SS 1034028 New Cascadia Espar shutting off when SSAM goes to sleep

New Cascadia Espar Auxiliary heater shutting off when SSAM goes to sleep

Applicable Vehicles
New Cascadia

Symptoms
Espar auxiliary heaters in combination with Optimized idle, key off position, will shut down when the SSAM goes to sleep.

Issue
Current builds of all New Cascadia vehicles that have Espar auxiliary heaters and Optimized Idle (datacodes 001-234 and 689-077 respectively) will not allow the Espar heater to function with the ignition key in the off position, once the SSAM has gone into sleep mode.

Case Study
Customers are requesting that the Espar auxiliary heater remains functional without arming Optimized Idle, with the ignition key in the "off" position.

Solution
See the attached document for field modification instructions. Future builds will include an additional overlay to the standard harness that will accomplish the same results.

New Cascadia Espar Circuit Modification

Retrofit for New Cascadia with Optimized Idle to include Espar heater functionality during key off condition

New Cascadia Espar Circuit Modification

Existing design for the New Cascadia Espar heater functionality in combination with optimized idle requires the key in the “ON” position, with the intention of the optimized idle (OI) to be armed. If the Espar heater is operated with the key in the “OFF” position, it will cease to function as soon as the SSAM goes into a sleep mode shortly after the key is turned “OFF”. Customers are currently keeping the Espar heater functioning by keeping a SSAM output active, such as an interior light.

New Cascadia Espar Circuit Modification

Key points to remember in this modification:

- Upon modification, all low voltage dropout of the Espar heater will be controlled via fuse **F40B** for the Espar ECU low voltage programming. *The final step in this modification is to depopulate F40A in favor of F40B.*
- Current design is powered via fuse F40A for SSAM load shedding.
- Operators will need to remain vigilant of the condition of charge to the vehicle batteries while using the Espar heater.

New Cascadia Espar Circuit Modification

Parts needed for this modification:

1 QTY suppression resistor equipped relay 23-11276-011 for VPDM relay RE22 (spare relay 5)

1 QTY 3 amp fuse 23-12537-003 for VPDM position 40B

1 QTY relay 23-13265-012 for VPDM relay RE6

See slide 9 for the cable size and type suggested for this modification, 18/.8, designating 18 AWG or .8 MM2/1.02MM, with TXL jacketing. If a different gauge of wire is being used, ***always*** select the next higher available gauge size.

48-25428-182	CABLE-TXL,0.8MM2(18),UNDEF
48-25428-122	CABLE-TXL,3MM2(12),UNDEF
48-25428-102	CABLE-TXL,5MM2(10),UNDEF

New Cascadia Espar Circuit Modification

Prior to beginning this modification task, be certain to have access to the VPDM and SSAM system diagrams in the

