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> 49X

Western Star
Service Bulletin

General Information

This service bulletin describes how to resolve non-functioning headlamps on 47X and 49X vehicles. Symptoms of this issue may only appear while operating in cold weather conditions. Snow, ice, and moisture may accumulate on headlight lenses. Other causes of heated headlamps not operating properly may include:

- driver unfamiliarity of heated headlamp functionality and operation;
- parameter setting changes may be required to match expansion module XMC1 and XMC2 production updates;
- incorrect XMC parameter settings based on wiring configuration at the XMC (covered in this service bulletin).

Other possible causes for non-functional heated headlights are not within the scope of this service bulletin.

Procedure

The driver's manuals have been updated to describe the functionality of the heated headlamps and how to operate them.

How to Diagnose a Heated Headlamp Wiring or Parameter Issue

To diagnose a heated headlamp wiring or parameter issue, perform the following steps.

Before checking heated headlamp wiring and parameters, determine which XMC unit the heated headlamps are wired to. If the vehicle only has one XMC unit, then the unit is XMC1. If there is more than one XMC unit, then it may be necessary to perform the steps below to identify each of the XMC units.

NOTE: Carefully follow the steps below. The XMC hardware is identical and it is easy to misplug the wires.

Determine XMC1 and XMC2

1. Open DiagnosticLink® and ensure there is an established connection to XMC1 and XMC2 (identified as XMC02T and XMC202T).
2. Find the XMC unit assumed to be #1 and physically unplug CAN connector X1 from the back of the unit. This will cause DiagnosticLink to fail to connect.
3. Connect through DiagnosticLink once again.
4. Determine which XMC is unplugged by confirming which XMC (XMC02T or XMC202T) cannot establish a connection to DiagnosticLink.
5. Repeat the process with the other XMC unit to confirm.
6. After identifying which XMC is which, label the ECUs and wiring harnesses to prevent any future confusion.

After identifying each XMC, examine the wiring to brown connector X3 on each XMC unit. There should be one of two variants.

- Two green wires to pins 9 and 6 of XMC2 shown in [Fig. 1](#).

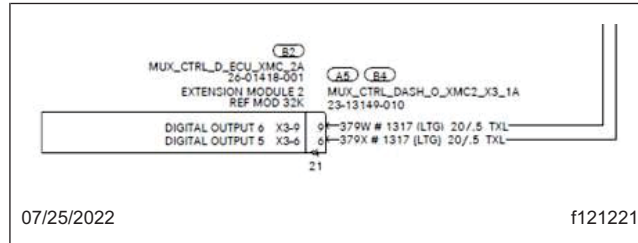


Fig. 1, XMC2 Pins 9 and 6 Connections

- One light green wire to pin 9 of XMC1 as shown in [Fig. 2](#).

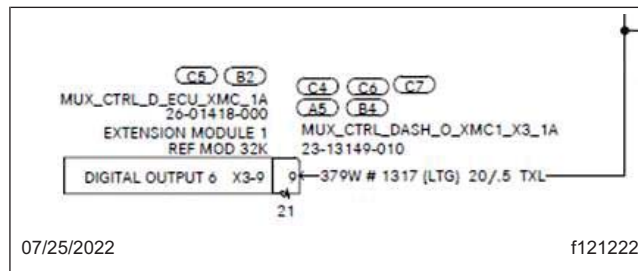


Fig. 2, XMC1 Pin 9 Connection

If there is any wiring variation, either the truck was built before series production, the connectors were swapped, or it was wired incorrectly. Most likely, the brown X3 connectors were swapped between the two XMC units and can be swapped back, but be careful of any other features or modifications wired in that may be impacted. If a rewire to XMC1 single pin option is needed, it is recommend to use 16 gauge for the spliced wire to pin 9 on XMC1 instead of 20 gauge. This wire may have been undersized and corrected on a future revision.

Once the wiring configurations above are confirmed, and any issues with the wiring are corrected, the latest parameters below should be loaded to XMC1 or XMC2 to ensure the heater logic functions correctly. Please select the correct parameters depending on the wiring configuration used above; both should not have to be loaded.

Parameters for Dual Pins Wired to XMC2 Configuration (pre-December 2021)

Select the XMC2 folder and make sure the following parameters shown in [Table 1](#) and [Fig. 3](#) are selected.

