



## TECHNICAL SERVICE BULLETIN

### With Block Heater - Lack Of Heat When Operating In Temperatures Below -20°C (4°F) - Built On Or Before 1-Jan-2019

**20-2034**04 February  
2020

This bulletin supersedes 19-2121. Reason for update: Incorrect or Missing Parts

**Model:**

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

This article supersedes TSB 19-2121 to update the Service Procedure and Parts List.

**Issue:** Some 2015-2019 F-150 vehicles equipped with a 3.3L, 3.5L Duratec, 3.5L EcoBoost and 5.0L engine and equipped with 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 consistently in temperatures that are 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)
- Equipped with a block heater

**NOTE:** Part quantity refers to the number of that service part number required, which may be different than the number of individual pieces. Service part numbers contain 1 piece unless otherwise stated.

**Parts**

Part Number		Description	Quantity
CV6Z-6A051-C	-	Immersion Block Heater - Round Connector	1
HL3Z-6A051-A	-	Immersion Block Heater - Square Connector	1
6E5Z-19E889-D	-	Thermostatic Expansion Valve Manifold O-ring	1
6E5Z-19E889-E	-	Thermostatic Expansion Valve Manifold O-ring	1
N808684-S101	-	Steering Shaft Bolt	1
FL3Z-18476-B	-	Heater Core	1
BC3Z-8287-C	Package Contains 1 Piece, 2 Pieces Required	Heater Core Line Clips	2
W718633-S451	Package Contains 4 Pieces, 8 Pieces Required	Front Seat Bolt	2
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
FPS-8262	Package Contains 25 Pieces, 1 Piece Required	Authorized Modification Label	1
YN-12-D	-	Motorcraft® PAG Refrigerant Compressor Oil (2015-2016 F-150, 2017-2019 Raptor)	As Needed
YN-35	-	Motorcraft® R-1234yf Refrigerant PAG Oil (2017-2019 F-150 Except Raptor)	As Needed
VC-13-G	-	Motorcraft® Yellow Concentrated Antifreeze/Coolant (All Markets Except Canada)	As Needed
CVC-13-G	-	Motorcraft® Yellow Concentrated Antifreeze/Coolant (Canada Only)	As Needed
VC-1	-	Motorcraft® Premium Cooling System Flush	As Needed

**Warranty Status:** Eligible under provisions of New Vehicle Limited Warranty (NVLW)/Service Part Warranty (SPW)/Special Service Part (SSP)/Extended Service Plan (ESP) coverage. Limits/policies/prior approvals are not altered by a TSB. NVLW/SPW/SSP/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 EcoBoost, 2018-2019 F150 3.3L 40/40 Seat: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034A	7.7 Hrs.
v2015-2017 F-150 3.5L Duratec, 2015-2019 F150 3.5L EcoBoost, 2018-2019 F150 3.3L 40/20/40 Seat: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034B	8.2 Hrs.
2015-2017 F-150 3.5L Duratec, 2015-2019 F150 3.5L EcoBoost, 2018-2019 F150 3.3L Floor Shift: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034C	8.5 Hrs.
2015-2017 F-150 3.5L Duratec, 2015-2019 F150 3.5L EcoBoost, 2018-2019 F150 3.3L Console: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034D	8.2 Hrs.
2015-2019 F-150 5.0L 40/40 Seat: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034E	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 Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article) (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034F	9.1 Hrs.
2015-2019 F-150 5.0L Floor Shift: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034G	9.4 Hrs.
2015-2019 F-150 5.0L Console: Test Heater Core Temperature, Flush Cooling System And Replace The Heater Core Includes Time To Inspect And Replace Block Heater If Necessary (Do Not Use With Any Other Labor Operations Outside Of This Article)	202034H	9.2 Hrs.
Additional Time To Remove And Install Police Equipment That Interferes With The Repair (Can Be Claimed With Labor Operations A-H)	MT202034	Actual Time

### Repair/Claim Coding

Causal Part:	18472
Condition Code:	49

## 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 diagnostics.
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, flush the inlet and outlet radiator hoses for 2 minutes each.
10. Reassemble the thermostat housing without the thermostat installed. Do not reconnect radiator hoses to the housing at this time.
11. Using a garden hose, flush the degas bottle for 2 minutes.
12. Close the radiator drain valve.
13. On vehicles equipped with the 5.0L engine, reattach 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, flush the inlet and outlet heater hoses back toward the engine for 5 minutes each.
16. Reattach all hoses except for the 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, flush 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, use a garden hose and 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 hoses. Refer to WSM, Section 303-01.
35. Remove the block heater or block heater plug if equipped with a thermostat housing mounted coolant heater and allow the block to drain. Refer to WSM, Section 303-03.
36. Install the thermostat. Refer to WSM, Section 303-03.
37. Is the vehicle equipped with a 3.5L EcoBoost and a thermostat housing mounted coolant heater?
  - (1). Yes - proceed to Step 40.
  - (2). No - proceed to Step 38.
38. Inspect the block heater. If the block heater is stainless steel (part number on part CV6T-6A051-AA or HL3T-6A051-AB), reinstall the block heater. If the original block heater is brass (part number on part 94BB-6A051-AA), install a new stainless steel block heater with the connector that matches the connector of the harness installed on the vehicle.
39. On vehicles equipped with the 5.0L engine, reconnect the coolant hoses to the transmission fluid warmer.
40. 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.
41. Fill the cooling system using Motorcraft® Yellow Antifreeze/Coolant. Refer to WSM, Section 303-03 to determine correct coolant concentration based on the climate.
42. Fill out FPS-8262 Authorized Modification Label with the following text: "Use Only Motorcraft® Yellow Antifreeze/Coolant".
43. Clean the coolant reservoir surface with isopropyl alcohol or equivalent and apply the Authorized Modification Label.
44. 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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