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GROUP: Vehicle Performance

DATE: February 28, 2015

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SUBJECT:

Malfunction Indicator Lamp (MIL) Illumination And/Or Intermittent No Crank No Start

OVERVIEW:

This bulletin involves inspecting the Charge Air Cooler (CAC) system for excessive water and/or ice and drying the CAC components if needed. It also involves installing a winter front cover.

MODELS:

2014-2015 (DS)

Ram 1500

NOTE: This bulletin applies to vehicles equipped with a 3.0L diesel engine (sales code EXF) and engine block heater (sales Codes NHK).

SYMPTOM/CONDITION:

A small number of customers may experience a MIL illumination when ambient temperatures fall below 32°F (0 °C). Upon further inspection, a technician may find the following Diagnostic Trouble Codes (DTCs).

- P0299 - Turbocharger Underboost Condition
- U1424 - Implausible Engine Torque Signal Received

In addition, a customer vehicle may come in with a no crank/no start. This may have occurred after the vehicle has been driven for an extended period of time in extremely low ambient and then allowed to sit overnight. Further diagnosis may indicate a possible inoperative starter.

DISCUSSION:

A possible cause of these concerns may be contributed to internal icing of the Charge Air Cooler (CAC) system and intake manifold. Icing will occur because warm, moist air from the turbo charger is being rapidly cooled and the moisture is then condensed into liquid by the CAC. The liquid is then distributed into the rest of the intake system, which is operating at ambient temperature, where it will then freeze.

Vehicles that are driven for extended periods of time are susceptible to higher amounts of ice build up within the intake manifold. Once the vehicle is turned off and allowed to sit, the ice formation in the intake will begin to melt due to the elevated underhood temperatures. The moisture will then run down the intake runners and accumulate in the combustion chamber through an open intake valve causing the engine to hydro-lock.

To help prevent icing in the CAC system when the vehicle is operated in low ambient temperatures, it is highly recommended that the vehicle have winter front cover installed. This raises the CAC outlet temperatures above freezing which will help reduce condensation build up.

DIAGNOSIS:

Using a Scan Tool (wiTECH) with the appropriate Diagnostic Procedures available in TechCONNECT, verify all vehicle systems are functioning as designed. If DTCs or symptom conditions, other than the ones listed above are present, record the issues on the repair order and repair as necessary before proceeding further with this bulletin.

If the customer describes the symptom/condition listed above or if the technician finds the DTCs, perform the Repair Procedure.

PARTS REQUIRED:

Qty.	Part No.	Description
1 (AR)	82213959AB	Winter Front Cover

REPAIR PROCEDURE:

NOTE: It may be necessary to allow the vehicle to sit inside the shop for at least an hour to allow the engine block and oil temperatures to reach above freezing. This will allow any frozen moisture in the CAC and intake to thaw completely before attempting the repair procedure.

1. Did the vehicle come in as a no crank/no start?
 - a. Yes>>> Proceed to [Step #2](#).
 - b. No>>> Proceed to [Step #10](#).
2. Raise and support the vehicle on a suitable hoist. Refer to the detailed service procedures in DealerCONNECT/techCONNECT Service Info section 04 - Vehicle Quick Reference> Hoisting> Standard Procedure.
3. Remove the 5, 10 mm bolts securing the impact cover over the crankshaft pulley and remove the cover. See ([Fig. 1](#)).



Fig. 1 Crankshaft Pulley Impact Cover

4. Using a suitable ratchet and socket on the crankshaft pulley retaining bolt, attempt to rotate the engine clockwise by hand. Does the engine turn over freely?
 - a. Yes>>> Further diagnostics for the no crank/no start condition is required. Refer to normal published diagnostics in DealerCONNECT/TechCONNECT and proceed to [Step #25](#).
 - b. No>>> Proceed to [Step #5](#).
5. Remove all 6 glow plugs. Refer detailed service procedures in DealerCONNECT/TechCONNECT Service Information Section 08 - Electrical> 8I - Ignition Control> Plug, Glow, 3.0L Diesel> Removal.
6. Rotate the engine clockwise by hand at least one full revolution to allow the majority of accumulated water in the cylinders to be expelled out of the glow plug orifices or out into the exhaust.
7. Engage the starter and crank the engine over for 5 seconds to expel any remaining water from the cylinders.
8. Reinstall the glow plugs and tighten to 8 nm (71 in. lbs). Refer to detailed service procedures in DealerCONNECT/TechCONNECT Service Information Section 08 - Electrical> 8I - Ignition Control> Plug, Glow, 3.0L Diesel> Installation.
9. Reinstall the crankshaft pulley impact cover. Proceed to [Step #10](#).
10. Visually inspect and verify that all CAC hose connections and clamps are properly installed and tight.
11. Raise and support the vehicle on a suitable hoist. Refer to the detailed service procedures in DealerCONNECT/techCONNECT Service Info section 04 - Vehicle Quick Reference> Hoisting> Standard Procedure.
12. Loosen the clamps and remove the lower CAC hose from between the CAC and resonator. See ([Fig. 2](#)).

