PREVOST

Instruction Sheet IS-18042

EBERSPACHER PREHEATER INSTALLATION
In replacement of Spheros & Valeo preheaters

Applicable from: US10

First Release 09-17-2021

MATERIAL

Kit # ***IS18042-1*** (BEFORE NEW ELECTRICAL ARCHITECTURE) includes the following parts:

Part No.	Description	Qty
501120	BANJO UNION 10 MM X #4	2
501123	WASHER, COPPER	4
870012	PREHEATER, EBERSPACHER HYDRONIC L-30 24 VOLT	1
870070	TIMER, PROG. 7 DAYS, SC PREHEATER	1
0610219	HARNESS, R16 PRE-NEA	1
563332	MINI RELAY, 24V WITH RESISTOR	1
500799	SCREW, THREAD CUTTING PAN PH N500 #8-32X3/8	1
561183	RELAY BASE	1
563284	FUSE ATM 15A	1
562228	BUT SPLICE,16-14, N-INS	1
IS-18042	INSTRUCTION SHEET	1
FI-18042	FEUILLE D'INSTRUCTION	1

Kit # ***IS18042-2*** (FROM NEW ELECTRICAL ARCHITECTURE) includes the following parts:

Part No.	Description	Qty
501120	BANJO UNION 10 MM X #4	2
501123	WASHER, COPPER	4
870012	PREHEATER, EBERSPACHER HYDRONIC L-30 24 VOLT	1
870070	TIMER, PROG. 7 DAYS, SC PREHEATER	1
0610217	HARNESS, R16 FROM NEA	1
563332	MINI RELAY, 24V WITH RESISTOR	1
500799	SCREW, THREAD CUTTING PAN PH N500 #8-32X3/8	1
561183	RELAY BASE	1
563284	FUSE ATM 15A	2
562228	BUT SPLICE,16-14,N-INS	1
IS-18042	INSTRUCTION SHEET	1
FI-18042	FEUILLE D'INSTRUCTION	1

NOTE
Material can be obtained through regular channels.

PREVOST

APPLICATION

PART 1

All vehicles

PART 2 - VEHICLES FROM "NEW ELECTRICAL ARCHITECTURE NEA"

H3 coaches from K-0185

X3 coaches (US built; VIN begins with 4RK…) from H-7417

X3 coaches (Canada built; VIN begins with 2PC…) from H-6180

PART 3 – OBD13 UP TO "NEW ELECTRICAL ARCHITECTURE NEA" NOT INCLUDED

H3 coaches from D-2364 up to K-0185 not included

X3 coaches (US built; VIN begins with 4RK…) from E-5459 up to H-7417 not included

X3 coaches (Canada built; VIN begins with 2PC…) from E-5459 up to H-6180 not included

PART 4 – US10 UP TO OBD13 NOT INCLUDED

H3 coaches from B-1721 up to D-2364 not included

X3 coaches from B-5002 up to E-5459 not included

PROCEDURE

DANGER

Park vehicle safely, apply parking brake, stop the engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button. On Commuter type vehicles, set the battery master switch (master cut-out) to the OFF position.

Lockout & Tag out (LOTO) must be performed during set-up, maintenance or repair activities. Refer to your local procedure for detailed information regarding the control of hazardous energy.

PART 1 - ALL VEHICLES

1. Disconnect the existing preheater harness.
2. Disconnect the existing preheater exhaust pipe.
3. Close the shutoff valves located close to the preheater when applicable.
4. Disconnect the coolant inlet & outlet flexible hose from the preheater. Allow the coolant to drip in a drain pan. Place plastic bags at the coolant pipe flexible hose to prevent dirt intrusion.
5. Remove the fuel inlet & outlet banjo bolts. Disconnect the two banjo unions from the preheater. Allow the fuel to drip in a container.
6. Remove the existing preheater.
7. Install the new preheater in place of the old one similarly as previous installation using the included banjo unions and copper washers.

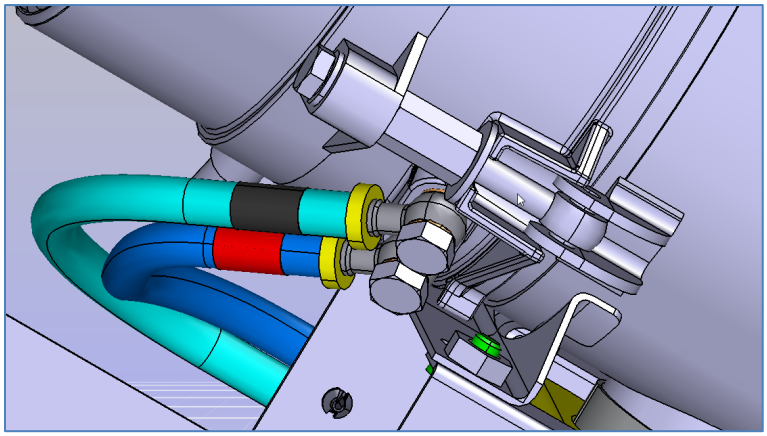


FIGURE 1

PART 2 - VEHICLES FROM NEW ELECTRICAL ARCHITECTURE NEA

H3 SERIES & X3 SERIES

1. Inside the evaporator compartment: install the relay base 561183 on the HVAC panel (Figure 2). To do so, first, drill a 1/8 hole through the panel. Secure the relay base using screw 500799.

2. Inside the evaporator compartment: extract circuit A54J1.4 from connector C15A (identified C15 on the following image) pin 23 cavity (Figure 2 & Figure 3).

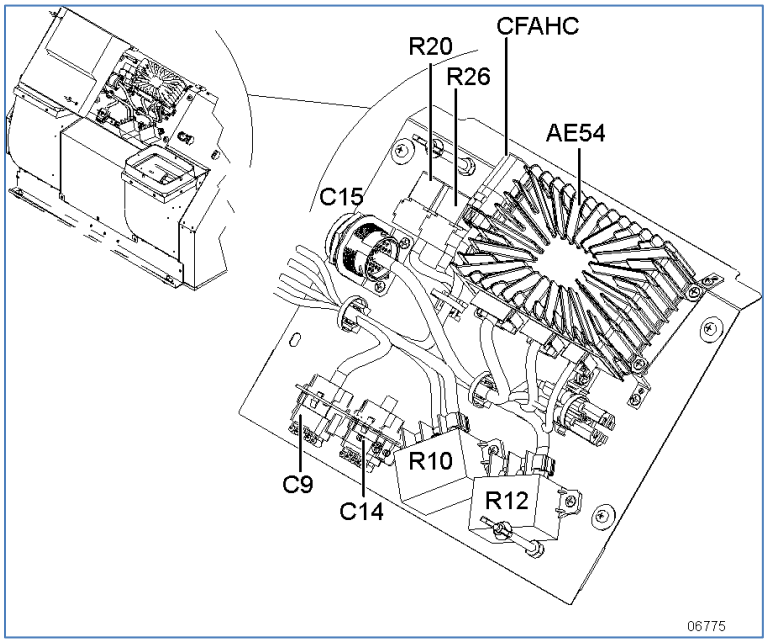


FIGURE 2: HVAC PANEL IN THE EVAPORATOR COMPARTMENT

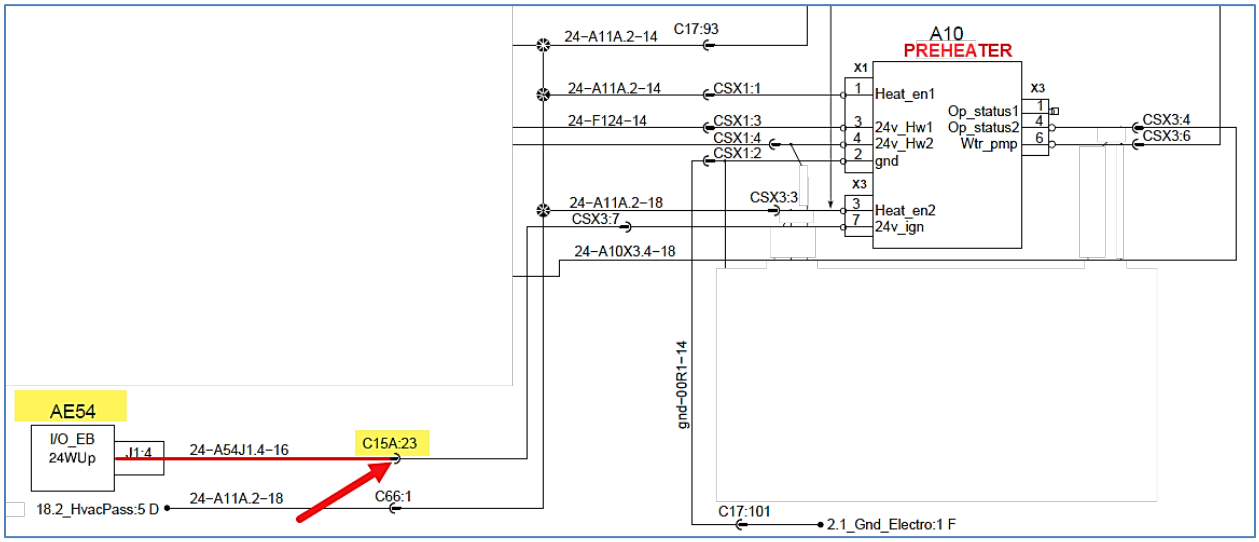


FIGURE 3

3. Inside the evaporator compartment: extract circuit A54J1.4 from module EA54, connector J1 pin 4 cavity (Figure 4 & Figure 5). Discard that section of the circuit.

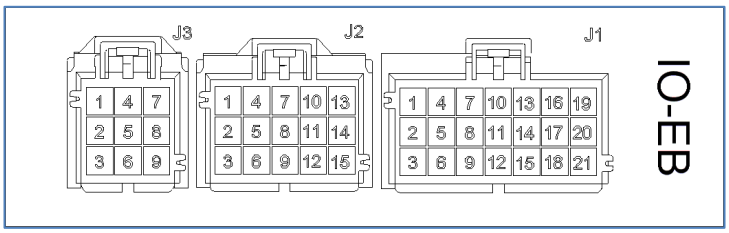


FIGURE 4

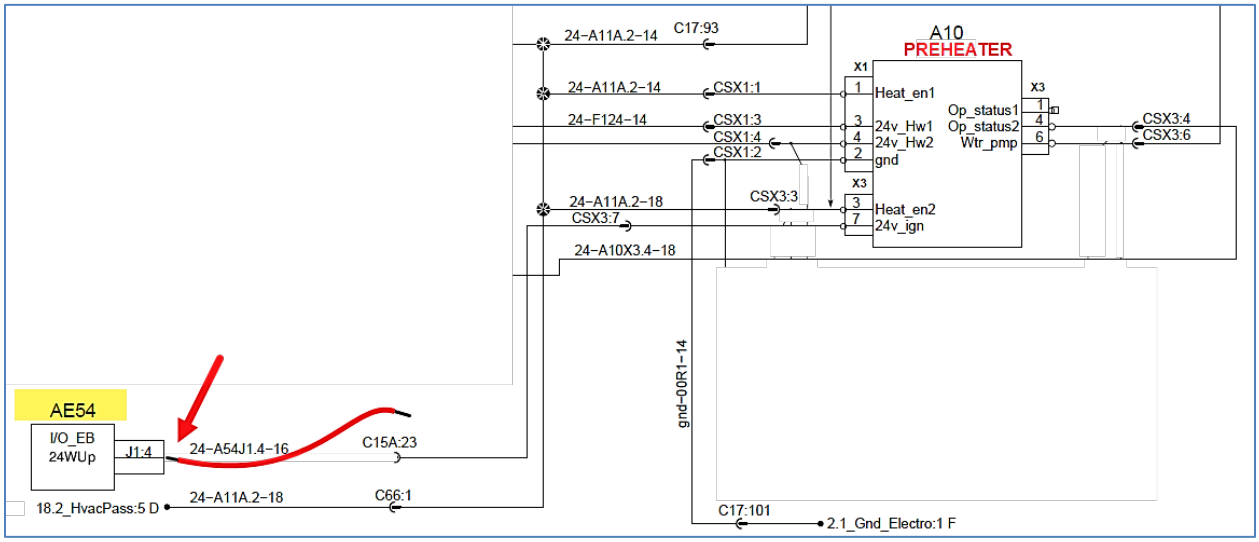
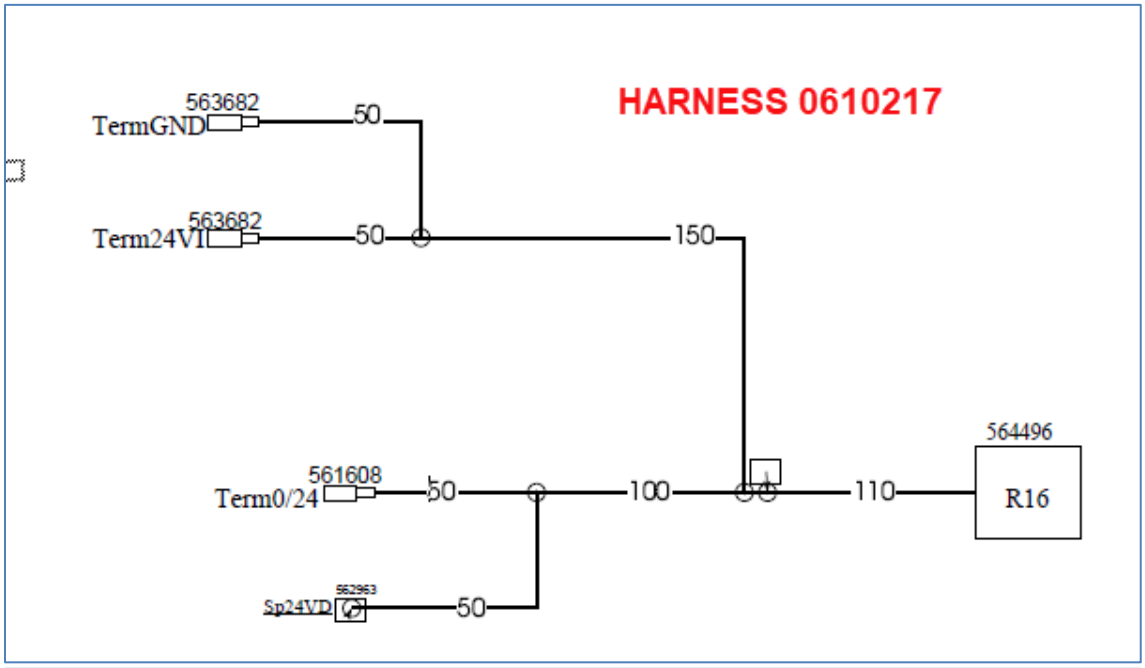


FIGURE 5

4. Connect harness 0610217 to relay R16 according to Figure 6 & Figure 7.



CircuitID	WirePartNo	Gauge	EquipmentEnd1	CavityEnd1	EquipmentEnd2	CavityEnd2
0\24	562587	18	R16	30	Term0\24	
24VD	562590	18	R16	87A	Sp24VD	
24VI	562590	18	R16	86	Term24VI	
GND	562587	18	spR16:85		TermGND	
GND	562587	18	R16	85	spR16:85	
GND	562587	18	R16	87	spR16:85	

FIGURE 6: HARNESS 0610217

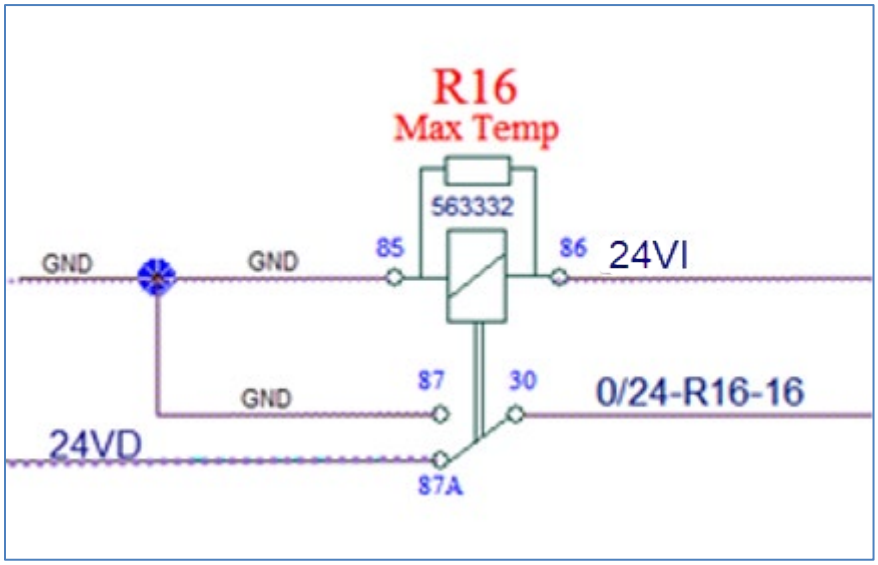


FIGURE 7

5. Inside the evaporator compartment: connect circuit 24VI of harness 0610217 to module AE54 connector J1 pin 4 cavity (Figure 8).