Parameters for Dual Pins Wired to XMC2 (pre-December 2021 configuration)	
XMC202T (XMC2) Parameter	Parameter
FSC Logic Block 1_5	A0254474346-002 Enabled, Heated Headlamp 43N LG2 - Production RC3
FSC Logic Block 16_20	A0264471146-001 Enabled, Heated Headlamp 43N LG2 - Production RC1
FSC Output pin block 1_12	A0254474546-004 Defaultstring 43N LG2 RC4 ZGS 004
FSC Timer block 1_20	A0254474846-003 Enabled, 43N LG2 - Production RC4

Table 1, Parameters for Dual Pins Wired to XMC2 (pre-December 2021 configuration)

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☰ 📁 **XMC202T - Extension Module Cabin 2**

FSC Logic Block 1_5: 0254474346-002

FSC Logic Block 1_5	A0244473746-001	tp Enabled, XMC 2 43N	Heated Headlamp Enabled, XMC 2 43N
PFSC_logic_blk0001_in1_hys	(from parent)	A0244473746-001 FSC Logic Block 1_5 Default, Heated Headlamp Enabled, XMC 2 43N	
PFSC_logic_blk0001_in1_sel	(from parent)	A0254474346-002 Enabled, Heated Headlamp 43N LG2 - Production RC3	
PFSC_logic_blk0001_in1_thre	(from parent)	A0254474346-001 Enabled, Heated Headlamp 43N LG2 - Production RC2	
PFSC_logic_blk0001_in2_hys	(from parent)	A0244472546-001 FSC Logic Block 1_5 Disabled, XMC 2 43N	

FSC Logic Block 16_20: 0264471146-001

FSC Logic Block 16_20	A0244472846-001	0 Disabled, XMC 2 43N	bled, XMC 2 43N
PFSC_logic_blk0016_in1_hys	(from parent)	A0304472946-001 FSC Logic Block 16_20 81Z-007 42N	
PFSC_logic_blk0016_in1_sel	(from parent)	A0264471146-001 Enabled, Heated Headlamp 43N LG2 - Production RC1	
PFSC_logic_blk0016_in1_thre	(from parent)	A0244472846-001 FSC Logic Block 16_20 Disabled, XMC 2 43N	

FSC Output pin block 1_12: 0254474546-004

FSC Parameters OutputPinBlock 1_12	A0254474546-003	inout - Production RC4	inout - Production RC4
PFSC_output_pin0001_sel	(from parent)	A0254474546-002 Default string 43N LG2 Pinout - Production RC3	
PFSC_output_pin0001_thre	(from parent)	A0304473046-001 FSC OutputPinBlock 1_12 81Z-007 42N	
PFSC_output_pin0002_sel	(from parent)	A0234477946-001 Default string 43N LG2 Pinout FSC XMC 2	
PFSC_output_pin0002_thre	(from parent)	A0254474546-003 Default string 43N LG2 Pinout - Production RC4	
PFSC_output_pin0003_sel	(from parent)	A0304473046-003 OutputPinBlock 1_12 81Z-006 43N SP Trn Sig Mrkr Util Lgt Fix	
PFSC_output_pin0003_thre	(from parent)	A0294479046-002 OutputPinBlock1_12 81Z-801 43N SP Trn Sig and Mrkr Fix	
PFSC_output_pin0004_sel	(from parent)	A0294477946-001 Defaultstring_FSC Output Pin Block 1_12 81Z-801	
PFSC_output_pin0004_thre	(from parent)	A0284478746-001 Defaultstring.HeatedHL	
PFSC_output_pin0005_sel	(from parent)	A0254474546-001 Default string 43N LG2 Pinout - Production RC2	
PFSC_output_pin0005_thre	(from parent)	A0254474546-004 Defaultstring 43N LG2 RC4 ZGS 004	
PFSC_output_pin0006_sel	(from parent)	A0294479446-001 OutputPinBlock 1_12 81Z-006 Utility light pin swap	

FSC Timer block 1_20: 0254474846-003

FSC Timer Block 1_20	A0234479346-001	tp Enabled, XMC 2 43N	ilt, Heated Headlamp Enabled, XMC 2 43N
PFSC_timer0001_en_sel	(from parent)	A0234479346-001 FSC Timer Block 1_20 Default, Heated Headlamp Enabled, XMC 2 43N	
PFSC_timer0001_en_thre	(from parent)	A0254474846-002 Enabled, 43N LG2 - Production RC3	
PFSC_timer0001_initialvalue	(from parent)	A0254474846-003 Enabled, 43N LG2 - Production RC4	
PFSC_timer0001_rst_sel	(from parent)	A0284478846-001 Defaultstring.HeatedHL.TimerDisabled	
PFSC_timer0001_rst_thre	(from parent)	A0254474846-001 Enabled, Heated Headlamps 43N LG2 - Production RC2	
PFSC_timer0002_en_sel	(from parent)	A0244473946-001 FSC Timer Block 1_20 Disabled, XMC 2 43N	
PFSC_timer0002_en_thre	(from parent)	1	NoUnit 0 65535

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Fig. 3, Parameters for Dual Pins Wired to XMC2

Parameters for a Single Pin Wired to XMC1 (current production configuration)

Select the XMC1 folder and make sure the following parameters in [Table 2](#) and [Fig. 4](#) are selected.

