Countries:	RUSSIA, AUSTRALIA, CANADA, COLOMBIA, UNITED STATES, PUERTO RICO, KOREA, NEW ZEALAND	**Document ID:**	IK1200739
Availability:	ISIS, FleetISIS	**Revision:**	14
Major System:	ENGINES	**Created:**	3/16/2012
Current Language:	English	**Last Modified:**	9/11/2014
Other Languages:	NONE	**Author:**	Amber Chapman
Viewed:	12129		

Less Info

Hide Details Coding Information

Copy Link	Copy Relative Link	Bookmark	Add to Favorites	Print	Provide Feedback	Helpful	Not Helpful
		View My Bookmarks				340	89

Title: EGR Valve Diagnostics

Applies To: 2010 Emissions MaxxForce 11 & 13 Liter Engines, N13 SCR Engine, MaxxForce 15

CHANGE LOG

2014/09/11: Added diagnostics for 2659-20, Formatting revisions
2014/08/25: Added step and SRT to check ECM calibration level. Changed part number for EGR Valve pigtail and step for checking if the harness needs to be replaced or not. Added note about EGR Valve serial number starting with 3. Reformatted diagnostic steps, new 27-7 step 2 question added.
2014/06/06: Added MaxxForce 15L information

QUICK LINKS

Description	Symptoms	Tools	Parts
Diagnostics	Repair Procedure	Warranty	Resources

DESCRIPTION

This document provides users with Exhaust Gas Recirculation (EGR) Valve diagnostics and repair information for the three most likely fault codes. It covers all 2010 and newer MaxxForce 11, 13 and 15, as well as 2013 and newer N13 engines.

To the Top

SYMPTOMS

Diagnostic Trouble Codes & Dashboard Indicator Lights:

Fault	Description
SPN 27 FMI 4	EGRP Signal Out of Range Low
SPN 27 FMI 7	EGRP Does Not Agree With Commanded Position
SPN 2659 FMI20	EGR High Flow Rate Detected
	Malfunction Indicator Light (MIL)

To the Top

PARTS

Kit Description	Part Number	Quantity Required	Notes

Kit, EGR Valve	7092735C94	1	**2010-2013 MaxxForce 11/13 ONLY**
Kit, Harness Repair*	2513174C91	1	ONLY if necessary, discard ECT1 connector if unnecessary
Tape	7096462C1	1	ONLY if necessary
Kit, EGR Valve	2512163C92	1	**2013-2014 N13 ONLY**
EGR Valve	3008008C92	1	**2011-2012 MaxxForce 15**
Gasket, EGR Valve	3006736C2	2	MaxxForce 15 EGRV Gaskets

*Harness Installation Kit Instructions Click Here

To the Top

DIAGNOSTICS

NOTE:

- If faults 27-4 and 27-7 are both present, **diagnose the 27-4 fault first.**
- If **NO EGR Valve Faults are present** DO NOT replace the EGR Valve. No repairs are required for the EGR system.

Diagnostic Steps when Fault 27-4 is present:

Step	Action	Decision
1	Check the vehicle build date. Was the vehicle built BEFORE 07/01/2012?	**Yes:** Continue to Step 2. **No:** Continue to Step 3.

Step	Action	Decision
2	Check the warranty history to determine if an updated pigtail, 3017846C91 or 2513174C91, has already been installed. Does vehicle history show that the EGRV pigtail part number 3017846C91 or 2513174C91 (gold terminals) have been previously installed?	**Yes:** Continue to Step 3. **No:** Replace the EGR Valve wiring pigtail with PN : 2513174C91 which has gold terminals . Apply dielectric grease on the new terminals. Continue to Step 3.

Step	Action	Decision
3	Clear all faults with EST. Run EGR Valve Actuator Test in ServiceMaxx. Did the Actuator test pass?	**Yes:** Release the vehicle to the customer. **No:** Replace EGR Valve.

Diagnostic Steps when Fault 27-7 is present:

Step	Action	Decision
1	**Check for active fault codes** • **Using EST (Electronic Service Tool), Check the EST DTC list for fault codes.** **Does the Vehicle have a 2659-20 Present?**	**Yes: Continue to Step 2.** **No: Continue to Step 3.**

Step	Action	Decision
2	**Perform Visual inspection of the EGR Valve.** • **Remove Exhaust Manifold Bellows tubes to view EGR Valve. Remove EGR valve.** **Is the EGR Valve damaged (i.e. broken shaft and/ or butterfly plate) ?**	**Yes: Replace the EGR Valve and continue to Step 4.** **If the vehicle was built BEFORE 07/01/2012 (Disregard this information for N13 SCR Engine, and MaxxForce 15) you will also need to replace the EGR Valve wiring pigtail with splice kit PN : 2513174C91. Apply dielectric grease on the new terminals. Release the vehicle to the customer.** **No: Continue to Step 3.**

