



OWNER'S MANUAL
AIR HEATER A2/A4

PROHEAT

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1 Introduction

Congratulations on your purchase of a Proheat Air Heater. This heater will allow you to maintain a comfortable cab temperature without having to idle your vehicle's engine. This manual is provided to assist you in the operation and maintenance of the heater.

1.2 Components and Basic Operation

An electric pump delivers diesel fuel to the Proheat Air Heater which burns the diesel fuel in a combustion chamber. An electric fan blows air over the heated combustion chamber transferring heat to the air as it passes. The heated air is then delivered through ducting to the area to be heated. Pre-combustion air comes from an external air intake. Combustion exhaust is externally vented from the vehicle. The Proheat Air Heater is controlled by a Driver Control Panel (DCP). The DCP is used to turn the heater on/off and it can be programmed to start the heater at predetermined times.

The Proheat Air Heater should be installed by an Authorized Proheat Dealer or trained professional installer.

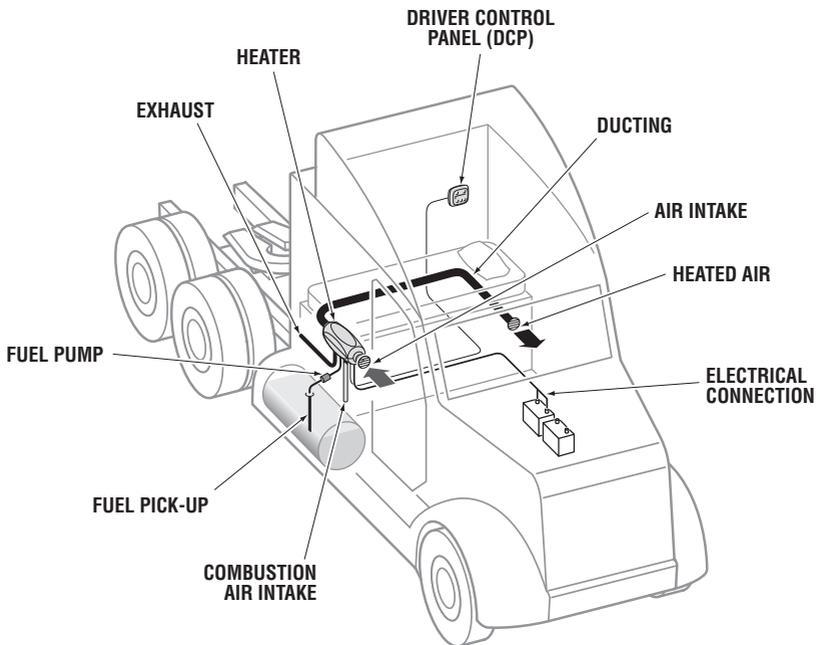


Figure 1. Component Layout

1.3 Start Sequence of Operation

Pressing the Heat Button  on the Driver Control Panel (DCP) begins the Start Sequence of Operation. The heating icon  will flash until combustion is established and then remain illuminated.

Pre-Check

The heater will automatically check important functions for a few seconds before the glow plug is activated.

Glow Plug Pre-Heating

The electric glow plug will pre-heat for approximately 30 seconds. Glow plug operation is indicated by the illuminated glow plug icon .

Fuel Pump and Fan On

After approximately 30 seconds the glow plug will reach ignition temperature and the fuel pump will start. The heater's fan will also start approximately 2 seconds after the fuel pump has started.

Ignition and Combustion

The glow plug will now ignite the mixture of fuel and air in the combustion chamber.

Glow Plug Off

After approximately 1.5 minutes combustion is typically established and sensors in the heater turn off the electric glow plug. The glow plug icon  will also turn off.

Failure to Start

If the heater fails to start properly, it will reattempt the Start Sequence. After two sequentially failed attempts to start, the DCP will cease attempting to start the heater and display an error code.

NOTICE

The heater always starts at maximum heating output and transitions to the programmed Temperature Control level or Power Control level after the Start Sequence is completed. This is indicated when the heating icon  stops flashing and remains illuminated.

1.4 Shut Down Sequence of Operation

Pressing the Heat Button  on the Driver Control Panel (DCP) begins the Shut Down Sequence of Operation. This is indicated by a flashing fan icon .

Fuel Pump Off

The fuel pump is turned off.

Cool Down

The heater's fan remains running to cool down the heat exchanger.

Shut Down Completed

After approximately 6 minutes the heater's fan is automatically turned off and the process is complete. This is indicated when the flashing fan icon  disappears.