Parameters for a Single Pin Wired to XMC1 (Current Production)	
XMC202T (XMC2) Parameter	Parameter
FSC CAN Event 1_32	A0264471946-001 Defaultstring.CANEvent.HeatedHL
FSC Logic Block 6_10	A0264472046-001 Defaultstring.FSC.LogicBlock.6-10.Write.HeatedHL
FSC Logic Block 11_15	A0264472346-001 Defaultstring.FSC.LogicBlock.11-15.Write.HeatedHL
FSC Timer Block 1_20	A0264472246-001 Defaultstring.TimerBlock.HeatedHL
FSC OutputPinBlock 1_12	A0264472146-001 Defaultstring.HeatedHL

Table 2, Parameters for a Single Pin Wired to XMC1 (current production)

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📁 **XMC02T - Extension Module Cabin**

FSC CAN Event 1_32: 0264471946-001

📁 FSC CAN Event 1_32 A0264471946-001 g.CANEvent.HeatedHL	
PFSC_can_event0001_id	(from parent) A0264471946-001 Defaultstring.CANEvent.HeatedHL
PFSC_can_event0002_id	(from parent) A0184475646-001 Default (Disabled)
PFSC_can_event0003_id	(from parent) A0254472846-001 Enabled 43N LG2 Fixed Pin Config - Production RC2
PFSC_can_event0004_id	(from parent) A0234477846-001 Enabled 43N LG2 Fixed Pin Config

FSC Logic Block 6_10: 0264472046-001

📁 FSC Logic Block 6_10 A0264472046-001 ck.6-10.Write.HeatedHL	
PFSC_logic_blk0006_in1_hys	(from parent) A0264472046-001 Defaultstring.FSC.LogicBlock.6-10.Write.HeatedHL
PFSC_logic_blk0006_in1_sel	(from parent) A0184476146-001 Default (Disabled)
PFSC_logic_blk0006_in1_thre	(from parent) A0254473046-001 Enabled LG2 Marker Interrupt Logic - Production RC2

FSC Logic Block 11_15: 0264472346-001

📁 FSC Logic Block 11_15 A0264472346-001 ck.11-15.Write.HeatedHL	
PFSC_logic_blk0011_in1_hys	(from parent) A0264472346-001 Defaultstring.FSC.LogicBlock.11-15.Write.HeatedHL
PFSC_logic_blk0011_in1_sel	(from parent) A0184476246-001 Default (Disabled)

FSC Timer Block 1_20: 0264472246-001

📁 FSC Timer Block 1_20 A0264472246-001 g.TimerBlock.HeatedHL	
PFSC_timer0001_en_sel	(from parent) A0264472246-001 Defaultstring.TimerBlock.HeatedHL
PFSC_timer0001_en_thre	(from parent) A0304474746-002 FSC Timer Block 1_20 42NLG1PS1 ZGS 002
PFSC_timer0001_initialvalue	(from parent) A0264472246-002 FSC Timer Block 1_20 Heated HL ZGS 002
PFSC_timer0001_rst_sel	(from parent) A0304474746-001 FSC Timer Block 1_20 81Z-007 42NLG1PS1
PFSC_timer0001_rst_thre	(from parent) A0184477446-001 Default (Disabled)

FSC OutputPinBlock 1_12: A0264472146-001

📁 FSC Parameters OutputPinBlock 1_12 A0264472146-001 Defaultstring.HeatedHL	
PFSC_output_pin0001_sel	(from parent) A0264472146-001 Defaultstring.HeatedHL
PFSC_output_pin0001_thre	(from parent) A0194474946-001 Enabled 43N LG2 Fixed Pin Config
PFSC_output_pin0002_sel	(from parent) A0184477146-001 Default (Disabled)
PFSC_output_pin0002_thre	(from parent) A0254476246-001 Default string 43V Pinout - Production
PFSC_output_pin0003_sel	(from parent) A0254476646-001 Default string 44S Pinout - Production
PFSC_output_pin0003_thre	(from parent) A0314476246-001 EMG Default Output Pins
PFSC_output_pin0004_sel	(from parent) A0254473346-001 Enabled 43N LG2 Fixed Pin Config - Production RC2

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Fig. 4, Parameters for a Single Pin Wired to XMC1

54-088

Non-Functioning Heated Headlamps

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Warranty

This procedure is warrantable only warrantable only if the described condition exists and the repair is performed within the applicable base or extended coverage warranty period. If a failure is not found, this procedure is considered preventive and warranty does not apply.

Normal warranty applies. See [Table 3](#) for OWL VMRS codes and labor allowance information. Enter this service bulletin number in the *Service Bulletin #* field.

OWL VMRS Codes and Labor Allowance						
Primary Failed Part	Component Code	Cause Code	Correction Code	SRT Code	Description	Time: Hours
SOFTWARE	003-006-017	93	23	311-5010A	LED HEADLIGHT, LENS HEATER, PARAMETER MODIFICATION (SB54-088)	0.8

Table 3, OWL VMRS Codes and Labor Allowance