



TECHNICAL SERVICE BULLETIN

3.5L Duratec/5.0L - Block Heater Equipped - Lack Of Heat When Operating In Temperatures Consistently Below -20 °C (4 °F)

17-2133

28 July 2017

This bulletin supersedes TSB 17-2091. Reason for update: Incorrect or Missing Parts.

Model:

Ford 2015-2017 F-150	Engine: 3.5L Duratec Engine: 5.0L
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Issue: Some 2015-2017 F-150 vehicles equipped with a 3.5L Duratec or 5.0L engine may exhibit a lack of heat concern from the heating ventilation and air conditioning (HVAC) system when the vehicle is operated in temperatures that are consistently below -20 °C (4 °F). This condition may be due to deposits from the engine coolant becoming trapped in the heater core.

Action: Follow the Service Procedure steps to correct the condition.

Parts

Part Number	Description	Quantity
CV6Z-6A051-A	Immersion Block Heater - 5.0L And 3.5L Duratec	1
FL3Z-6B018-F	Block Heater Harness - 5.0L	1
HL3Z-6B018-B	Block heater harness - 3.5L Duratec	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
VC-1	Motorcraft® Premium Cooling System Flush	1
YN-12-D	Motorcraft® PAG Refrigerant Compressor Oil (2015-2016 F-150)	1
1531458	Assist Handle Bolt Cover - See Parts Catalog For Application	2
1531459	Assist Handle Bolt Cover - See Parts Catalog For Application	2
FL3Z-18476-A	Heater Core	1
BC3Z-8287-C	Heater Core Line Clips	1
YN-35	Motorcraft® R-1234yf Refrigerant PAG Oil (2017 F-150)	1
-		1
-	Obtain Locally	1
-	3/4" Brass Ball Valve	1
-	3/4" Brass NPT X 5/8" Barbed Fitting	1
-	5/8" Diameter Hose X 36"	1
-	Hose Clamps	3
-	Prestone® Cor-Guard™ Coolant (2 Gallons)	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 5.0L 40/40 Seat: Inspect, Replace The Block Heater And Heater Core, Includes Time To Test Heating System And Flush Cooling System (Do Not Use With Any Other Labor Operations)	172133A	9.2 Hrs.
2015-2017 F-150 5.0L 40/20/40 Seat Or Console: Inspect, Replace The Block Heater And Heater Core, Includes Time To Test Heating System And Flush Cooling System (Do Not Use With Any Other Labor Operations)	172133B	9.5 Hrs.
2015-2017 F-150 5.0L Floor Shift: Inspect, Replace The Block Heater And Heater Core, Includes Time To Test Heating System And Flush Cooling System (Do Not Use With Any Other Labor Operations)	172133C	9.7 Hrs.
2015-2017 F-150 3.5L Duratec 40/40 Seat: Inspect, Replace The Block Heater And Heater Core, Includes Time To Test Heating System And Flush Cooling System (Do Not Use With Any Other Labor Operations)	172133D	7.9 Hrs.
2015-2017 F-150 3.5L Duratec 40/20/40 Or Console Seat: Inspect, Replace The Block Heater And Heater Core, Includes Time To Test Heating System And Flush Cooling System (Do Not Use With Any Other Labor Operations)	172133E	8.3 Hrs.
2015-2017 F-150 3.5L Duratec Floor Shift: Inspect, Replace The Block Heater And Heater Core, Includes Time To Test Heating System And Flush Cooling System (Do Not Use With Any Other Labor Operations)	172133F	8.5 Hrs.

Repair/Claim Coding

Causal Part:	6A051
Condition Code:	42

Service Instruction

1. Does the vehicle exhibit a lack of heat from the vents when operated in temperatures consistently below -20 °C (4 °F)?
 - (1). Yes - proceed to Step 2.
 - (2). No - this article does not apply. Refer to Workshop Manual (WSM), Section 412-00 for normal diagnosis.
2. 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.
3. Using a suitable temperature measuring device, 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 for normal diagnosis.
 - (2). No - proceed to Step 4.
4. Drain the cooling system. Refer to WSM, Section 303-03.
5. 5.0L only, remove the coolant hoses from the transmission fluid warmer. Refer to WSM, Section 307-02.
6. Remove the thermostat. Refer to WSM, Section 303-03.
7. Reassemble the thermostat housing without the thermostat installed.
8. Using a garden hose, run water in the degas bottle for 2 minutes.
9. Close the radiator drain valve.
10. 5.0L only, reattach the coolant hoses to the transmission fluid warmer.
11. Using pinch pliers, clamp and disconnect the inlet and outlet heater core hoses from the heater core.

12. Remove the block heater. Refer to WSM, Section 303-03.
13. 5.0L only, remove the air cleaner. Refer to WSM, Section 303-12.
14. Install the 19.05 mm (3/4") threaded adaptor with a barbed fitting in place of the block heater. (Figure 1)
15. Connect a 5/8" hose to the barbed fitting adaptor and install the ball valve on the opposite end of the garden hose. Use hose clamps to clamp all connections. (Figure 1)



16. Close the ball valve.
17. 5.0L only, install generator and accessory drive belt. Refer to WSM, Section 414-02.
18. 5.0L only, install air cleaner. Refer to WSM, Section 303-12.
19. Add 1 bottle of Motorcraft Premium Cooling System Flush and fill the rest of the cooling system with water.
20. Connect the Ford Integrated Diagnostic System (IDS) tool to the vehicle and start the engine.
21. Allow the engine to reach normal operating temperature.
22. Run the engine at 2500 RPM for 15 minutes with the climate control system off.
23. Return the engine to idle and command the cooling fans on high speed using IDS for 5 minutes.
24. Turn the engine off and open the degas bottle cap. Caution: water could be hot. Refer to WSM, Section 303-03.
25. Drain the cooling system. Refer to WSM, Section 303-03.
26. Open the ball valve to drain the engine block.
27. 5.0L only, remove the coolant hoses from the transmission fluid warmer.
28. Install a garden hose to the ball valve and backflush the engine and cooling system for 1 minute.
29. Remove the garden hose from the ball valve and place in degas bottle. Flush the cooling system for 2 minutes.
30. Close the radiator drain valve.
31. Close the ball valve.
32. 5.0L only, reattach the coolant hoses to the transmission fluid warmer.
33. Fill the cooling system with water. Refer to WSM, Section 303-03.
34. Repeat Steps 21 through 29.
35. 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.
36. 5.0L only, using a garden hose, flush the transmission fluid warmer coolant inlet and outlet with water for 1 minute each.
37. Using a garden hose, flush the degas bottle with water for 2 minutes.
38. 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.

39. Close radiator drain.
40. Install the thermostat. Refer to WSM, Section 303-03.
41. Remove the adaptor fitting in the engine block and install the new block heater. Refer to WSM, Section 303-03.
42. Remove the block heater wire harness and install the new block heater wire harness following the same routing.
43. 5.0L only, reconnect the coolant hoses to the transmission fluid warmer.
44. 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.
45. Fill the cooling system. Refer to WSM, Section 303-03 to determine correct coolant concentration based on the climate.

Advise the owner or driver that the unit will be using a different Prestone® Cor-Guard™ coolant for the environmental conditions. Also, highlight the technician comments describing the coolant used on the customer's copy of the repair order.

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