Step	Action	Decision
3	**Verify if the EGR Valve actuates** **1. Using Electronic Service Tool (EST) with ServiceMaxx™ software, go to Tests > KOEO Tests > Actuator Test. Select EGR Position from the drop-down menu.** **2. Begin Recording Test** **3. If the EGR Valve was removed in Step 1, visually monitor the EGR Valve for movement during the actuator test.** **4. Command EGRP to 5%.** **5. Command EGRP to 95%** **6. Graph the EGRP and EGRC signals** **Does EGR Valve movement correspond with command (See Figure 1 below)?**	**Yes: Reinstall EGR Valve and continue to Step 4.** **No: Replace the EGR Valve and continue to Step 4.** • **If the vehicle was built BEFORE 07/01/2012 (Disregard this information for N13 SCR Engine, and MaxxForce 15) you will also need to replace the EGR Valve wiring pigtail with splice kit PN : 2513174C91. Apply dielectric grease on the new terminals. Release the vehicle to the customer.**

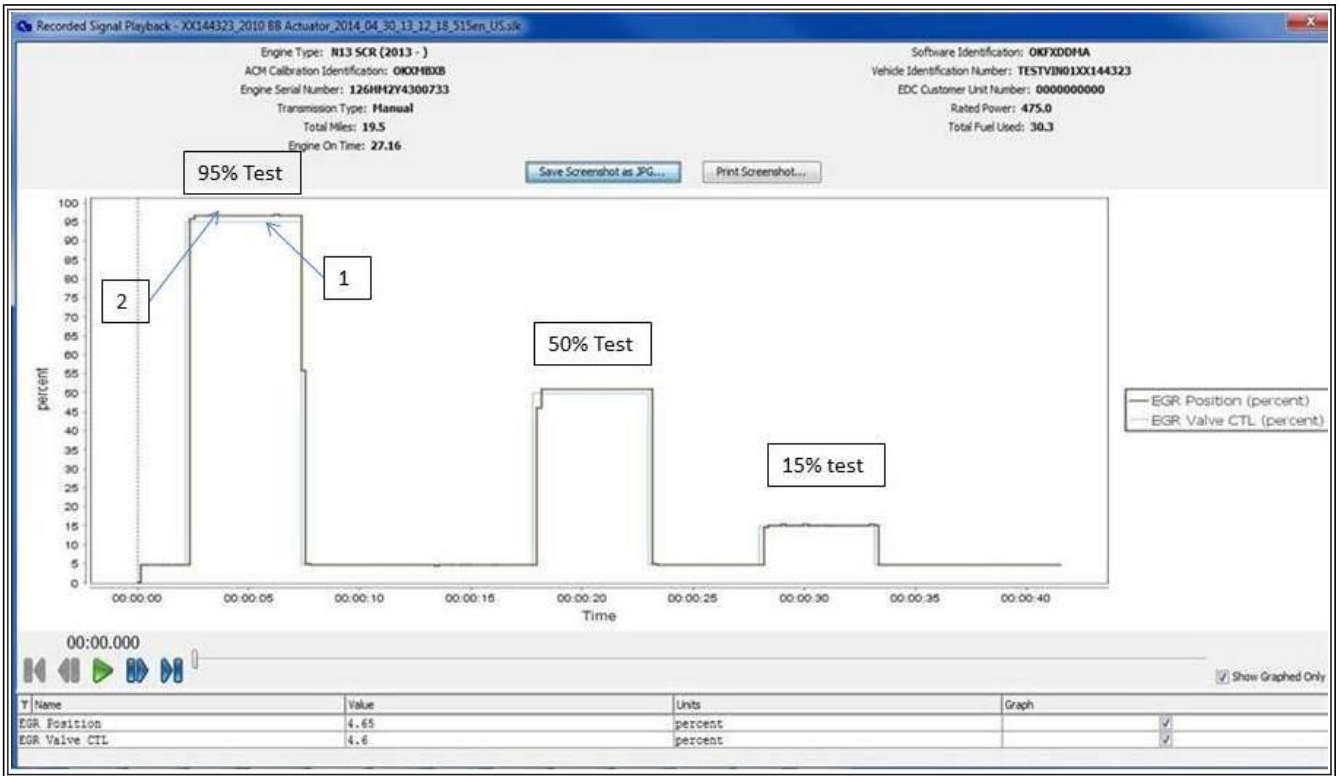


Figure 1: EGR Valve Actuator Test

Item 1: EGR Valve Control (commanded) Position
Item 2: EGR Valve Actual Position

Comments:
This graph shows normal operation of the EGR Valve during the EGR Valve Actuator Test. The EGR Valve Actuator test does not give pass or fail results. It only allows the user to validate electronic operation of the EGR Valve.
If the EGR Valve is operating as designed, EGR Position (callout 2) and EGR Valve CTL (callout 1) should overlap and stay within +/- 10% of each other

