		Tesla, Inc. Service Bulletin	Replace Refrigerant Pressure/Temperature Sensors	
SB-21-18-001 March 5, 2021		R1		
Classification		Section/Group		Mobile Service
Repair 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.				

Repair Bulletin: This repair bulletin provides instructions on addressing a noted condition or possible customer concern regarding the operation of Tesla vehicles. These instructions should only be performed by trained professionals.

This Service Document supersedes SB-21-18-001, dated February 5, 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

Some 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

Upon customer complaint of affected cabin heating or cooling, inspect the vehicle for symptoms related to the condition. If symptoms are present, replace all 3 refrigerant P/T sensors.

Correction Description	Correction	Time
Inspect And Replace Refrigerant P/T Sensors	S012118001	1.15

	Part Number	Description	Quantity
Parts Required	1510047-00-B	PT SENSOR, HIGH PRESSURE	2
	1510048-00-B	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. Check the vehicle for any of the following alerts.
 - If none of the below alerts are displayed, then the issue is not resolved by this bulletin. Cancel this bulletin activity so that it remains available for a possible future application, and discontinue this procedure.
 - If any of the alerts are displayed, continue to the next step.

VCFRONT_a136_refrigDischTempSns
VCFRONT_a137_refrigDischPresSns
VCFRONT_a138_refrigSuctTempSns
VCFRONT_a139_refrigSuctPresSns
VCFRONT_a279_refrigLiquidTempSns
VCFRONT_a280_refrigLiquidPresSns
VCFRONT_a452_dischargePresSensIntermittent
VCFRONT_a453_dischargeTempSensIntermittent
VCFRONT_a454_suctionPresSensIntermittent
VCFRONT_a455_suctionTempSensIntermittent
VCFRONT_a456_liquidPresSensIntermittent
VCFRONT_a457_liquidTempSensIntermittent

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

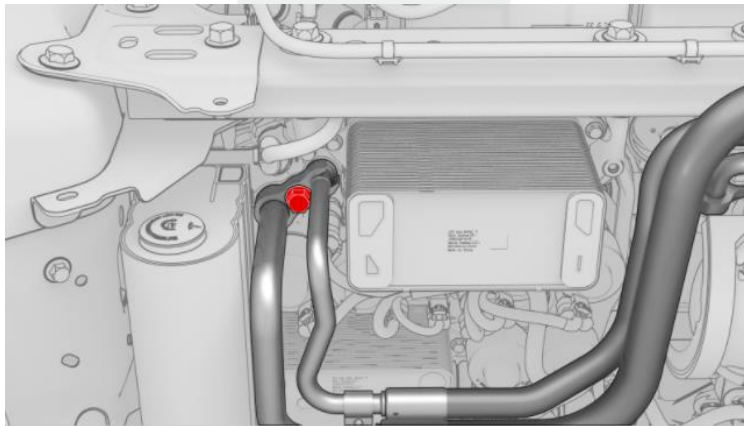


Figure 1

5. 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).