6. Inside the evaporator compartment: connect circuit GND of harness 0610217 to module AE54 connector J1 pin 5 cavity (Figure 8).

7. Inside the evaporator compartment: connect circuit 0/24 of harness 0610217 to connector C15A pin 23 cavity (Figure 8).

8. Inside the evaporator compartment: splice circuit 24VD of harness 0610217 with circuit C15A.8 (…to C15A.3) (Figure 8) using butt splice 562228. Take note that C24 is located in the evaporator compartment.

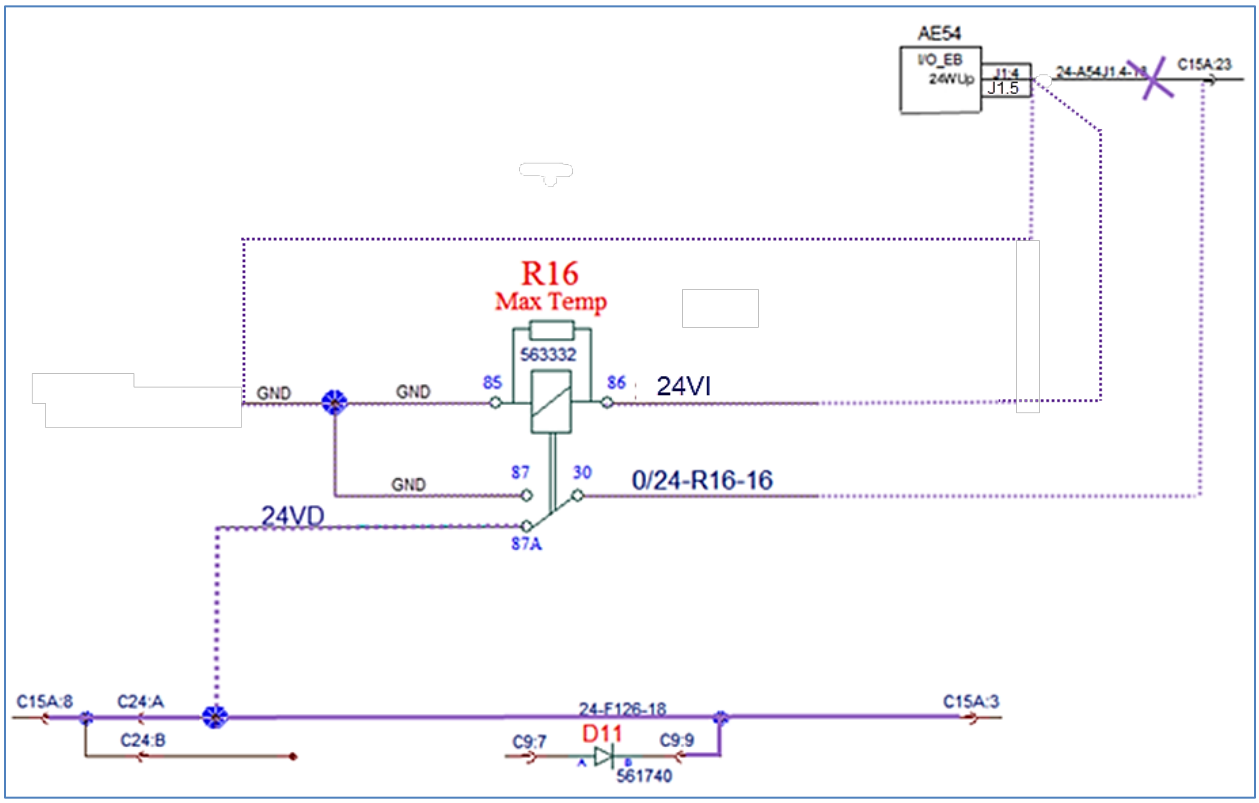


FIGURE 8

9. In the VECR (inside main power compartment), replace fuse F123 with a 15-amp fuse 563284 (Figure 9).

10. In the VECR, replace fuse F124 with a 15-amp fuse 563284 (Figure 9).

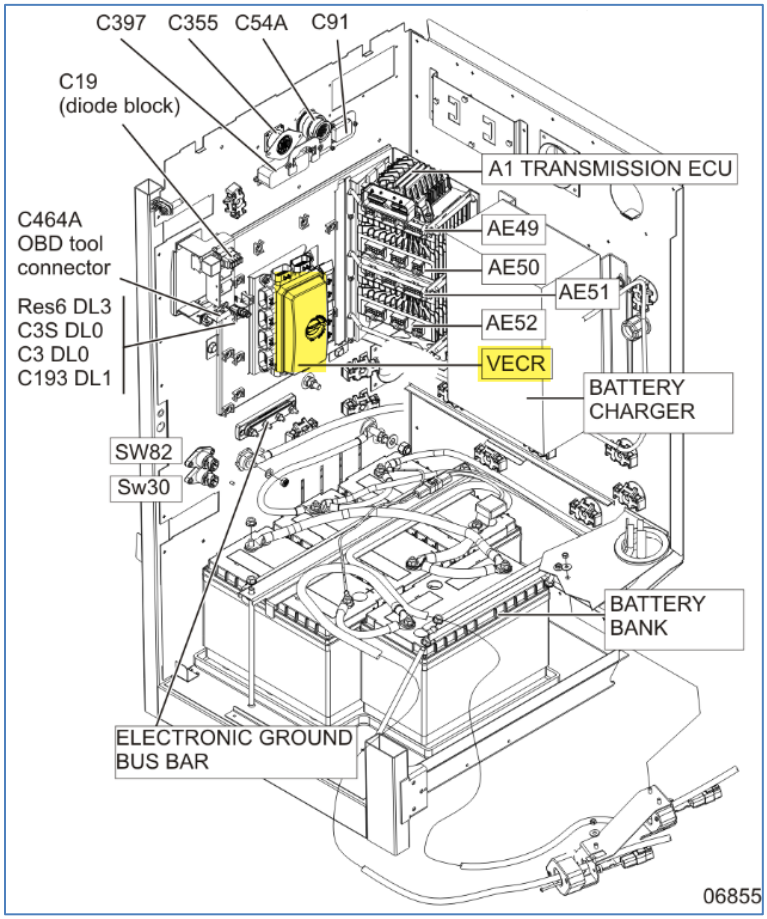


FIGURE 9

11. On the preheater vehicle harness, locate connector CSX3. Extract the circuit connected to pin 7 and reinstall into pin 1 cavity (Figure 10 to Figure 12).

FIGURE 10

FIGURE 11

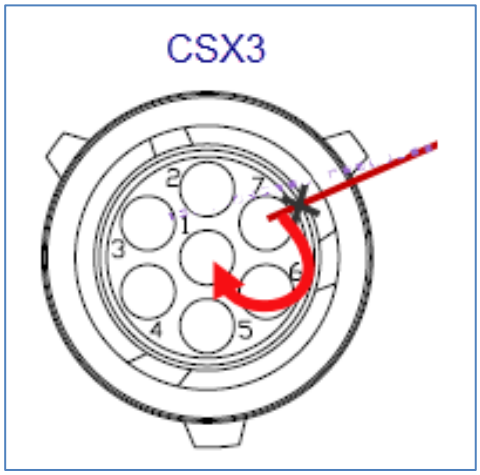


FIGURE 12

12. On the left console (driver area), install the preheater timer.

PART 3 – OBD13 UP TO ″NEW ELECTRICAL ARCHITECTURE NEA″ NOT INCLUDED

H3 SERIES

1. Install the relay base 561183 in the main power compartment. To do so, first, drill a 1/8 hole through the bulkhead. Secure the relay base using screw 500799 (Figure 13 & Figure 14).

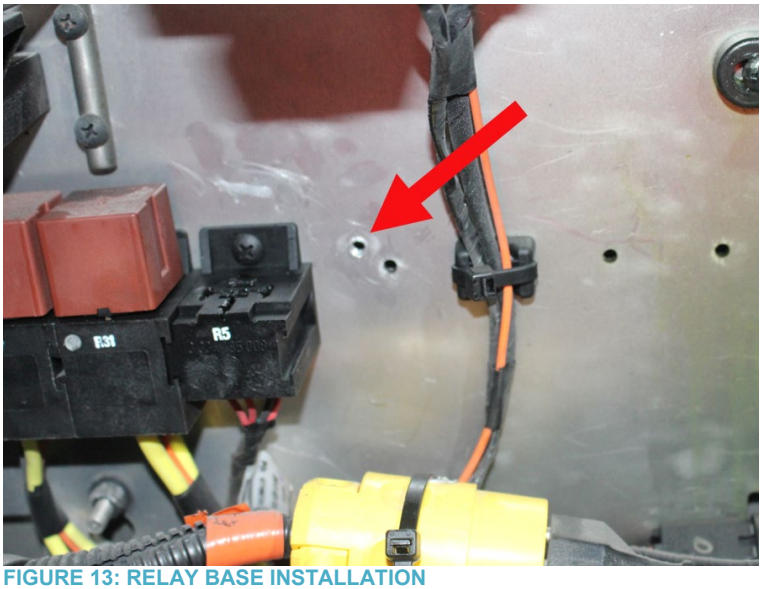


FIGURE 13: RELAY BASE INSTALLATION

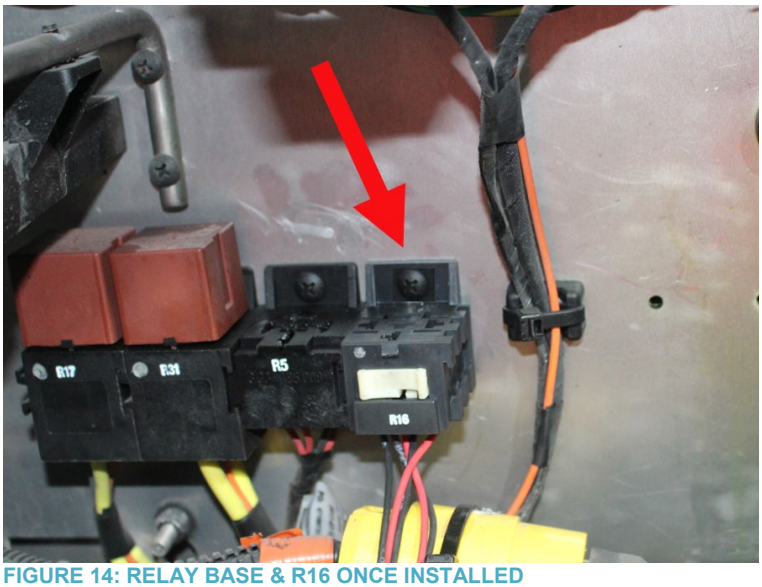


FIGURE 14: RELAY BASE & R16 ONCE INSTALLED

2. On the exterior side of the main power compartment bulkhead, remove connector C91 Figure 15 & Figure 16).

FIGURE 15

FIGURE 16

3. In the main power compartment, remove circuit 24Vi7 routed between connector C91 pin 61 cavity and the VECR connector 2 (red) pin A cavity (Figure 17 & Figure 18). Discard that section of the circuit.

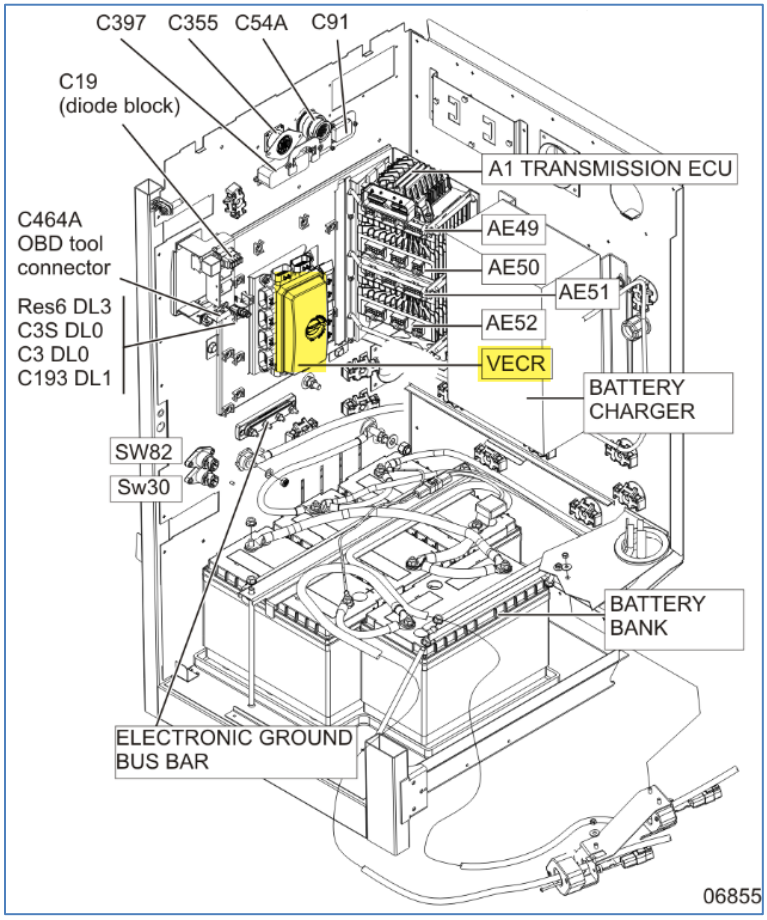


FIGURE 17

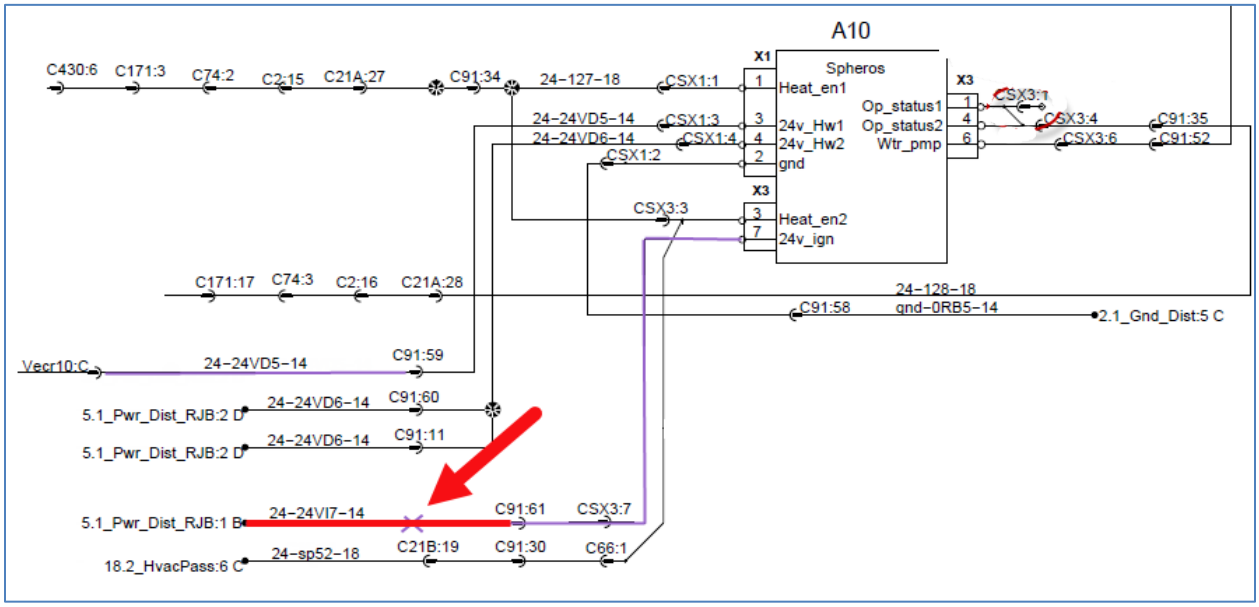
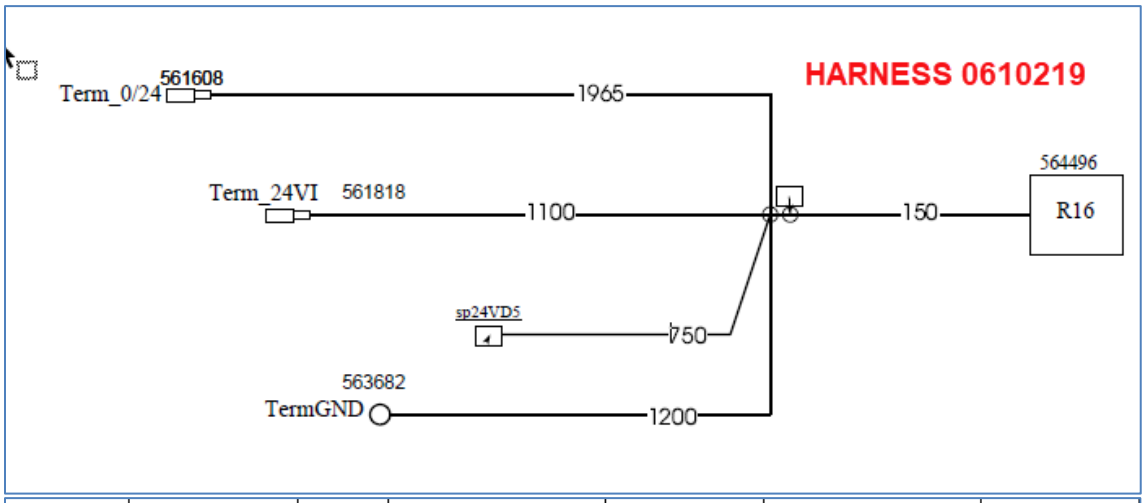