New Cascadia Electrical Systems and Troubleshooting Manual

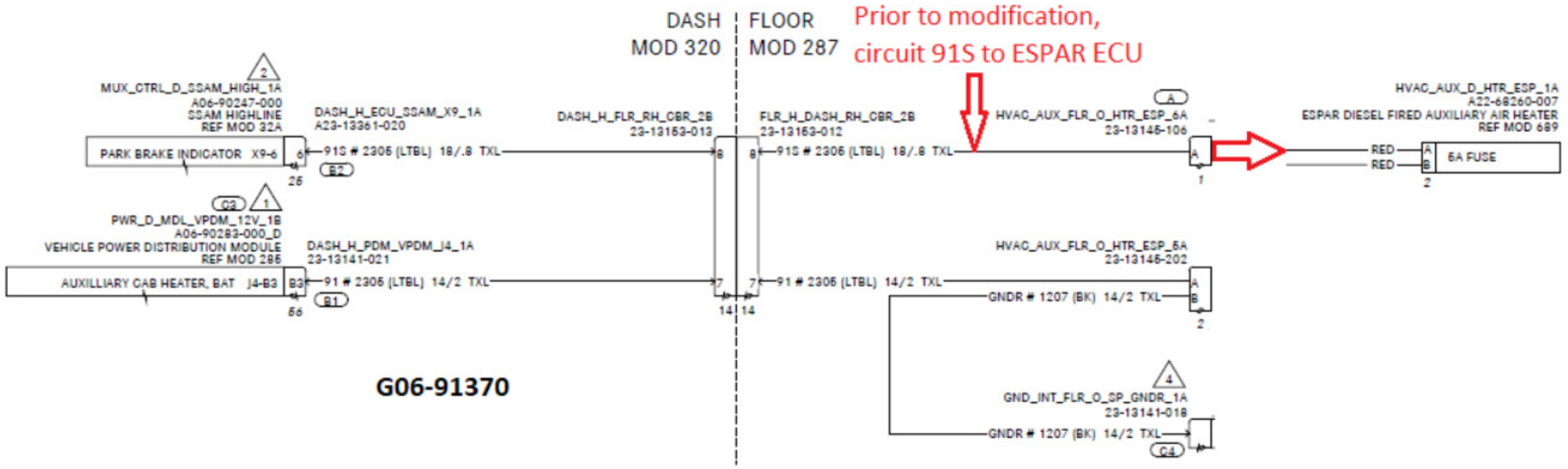
These are essential visual aids necessary to understand the circuit mapping of the intended outcome of this modification.

New Cascadia Espar Circuit Modification

See the following slide for a schematic of the ESPAR circuitry prior to modification. The 12V signal runs directly to the ESPAR heater from the SSAM X9/6 on circuit 91S for operation only with the ignition key in the “ON” position, via fuse F40A for the park brake indicator confirmation. There is no provision to run the ESPAR heater with the key in the “OFF” position.