	START UP SEQUENCE							Normal Operation	Shut Down Sequence
	Pre-Check	Pre-Heat	Fuel & Fan	Ignition	2nd Attempt Pre-Heat	2nd Attempt Fuel & Fan	2nd Attempt Ignition		
Fan	On	Off	On	On	Off	On	On	On	On
Glow Plug	Off	On	On	On	On	On	On	Off	Off
Fuel Pump	Off	Off	On	On	Off	On	On	On	Off
Elapsed Time	1 - 3 sec.	30 sec.	90 sec.		30 sec.	90 sec.		DCP Controlled	360 sec.
					If Required				

Figure 2. Sequence of Operation

2 Safety Considerations

Read these instructions carefully before operating the heater.

Safety alerts labeled **DANGER**, **WARNING** and **CAUTION** alert you to special instructions or precautions concerning procedures that would be hazardous if performed incorrectly or carelessly.

The safety alerts alone cannot eliminate all hazards. Strict compliance with these special instructions and common sense are major accident prevention measures.

▲ DANGER Immediate hazards that will result in severe injury or death.

▲ WARNING Hazards or unsafe practices that could result in severe personal injury or death.

▲ CAUTION Hazards or unsafe practices that could result in minor injury or product or property damage.

▲ DANGER

CALIFORNIA PROPOSITION 65

- Diesel exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.
- Electrical components in this product may contain lead, an element known to the State of California to cause cancer, birth defects and other reproductive harm.

▲ WARNING

FUEL

- Do not breathe fuel vapors.
- Do not smoke or handle open flame equipment, such as a blow torch, around fuel.
- Wear hand and eye protection when handling fuel.

▲ WARNING

EXPLOSION HAZARDS

- The heater must be turned OFF during refuelling.
- The heater must be turned OFF when combustible fumes or air born particles, such as sawdust, are present.

▲ WARNING

FIRE HAZARDS

- Do not place any items of clothing, textiles or other flammable items over the heater or in front of the air intake or hot air outlet.
- Do not block or restrict air flow in ducting with rags or other materials.

⚠ WARNING**EXHAUST**

- To prevent carbon monoxide poisoning DO NOT operate heater in garages or in other closed or unventilated areas.

NOTICE

It is a recommended safe practice to have a carbon monoxide (CO) detector installed in the vehicle to monitor for any CO leakage.

⚠ WARNING**BATTERIES**

- Wear hand and eye protection when handling batteries.
- Do not smoke or use open flames near batteries.

⚠ WARNING**ELECTRICAL**

- Electric shock can cause severe personal injury or death.
- Before working on any internal heater component or subsystem disconnect the batteries.

⚠ WARNING**HOT PARTS**

- DO NOT touch a heater or its parts until it has had sufficient time to cool down.

⚠ CAUTION**MARINE APPLICATIONS**

- Installation of the Proheat Air Heater is not approved for Marine applications.

⚠ CAUTION**BIO-DIESEL FUEL**

- Proheat Air Heaters are not certified for use with all bio-diesel fuels. Bio-diesel fuel of up to 5% (B5) is allowed.

⚠ CAUTION**HIGH ALTITUDE**

- Proheat Air Heaters are not certified for continuous use at more than 5,000 feet (1,500 meters) above sea level. Operation at more than 5,000 feet (1,500 meters) above sea level is in principle possible for short periods of time, such as when crossing mountain passes.

3 Introduction to the Driver Control Panel

The Driver Control Panel (DCP) is used to turn the heater ON/OFF and it can be programmed to start the heater at predetermined times.

3.2 Driver Control Panel Buttons

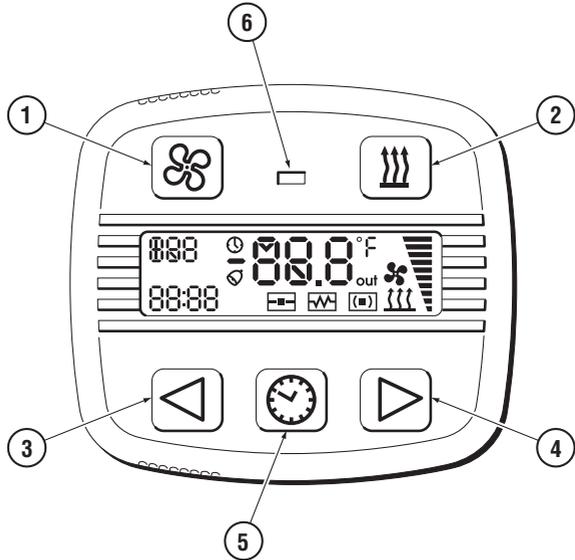


Figure 3. Driver Control Panel (DCP)

- 1 Fan Button – Fan ON or OFF
- 2 Heat Button – Heat ON or OFF
- 3 Left Button
- 4 Right Button
- 5 Timer/Enter Button
- 6 Status LED Light