FIGURE 18

4. Connect harness 0610219 to relay R16 according to Figure 19 & Figure 20.



CircuitID	WirePartNo	Gauge	EquipmentEnd1	CavityEnd1	EquipmentEnd2	CavityEnd2
0\24	562587	18	R16	30	Term_0\24	
24VD	562590	18	R16	87A	sp24VD5	
24VI	562590	18	R16	86	Term_24VI	
GND	562587	18	spR16.85		TermGND	
GND	562587	18	R16	87	spR16.85	
GND	562587	18	R16	85	spR16.85	

FIGURE 19: HARNESS 0610219

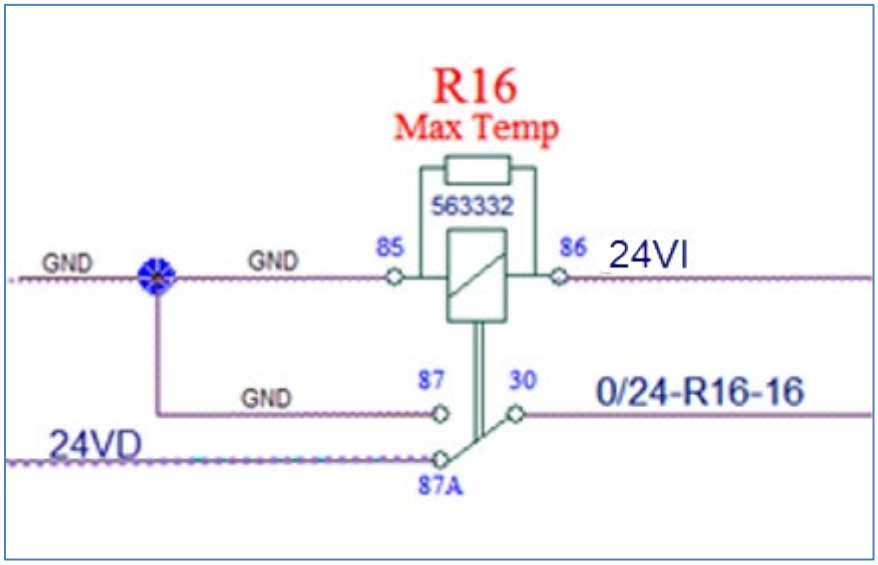


FIGURE 20

5. In the main power compartment: connect circuit 24VI of harness 0610219 to VECR connector 2 (red) pin A cavity (Figure 21).

6. Inside the main power compartment: connect circuit 0/24 of harness 0610219 to connector C91 pin 61 cavity (Figure 21).

7. Inside the main power compartment: splice circuit 24VD of harness 0610219 with circuit 24VD5 (Figure 21) using butt splice 562228. Take note that 24VD5 is routed between connector C91 pin 59 cavity and VECR connector 10 (yellow) pin C cavity.

8. Inside the main power compartment: connect circuit GND of harness 0610219 to the chassis ground stud (Figure 21).

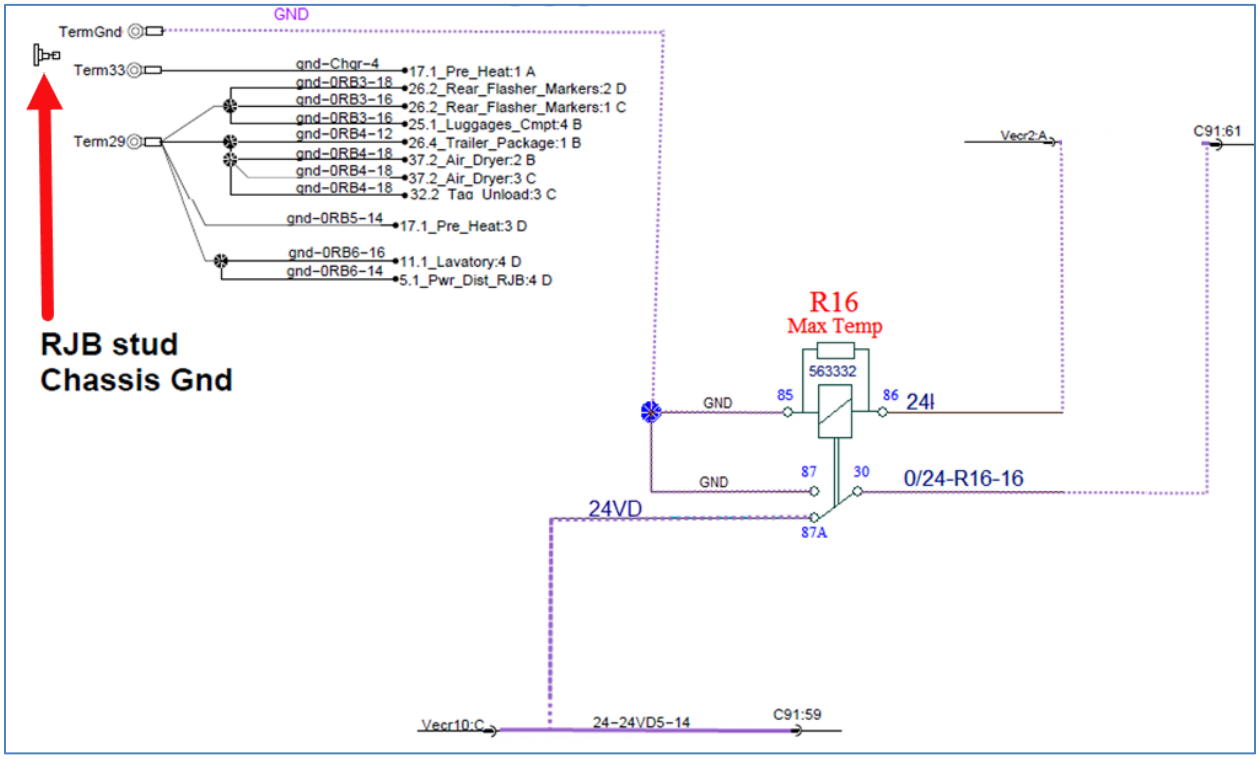


FIGURE 21

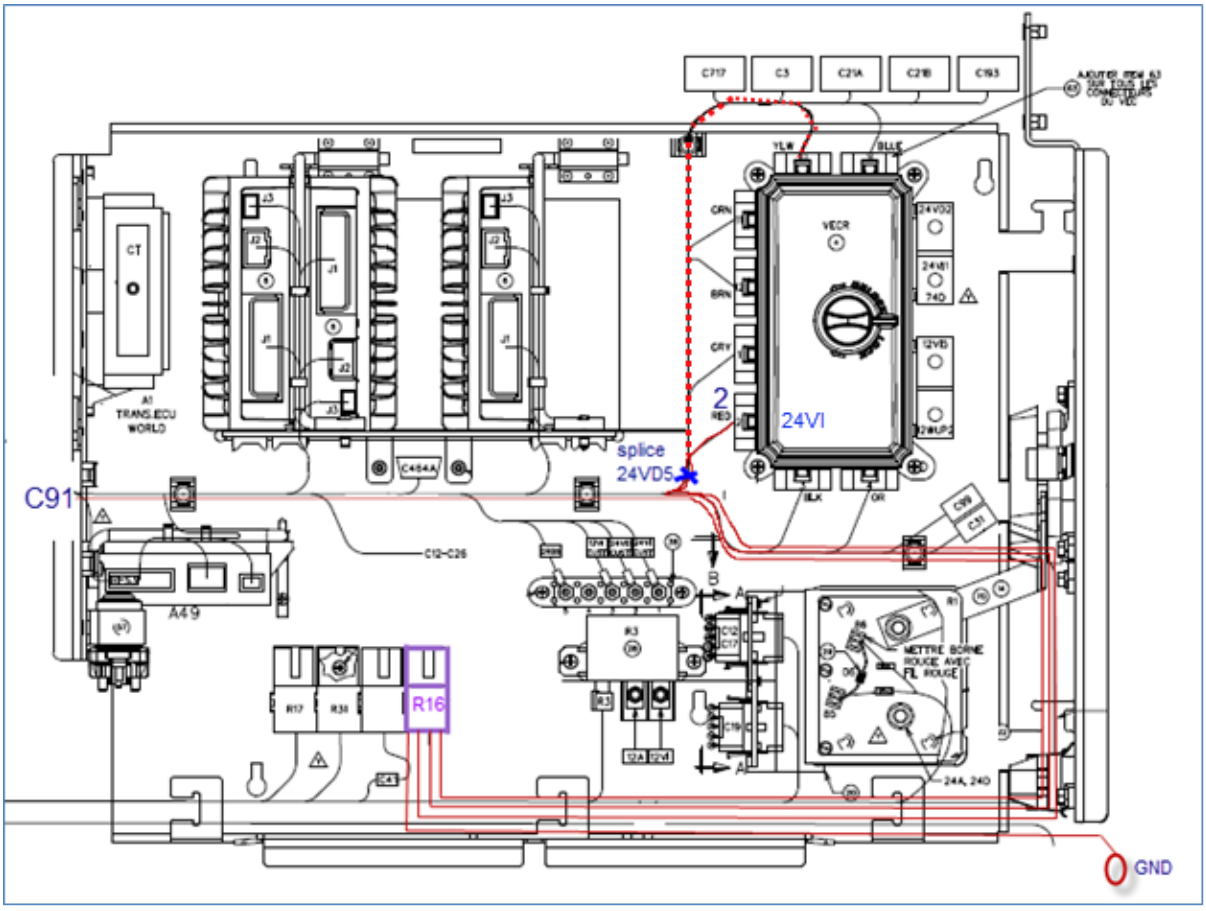


FIGURE 22

9. In the VECR (inside main power compartment), replace fuse F51 with a 15-amp fuse 563284 (Figure 17).

10. On the preheater vehicle harness, locate connector CSX3. Extract the circuit connected to pin 7 cavity and reinstall into pin 1 cavity (Figure 23, Figure 24 & Figure 25).

FIGURE 23

FIGURE 24

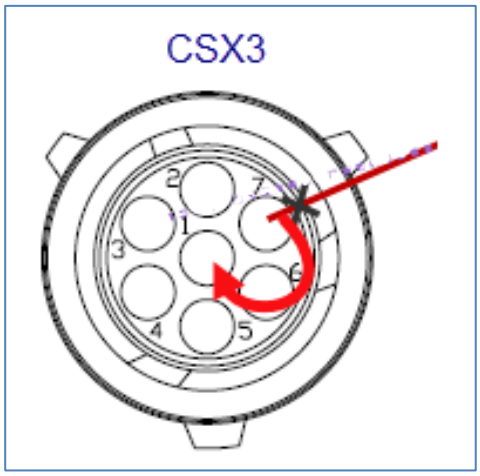


FIGURE 25

11. On the preheater harness, locate connector CSX3. Remove the jumper cable connected between connector CSX3 pin 1 cavity and pin 4 cavity (Figure 26).

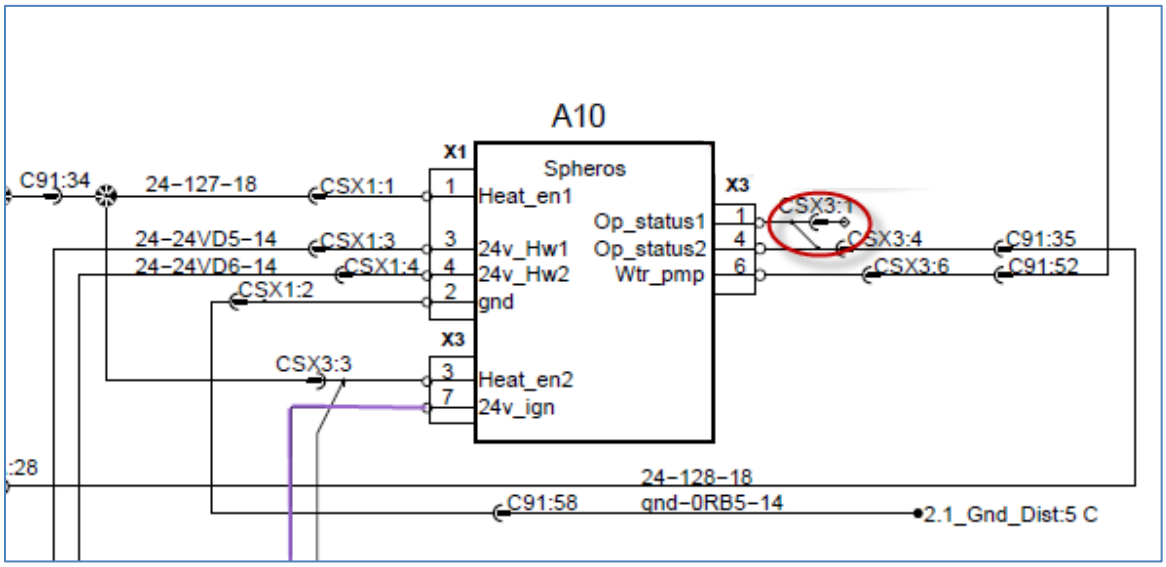


FIGURE 26

12. On the left console (driver area), install the preheater timer.

1. Install the relay base 561183 in the main power compartment. To do so, first, drill a 1/8 hole through the bulkhead. Secure the relay base using screw 500799 (Figure 27 & Figure 28).

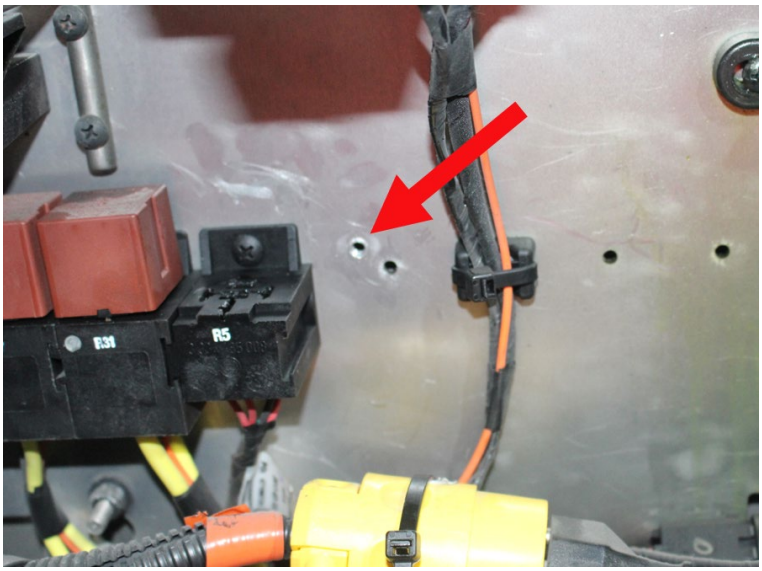


FIGURE 27: RELAY BASE INSTALLATION

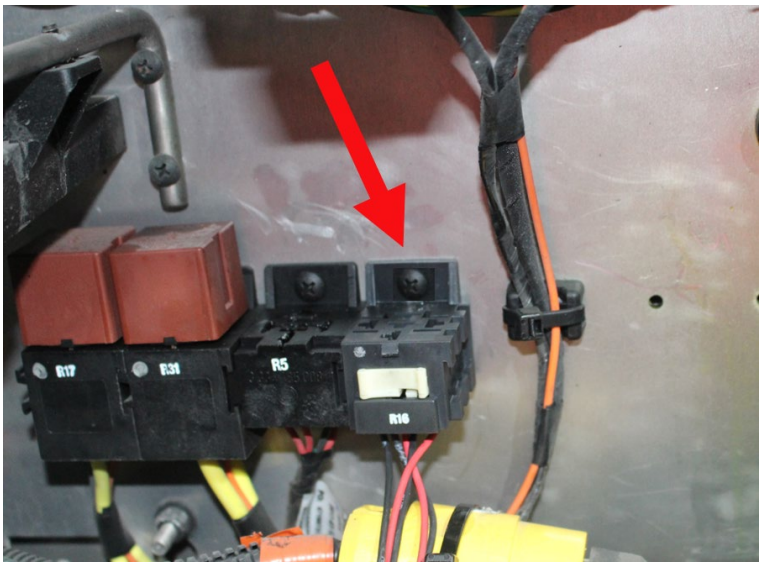


FIGURE 28: RELAY BASE & R16 ONCE INSTALLED

13. In the main power compartment, remove circuit 24Vi7 routed between connector C21 pin 40 cavity and the VECR connector 2 (red) pin A cavity (Figure 29 & Figure 30). Discard that section of the circuit.

