

General Information

EPA10 Western Star vehicles with a medium duty Cummins engine (ISB/ISC) and 6-gallon DEF tank may have a problem with DEF freezing at the return fitting in extreme cold temperatures. This failure mode is identified by the Cummins Engine fault code 3575, which eventually leads to derate fault code 3712, limiting the vehicle speed to 5 mph. If this is encountered, install a return-line fitting heater (04-31489-000) to prevent further issues.

DEF Return-Line Fitting Heater Installation

1. Park the vehicle on a level surface, shut down the engine, and set the parking brake. Chock the tires.
2. Remove the DEF tank cover if equipped.
3. Disconnect the DEF return line at the tank fitting closer to the filler neck.
4. Clean the surface of the fitting with hot water to allow the adhesive on the heater to stick to it.
5. Cut two pieces of insulation as shown in [Fig. 1](#).

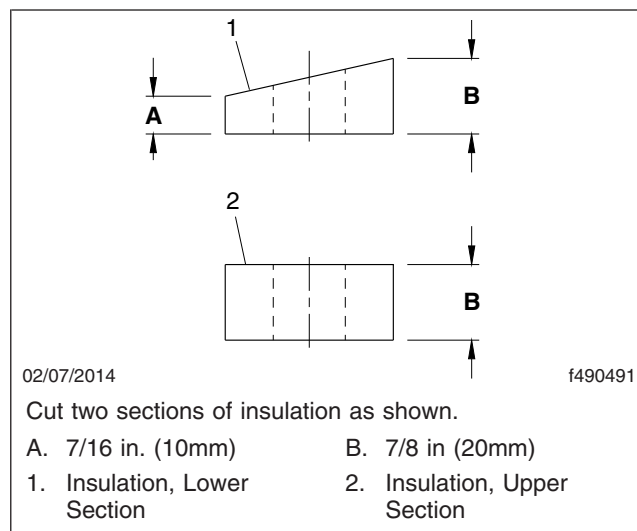


Fig. 1, Cutting the Insulation

6. Cut a section of reflective sleeve material 10 in. (250mm) long, and split it lengthwise.
7. Install the lower piece of the insulation with the short edge of the angle-cut side facing the DEF line. See [Fig. 2](#).
8. Peel the tape off of the the return-line fitting heater then put it over the fitting and press it to stick on the DEF fitting. See [Fig. 2](#).
9. Install the upper half of the insulation.
10. Connect the DEF return line.
11. Position the reflective sleeve over the fitting and insulation, then secure it with zip ties as needed. See [Fig. 4](#).
12. Locate the DEF heater pigtail connector above the DEF module that matches the connector on the heater pigtail (there is only one). See [Fig. 5](#).



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1. Lower Insulation
2. DEF Fitting
3. DEF Return-Line Fitting Heater

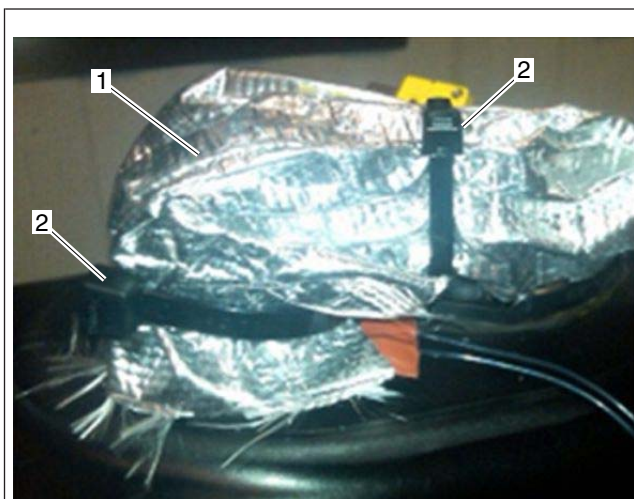
Fig. 2, Installing the Heater



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1. Upper Insulation
2. DEF Return Line

Fig. 3, Installing the Upper Half of the Insulation



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1. Reflective Sleeve
2. Zip Tie

Fig. 4, Installing the Reflective Sleeve



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Fig. 5, Heater Connectors

13. Disconnect the DEF heater pigtail connector at the wire harness.
14. Connect the DEF return line heater connector in series between the original DEF heater pigtail connector and the harness. Secure the wires with zip ties as needed.
15. Install the DEF tank cover if equipped.

> Constellation
Heritage
> 4700 Models

> 4800 Models
> 4900 Models

> 5900 Models
> 6900 Models

Parts

Parts are available through the PDCs. See [Table 1](#).

DEF Return Line Heater Installation Parts	
Description	Part Number
Heater	04-31489-000
Foam Insulation	48-02159-064
Reflective Sleeve	BEN 1553005116S

Table 1, DEF Return Line Heater Installation Parts

Warranty

This procedure is 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 2](#) for QuickClaim damage code and labor allowance information. Refer to this service bulletin by number at the beginning of the claim comments. See [Table 3](#) for OWL VMRS codes and labor allowance information. Enter this service bulletin number in the *Service Bulletin #* field.

QuickClaim Damage Code and Labor Allowance			
Damage Code	SRT Code	Description	Time: Hours
234-103A07647	234-5060A	DEF SUPPLY LINE HTR INSTL, 6 GALLON TANK	0.2

Table 2, QuickClaim Damage Code and Labor Allowance

OWL VMRS Codes and Labor Allowance					
Primary Failed Part	Component Code	Cause Code	SRT Code	Description	Time: Hours
A04-28731-000	043-007-084	51	23Y-5005A	DEF SUPPLY LINE HTR INSTL, 6 GALLON TANK	0.2

Table 3, OWL VMRS Codes and Labor Allowance