



Countries: CANADA, UNITED STATES Document ID: IK1200926
Availability: ISIS Revision: 0
Major System: ENGINES Created: 7/11/2013
Current Language: English Last Modified: 6/5/2014
Other Languages: NONE Author: Jeff Novak
Viewed: 401

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Coding Information

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Title: ACM and DSI Troubleshooting**Applies To: 2010 and 2013 Emission MaxxForce DT, 9 & 10**

CHANGE LOG

6/3/14 - Changed wording of step 5
5/13/14 - Added step based diagnostics, revised parts list / verified stock
3/10/14 - Brand new article

DESCRIPTION

This document is for troubleshooting the Aftertreatment Control Module(ACM) and Down Stream Injection(DSI) assembly on the 2010 and 2013 emissions MaxxForce DT/9/10 engines.

NOTE: Before the ACM or DSI is ever replaced it should be thoroughly diagnosed. A majority of concerns are found to be wiring and connection issues.

SYMPTOM

Intermittent or active codes associated with the ACM or DSI assembly

Diagnostic Trouble Codes

The following is a list of the most frequent codes that are a result of wiring or connection issues:

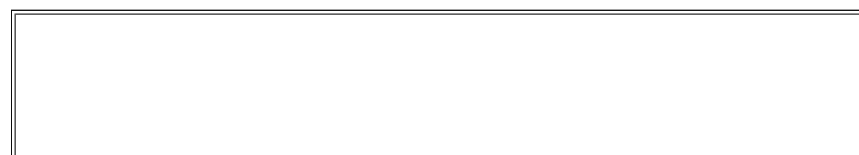
DTC	Description
3471-10	AFT Fuel Doser Valve Abnormal Rate of Change
3480-3	AFTFP1 signal Out of Range HIGH
609-19	ACM not detected on J1939
3471-7	AFT Fuel Doser Valve Not Responding as Expected
3479-4	AFT Fuel Doser Valve Short to Ground
3482-4	AFT Fuel Shutoff Valve Short to Ground

Customer Complaint

- Check engine lamp (aftertreatment codes)
- Unit will not perform a regen (parked or rolling)
- Low power/de-rate (active 3719 codes)

DIAGNOSTICS

The ACM and DSI assembly should be thoroughly diagnosed before one is ever replaced. A majority of units with these codes are found to have wiring issues with the module or assembly. The following steps highlight areas that should be checked for wiring or connection issues.



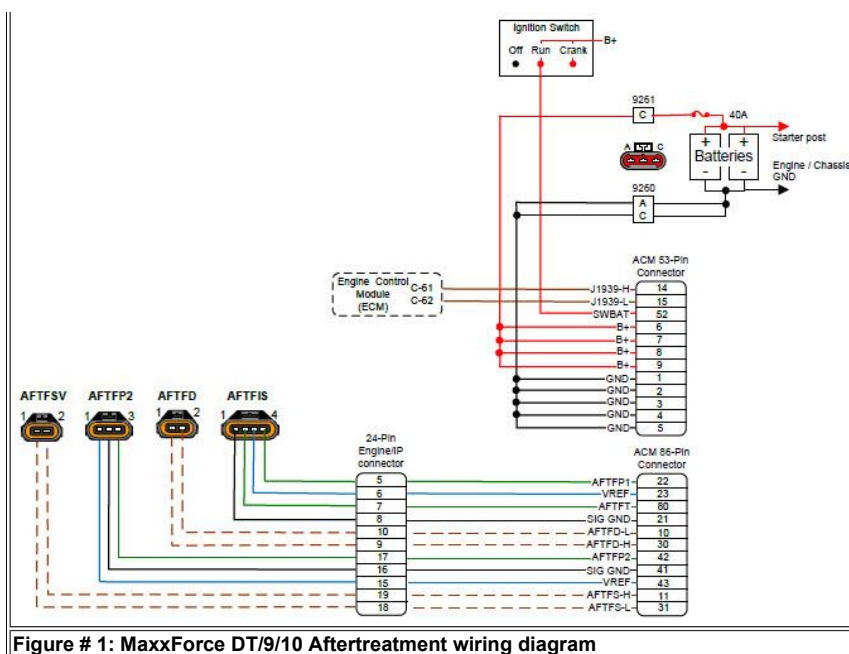


Figure # 1: MaxxForce DT/9/10 Aftertreatment wiring diagram

Step 1: DSI connector inspection

The four connectors at the DSI assembly (AFTFP1, AFTFP2, AFTFD, AFTFIS) should be checked for loose or broken pins. Verify connector pins are making proper contact by performing a pin drag test. Each of the four connectors should snap securely into place, if not then check for cracked connectors.

Are all four connectors and pins properly secured?

Yes: Continue to Step 2.