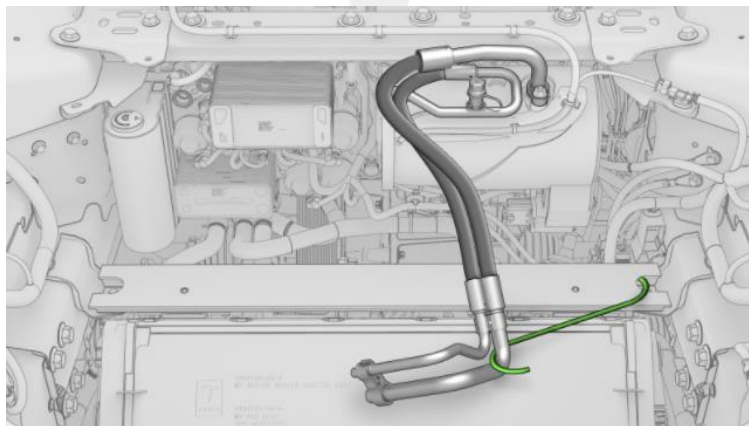


Figure 2

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

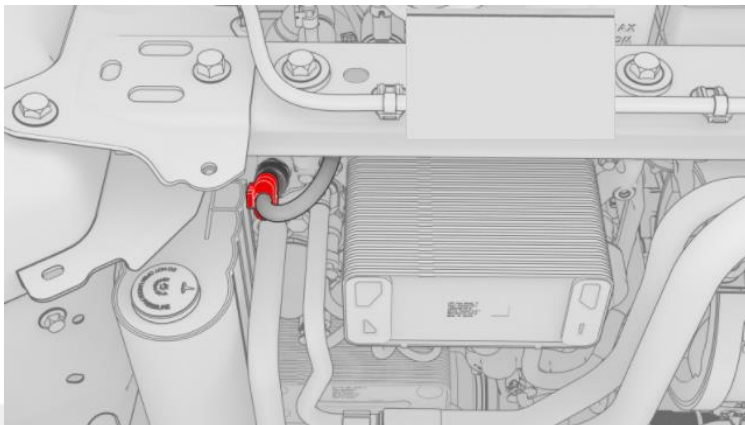


Figure 3

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

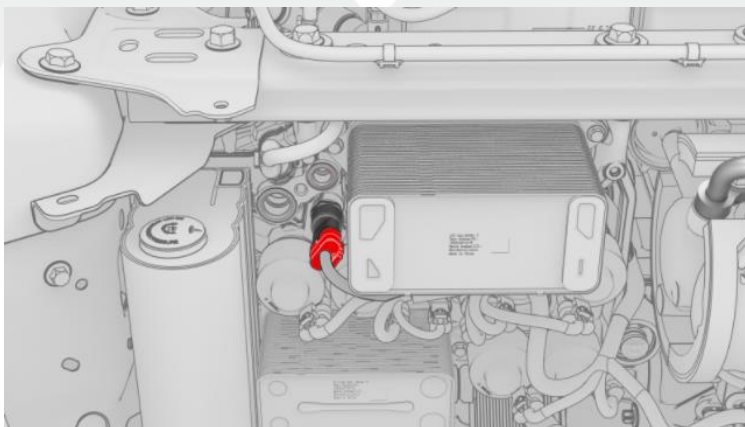


Figure 4

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

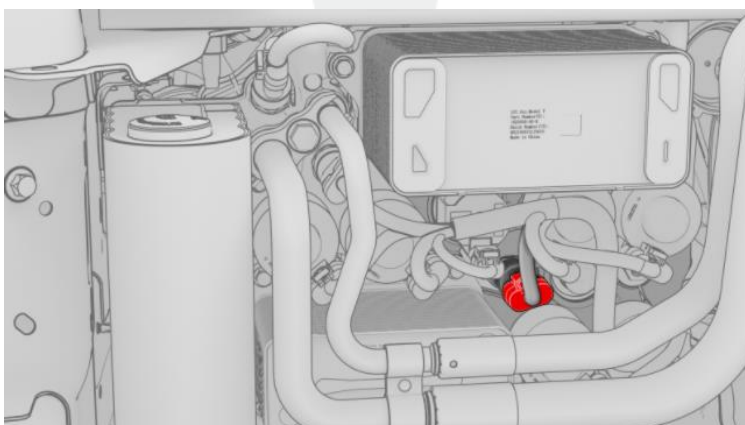


Figure 5

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

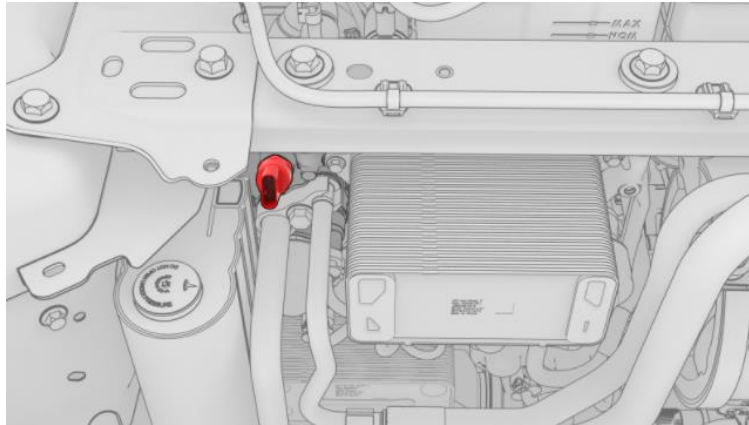


Figure 6

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

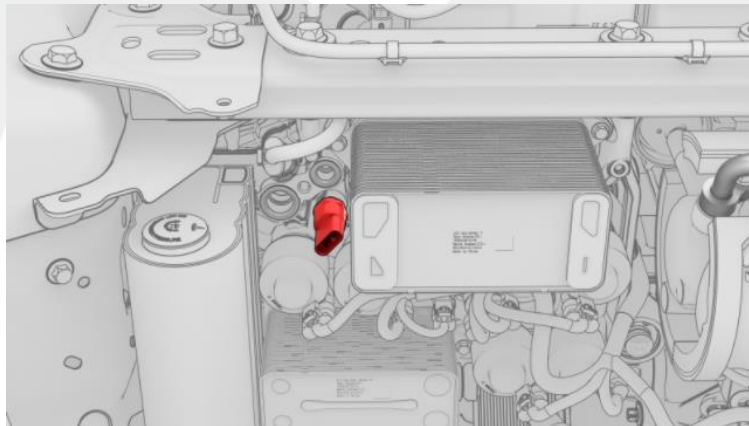


Figure 7

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

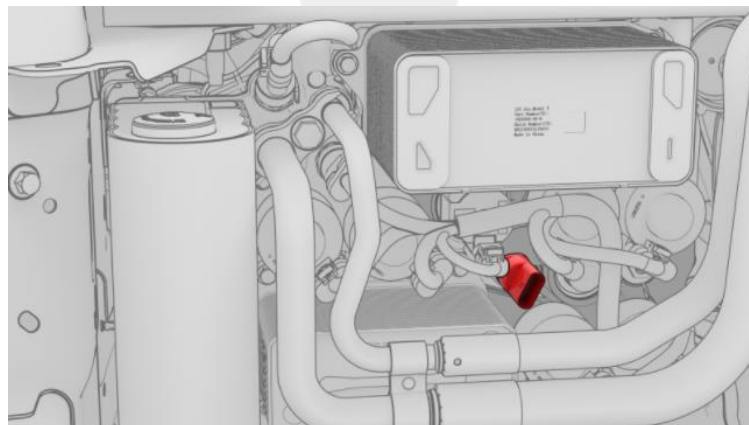


Figure 8


12. Return the removed P/T sensors to MRB as Special Interest, attention the HVAC Department.
13. 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.

14. 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.

15. 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.

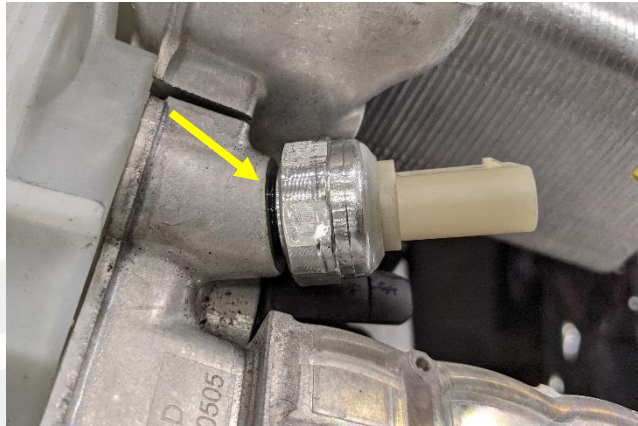


Figure 9 – O-ring just makes contact

- 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).

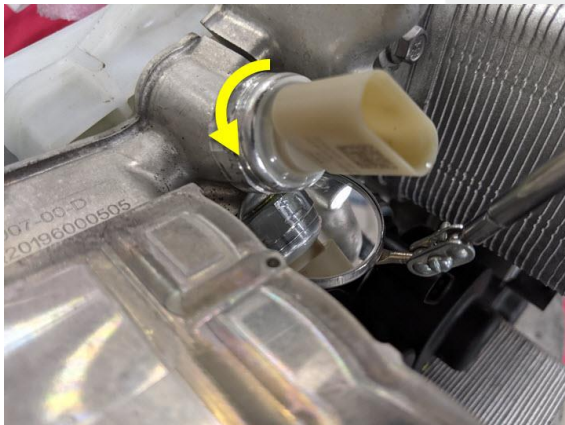


Figure 10 – Back off little



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.

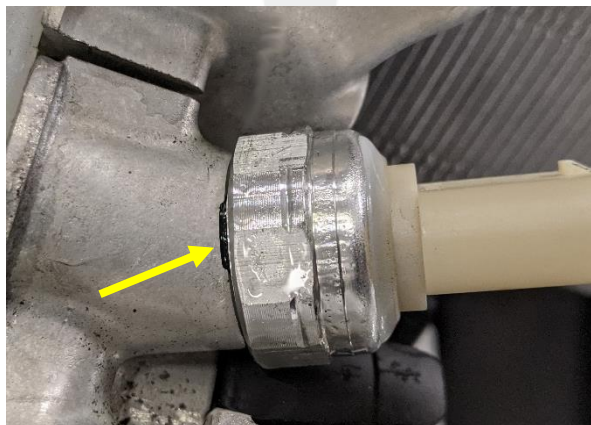


Figure 12 – O-ring pinched

- 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).

16. 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).

17. 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).

18. Connect the electrical harness to the subcool high pressure P/T sensor connector, and then fasten the locking tab (Figure 5).

19. Connect the electrical harness to the high pressure P/T sensor connector, and then fasten the locking tab (Figure 4).
20. Connect the electrical harness to the low pressure P/T sensor connector, and then fasten the locking tab (Figure 3).
21. 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).
22. Perform the vacuum leak test and oil injection (refer to Service Manual procedure 18200102), [Model 3](#), [Model Y](#).
23. Recharge the A/C refrigerant (refer to Service Manual procedure 18200102), [Model 3](#), [Model Y](#).



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

24. If a refrigerant leak detector is available, make sure that there is no leak at the P/T sensors.
25. In Toolbox, click the **Actions/Autodiag** tab, type “Thermal” in the search field, click **TEST-SELF_VCFRONT_X_THERMAL-PERFORMANCE**, click **RUN**, and allow the routine to complete.
26. Disconnect the laptop from the vehicle.
27. 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.