



## TECHNICAL SERVICE BULLETIN

### 3.3L/3.5L Duratec/3.5L EcoBoost/5.0L - Without Block Heater - Lack Of Heat When Operating In Temperatures Below -20°C (4°F) - Built On Or Before 1-Jan-2019

19-2122

15 May 2019

This bulletin supersedes 18-2244. Reason for update: Add Production Fix Date

#### Model:

<b>Ford</b> 2015-2019 F-150
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#### Summary

This article supersedes TSB 18-2244 to update the vehicle model years affected.

**Issue:** Some 2015-2019 F-150 vehicles equipped with a 3.3L, 3.5L Duratec, 3.5L EcoBoost and 5.0L engine without a block heater built on or before 1-Jan-2019 may exhibit a lack of heat concern from the heating ventilation and air conditioning (HVAC) system when operating the vehicle in temperatures consistently below -20°C (4°F). This condition may be due to deposits from the engine coolant becoming trapped in the heater core. To correct the condition, flush the cooling system and replace the heater core.

**Action:** Follow the Service Procedure steps to correct the condition on vehicles that meet all of the following criteria:

- 2015-2019 F-150
- Built on or before 1-Jan-2019
- 3.3L, 3.5L Duratec, 3.5L EcoBoost, or 5.0L engine
- Exhibits a lack of heat from the vents when operated in temperatures consistently below -20°C (4°F)
- Not equipped with a block heater

#### Parts

Part Number	Description	Quantity
6E5Z-19E889-D	Thermostatic Expansion Valve Manifold O-ring	1
6E5Z-19E889-E	Thermostatic Expansion Valve Manifold O-ring	1
HL3Z-8255-A	Thermostat O-ring Seal (3.5L EcoBoost)	1
BR3Z-8255-A	Thermostat O-ring Seal (5.0L, 3.3L, 3.5L Duratec)	1
N808684-S101	Steering Shaft Bolt	1
W718633-S451	Front Seat Bolt	8
FL3Z-18476-B	Heater Core	1
BC3Z-8287-C	Heater Core Line Clips	1
FPS-8262	Authorized Modification Label	1
YN-12-D	Motorcraft® PAG Refrigerant Compressor Oil (2015-2016 F-150, 2017-2019 Raptor)	1
YN-35	Motorcraft® R-1234yf Refrigerant PAG Oil (2017-2019 F-150 Except Raptor)	1

VC-1	Motorcraft® Premium Cooling System Flush	1
VC-13-G	Motorcraft® Yellow Concentrated Antifreeze/Coolant	2

**Warranty Status:** Eligible Under Provisions Of New Vehicle Limited Warranty Coverage Warranty/ESP coverage limits/policies/prior approvals are not altered by a TSB. Warranty/ESP coverage limits are determined by the identified causal part and verified using the OASIS part coverage tool.

### Labor Times

Description	Operation No.	Time
2015-2017 F-150 3.5L Duratec, 2015-2019 F150 3.5L GTDI, 2018-2019 F150 3.3L 40/40 Seat: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122A	7.6 Hrs.
2015-2017 F-150 3.5L Duratec, 2015-2019 F150 3.5L GTDI, 2018-2019 F150 3.3L 40/20/40 Seat: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122B	8.1 Hrs.
2015-2017 F-150 3.5L Duratec, 2015-2019 F150 3.5L GTDI, 2018-2019 F150 3.3L Floor Shift: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122C	8.3 Hrs.
2015-2017 F-150 3.5L Duratec, 2015-2019 F150 3.5L GTDI, 2018-2019 F150 3.3L Console: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122D	8.0 Hrs.
2015-2019 F-150 5.0L 40/40 Seat: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122E	8.8 Hrs.
2015-2019 F-150 5.0L 40/20/40 Seat: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122F	9.1 Hrs.
2015-2019 F-150 5.0L Floor Shift: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122G	9.3 Hrs.
2015-2019 F-150 5.0L Console: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core (Do Not Use With Any Other Labor Operations Outside Of This Article)	192122H	9.1 Hrs.
Additional Time To Remove And Install Police Equipment That Interferes With Repair (Can Be Claimed With Labor Operations A-H)	MT192122	Actual Time

### Repair/Claim Coding

Causal Part:	18476
Condition Code:	55

### Service Procedure

1. Run the engine until it reaches normal operating temperature. Select the floor position on the control assembly. Set the temperature control to full warm and the blower to medium setting.
2. Increase the engine speed to 3,500 revolutions per minute (RPM). After 30 seconds, allow the engine to return to idle for an additional 30 seconds.
3. Using a suitable temperature measuring device, measure the heater core inlet hose temperature. Is the heater core inlet hose temperature above 66°C (150°F)?
  - (1). Yes - proceed to Step 4.