New Cascadia Espar Circuit Modification

Print noted below,
G06-91370, 70C content,
prior to modification

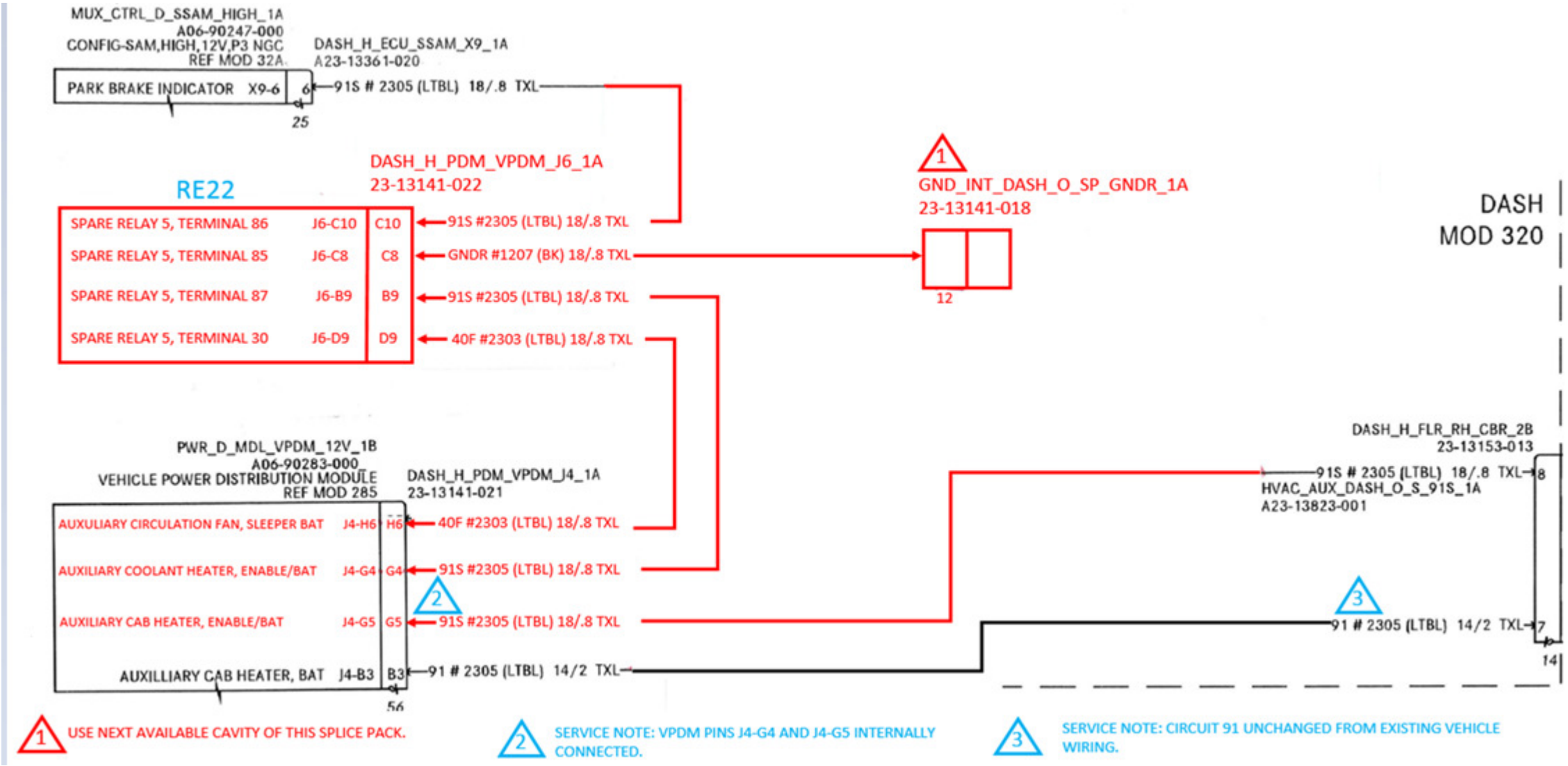


New Cascadia Espar Circuit Modification

See the following slide for a schematic of the ESPAR circuitry after modification. There are now (2) relays in this circuit, RE6 and RE22. Note that circuit 91S still originates from the SSAM X9/6, but now routes to the VPDM RE22/optional relay 5 at cavity location J6/C10, for pin 86 of the relay coil. With the key in the “ON” position, RE22 will latch to allow a 12V output on J6/B9 pin 87 of the relay, which in turn supplies J4/G4 of the VPDM. From here, the signal exits the VPDM on pin J4/G5 to complete the circuit. RE6 will be latched open. Note that RE22 J6/D9 pin 30 is fed 12v ignition via VPDM J4/H6, VPDM fuse 11.

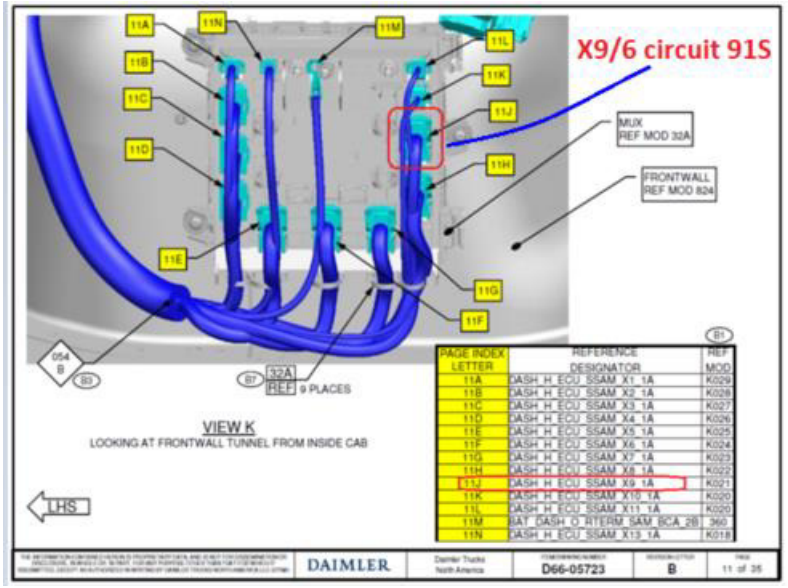
With the key in the “OFF” position, both relays 22 and 40 become dormant. Relay 6 is intentionally wired to be normally closed (NC) across pins 30 and 87A at rest. Circuit 91S out to the ESPAR controller **is now powered via fuse 40B**, which is powered by the BCA fuse 12, BAT 1, constant battery power.

