in the Supermanifold (Figures 10 and 11).

c. If the high pressure P/T sensor O-ring appears to pinch (Figure 12), or no longer slides into the chamfer, stop and reverse thread the P/T sensor until the O-ring no longer appears to be pinched.

d. Continue to back off and tighten the high pressure P/T sensor until the O-ring slides completely into the chamfer and is no longer visible.

NOTE: There should be no gap, and the sensor body should be bottomed out against the Supermanifold (Figure 13).

e. Use the HVAC socket kit to tighten the high pressure P/T sensor (torque 9 Nm).

CAUTION: Use only hand tools to install the P/T sensor. Impact and power tools will break the threads.

15. Install the new low pressure P/T sensor (brown connector) into the Supermanifold (Figure 6):

a. Install and hand-tighten the low pressure P/T sensor until the sensor O-ring just makes contact with the Supermanifold (Figure 9).

b. Manually back off and tighten the low pressure P/T sensor in an incremental manner so that the sensor O-ring properly slides into the chamfer in the Supermanifold (Figures 10 and 11).

c. If the low pressure P/T sensor O-ring appears to pinch (Figure 12), or no longer slides into the chamfer, stop and reverse thread the P/T sensor until the O-ring no longer appears to be pinched.

d. Continue to back off and tighten the low pressure P/T sensor until the O-ring slides completely into the chamfer and is no longer visible.

NOTE: There should be no gap, and the sensor body should be bottomed out against the Supermanifold (Figure 13).

e. Use the HVAC socket kit to tighten the low pressure P/T sensor (torque 9 Nm).

CAUTION: Use only hand tools to install the P/T sensor. Impact and power tools will break the threads.

16. Connect the electrical harness to the subcool high pressure P/T sensor connector, and then fasten the locking tab (Figure 5).
17. Connect the electrical harness to the high pressure P/T sensor connector, and then fasten the locking tab (Figure 4).
18. Connect the electrical harness to the low pressure P/T sensor connector, and then fasten the locking tab (Figure 3).
19. Release the Supermanifold-to-compressor A/C line from the S-hook (Figure 2), install the A/C line into the Supermanifold, hand-install the 13 mm bolt that attaches the A/C line to the Supermanifold, and then tighten (torque 22 Nm) (Figure 1).
20. Perform the vacuum leak test and oil injection (refer to Service Manual procedure Model 3: 18200122, Model Y: 18200102).
21. Recharge the A/C refrigerant (refer to Service Manual procedure Model 3: 18200122, Model Y: 18200102).

NOTE: Do not disconnect the laptop from the vehicle at this time.

22. If a refrigerant leak detector is available, make sure that there is no leak at the P/T sensors.
23. In Toolbox, click the **Actions/Autodiag** tab, type “reset vcfront” in the search field, select **TEST-RESET_VCFRONT**, click **RUN**, and allow the routine to clear all active alerts recorded for the failed sensors.
24. In Toolbox, click the **Actions/Autodiag** tab, type “Thermal” in the search field, select **TEST-SELF_VCFRONT_X_THERMAL-PERFORMANCE**, click **RUN**, and allow the routine to complete.
25. Disconnect the laptop from the vehicle.
26. Install the underhood storage unit (refer to Service Manual procedure 15240702), Model 3, Model Y.

CAUTION: **Model 3 only**:

- Inspect the hood latch mechanism for any foreign object that might have dropped in. If any object is found, remove it and confirm that the hood latch operates correctly.
- Inspect the condition of the clips that attach the hood latch cover. If any clip is damaged, dislodged, or missing, install a new hood latch cover since the clips are non-serviceable parts.