- (2). No - this article does not apply. Refer to WSM, Section 412-00 for normal diagnosis.
4. Measure the heater core inlet and outlet hose temperature. Are the hose temperatures within 6-17°C (10-30° F)?
- (1). Yes - this article does not apply. Refer to WSM, Section 412-00.
- (2). No - proceed to Step 5.
5. Drain the cooling system. Refer to WSM, Section 303-03.
6. On vehicles equipped with the 5.0L engine, remove the coolant hoses from the transmission fluid warmer. Refer to WSM, Section 307-02.
7. Remove the thermostat. Refer to WSM, Section 303-03.
8. Disconnect the lower radiator hose.
9. Using a garden hose, run water through inlet and outlet radiator hoses for 2 minutes each.
10. Reassemble the thermostat housing without the thermostat installed. Do not reconnect the radiator hoses to the housing at this time.
11. Using a garden hose, run water in the degas bottle for 2 minutes.
12. Close the radiator drain valve.
13. On vehicles equipped with the 5.0L engine, re-attach the coolant hoses to the transmission fluid warmer.
14. Disconnect the inlet and outlet heater core hoses from the heater core. Refer to WSM, Section 412-00.
15. Using a garden hose, run water through the inlet and outlet heater hoses back toward the engine for 5 minutes each.
16. Reattach all hoses except for inlet and outlet heater hoses.
17. Using pinch pliers, clamp off the inlet and outlet heater hoses.
18. Add 1 bottle of Motorcraft® Premium Cooling System Flush and fill the rest of the cooling system with water.
19. Connect the appropriate Ford diagnostic scan tool to the vehicle and start the engine.
20. Allow the engine to reach normal operating temperature.
21. Run the engine at 2,500 RPM for 15 minutes with the climate control system off.
22. Return the engine to idle. Using the appropriate Ford diagnostic scan tool, command the cooling fans on high speed for 5 minutes.



**CAUTION: Water could be hot.**

23. Turn the engine off and open the degas bottle cap carefully. Refer to WSM, Section 303-03.
24. Drain the cooling system. Refer to WSM, Section 303-03.
25. On vehicles equipped with the 5.0L engine, remove the coolant hoses from the transmission fluid warmer.
26. Using a garden hose, run water through the degas bottle at the cap opening for 2 minutes.
27. Close the radiator drain valve.
28. On vehicles equipped with the 5.0L engine, reattach the coolant hoses to the transmission fluid warmer.
29. Fill the cooling system with water. Refer to WSM, Section 303-03.
30. Repeat Steps 19 through 26.
31. Remove the pinch pliers from the inlet and outlet heater core hoses and backflush toward the engine with a garden hose for 1 minute each.
32. On vehicles equipped with the 5.0L engine, using a garden hose, flush the transmission fluid warmer coolant inlet and outlet with water for 1 minute each.

33. Using a garden hose, flush the degas bottle with water for 2 minutes.
34. If equipped, disconnect the coolant hoses from the engine oil cooler and flush the inlet and outlet ports of the cooler with water for 1 minute each. Reconnect the hoses. Refer to WSM, Section 303-01.
35. Remove the block heater plug and allow the water to drain from the engine block. Once the engine block is drained, install the block heater plug. Refer to WSM, Section 303-03.
36. Install the thermostat. Refer to WSM, Section 303-03.
37. On vehicles equipped with the 5.0L engine, reconnect the coolant hoses to the transmission fluid warmer.
38. Replace the heater core. Clean the heater core inlet and outlet metal tubes with hot water until free of deposits. Refer to WSM, Section 412-00.
39. Fill the cooling system. Refer to WSM, Section 303-03 to determine the correct coolant concentration based on the climate.
40. Fill out the Authorized Modification Label with the following text: "Use Only Motorcraft® Yellow Antifreeze/Coolant".
41. Clean the coolant reservoir surface with isopropyl alcohol or equivalent and apply the Authorized Modification Label.
42. Advise the owner or driver that the unit is using a different coolant (Motorcraft® Yellow Antifreeze/Coolant) for the environmental conditions. Highlight the coolant used on the customer's copy of the repair order.

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