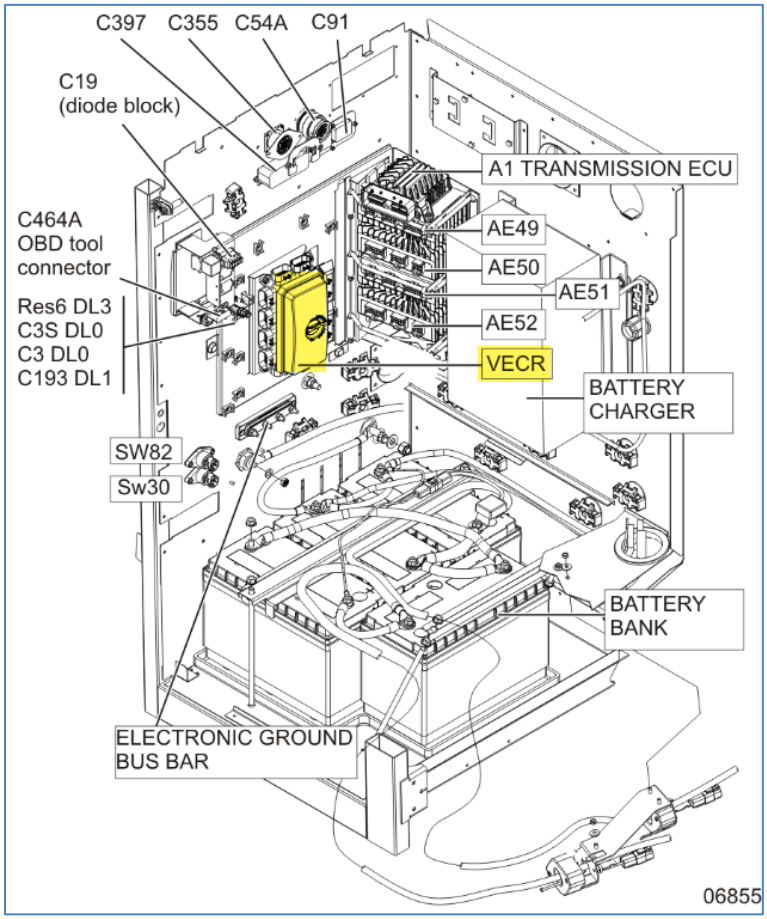


FIGURE 29

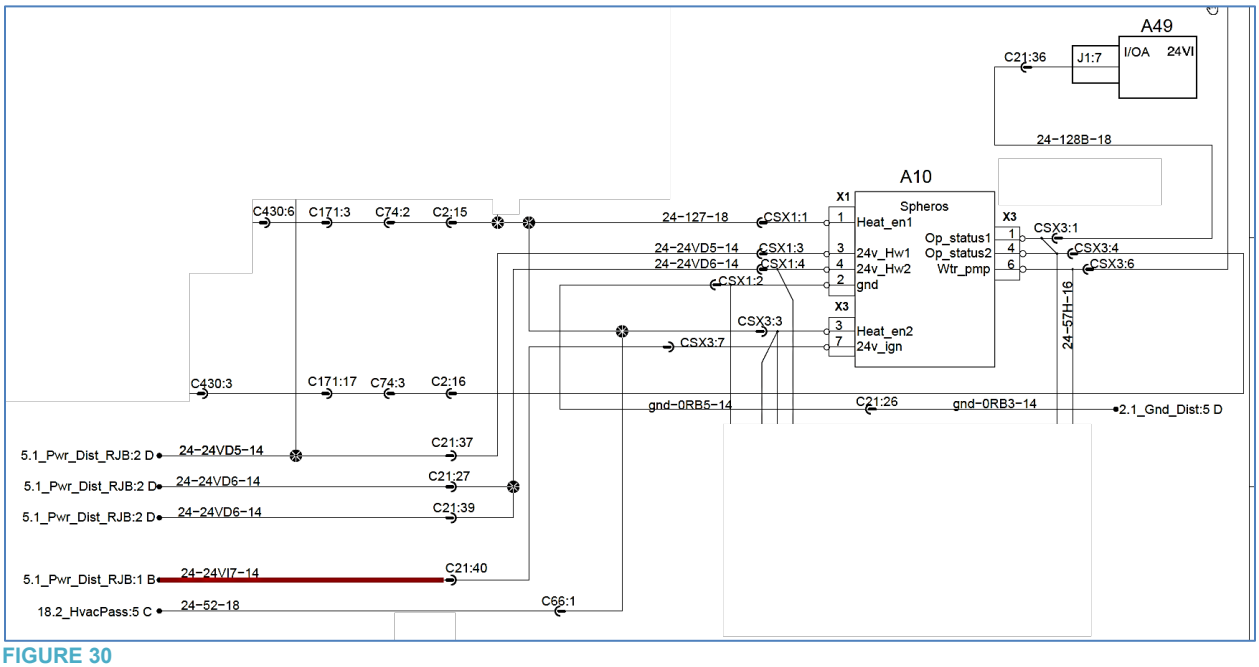


FIGURE 30

14. In the main power compartment: remove circuit connected from connector C21 pin 36 cavity (Figure 31 & Figure 32) and module A49 connector J1 pin 7 cavity.

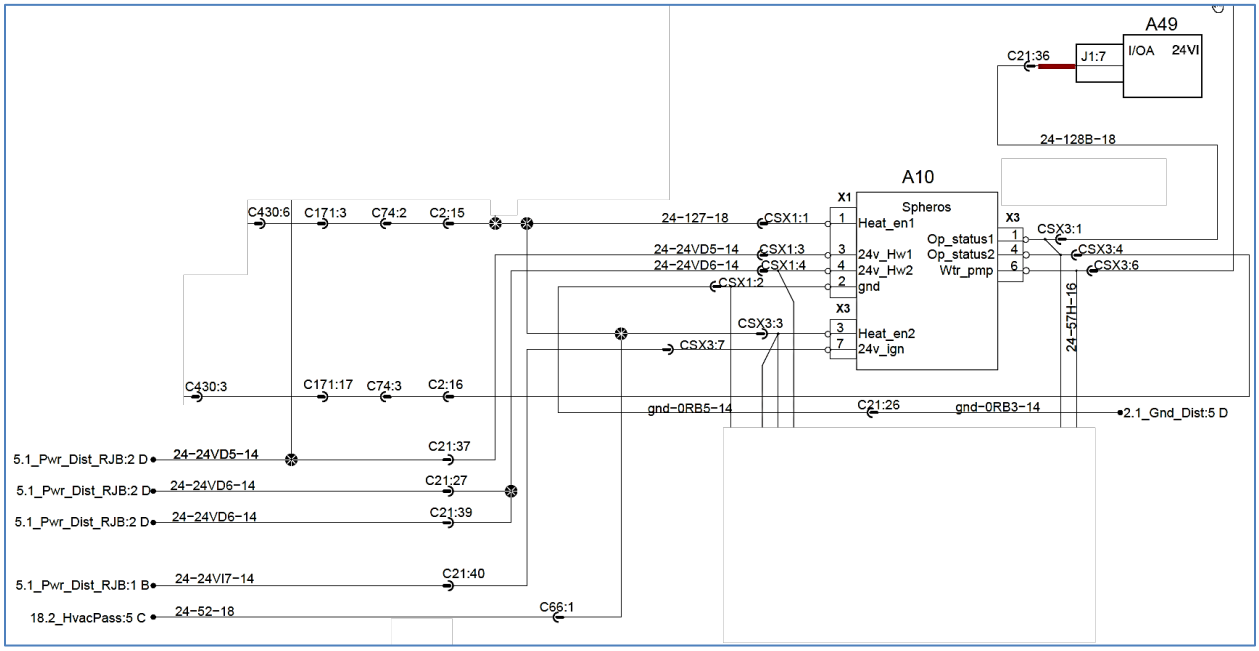


FIGURE 31

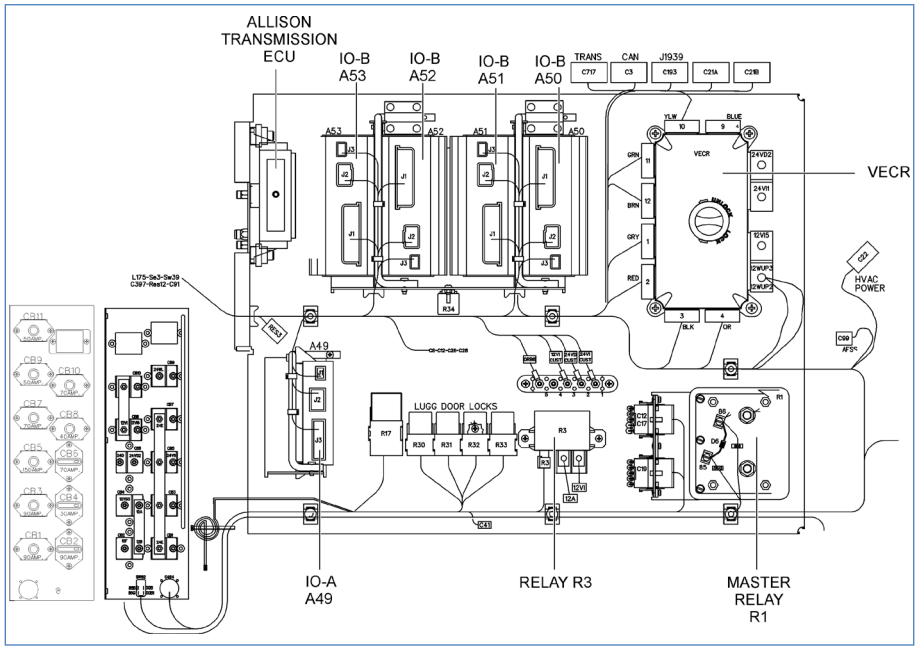
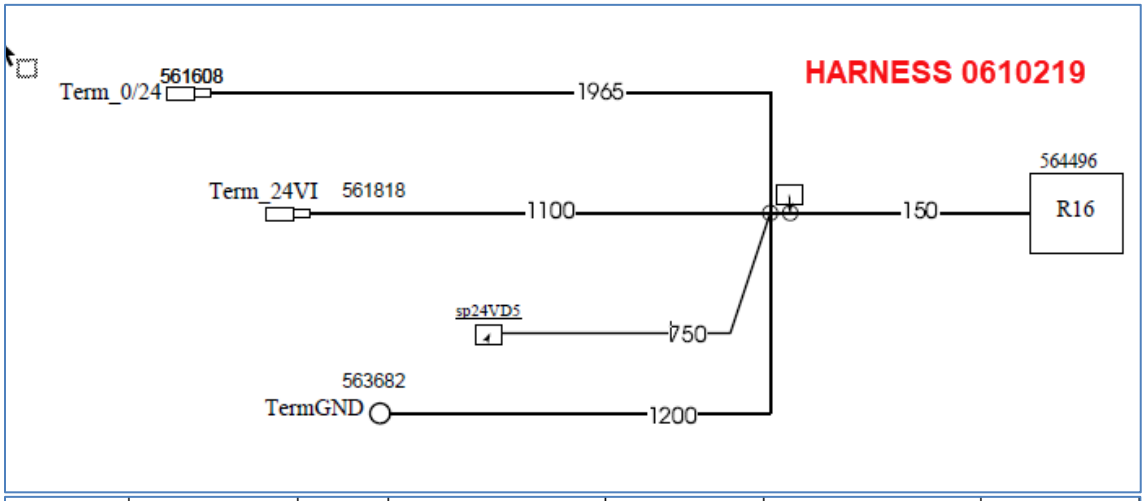


FIGURE 32

15. Connect harness 0610219 to relay R16 according to Figure 33 & Figure 34.



CircuitID	WirePartNo	Gauge	EquipmentEnd1	CavityEnd1	EquipmentEnd2	CavityEnd2
0\24	562587	18	R16	30	Term_0\24	
24VD	562590	18	R16	87A	sp24VD5	
24VI	562590	18	R16	86	Term_24VI	
GND	562587	18	spR16.85		TermGND	
GND	562587	18	R16	87	spR16.85	
GND	562587	18	R16	85	spR16.85	

FIGURE 33: HARNESS 0610219

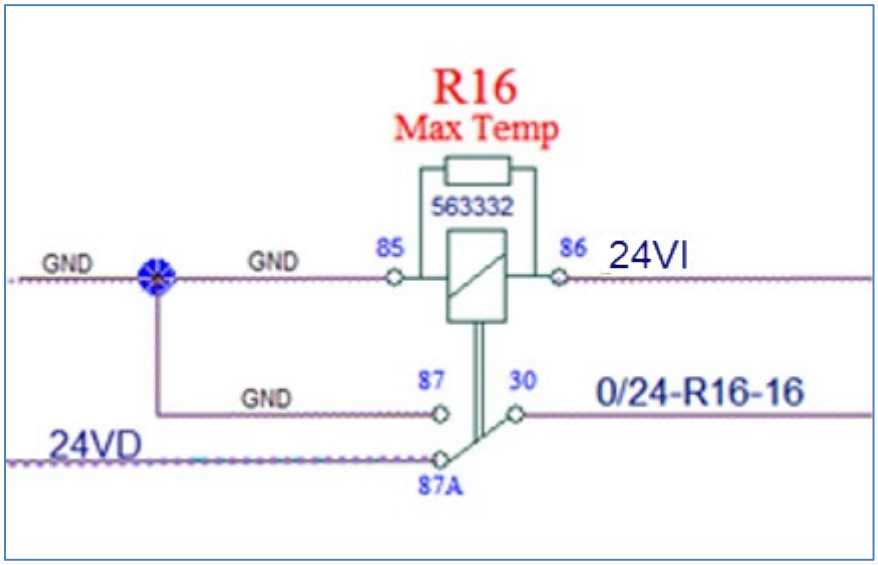


FIGURE 34

16. In the main power compartment: connect circuit 24VI of harness 0610219 to VECR connector 2 (red) pin A cavity (Figure 35).

17. Inside the main power compartment: connect circuit 0/24 of harness 0610219 to connector C21 pin 36 cavity (pin housing side) (Figure 35).

18. Inside the main power compartment: splice circuit 24VD of harness 0610219 with circuit 24VD5 (Figure 35) using butt splice 562228. Take note that 24VD5 is routed between connector C21 pin 37 cavity and VECR connector 10 (yellow) pin C cavity.

19. Inside the main power compartment: connect circuit GND of harness 0610219 to the chassis ground stud (Figure 35).

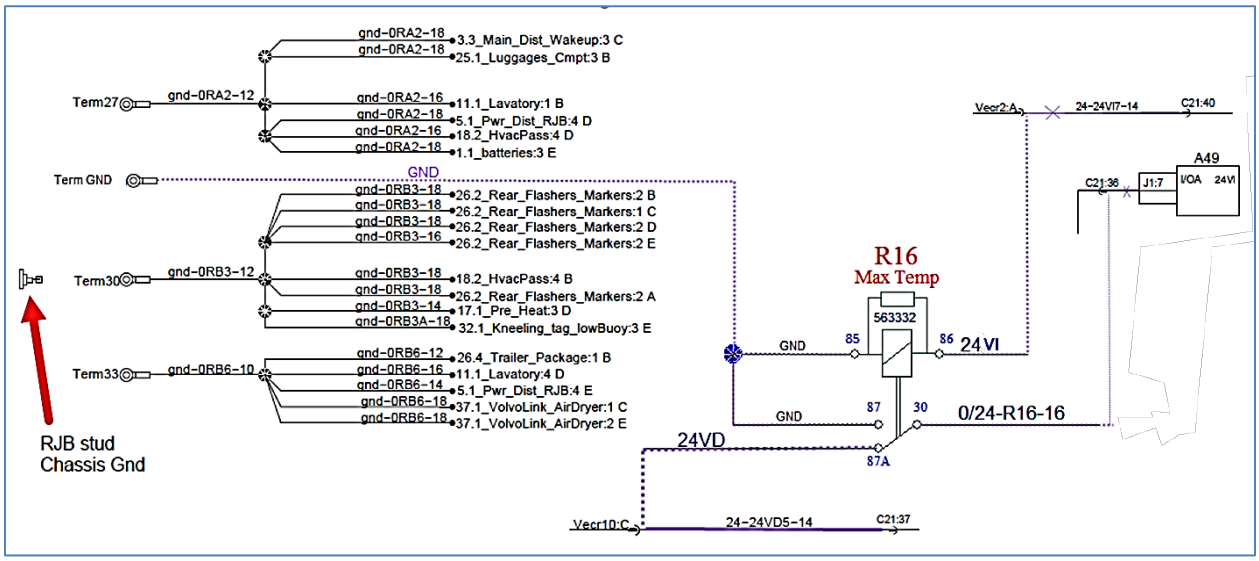


FIGURE 35

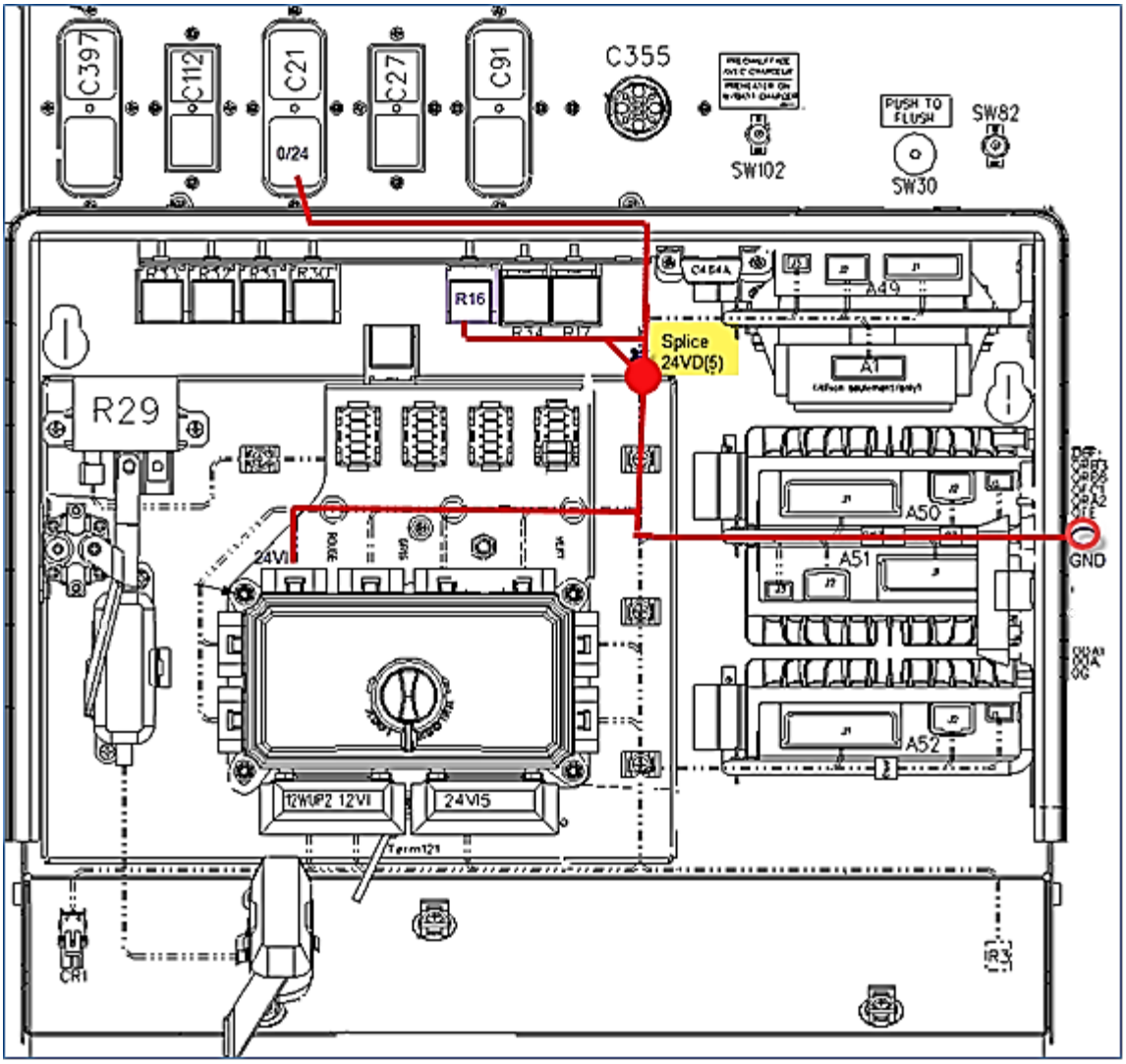


FIGURE 36

20. In the VECR (inside main power compartment), replace fuse F51 with a 15-amp fuse 563284 (Figure 32).

21. On the preheater harness, locate connector CSX3. Remove the jumper cable connected between connector CSX3 pin 1 cavity and pin 4 cavity (Figure 37).

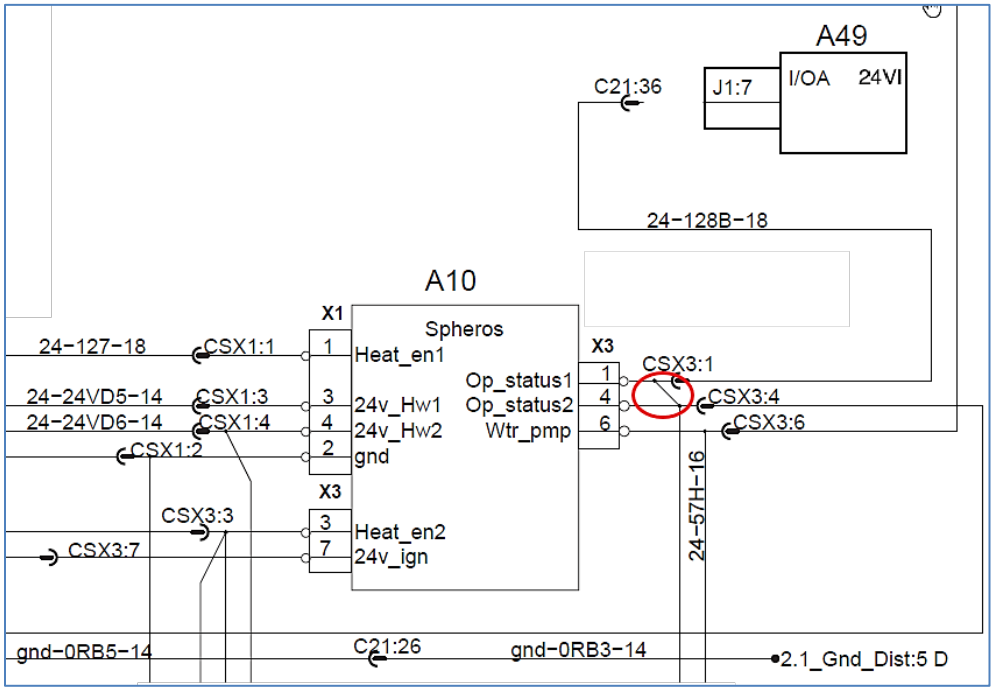


FIGURE 37

22. On the left console (driver area), install the preheater timer.

PART 4 – US10 UP TO OBD13 NOT INCLUDED

H3 SERIES

1. Install the relay base 561183 in the main power compartment. To do so, first, drill a 1/8 hole through the bulkhead. Secure the relay base using screw 500799 (Figure 38 & Figure 39).

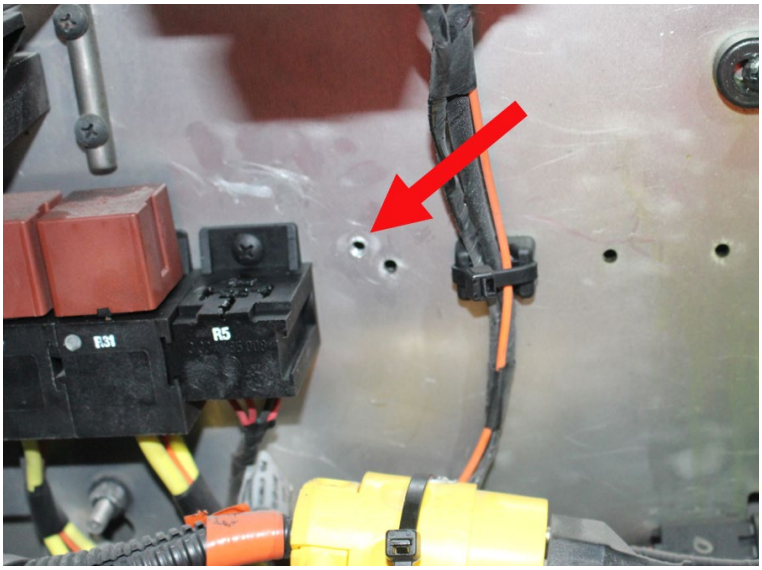


FIGURE 38: RELAY BASE INSTALLATION

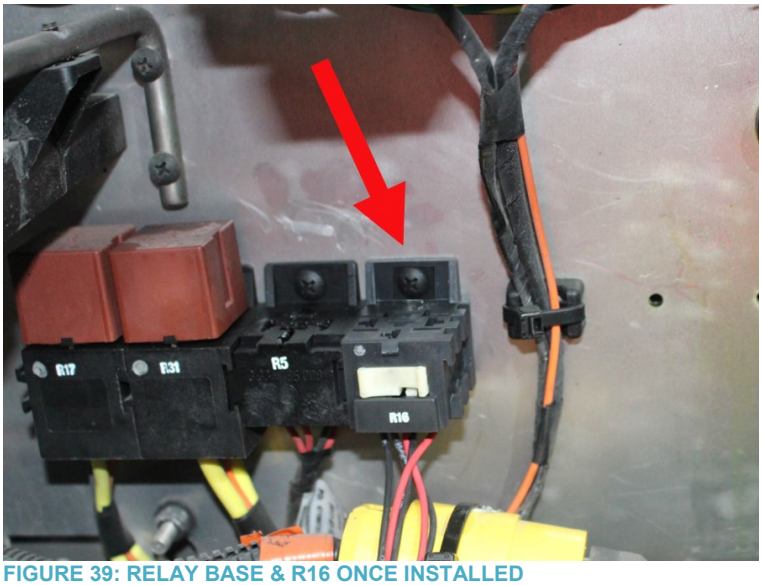


FIGURE 39: RELAY BASE & R16 ONCE INSTALLED

2. In the main power compartment, remove circuit 24Vi7 routed between connector C91 pin 61 cavity and the VECR connector 2 (red) pin A cavity or pin E cavity depending on the model year (Figure 40). Discard that section of the circuit.

3. In the main power compartment: remove circuit connected from connector C91 pin 16 cavity (Figure 40) and module A49 connector J1 pin 7 cavity.

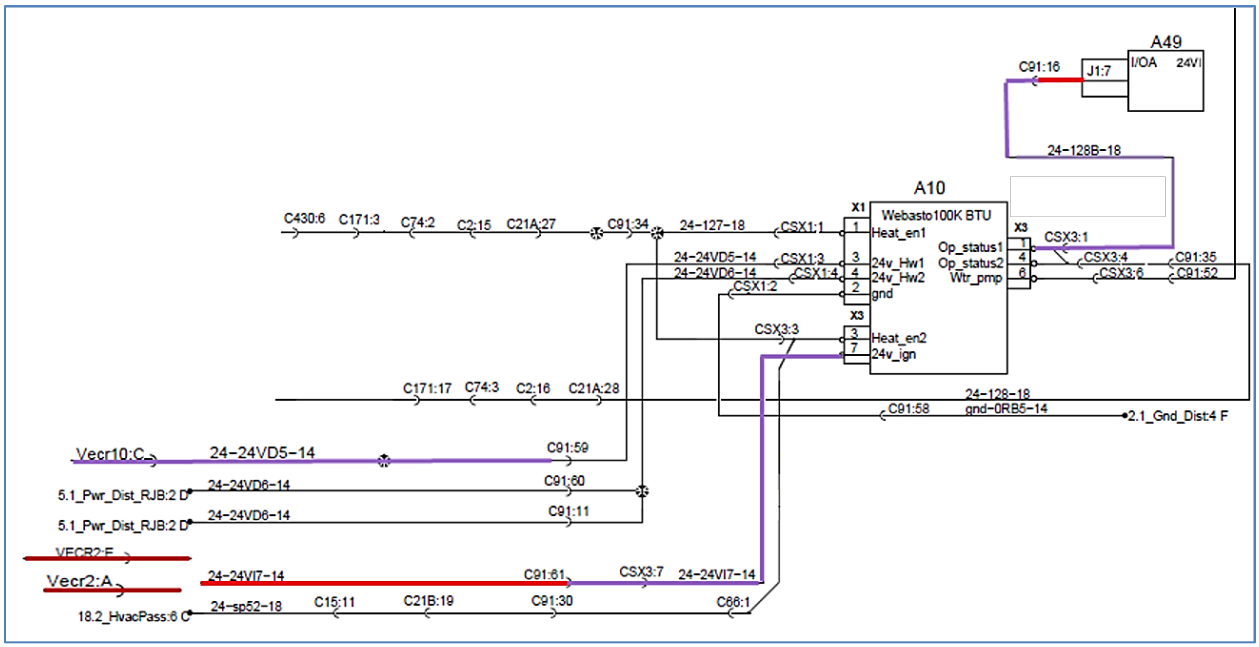
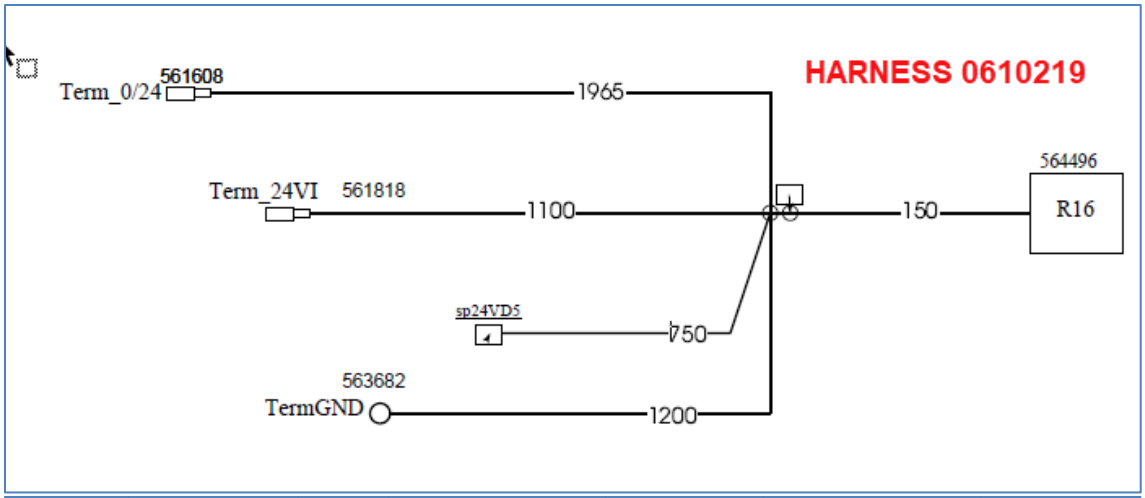


FIGURE 40

4. Connect harness 0610219 to relay R16 according to Figure 41 & Figure 42.



CircuitID	WirePartNo	Gauge	EquipmentEnd1	CavityEnd1	EquipmentEnd2	CavityEnd2
0\24	562587	18	R16	30	Term_0\24	
24VD	562590	18	R16	87A	sp24VD5	
24VI	562590	18	R16	86	Term_24VI	
GND	562587	18	spR16.85		TermGND	
GND	562587	18	R16	87	spR16.85	
GND	562587	18	R16	85	spR16.85	

FIGURE 41: HARNESS 0610219

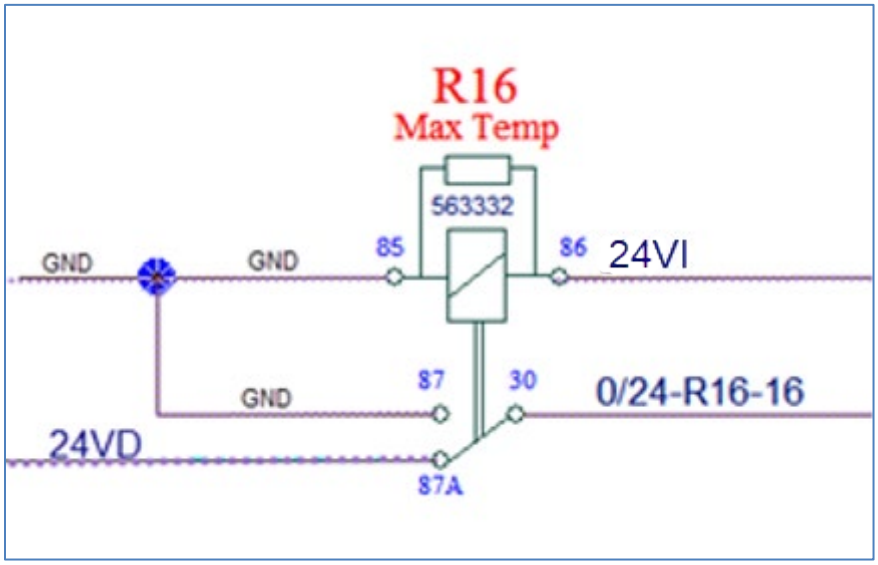


FIGURE 42

5. In the main power compartment: connect circuit 24VI of harness 0610219 to VECR connector 2 (red) pin A cavity (Figure 43).

6. Inside the main power compartment: connect circuit 0/24 of harness 0610219 to connector C91 pin 16 cavity, (pin housing side) (Figure 43).

7. Inside the main power compartment: splice circuit 24VD of harness 0610219 with circuit 24VD5 ((Figure 43) using butt splice 562228. Take note that 24VD5 is routed between connector C91 pin 59 cavity and VECR connector 10 (yellow) pin C cavity.

8. Inside the main power compartment: connect circuit GND of harness 0610219 to the chassis ground stud (Figure 43).

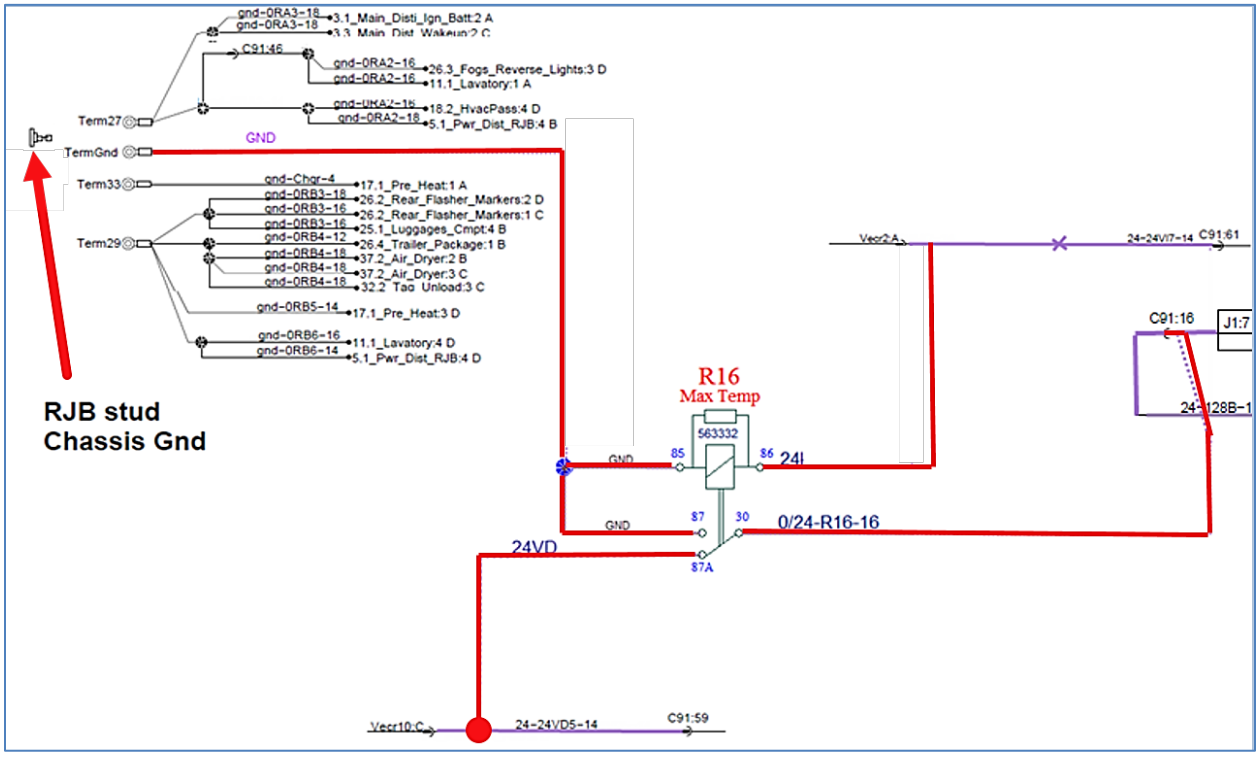


FIGURE 43

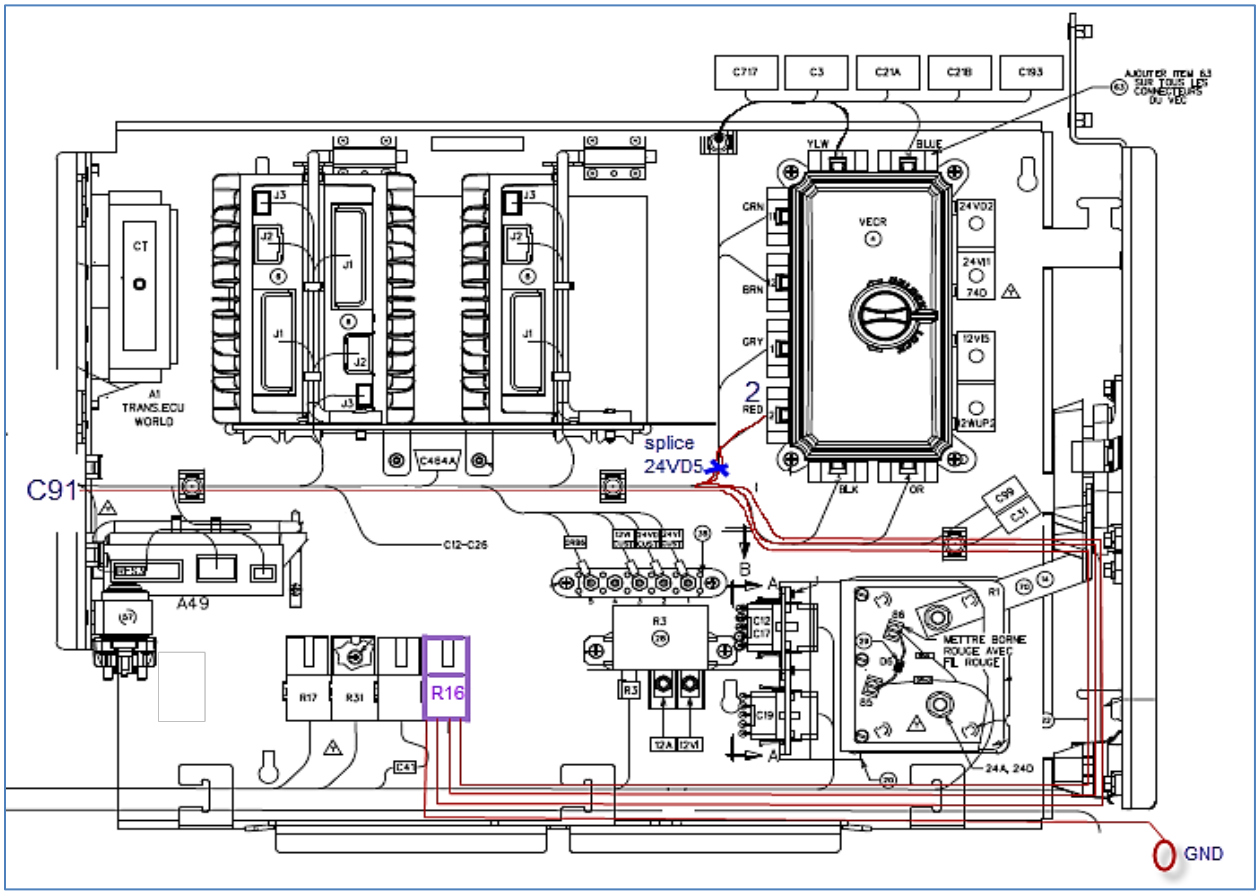


FIGURE 44

9. In the VECR (inside main power compartment), replace fuse F51 with a 15-amp fuse 563284.

10. On the preheater harness, locate connector CSX3. Remove the jumper cable connected between connector CSX3 pin 1 cavity and pin 4 cavity (Figure 45).

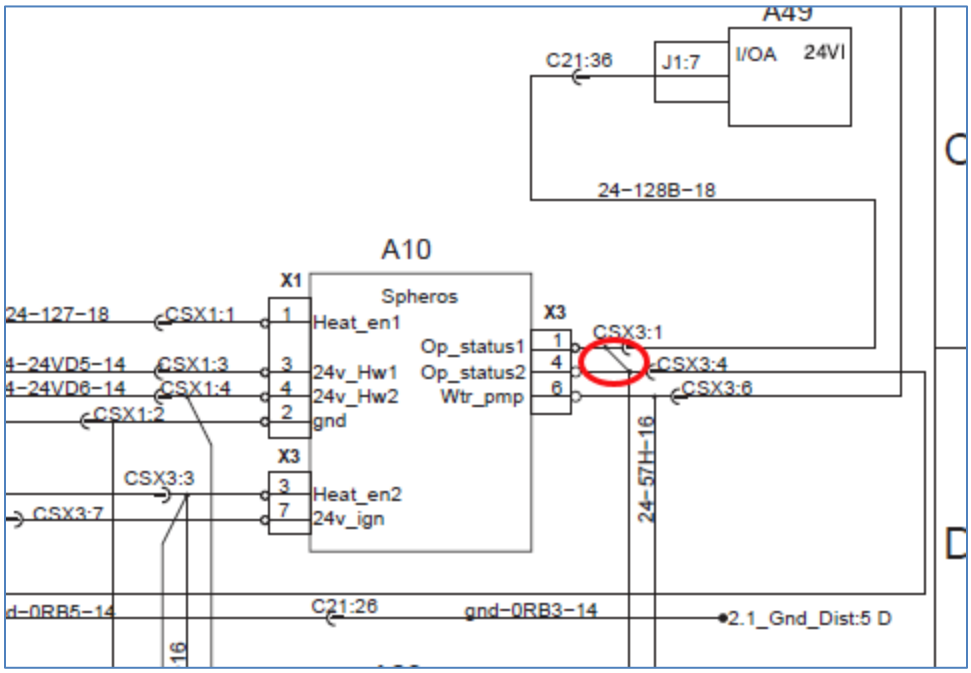


FIGURE 45

11. On the left console (driver area), install the preheater timer with the timer bezel.

1. Install the relay base 561183 in the main power compartment. To do so, first, drill a 1/8 hole through the bulkhead. Secure the relay base using screw 500799 Figure 46 & Figure 47).

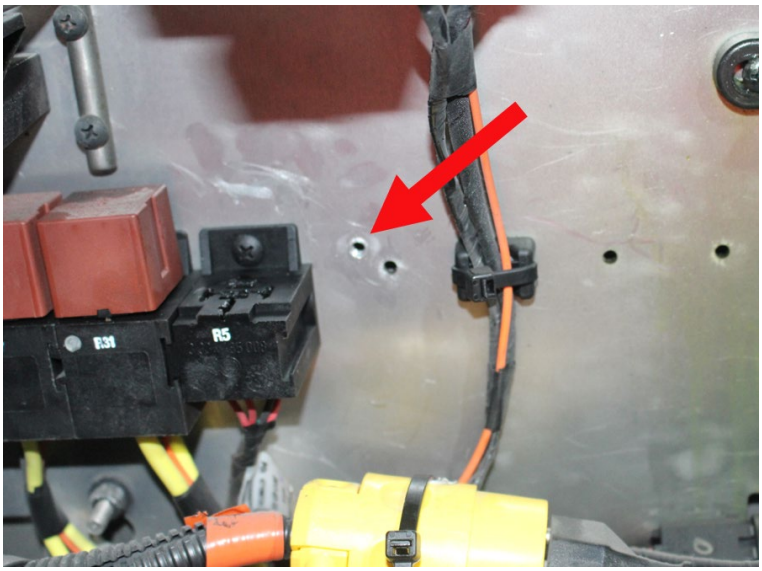


FIGURE 46: RELAY BASE INSTALLATION

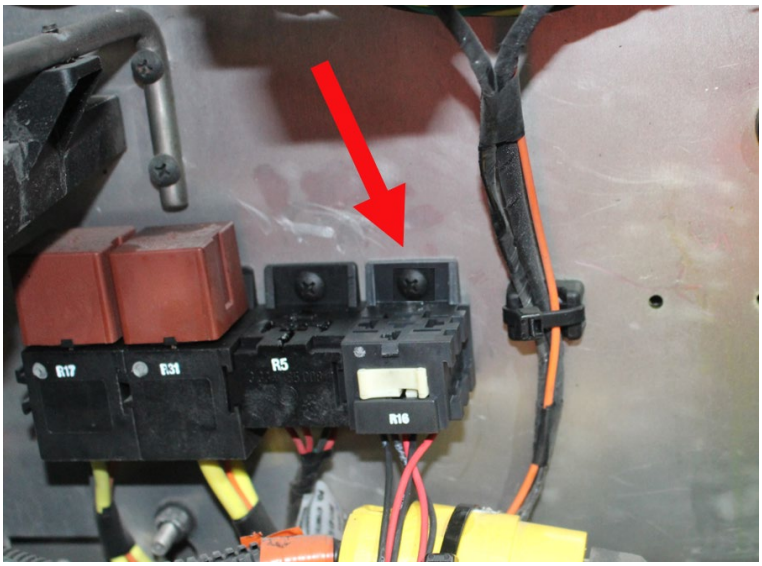


FIGURE 47: RELAY BASE & R16 ONCE INSTALLED

2. In the main power compartment, remove circuit 24Vi7 routed between connector C21 pin 40 cavity and the VECR connector 2 (red) pin A cavity or pin E depending on the model year (Figure 48 & Figure 49). Discard that section of the circuit.

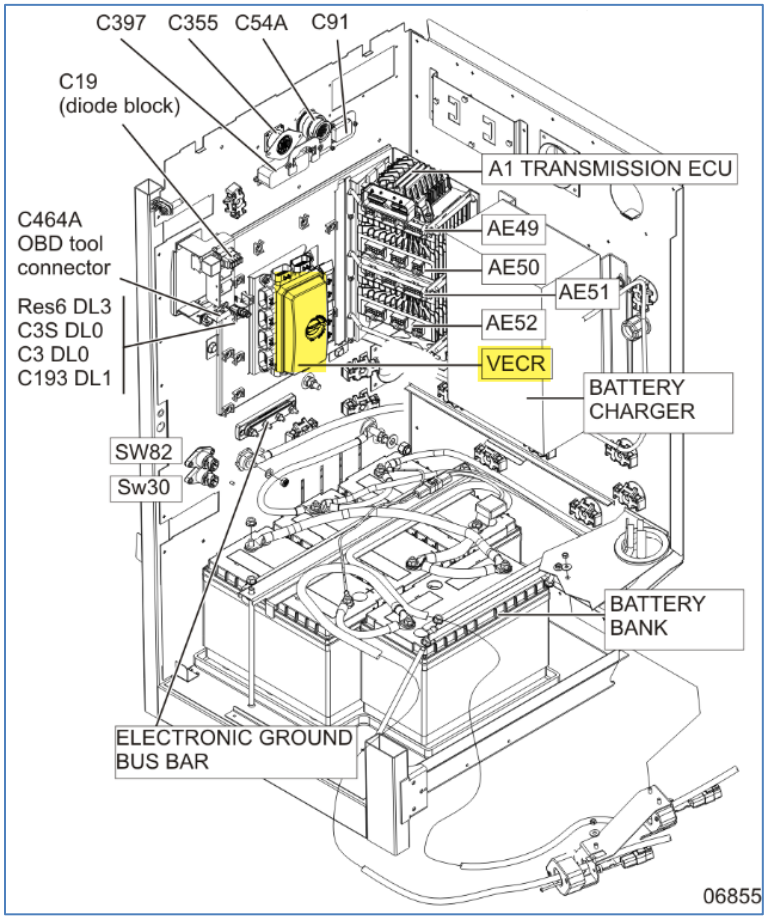


FIGURE 48

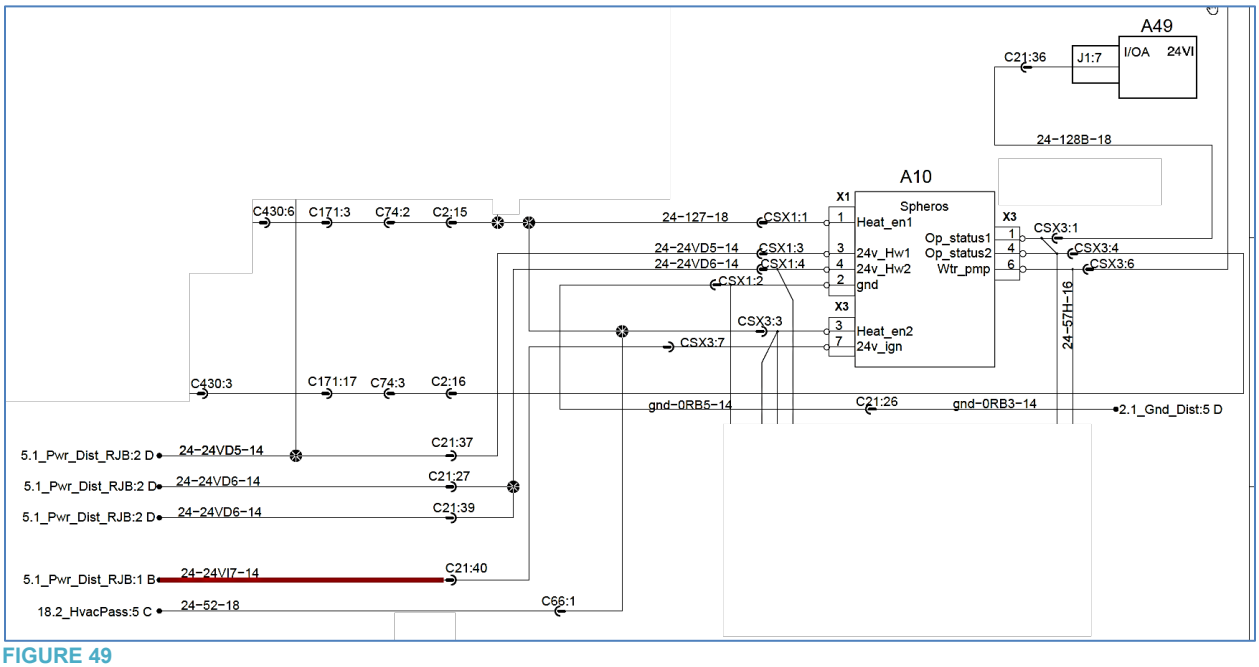


FIGURE 49

3. In the main power compartment: remove circuit connected from connector C21 pin 36 cavity (Figure 50 & Figure 51) and module A49 connector J1 pin 7 cavity.

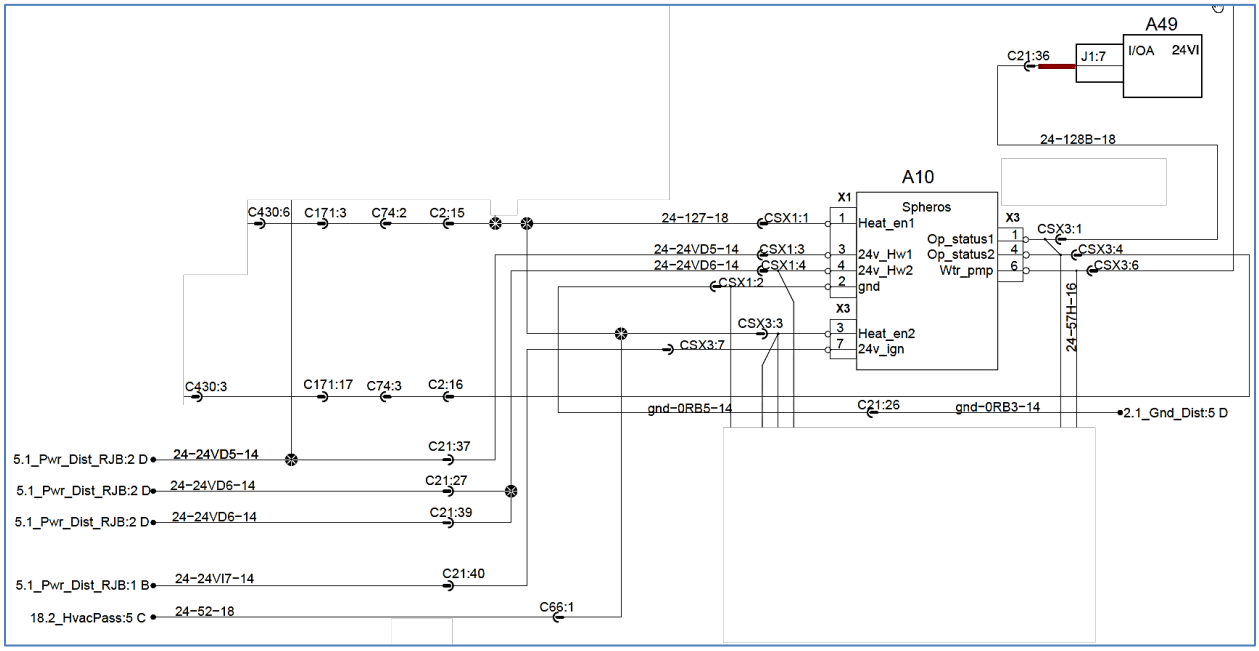


FIGURE 50

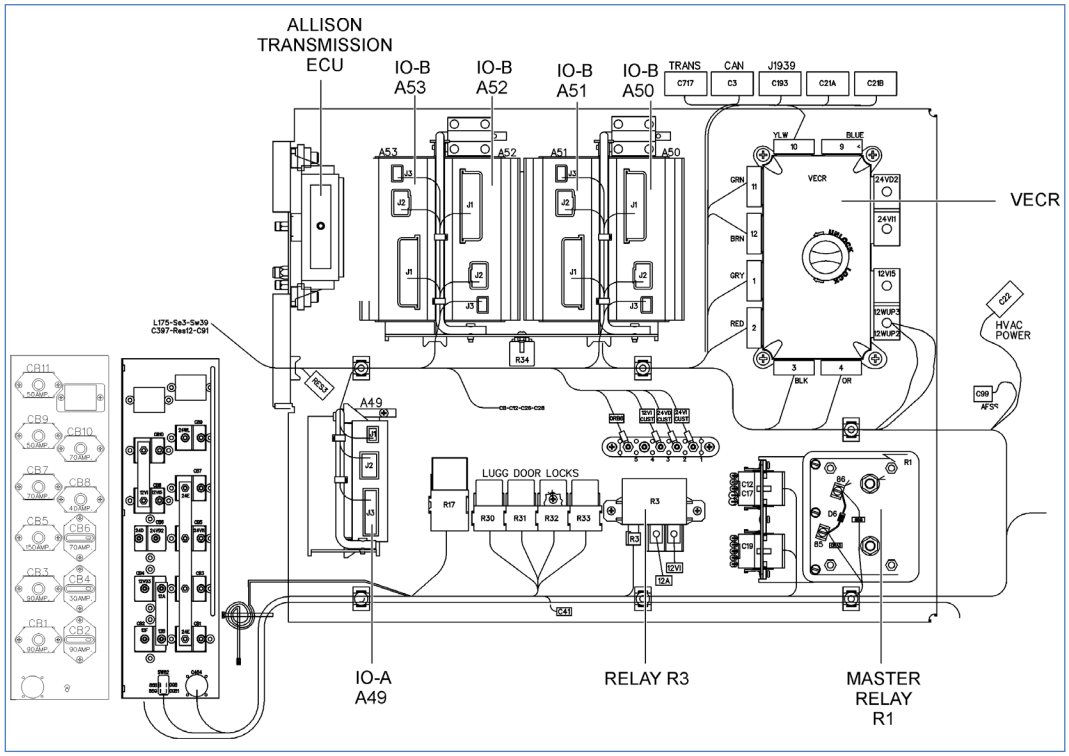
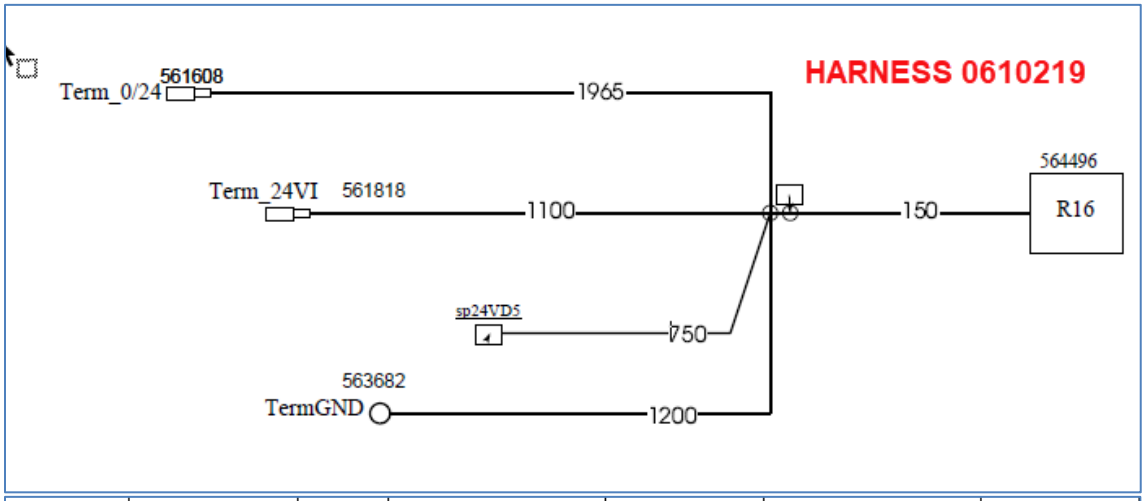


FIGURE 51

4. Connect harness 0610219 to relay R16 according to Figure 52 & Figure 53.



CircuitID	WirePartNo	Gauge	EquipmentEnd1	CavityEnd1	EquipmentEnd2	CavityEnd2
0\24	562587	18	R16	30	Term_0\24	
24VD	562590	18	R16	87A	sp24VD5	
24VI	562590	18	R16	86	Term_24VI	
GND	562587	18	spR16.85		TermGND	
GND	562587	18	R16	87	spR16.85	
GND	562587	18	R16	85	spR16.85	

FIGURE 52: HARNESS 0610219

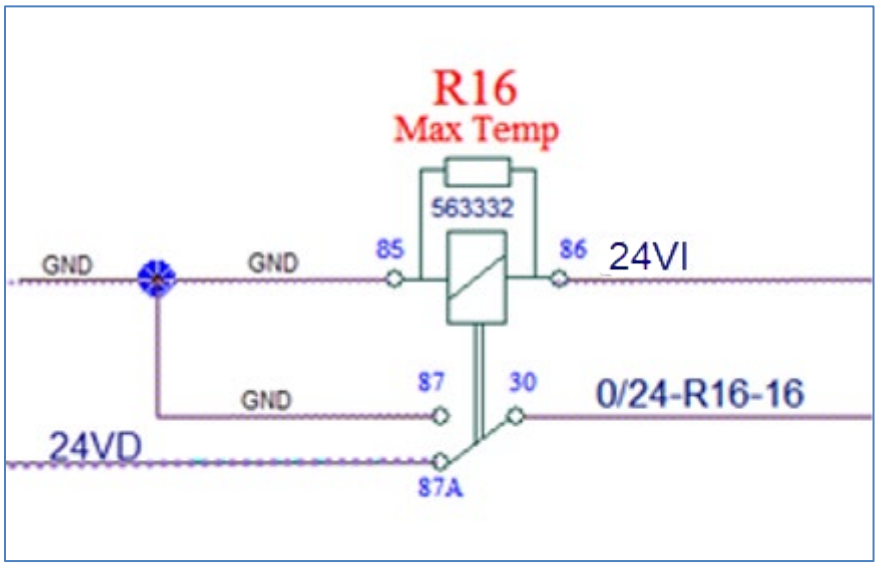


FIGURE 53

5. In the main power compartment: connect circuit 24VI of harness 0610219 to VECR connector 2 (red) pin A cavity or pin E cavity depending on the model year (Figure 54).

6. Inside the main power compartment: connect circuit 0/24 of harness 0610219 to connector C21 pin 36 cavity (pin housing side) (Figure 54).

7. Inside the main power compartment: splice circuit 24VD of harness 0610219 with circuit 24VD5 (Figure 54) using butt splice 562228. Take note that 24VD5 is routed between connector C21 pin 37 cavity and VECR connector 10 pin (yellow) pin C cavity.

8. Inside the main power compartment: connect circuit GND of harness 0610219 to the chassis ground stud (Figure 54).

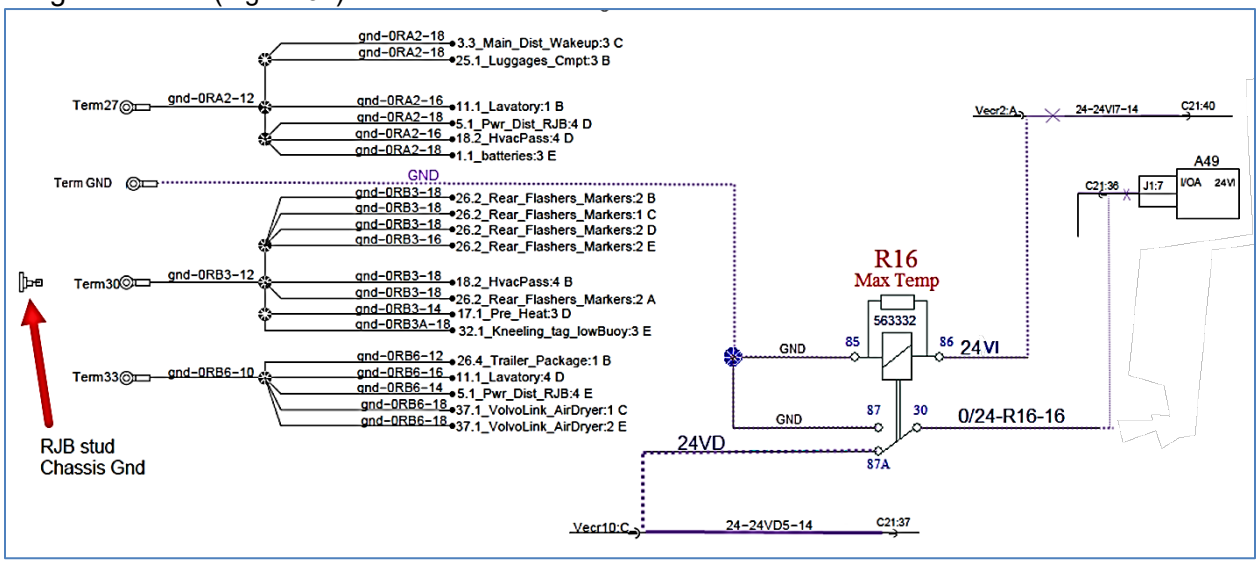


FIGURE 54

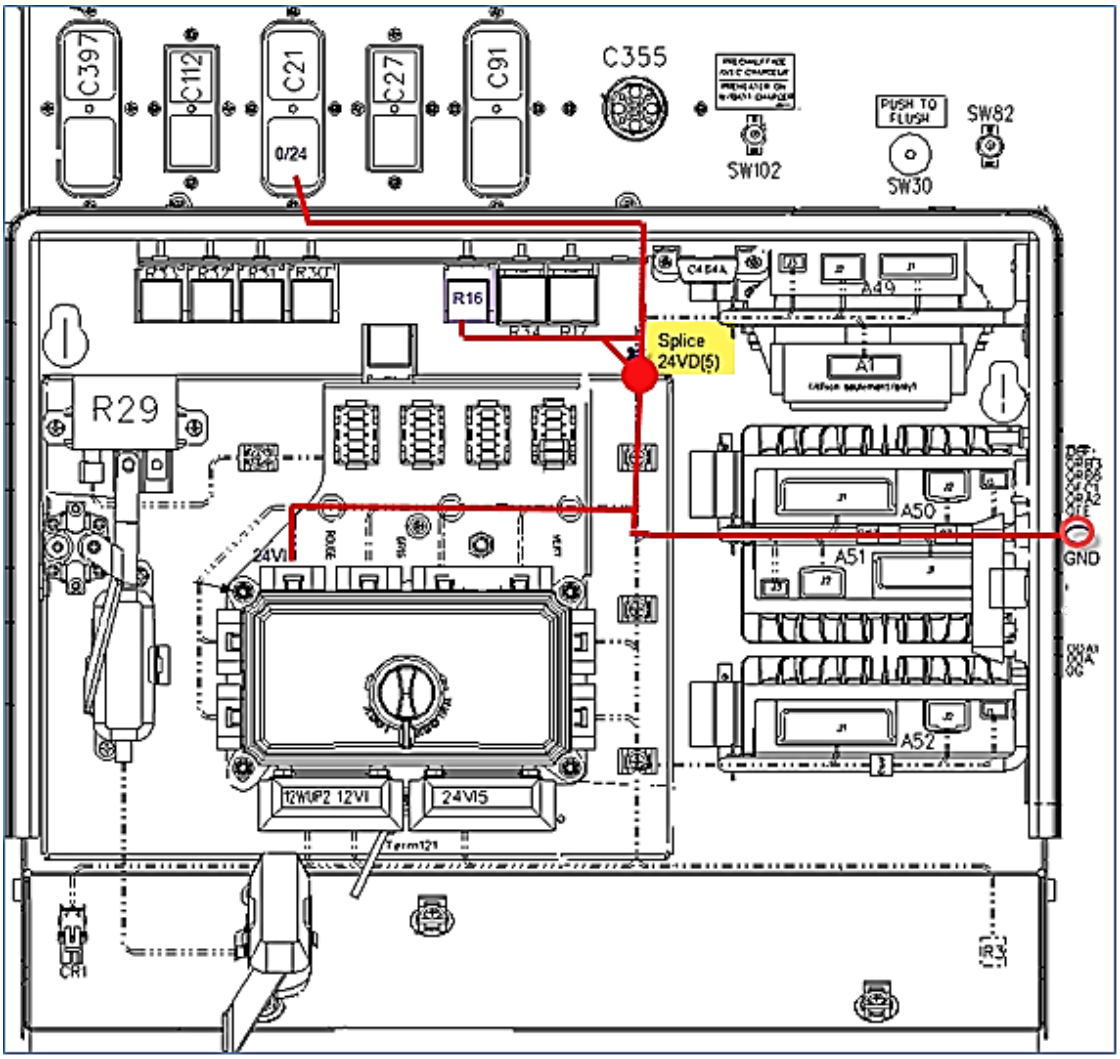


FIGURE 55

9. In the VECR (inside main power compartment), replace fuse F51 with a 15-amp fuse 563284 (Figure 51).

10. On the preheater harness, locate connector CSX3. Remove the jumper cable connected between connector CSX3 pin 1 cavity and pin 4 cavity (Figure 56).

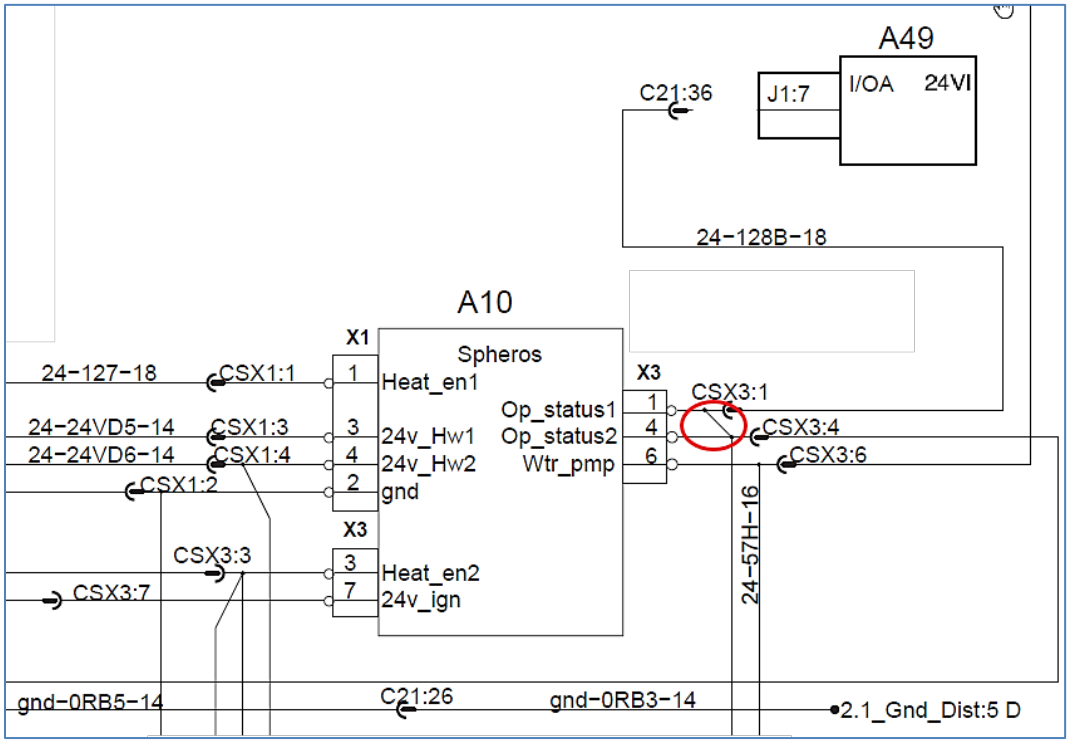


FIGURE 56

11. On the left console (driver area), install the preheater timer.

PARTS / WASTE DISPOSAL

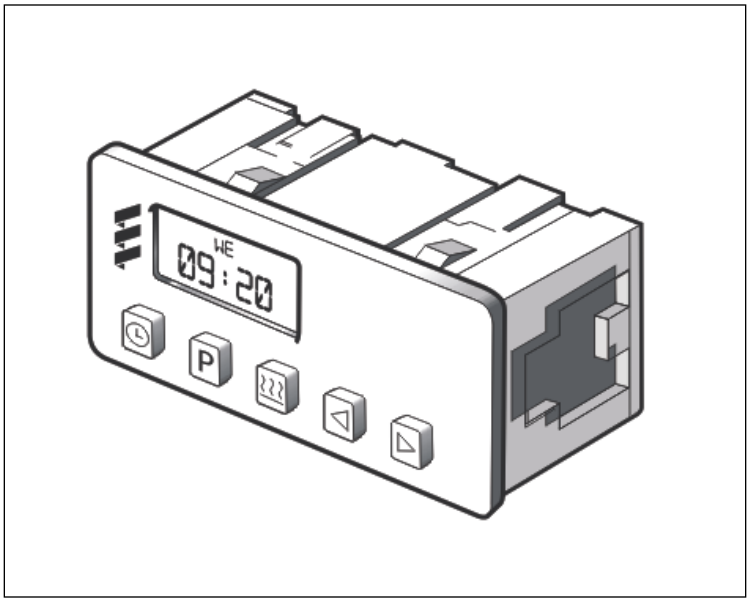
Discard waste according to applicable environmental regulations (Municipal/State [Prov.]/ Federal)

7 Day Timer with Diagnostics
Installation & Operating Instructions

Espar

Timer only
P/N 22 1000 30 36 00 (coolant heater 12/24 volt)
P/N 22 1000 30 40 00 (air heater 12/24 volt)

Timers with relays
P/N CA1 00 135 (coolant heater 12V)
P/N CA1 00 136 (coolant heater 24V)
P/N CA1 00 137 (air heater 12V)
P/N CA1 00 138 (air heater 24V)



P/N 603-104-0898

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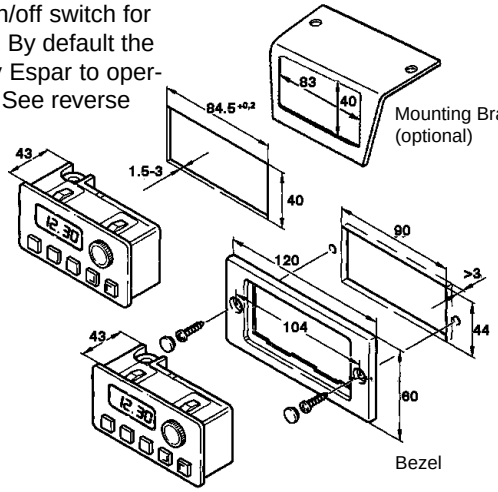
7 Day Timer Instructions

The 7 Day Timer has been designed to provide a simple means to control the operation of the heater system and to include the capability for diagnostics. This timer connects to the diagnostic circuit of the heater. The timer then displays any heater fault codes in three digit number form automatically. The timer allows for pre-selection of turn on time, up to 7 days in advance, as well as an option for run times up to 2 hours before automatically turning off. In addition, there is an on/off switch for manual operation. By default the timer is pre-set by Espar to operate for two hours. See reverse side for programming timer.

1 Mount bezel into dash and insert timer or use Espar's optional mounting bracket and secure to dash.
2 Use hardware supplied for connections.
3 Connect the switch harness to the connector at the heater and run harness to switch location. (Harness should be neatly routed and secured under dashboard).
4 Cut harness to length and terminate wires. Attach using connectors provided.



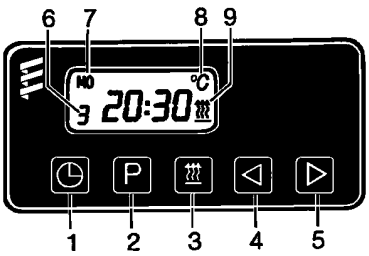
Mounting Bracket (optional)

Bezel

Mounting Bracket
P/N CA0 10 061
Bezel
P/N 25 1482 70 01 00

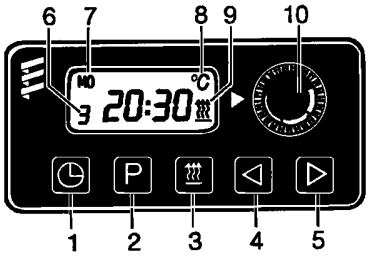
Operating Instructions

Coolant Heater



1 Time set
2 Preheat time set
3 Heater "On"
4 Backward scan
5 Forward scan
6 Memory location
7 Time and day display
8 Air temperature display (optional)
9 Heater "On"symbol
10 Temperature set (air heater only)

Air Heater



Note: Upon connection to power the entire timer display will begin to flash. The heater will not function until the time is programmed.

Setting Time and Weekday

Push ◷ button once. 12:00 will begin to flash (this will occur upon initial hook up to power).
Using ◁ or ▷ set the present time of day (24 hour clock).
When the time stops flashing the time has been stored.
The weekday will now begin to flash.
Use ◁ or ▷ to set the present weekday.
When the weekday stops flashing the weekday has been stored
.
When the vehicle ignition is turned "on" the time display will appear.
When the vehicle ignition is turned "off" the timer display will go off after 15 seconds.

..... continued on reverse side

Operating Instructions

Changing the Time or Day

Push and hold ◷ button until the time display begins to flash.
Continue to set the time as listed in setting time and weekday.

Using the Timer with the Vehicle Ignition "Off"

Push ♨ button.
♨ will appear on the display as well as the operation countdown timer.
The running time is factory set to a maximum of 120 minutes. This running time can be reset once or permanently as desired.

Adjusting Preheat Time Once

Press ♨ button.
The ♨ will appear in the display and the preselected run time will appear in the display (maximum time of 120 minutes).
Use the ◁ or ▷ to adjust the desired run time.

Adjusting the Heater Preheat Time Permanently

(Maximum Preheat Time of 120 minutes)

Push ◁ and hold (about 3 seconds) until the display lights up and flashes. Release button.
Use ◁ or ▷ to set the new fixed preheat time.
When the display goes off the new preheat time is set.

Note: At the end of a preheat cycle the timer will turn the heater off. The heater will complete a cool down cycle and turn itself off.

Using the Heater Manually with the Vehicle Accessory "On"

Push ♨ button.
The ♨ symbol will appear in the display next to the time of day.
The time of day will remain displayed during ignition on operation.
The heater will function continually as long as the vehicle ignition is "on".
When the vehicle ignition is turned "off" the heater will continue to operate for an addtional 15 minutes.
The run time can be altered by pressing the ◁ or ▷ buttons.
The heater can be turned off by pressing ♨ button.

Set Preheat Times into Memory

Press Ⓟ button until the desired memory location is shown in the display (Three memory locations are available).
Using the ◁ or ▷ buttons set the desired preheat start time of day.
When the time stops flashing the time of day is set.
Using the ◁ or ▷ buttons set the desired day of the week.
When the day of the week stops flashing the day is set.

To Use Preset Start Times

Press the Ⓟ button until the desired memory location appears in the display.
The heater will start at the day and time displayed.
The display will go off in 15 seconds. The memory location number will stay displayed (1, 2 or 3).

To Turn Heater "Off" - All Modes

Press the ♨ button once.
The heat signal to the heater will be turned "off".
The heater will do a normal cooldown and turn itself "off".

Note: When the vehicle ignition is turned "on" the time of day and day of the week will appear in the timer display. This will stay on as long as the vehicle ignition is "on".

Note: When the vehicle lights are turned "on" the timer backlight will come "on"also.

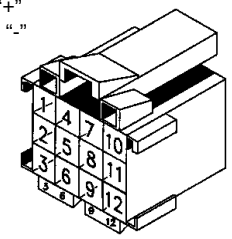
Note: This timer is equipped to display fault code numbers if the heater should shut down due to an operating fault.The fault code will show in the timer display next to the flashing heat wave symbol.This applies whenever the timer is used in conjunction with the Hydronic heaters, the D7W model 25 1807, the D9W and the D12W models 25 1859 and 25 1860, and has the blue diagnostic wire connected.

Note: If the timer is purchased without the harness kit, ensure a load relay is installed for heaters where the switch wire carries a load (i.e. fuel metering pump or solenoid valve). This affects the current models for D8LC, D7W, D12W, D24W and D30W heaters.

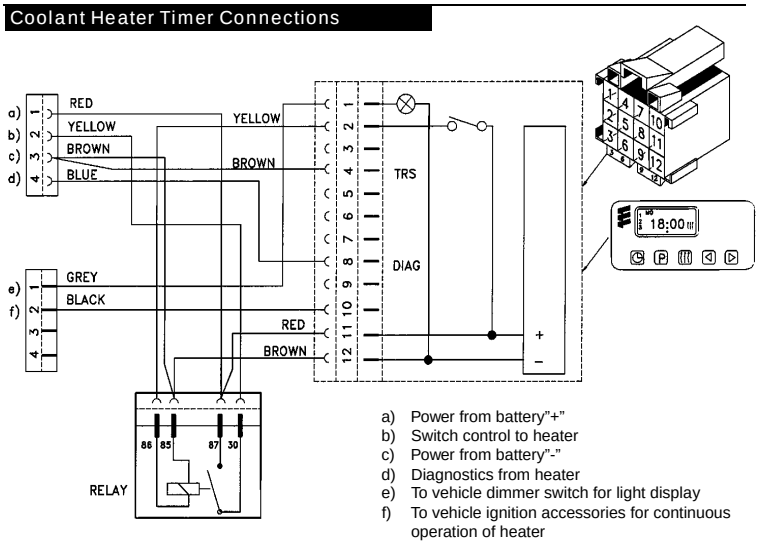
Note: An outside temperature sensor is available as an option

Wiring Connections at connector

Terminal 1	Power from vehicle dash lights
Terminal 2	Heater switch wire - yellow wire
Terminal 4	Connect to vehicle ground
Terminal 6	Temperature setting "+" **(air only)**
Terminal 8	Heater diagnostic lead - blue wire
Terminal 9	Temperature setting "-" **(air only)**
Terminal 10	To vehicle "ACC"accessory for continuous overnight use
Terminal 11	Positive power from heater - red "+"
Terminal 12	Ground lead from heater - brown "-"
Terminal 3,5,7	Left blank, not required

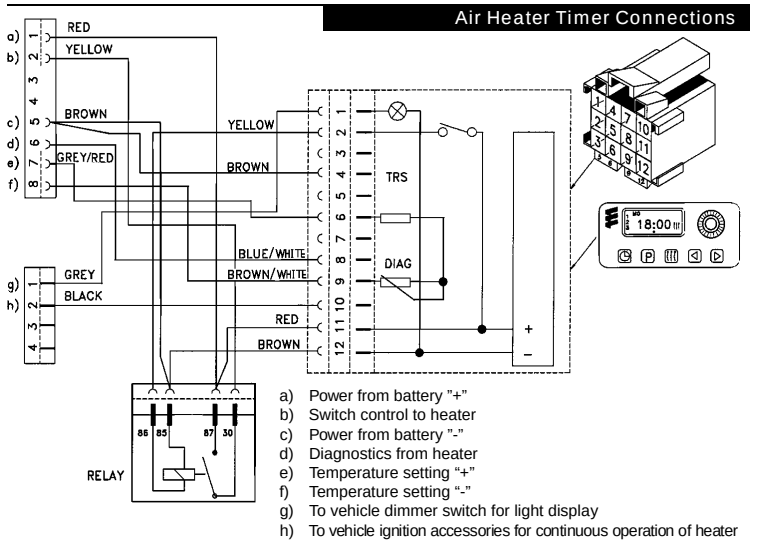


Coolant Heater Timer Connections



a) Power from battery"+"
b) Switch control to heater
c) Power from battery"-"
d) Diagnostics from heater
e) To vehicle dimmer switch for light display
f) To vehicle ignition accessories for continuous operation of heater

Air Heater Timer Connections



a) Power from battery "+"
b) Switch control to heater
c) Power from battery "-"
d) Diagnostics from heater
e) Temperature setting "+"
f) Temperature setting "-"
g) To vehicle dimmer switch for light display
h) To vehicle ignition accessories for continuous operation of heater