New Cascadia Espar Circuit Modification



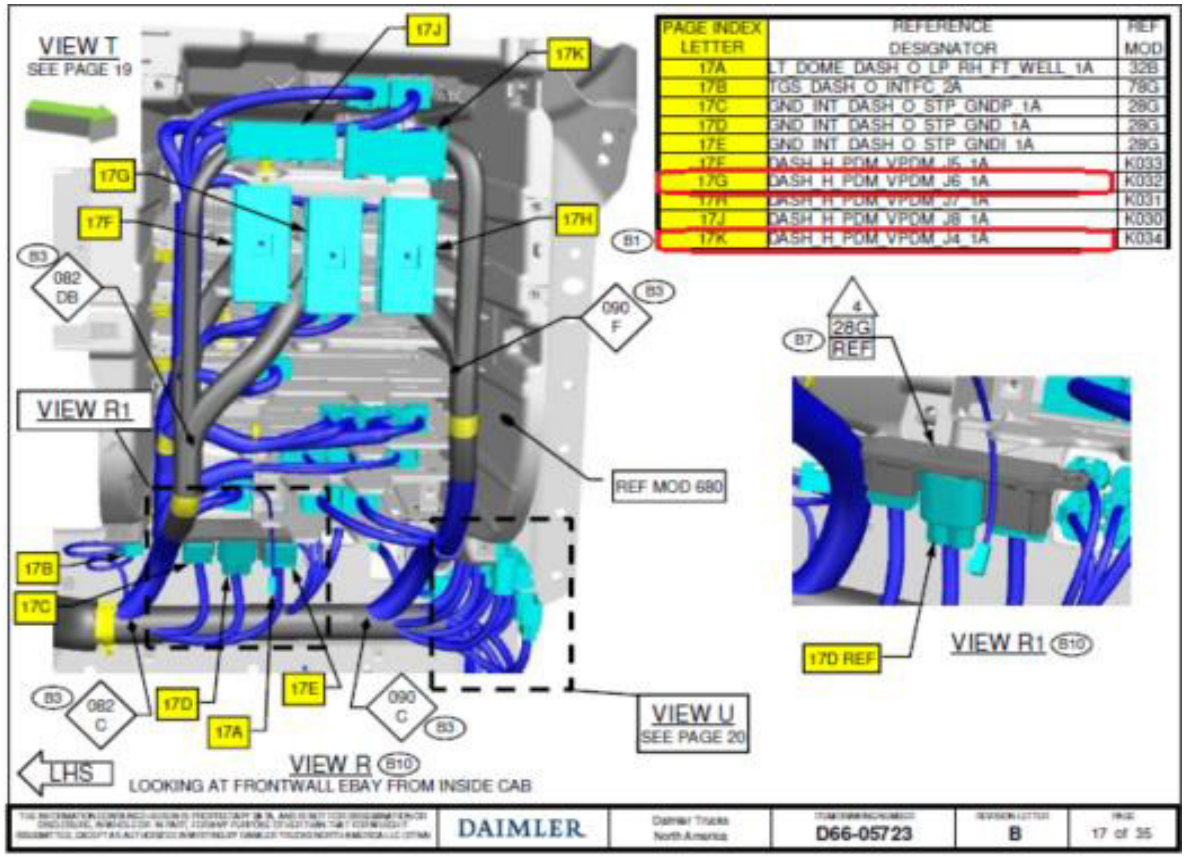
New Cascadia Espar Circuit Modification

Below is the SSAM X9/6 portion of circuit 91S that will need to be opened to route to cavity J6/C10 of the VPDM for RE22/optional relay 5 terminal 86:



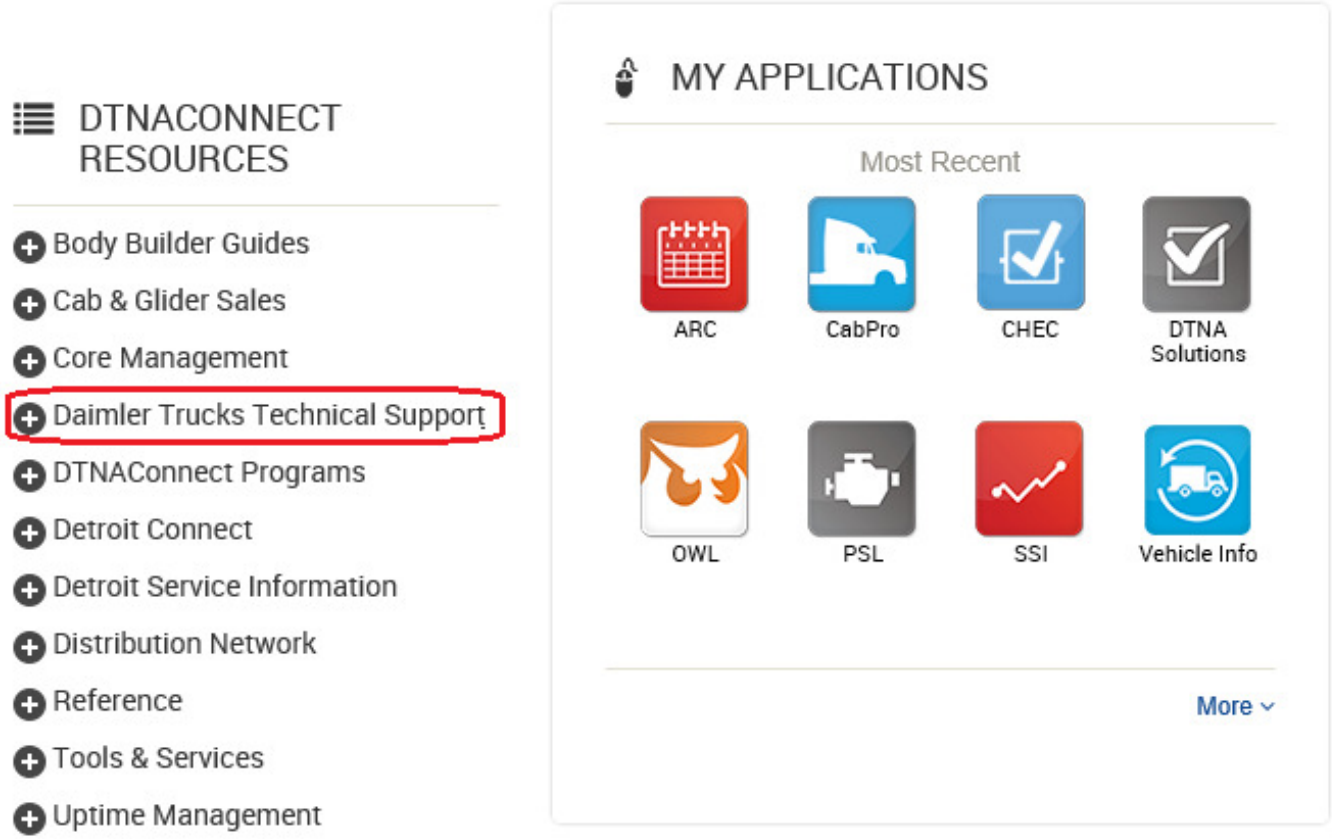
New Cascadia Espar Circuit Modification

See 330 BOM content for installation print D66-05723-000 for the location of the VPDM J4 and J6 connectors



New Cascadia Espar Circuit Modification

See the eComponents website for the terminals needed for this modification



New Cascadia Espar Circuit Modification

Daimler Trucks Technical Support

The Daimler Trucks North America Technical Support is here to assist our customers and technicians with everything from Roadside Assistance and locating a dealership, to advanced diagnostics and troubleshooting. Please give us a call, or use the forms below to reach us for assistance with these or any other vehicle technical support needs.