Step	Action	Decision
4	**Verify ECM Calibration.** **For 2010 MaxxForce 11/13 Emissions engines : Check the Scorecard on Service Portal. If the scorecard shows current, then the vehicle has the latest version of the calibration.** **For N13 SCR Engine, Check the Scorecard on Service Portal, but please note that the scorecard may not be turned on. To determine the calibration status, check the vehicle's calibration ID. If it has "DE" as the 5th and 6th digits (i.e. :OKPXDEDB), then the calibration is current. If the 5th and 6th digits are DA/DB/DC or DD, then the calibration is not current.** **Is the ECM calibration current?**	**Yes: Continue to Step 5.** **No: Update ECM calibration, then continue to Step 5.**

Step	Action	Decision
5	**Concern Verification** **Using EST, Clear all faults and see if they return.** **Does the fault code SPN 27 FMI 7 return after being cleared?**	**Yes: Contact Supervisor** **No: Release Vehicle**

Serial Number Identification Process shown below:



Figure 2: EGR Valve Serial Number Identification

The generation of the valve can be identified by the serial number (the 6 digit code highlighted in the red box in the picture above) if it starts with 1 it is considered to be an old valve (On 2010 Emissions MF11/13 only. NOT SCR equipped vehicles). If the serial number starts with a 2, it is a newer generation valve. If the serial number starts with a 3, it is a newer generation valve with a modified gasket.

Note : If it starts with a 0 and has part number 5010697R1 stamped on it the EGR Valve is a New Generation. If it starts with a 0 and has part number 3008449C1 as illustrated above then it is an Old Generation EGR Valve.

To the Top

REPAIR PROCEDURE

See the Service Manual (direct link to EGRV) for EGR Valve installation and removal.

To the Top

WARRANTY INFORMATION

Special Requirements:

- Include the Serial Number of the failed and new EGR Valve in the subsequent warranty claim "CCC" and the "Failed Serial #" fields (See Figure 2, above).
- Replacement EGR Valve Serial # must start with a 2 or 3 (See Figure 2, above). **Disregard for N13 SCR Engine, and MaxxForce 15**
- PocketMaxx or EZ-Tech Health Report with Fault Codes is required for warranty reimbursement, per WPL13-009G.

EGR VALVE REPLACEMENT:

Warranty Claim Coding:

Group:	12000 - Engine
Noun:	893 - Valve, EGR

Standard Repair Times:

Time	SRT	Chassis Model	Engine Model
2.8		7600	MaxxForce 11/13

	N12-6893U		
2.8	Q12-6893U	8600	MaxxForce 11/13
2.9	R12-6893U	ProStar	MaxxForce 11/13
2.5	R12-6893O	ProStar	MaxxForce 15
2.8	T12-6893U	5000	MaxxForce 11/13
2.5	S12-6893O	LoneStar	MaxxForce 15
2.5	TC12-6893	CAT CT660	MaxxForce 15
3.8	TC12-6893U	CAT CT660	MaxxForce 11/13

ECM CALIBRATION:

Warranty Claim Coding:

Group:	12000 - Engine
Noun:	716 - Reprogram Engine Calibration

Standard Repair Times:

Time	SRT	Chassis Model	Engine Model
0.5	A12-3510U	All	MaxxForce 11/13
0.5	A12-3510US	All	N13

EGR Valve Actuator Test :

Time	SRT	Chassis Model	Engine Model
0.3	**T-Time**	**All**	**All**

EGR Valve Pigtail Replacement :

Time	SRT	Chassis Model	Engine Model
0.2	**A08-2001A**	**All**	**All**

Engine Cover Removal and Installation
(Use only if EGR Valve Pigtail is repaired, not for use on EGR Valve Replacement)

Time	SRT	Chassis Model	Engine Model
0.8	**A16-7555A**	**ProStar**	**MaxxForce 11/13**
0.8	**T- Time**	**All**	**MaxxForce 11/13**

To the Top

OTHER RESOURCES

2010 MaxxForce 11/13 Resource Center (IK1200548)
2010 MaxxForce 11/13 Diagnostic Manual
2010 MaxxForce 11/13 Service Manual

To the Top

Hide Details Feedback Information
Viewed: 12128
Helpful: 340

Not Helpful: 89

No Feedback Found

Copyright © 2014 Navistar, Inc.