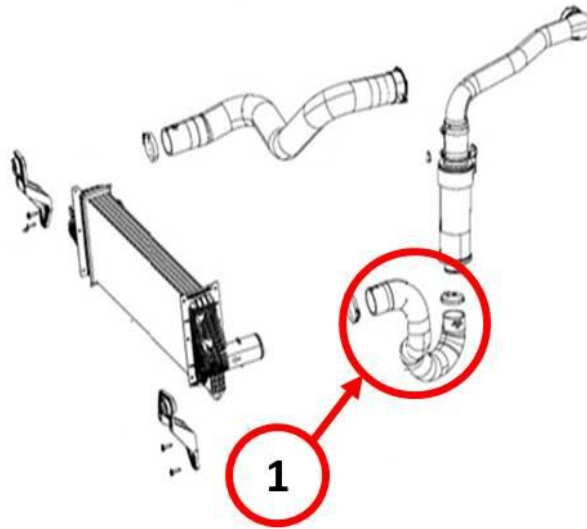


Fig. 2 CAC System

1 - Lower CAC hose.

13. Inspect for and drain any accumulated water from the CAC hose. Dry using shop air.
14. Was excessive moisture found in the lower CAC tube?
 - a. Yes>>> Proceed to [Step #15](#).
 - b. No>>> Further diagnostics are required for MIL illumination. Reinstall all removed components and proceed to [Step #25](#)
15. Remove the Manifold Pressure (MAP)/Boost Pressure sensor. Refer detailed service procedures in DealerCONNECT/TechCONNECT Service Information Section 14 - Fuel System> Fuel Injection, Diesel> Sensor, Boost Pressure> Removal.
16. Clean and dry all moisture from the sensor orifice.
17. Reinstall the Manifold Pressure (MAP)/Boost Pressure sensor. Refer detailed service procedures in DealerCONNECT/TechCONNECT Service Information Section 14 - Fuel System> Fuel Injection, Diesel> Sensor, Boost Pressure> Installation.
18. Remove the CAC assembly. Refer detailed service procedures in DealerCONNECT/TechCONNECT Service Information Section 09 - Engine, 3.0L Turbo Diesel> Turbocharger system> Cooler and Hoses, Charge Air> Removal.
19. Tip the CAC up on end and allow all accumulated moisture to thoroughly drain. Dry using shop air if necessary.
20. Reinstall the CAC assembly. Refer detailed service procedures in DealerCONNECT/TechCONNECT Service Information Section 09 - Engine, 3.0L Turbo Diesel> Turbocharger system> Cooler and Hoses, Charge Air> Installation.
21. Reinstall the lower CAC hose.
22. Lower the vehicle.
23. Using wiTECH, clear all stored DTCs.
24. Start the vehicle and allow to run for at least 20 minutes to ensure system is completely dry.

NOTE: Be sure to leave a copy of the winter front cover installation/removal instructions in the customer's glove box.

25. Install the winter front cover following the detailed installation instructions provided in the winter front cover kit. See (Fig. 3).



Fig. 3 Winter Front Cover Installed

26. Instruct the customer to remove the cover when sustained day and night time temperatures rise above 32°F (0 °C).

POLICY:

Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:

Labor Operation No:	Description	Skill Category	Amount
07-58-10-90	Inspect for MIL illumination or no crank/no start. No moisture found. Includes Winter Front Cover Installation. (2 - Skilled)	10 - Diesel	0.4 Hrs.
07-58-10-91	Inspect and remove CAC, Drain and dry air intake system. Includes Winter Front Cover Installation. (Vehicle starts and runs on arrival) (2 - Skilled)	10 - Diesel	1.0 Hrs.
07-58-10-92	Inspect and remove glow plugs, CAC, and dry air intake system. Includes Winter Front Cover Installation. (No crank/no start upon arrival) (2 - Skilled)	10 - Diesel	1.6 Hrs.

FAILURE CODE:

ZZ	Service Action
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