DTTS Tickets (Search/Update/Create)

Click on the above link to Search/Create/Update a technical support inquiry or technical modification request.

DTTS User Guide

Click this link to open the DTTS User Guide.

DTNA Solutions

DTNA Solutions is our Technical Support Community and Knowledge Base. Check it out to connect with other technicians, ask questions in the forums, give feedback, and to search and browse through our Solutions database for known issues and the latest Tech Support News.

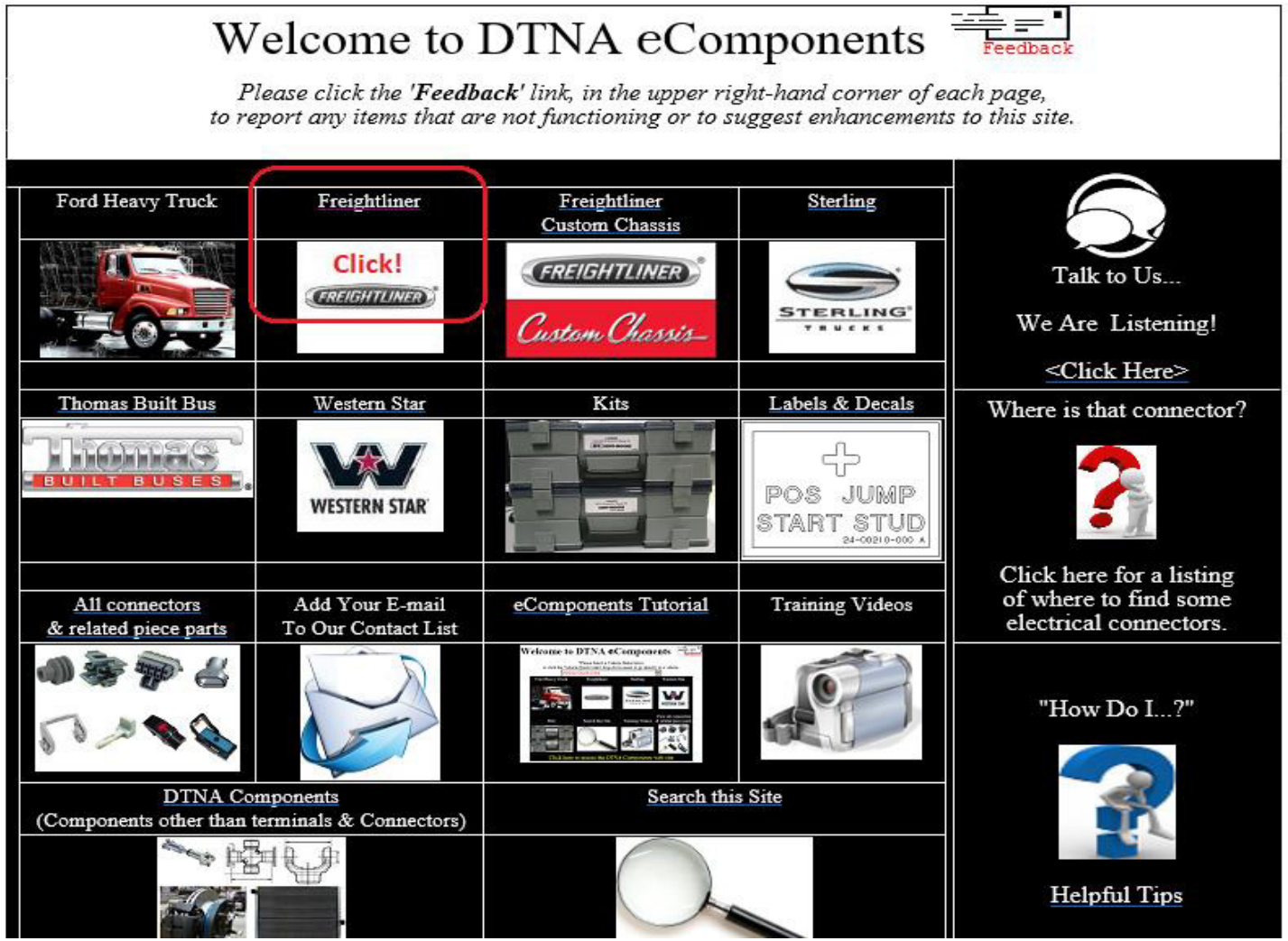
POST System Quick Quote Process

Description of the POST System Quote Process

eComponents

Web site to assist in locating small electrical parts such as relays, fuses, connectors, terminals, seals, etc.