No: Replace any connectors or pins that do not make secure connections. Retest and verify aftertreatment fault does not return.

Step 2: ACM/DSI wiring inspection

Wiring from the ACM to DSI should be inspected for any chafing and that its properly routed. Also inspect the powers and grounds for any issues. If the issue is centralized on a particular wire or circuit then it should be load tested and wiggled to pinpoint the issue.

Is wiring intact and properly routed?

***See figure #2**

Yes: Continue to Step 3.

No: Correct any wiring issues and make sure it is properly routed. Retest and verify aftertreatment fault does not return.



Figure #2: Harness chafing(incorrectly routed)

Step 3: ACM connector inspection

The ACM 86-Pin, 53-pin and the 24-Pin Engine/IP connector should be inspected for connection issues at the pins. A weak pin or one that is not fully snapped into the connector can create intermittent codes from engine vibration or road feedback. By removing the connector comb you can easily inspect pins and check their crimp on the wire.

Do all connector pins make a secure connection?

**See figure #3*

Yes: Continue to Step 4.

No: Replace any connector pins that do not make a good connection or properly snap into the connector. Retest and verify aftertreatment fault does not return.

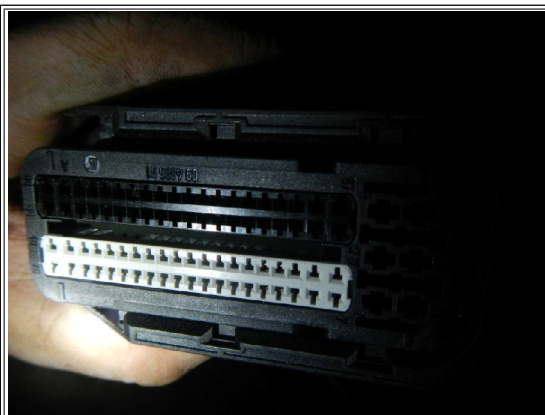


Figure #3: Connector Inspection(ACM 86-Pin)

Step 4: Verifying ACM communication

For issues with the Controller Area Network (CAN) bus reference [IK0800080](#). Ensure the ACM is communicating on the CAN bus and has ignition power when turned on. Using servicemaxx, the ACM will show up on the sniffer if it is communicating. Check wiring and splices for any power supply issues. If the ACM is not properly powered up it will not communicate on the bus.

Does the ACM power up and communicate on the CAN bus?

Yes: Continue to Step 5.

No: Find and correct the wiring or connection issue. Retest and verify aftertreatment fault does not return.

Step 5: Verify fault codes

Retest for the aftertreatment fault and verify that it is still a current issue (faults have been corrected by disconnecting and reconnecting connectors that had a bad/dirty connection). If all diagnostics have been completed and the fault code continues to return then a new ACM should be installed (If available try a test ACM first). Verify the fault codes do not return after replacing the module.

Component Location

ACM - Is installed underneath the cab just below the drivers floorboard

DSI Assembly - Is on the left side of the engine, to the rear of the fuel filter module

Diagnostic Manual Updates

Follow the Engine Diagnostic Manual([click here](#)) for proper voltage and wiring specifications. The information below has been updated from the manual.

Updated ACM Voltage Reference (VREF)
- ACM P/N 1890993C1, KOEO voltage reference is 6V
- ACM P/N 7085804C1, KOEO voltage reference is 12V
- ACM P/N 7094050C1, KOEO voltage reference is 12V

SERVICE PARTS INFORMATION

- ACM Connector Part Numbers

	ACM 53-Pin connector	ACM 86-Pin connector
Terminal 16GA	3710403C1	N/A
Terminal 20GA	3710402C1	3710402C1

- 24-Pin Engine/IP Connector Part Numbers

	24-Pin(Female)
Terminal 20GA (cavities 5-10 & 15-19)	3860055C1
Connector Body	3857801C1

- DSI Connector Part Numbers

	AFTSV 2-Pin connector	AFTFP2 3-Pin connector	AFTFD 2-Pin connector	AFTFIS 4-Pin connector
Terminal 18GA	3689960C1	3689959C1	3689960C1	3689959C1
Connector Body	Located in harness repair kit	Located in harness repair kit	Located in harness repair kit	Located in harness repair kit

WARRANTY INFORMATION

Warranty Claim Coding

Group:	1200 - ENGINES
Noun:	1010 - Harness Aftertreatment Wiring

Standard Repair Time

Description	SRT Link	Hours
Wiring Repair(s)	A08-2004A	0.8

OTHER RESOURCES[MaxxForce DT/9/10 Diagnostic Manual](#)[Aftertreatment Diagnostic Manual \(I6/BB\)](#)[MaxxForce DT/9/10 Wiring Schematic](#)[J1939 Data Link Troubleshooting](#)

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