3.3 Driver Control Panel Icons and Display

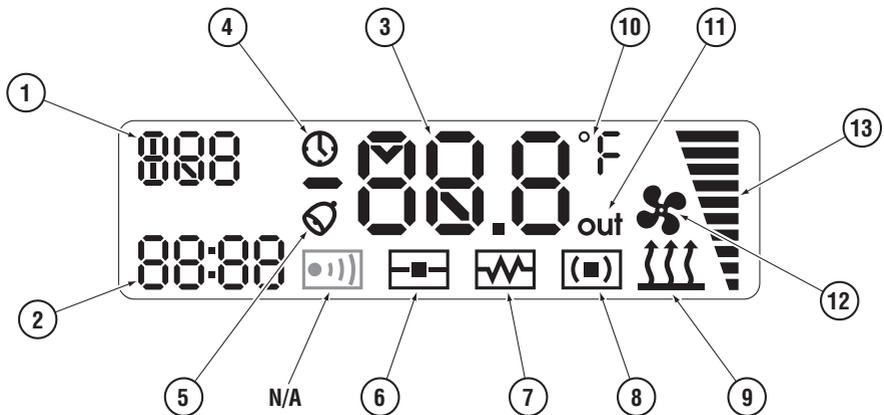


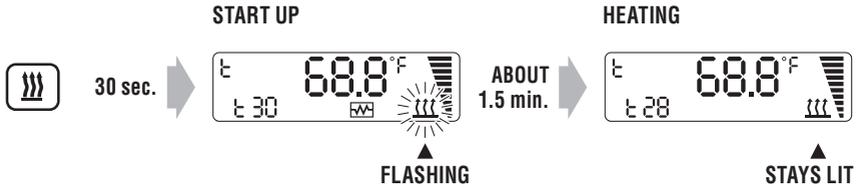
Figure 4. DCP Icons and Displays

- 1 Day of the Week Display** – Also used for setting and displaying Power or Temperature Control and for displaying symbols in menu mode.
- 2 24 Hour Time Display** – Also used for setting the Alarm Clock, displaying Run Time and for displaying symbols in menu mode.
- 3 Central Display** - Displays the current temperature in Fahrenheit (°F) or Celsius (°C), also used for menu options, timer selections and diagnostic codes.
- 4 Timer Icon** – Illumination indicates at least one timer is active.
- 5 Alarm Icon** – Illumination indicates alarm clock is active.
- 6 DCP Temperature Icon** – Illumination indicates the displayed temperature is from the sensor located in the DCP.
- 7 Glow Plug Icon** – Illumination indicates the glow plug is powered on.
- 8 External Temperature Icon** – Illumination indicates an external temperature sensor is connected.
- 9 Heating Icon** – Illumination indicates normal heater operation and flashing indicates the Start Sequence.
- 10 Temperature Icon** – Temperature displayed is Fahrenheit or Celsius.
- 11 Outside Temperature Icon** – Illumination indicates the displayed temperature is from an external temperature sensor.
- 12 Fan/Ventilation** – Illumination indicates the heater is in ventilation mode and flashing indicates that the heater is in the Shut Down Sequence.
- 13 Power Level Display** – Displays the heater's power level or the speed of the fan in 1-10 increments.

4 Switching the Heater ON

The heater can be switched on Manually or by a Timer Event.

4.2 Manually Switching the Heater ON



Start the heater by pressing the Heat Button  and the Start Sequence will begin.

The Heat Icon  will flash during the Start Sequence and remain illuminated after a successful start.

The Central Display will show the reading of the active temperature sensor (Refer to the section on Menu 04 for directions on how to set up and Select the Active Temperature Sensor).

To control the heating output, refer to the section of this manual on Controlling Heat Output.

NOTICE

The heater always starts in the maximum heating output and transitions to the programmed Temperature Control or Power Control after the Start Sequence is completed.

4.3 Switching the Heater ON with a Timer Event

The heater can also be switched ON automatically using programmed Timer Events (Refer to the section on Menu 01 for directions on programming Timer Events).

5 Switching the Heater OFF

HEATER RUNNING

SHUT DOWN



When the heater is running pressing the Heat Button  will start the Shut Down Sequence and turn OFF the heater. Shut Down Sequence is indicated by a flashing fan icon . The flashing fan icon  will disappear when the sequence is complete.

NOTICE

The heater will also automatically shut down at the end of the Pre-Programmed Run Time, or at the end of a Timer Event.

6 Heater Operation

Heater operation depends on the position of the vehicle's engine ignition key.