New Cascadia Espar Circuit Modification



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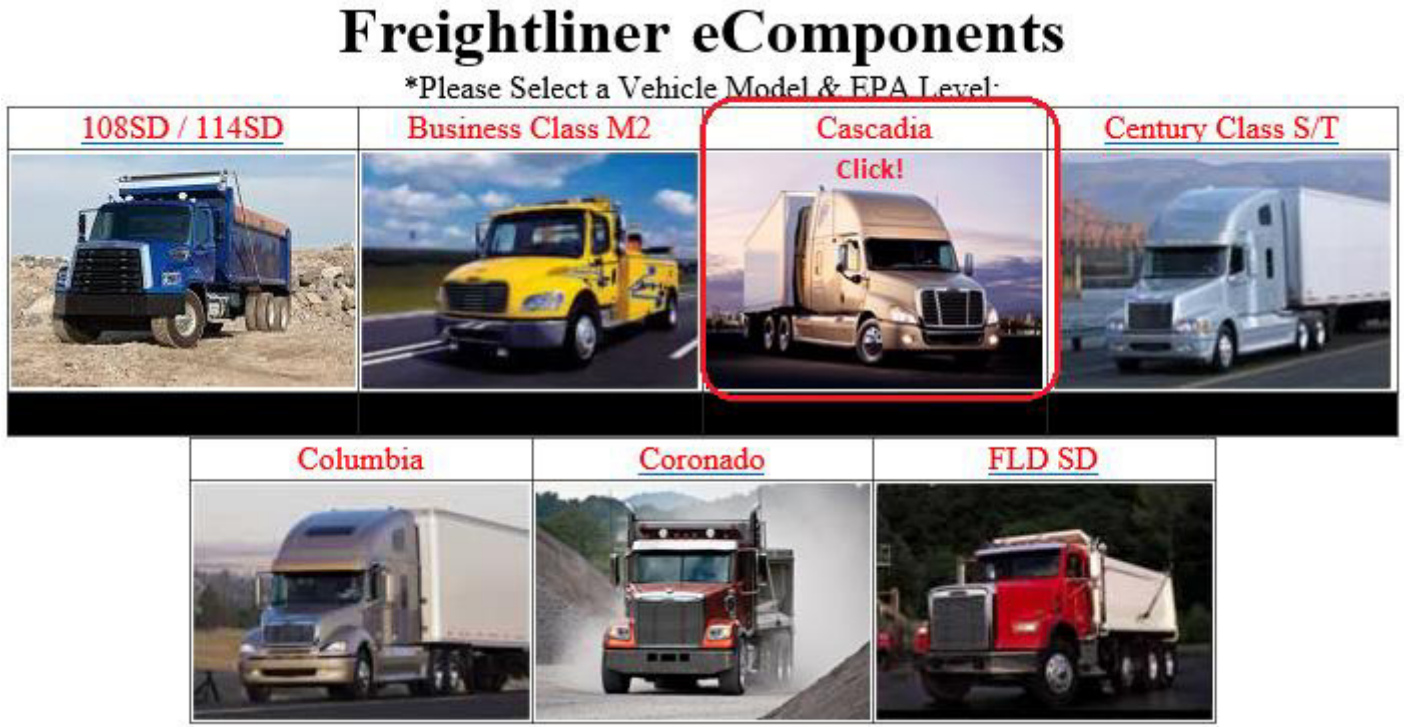

New Cascadia Espar Circuit Modification

Simply follow the next (4) steps to locate the terminal part numbers needed: