



Countries:	CANADA, UNITED STATES, PUERTO RICO	Document ID:	IK1201065
Availability:	ISIS	Revision:	3
Major System:	ENGINES	Created:	1/31/2014
Current Language:	English	Last Modified:	3/19/2014
Other Languages:	NONE	Author:	Jeffrey Ehlers
Viewed:	2834		

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Coding Information

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Title: SPN 724 FMI 20: Oxygen (O2) Sensor diagnostic

Applies To: 2010 MaxxForce 11L, 13L, 15, 2013 MaxxForce 13L, and 2013 N13, MaxxForce 15L

DESCRIPTION

Diagnostic procedure when SPN 724 FMI 20: O₂ adaptation value above maximum is present.

The oxygen (O₂) sensor is no longer authorized to be replaced without troubleshooting. The procedure below must be followed if directed to as part of the EGR Cooler Repair Plan OR if SPN 724 FMI 20 is present.

The oxygen sensor should not be replaced in the event that oil or coolant is found in the exhaust unless the sensor is unable to meet the requirements in the procedure below.

SYMPTOM(s)

DTC	Description
SPN 724 FMI 20	O ₂ adaptation above maximum limit

SPECIAL TOOL(s) or SOFTWARE

Tool Description	Tool Number	Comments
Electronic Service Tool		Ez-Tech with ServiceMaxx version 38.1 or newer

Reference IKnow Articles

[TL2900082](#) O2 Oxygen Sensor Calibration Procedure

Diagnostic Procedure

Note: Document any history of previous failure that could have resulted in coolant or oil in exhaust.

Step 1: Check ECM calibration/software	Yes: Go to step 2 No: Update calibration and go to step 2
Check vehicle calibration scorecard using Service Portal.	
Is calibration up to date?	
Step 2: Check calibration version	Yes: Go to step 3 No: Go to step 6
Use EST to view ECM calibration/software ID. Identify the the 6th letter of the calibration/software ID. Example: OEBX <u>A</u> RAD	
If an 2010+ EGR engine, is the 6th letter a S or after in the alphabet? If a 2013+ SCR engine, is the 6th letter a D or after in the alphabet?	
Step 3: Perform O2 calibration with EST	Yes: Record adaptation value and go to step 4 No: Clear SPN 724 FMI 20 and release truck to service
Using EST, run O2 sensor calibration procedure (TL2900082)	
Note: After calibration is complete, document Oxygen Sensor adaptation value, and submit with warranty claim if applicable. After the procedure, if an 2010+ EGR engine, is the adaption value > 0.03? After the procedure, if a 2013+ SCR engine, is the adaption value > 0.045?	
Step 4: Replace O2 sensor	Yes: Verify steps were performed in proper

Replace O2 sensor then using EST, run O2 sensor calibration procedure.	sequence and completed correctly. Notify supervisor if fault remains.
Note: After calibration is complete, document Oxygen Sensor adaptation value, and submit with warranty claim if applicable.	
After the procedure, if an 2010+ EGR engine, is the adaption value > 0.03? After the procedure, if a 2013+ SCR engine, is the adaption value > 0.045?	No: Go to step 5
Step 5: Program O2 sensor programable parameters	Yes: Clear SPN 724 FMI 20 and release truck to service
Reset the following parameters to the values indicated below: - 99520, 99530, and 99540 need to be set to 0. - 99550 need to be set to 780 degF	No: Verify steps were performed in proper sequence and completed correctly. Notify supervisor if fault remains.
Were the parameters reset and programed successfully?	
Step 6: Check O2 sensor adaptation value	
Using EST and O2 sensor calibration session (TL2900082), view Lambda sensor adaptation value.	Yes: Go to step 7
Note: After calibration is complete, document Oxygen Sensor adaptation value, and submit with warranty claim if applicable.	
If an 2010+ EGR engine, is the adaption value > 0.02? If a 2013+ SCR engine, is the adaption value > 0.03?	No: Clear fault and release to service
Step 7: Perform O2 calibration with EST	
Using EST, run O2 sensor calibration procedure	Yes: Replace O2 sensor and repeat step 7
Note: After calibration is complete, document Oxygen Sensor adaptation value, and submit with warranty claim if applicable.	
After the procedure, if an 2010+ EGR engine, is the adaption value > 0.02? After the procedure, if a 2013+ SCR engine, is the adaption value > 0.03?	No: Go to step 8
Step 8: At KOEO, check TC1TOP	Yes: Clear SPN 724 FMI 20 and release truck to service
Using EST, view TC1TOP	

Is TC1TOP greater than -1.45 psi (-10 kPa) but less than 1.45 psi (10 kPa)?	No: Diagnose Biased TC1TOP sensor / ACV
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WARRANTY INFORMATION

Warranty Claim Coding:

Group:	12000
Noun:	647

Standard Repair Time(s):

Description	Eninge	Model	SRT Code	Hours
ECM recalibration	All	All	A12-3510A-20	0.2
O2 sensor replacement and recalibration	2010+ EGR	7600	N12-8647U	0.9
		8600	Q12-8647U	
		ProStar	R12-8647U	
		5000	T12-8647U	
O2 sensor replacement and recalibration	2013+ SCR	9900i	FA12-8647US	1.4
		7600	N12-8647US	
		TranStar	Q12-8647US	
		ProStar	R12-8647US	
		5000	T12-8647US	
		CAT CT660	TC12-8647US	
O2 sensor calibration	2010+ EGR	9900i	F12-1768U-20	0.2
		WorkStar	N12-1768U-20	
		TranStar	Q12-1768U-20	
		ProStar	R12-1768U-20	
		LoneStar	S12-1768U-20	
		5000	T12-1768U-20	
	2013+ SCR	CAT CT660	TC12-1768U-20	
		9900i	F12-1768US-20	
		WorkStar	N12-1768US-20	
		TranStar	Q12-1768US-20	
		ProStar	R12-1768US-20	
		5000	T12-1768US-20	
		CAT CT660	TC12-1768US-20	

Parts Information:

Part #	Description
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3006233C1	2010-2012 MaxxForce 11, 13, 15 Oxygen Sensor
3006233C1	2013+ N13 Oxygen Sensor
3006233C1	2013 MaxxForce 13 Oxygen Sensor



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