6.2 Heater Operation with Ignition Key OFF

When the ignition key is OFF and the Heat Button  is pressed, the heater will automatically begin the Start Sequence and run for duration of the Pre-Programmed Run Time. The factory default run time is 30 minutes but can be adjusted from 5 to 99 minutes.

6.2.1 Setting the Pre-Programmed Run Time

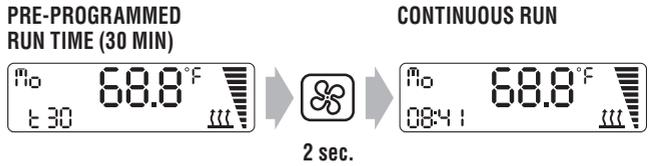


“t xx” will appear in the lower left corner of the display. The “t” symbol indicates the Pre-programmed Run Time is active and xx indicates the number of minutes the heater will remain on.

This time is adjustable from 5 to 99 minutes by first pressing the Timer/Enter Button  and then adjusting with the Left Button  or Right Button  until the desired time is reached. Pressing the Timer/Enter Button  a second time confirms and saves the new time.

If no button is pressed for 20 seconds, the current setting remains and the display will return to normal.

6.2.2 Switching OFF the Pre-Programmed Run Time



Turning ON the ignition or holding the Fan Button  for longer than 2 seconds will transition the heater from the Pre-Programmed Run Time to a continuous run and the current time will appear in the display.

If the Fan Button  is pressed or if the engine ignition key is turned off, the heater will return to the Pre-Programmed Run Time.

6.3 Heater Operation with Ignition Key ON

When the ignition key is ON and the Heat Button  is pressed, the heater will heat according to the set Power Control level or Temperature Control level. If the ignition key is then turned OFF, the heater will revert to Pre-Programmed Run Time for the remainder of the programmed period.

7 Controlling Heat Output

Heat output can be controlled by one of two control parameters (Refer to the section on Menu 05 for directions on setting up the Power Control or Temperature Control).

7.2 Power Control – “P”

The Power Control parameter sets the heater to maintain a continuous heat output from low to high in increments of 1-10.

7.2.1 Adjusting Power Control (“P”)

- The bar scale on the right side of the display shows the power level.
- The Left  and Right  Buttons will adjust the power level.

7.3 Temperature Control – “t”

The Temperature Control parameter sets the heater to maintain a constant temperature similar to the operation of your home thermostat.

One of three temperature sensors can be use to monitor temperature:

t-1 Located inside the heater, it monitors the air temperature as it enters the heater.

t-2 Located inside the DCP it monitors the ambient temperature around the DCP.

t-3 An optional external sensor that can be placed anywhere inside or outside the vehicle.

7.3.1 Adjusting Temperature Control (“t”)

- The Left  and Right  Buttons will adjust temperature in 5°F or 3°C increments and the requested temperature will be displayed for 3 seconds before the display reverts back to the current temperature sensed by the active temperature sensor.
- The bar scale on the right side of the central display shows the requested temperature relative to the heater’s potential maximum and minimum capacities.

NOTICE

The heater always starts in the maximum heating output and transitions to the programmed Temperature Control or Power Control after the Start Sequence is completed.

8 Fan Mode

The heater fan can also be used without heat output for ventilation. Fan speed is adjustable and run time is limited to 6 hours.



8.2 Activating the Fan

Pressing the Fan Button  will activate the fan. The fan icon  indicates that the fan is running.

Fan speed is indicated by the bar scale on the right of the display and speed can be adjusted by pressing the Left Button  or Right Button .

FAN ON



FAN OFF



8.3 Deactivating the Fan

Pressing the Fan Button  will shut off the fan and the bar scale and fan icon  will disappear.

9 Accessing Menus and Setting Preferences



Press the Timer/Enter Button for a minimum of 2 seconds to access the menus that set Control Parameters and Feature Preferences.

Press the Fan Button to leave the Menu display. This will be confirmed by a long beep tone emitted by the DCP.

Any flashing parameter can be changed with the Left Button and Right Button .

Press the Timer/Menu Button to activate the selected menu. This is confirmed by a short beep tone.

Leave the selected menu or sub-menu by pressing the Fan Button .

9.2 List of Menus



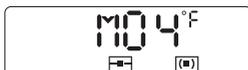
M 01 - Set the Timer Events.



M 02 - Set the Alarm Clock.



M 03 - Set the Day and Time.



M 04 - Select the Active Temperature Sensor.



M 05 - Select Power or Temperature Control.

M 06 - Not used.



M 07 - Restore Factory Defaults.



M 08 - Display Power Supply Voltage.



M 09 - Fuel Pump Primer.



M 10 - Select Temperature Display in Fahrenheit or Celsius.



9.3 Menu 1 – Setting Timer Events

There are two different types of Timer Events, a single Next Day Timer Event (PR A) and up to seven individual Stored Timer Events (PR 1 – PR 7).

NOTICE

If Next Day Timer Event PR A is set, all other Stored Timer Events (PR 1 - PR 7) will be suspended until the Next Day PR A Timer Event has passed.

9.3.1 Next Day Timer Event - PR A



This is a one time Event Timer that starts the heater the next day and will clear itself after activation. There is no requirement to set the day of the week, only the start time, the duration (5-99 minutes) and the Temperature Control or Power Control level. Use this timer for non-recurring events.

9.3.2 Setting a Next Day Timer Event PR A

From Menu 1 (M 01) press the Timer/Enter Button  to select PR A.

Using the Left  and Right  Buttons adjust the start time hours.

Press the Timer/Enter Button  to select start time minutes and adjust with the Left  and Right  Buttons.

Press the Timer/Enter Button  to select the run time and adjust with the Left  and Right  Buttons.

Press the Timer/Enter Button  to select the Temperature Control or Power Control level and adjust with the Left  and Right  Buttons.

Press the Timer/Enter Button  to select ON or OFF (enable timer) and toggle with the Left  and Right  Buttons.

Press the Timer/Enter Button  to confirm and the Fan Button  twice to exit Menu mode.

9.3.3 Stored Timer Events - PR 1 - PR 7



These are individual Stored Timer Events that start the heater on a particular day of week. To set up a Stored Timer Event program the day of the week, start time, duration, and (5-99 minutes) and the Temperature Control or Power Control level. These timers will remain in memory as long as power is maintained to the DCP.

Each PR 1 - PR 7 Timer Event can be programmed for any day of the week including the same day, for example two Timer Events on a Saturday. If the start times overlap the Timer Events will combine, starting at the earlier of the two start times and ending at the later of the two end times.

Although the Timer Event information is saved in memory, the Timer Event will only occur once before it becomes inactive. To re-activate a specific Timer Event, select it and press the Heat Button .

9.3.4 Setting PR 1 - PR 7 Stored Event Timers

From Menu 1 (M 01) use the Right  Button to advance to one of the PR 1 - PR 7 events to be programmed.

Press the Timer/Enter Button  to confirm the selected event.

Using the Left  and Right  Buttons adjust the start time hours.

Press the Timer/Enter Button  to select start time minutes and adjust with the Left  and Right  Buttons.

Press the Timer/Enter Button  to select day of week and adjust with the Left  and Right  Buttons.

Press the Timer/Enter Button  to select the run time and adjust with the Left  and Right  Buttons.

Press the Timer/Enter Button  to select the Temperature Control or Power Control level and adjust with the Left  and Right  Buttons.

Press the Timer/Enter Button  to select ON or OFF (enable timer) and toggle with Left  and Right  Buttons.

Press the Timer/Enter Button  to confirm and the Fan Button  twice to exit Menu mode.

9.3.5 Resetting All Timers – from Menu 1

This function will reset all timers but leave all other programming intact.



Press the Right Button  until rES flashes on the display screen.

Press Timer/Enter Button  to select.

Select ON using the Left  and Right  Buttons.

Press Timer/Enter Button  to confirm the reset.



9.4 Menu 2 – Setting the Alarm Clock



Use the Left  and Right  Buttons to adjust to the desired hour and push the Timer/Enter Button  to advance and continue to set the minutes using the Left  and Right  Buttons.

Push the Timer/Enter Button  again to save the settings.

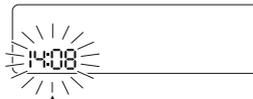
Use the Left  and Right  Buttons to toggle ON or OFF and then push the Timer/Enter Button  to save and return to the menu.

When the alarm clock starts to ring, push any button to silence the alarm.

NOTICE

The alarm clock will ring every day unless deactivated through the Alarm Clock Menu.

9.5 Menu 3 – Setting Time and Day of the Week



▲
FLASHING



▲
FLASHING

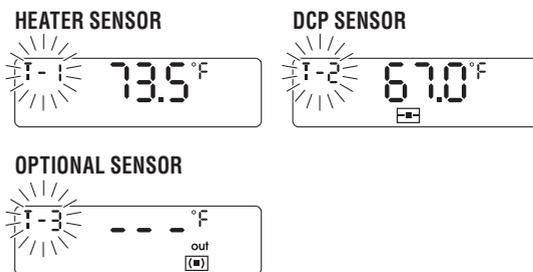
Use the Left  and Right  Buttons to adjust to the desired hour and push Timer/Enter Button  to advance and continue to set the minutes using the Left  and Right  Buttons.

Push the Timer/Enter Button  again to adjust the day of week by using the Left  and Right  Buttons.

Push Timer/Enter Button  a final time to save the settings and return back to the main menu.



9.6 Menu 4 – Select the Active Temperature Sensor



The current temperature and the icon of the activated temperature sensor are displayed in the Central Display, and the descriptor (T-1, T-2, or T-3) will also flash in the left upper corner. Use the Left and Right Buttons to toggle between the sensors.

If a sensor is connected and functional, the correct temperature will appear in the display.

If a sensor is not functioning or not connected, three dashes (- - -) will appear instead of the temperature.

If none of the temperature sensors are functional, symbol (-) appears on the display instead of the temperature.

Press the Timer/Enter Button to activate the selected sensor and return back to the menu.

List of Sensors:

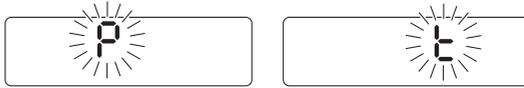
t-1 Located inside the heater itself and monitors the air temperature as it enters the heater.

t-2 Located inside the DCP and monitors ambient temperature around the DCP.

t-3 An optional external sensor that can be placed anywhere inside or outside the vehicle.

Note: Use t-1 for bunk heat if the DCP is mounted outside the sleeper in the driver compartment. Use t-2 if the DCP is located within the area to be heated, such as the sleeper.

9.7 Menu 5 – Setting Power Control “P” or Temperature Control “t” Preference

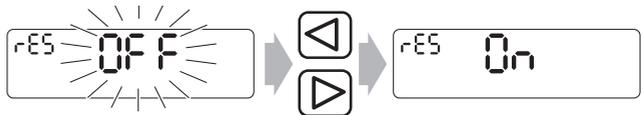


The symbol Power Control “P” or Temperature Control “t” flashes in the middle of the display.

Use the Left  and Right  Button to make your selection and press Timer/Enter Button  to save the selected preference to memory and return back to the main menu.

9.8 Menu 6 – Not Used

9.9 Menu 7 – Restoring Defaults

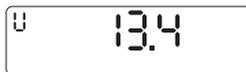


“rES” is displayed in the upper left corner of the display, and “OFF” is flashing in the middle of the display. Use the Left  and Right  Buttons to toggle between ON and OFF.

If ON is selected, and Timer/Enter Button  is pressed, all parameters are set back to the initial factory settings:

- All preset Timer Events are cleared.
- Run Time is set to 30 minutes.
- Alarm Clock is deactivated.
- Heating control is set to Power Control.

9.10 Menu 8 – Display Power Supply Voltage

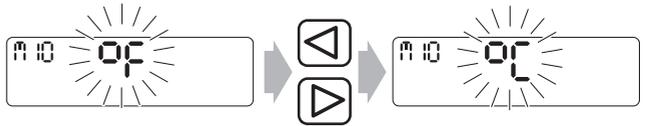


“U” is displayed in the left upper corner and power supply voltage is displayed as XX.X volts DC.

9.11 Menu 9 – Fuel Pump Priming

This function accelerates the fuel pump to prime fuel lines during installation and first run in. It is accessible only by authorized service dealers.

9.12 Menu 10 – Setting Temperature Display Preference



Use the Left  and Right  Buttons to toggle between displaying temperature in Fahrenheit or Celsius.

Push Timer/Enter Button  to save the setting.

10 Additional Information

10.2 Setting the Clock after a Power Interruption

When the DCP is first connected or reconnected to battery power, the time flashes 00:00. Use the Left  and Right  Buttons to adjust to the desired hours, minutes and day of week. Pressing the Timer/Enter Button  will advance to each parameter. Push the Timer/Enter Button  a last time to save.

After the time is set, the DCP LED light will flash red and the Central Display will indicate the Diagnostic Code E00 (Power Interruption). Pressing the Timer/Enter Button  will clear the Diagnostic Code and the DCP will now revert to a normal state ready for use.

10.3 Memory

If the DCP loses power, all settings are lost and must be re-set.

10.4 DCP Backlight

With the engine ignition key OFF the DCP backlight will stay on for 7 seconds after a button has been pressed. With the ignition key on, the DCP backlight remains on.

10.5 Optional External Temperature Sensor

Illumination of the External Temperature Sensor icon  indicates that an optional external temperature sensor is connected.

Press the Timer/Enter Button  and the external temperature sensor reading is displayed temporarily for 4 seconds.



If an external sensor is not connected, horizontal dashes (---) will appear in the display.



10.6 Daylight Saving and Time Zone Changes

The DCP Clock must be manually reprogrammed for Daylight Saving or Time Zone changes.

11 Diagnostic Code Reporting



In the event of abnormal operation, a red LED flashes on the DCP and a Diagnostic Code appears in the Central Display.

Press the Timer/Enter Button  to clear the Diagnostic Code and the controller will return to its normal state. The DCP will continue to display the Diagnostic Code and flash the LED until confirmation is made by pressing the Timer/Enter Button .

The DCP memorizes the Diagnostic Code and the time when it was detected.

If the DCP reports a Diagnostic Code, check the possible causes noted in the List of Diagnostic Codes before clearing the DCP. If the Diagnostic Code persists, please contact an Authorized Proheat Dealer.

NOTICE

Unauthorized repairs may damage the heater or your vehicle and will void your heater warranty.

12 List of Diagnostic Codes

CODE	INDICATION	CONDITION	CHECK FOR
00	POWER FAILURE	System voltage has dropped below minimum requirement or has been interrupted.	<ul style="list-style-type: none">• Code E00 is always displayed after the initial connection or memory reset of the DCP to the heater.• Disconnected or dead battery.• Open fuse - there are two heater fuses to check, one located at the heater and one in the battery compartment.
01	LOW VOLTAGE	Input voltage is too low for normal operation.	<ul style="list-style-type: none">• Weak or low battery (start vehicle engine to raise voltage and recharge battery).• Overloaded battery due to other appliances.• Check heater voltage using Menu 08. For 12 volt systems, the voltage must be greater than 10.5 volts. For 24 volt systems, the voltage must be greater than 21 volts.

CODE	INDICATION	CONDITION	CHECK FOR
02	OVERVOLTAGE	Input voltage is too high for normal operation.	<ul style="list-style-type: none"> • Alternator or other charging device may be interfering with voltage – check heater input voltage at battery. • Check heater voltage using Menu 08. For 12 volt systems, the voltage must be lower than 16 volts and for 24 volt systems lower than 30 volts. Over voltage must occur for longer than 30 seconds to cause diagnostic code.
04	OVERHEAT BREAKER OR DISCONNECTED FUEL PUMP		<ul style="list-style-type: none"> • Blocked air ducting – check incoming and outgoing air ducts for blockage or kinks. • Disconnected fuel pump – check wiring at heater and at fuel pump.
05	DISCONNECTED GLOW PLUG		<ul style="list-style-type: none"> • Check glow plug connection and ensure it is not disconnected or loose.
12	UNSUCCESSFUL START	Heater Start Up Sequence has timed out.	<ul style="list-style-type: none"> • Check that fuel is being supplied to heater and that fuel lines to heater are not damaged, blocked or kinked.
13	NO FLAME DETECTED	Temperature in the combustion chamber did not reach the required temperature.	<ul style="list-style-type: none"> • Check that fuel is being supplied to heater and that fuel lines to heater are not damaged, blocked or kinked.
14	UNSUCCESSFUL COOL DOWN	Combustion chamber did not cool down to the required temperature in the time allowed.	<ul style="list-style-type: none"> • Blocked air ducting – check incoming and outgoing air ducts for blockage or kinks. • Ensure heater shell casing is closed and secured. <p>Note: The heater will attempt a second cool down cycle.</p>
16	OVERHEATED AIR	The temperature of the air input is greater than 104°F (40°C) during heating or 140°F (60°C) during ventilation.	<ul style="list-style-type: none"> • Intake air flow is too warm. • Output heat air flow is too warm. • Blocked air ducting – check incoming and outgoing air ducts for blockage or kinks.
52	EXTERNAL TEMPERATURE SENSOR – T3	The external temperature sensor is no longer detected	<ul style="list-style-type: none"> • Check for open connection between the sensor and the DCP.
60	MOTOR OVERCURRENT	Excessive heater fan motor current.	<ul style="list-style-type: none"> • Check for object jamming the motor or fan blades. • Check for objects on or around the heater causing pressure on the fan or heater enclosure. • Too much back pressure – check incoming and outgoing air ducts for blockage or kinks.

Note: Other error codes require professional attention to resolve. Please contact an Authorized Proheat Dealer.

13 Maintenance

It is recommended to carry out a general inspection and perform maintenance every year before the winter heating season. Cleaning and repairs should always be completed as soon as they are required. The minimum requirements are as follows:

- Inspect the seal between the heater body and cab floor and ensure fasteners are tight.
- Inspect the electrical wiring system, fuses and connections for damage or loose connections.
- Inspect the fuel pump for leaks, blockage or damage.
- Inspect the fuel supply system for leaks, blockages or kinks.
- Inspect all ducting, air intake screen and air outlet for damage, blockages or kinks.
- Inspect combustion intake and exhaust for damage, blockages or kinks.
- Inspect, clean and maintain your battery per the manufacturer's directions. Ensure connections to the battery posts are clean and tight.
- Cycle heater, test functionality and confirm operation.

NOTICE

Operate the heater for 15 - 20 minutes at least once a month, even during summer months.

After 10 years of operation the heater requires a complete overhaul and a thorough cleaning by an Authorized Proheat Dealer.

- Replace the fan motor and heat exchanger.
- Inspect overheat sensor, replace if needed.
- Inspect, repair or replace other parts as needed.
- Cycle heater, test functionality and confirm operation.

14 Specifications

MODEL	A2 (12V)	A2 (24V)	A4 (12V)	A4 (24V)
RATING	2 kW (6,800 BTU)	2 kW (6,800 BTU)	4 kW (13,600 BTU)	4 kW (13,600 BTU)
OPERATING VOLTAGE RANGE	10.5 – 15 VDC	21 –30 VDC	10.5 – 15 VDC	21 – 30 VDC
POWER CONSUMPTION				
Stand-By	0.4 W	0.4 W	0.4 W	0.4 W
Ignition	130 W	130 W	145 W	145 W
Maximum Heat	25 W	25 W	60 W	60 W
FUEL CONSUMPTION	.03-.06 gal/hr (0.1-0.22 L/hr)	.03-.06 gal/hr (0.1-0.22 L/hr)	.06-.12 gal/hr (0.21-0.46 L/hr)	.06-.12 gal/hr (0.21-0.46 L/hr)
FUEL TYPES	ULSD, Diesel #1, Diesel #2, Arctic, B5 Bio-diesel			
OPERATING TEMPERATURE RANGE	Ventilation Mode: - 40°F to 149°F (- 40°C to 65°C) Heating Mode: - 40°F to 104°F (- 40°C to 40°C)			
AIRFLOW (Maximum)	41 CFM (70 m³/hr)		65 CFM (110 m³/hr)	
WEIGHT	7.7 lb (3.5 kg)	7.7 lb (3.5 kg)	11.2 lb (5.1 kg)	11.2 lb (5.1 kg)
DIMENSIONS (L x W x H)	14 x 4.75 x 6.14 inches (355 x 120 x 156 mm)		16.4 x 6.1 x 7.4 inches (417 x 154 x 189 mm)	
	Driver Control Panel: 3.0 x 3.3 x 0.7 inches (75 x 85 x 17 mm)			
WARRANTY	Two years parts and labor			

Please Note: Specifications are subject to change without notice.

15 Warranty Information

Throughout this document references are made to SeaStar Solutions and Proheat which are operating names of Marine Canada Acquisition Inc. DBA SEASTAR SOLUTIONS and as such should be treated the same.

Non-standard installations, that is, those requiring a departure from published installation instructions, should not be undertaken without first having consulted SeaStar Solutions. Coverage for warrantable parts, at the discretion of SeaStar Solutions will be made to the claimant in the form of repair, replacement or credit. Warranty labor payments will be made only to Authorized Proheat Dealers in accordance with the Standard Repair Times (SRT's) as published by SeaStar Solutions. Articles which are returned as defective, but which are found to meet the specifications agreed upon, shall be subject to a retesting charge.

The warranties set forth herein are the sole warranties made by SeaStar Solutions in regard to the Proheat heater system. SeaStar Solutions makes no other warranties, expressed or implied, of merchantability or fitness for a particular purpose.

SeaStar Solutions warrants the Proheat Heater to be free of defects in material and workmanship under design usage and service conditions for two (2) years on parts and labor from the date of first installation. Replacement parts are covered for the remainder of the heater's warranty or ninety (90) days, whichever is greater. This warranty does not apply to damage or failure of the Proheat Heater or the vehicle into which it was installed due to improper installation, assembly, maintenance, abuse, neglect, accident, or the use of parts not supplied by SeaStar Solutions. Accessories supplied, but not manufactured by SeaStar Solutions, shall be covered by the manufacturer's warranty only and not subject to this warranty.

Items covered under this warranty

1. Basic Heater including combustion chamber components, fuel system components, ignition components and air blower.
2. Electrical controls provided by Proheat including cab mounted controls.
3. Proheat supplied accessories.

Items not covered under this warranty

1. Heaters no longer within the warranty period.
2. Normal wear and maintenance parts, including filters, clamps, tune-ups, switches, ducts and chafing of harnesses, hoses and ducting.
3. Installation errors or failures arising as the consequence of installation errors.
4. Any progressive damage to the vehicle arising out of failure of the Proheat heater unit.
5. Heaters which have been modified or use of non-standard parts not approved by SeaStar Solutions.
6. Heaters that have been abused or damaged.
7. Travel time by a Proheat Dealer.
8. Diagnosis or repairs when caused by problems not directly related to the heater or due to empty fuel tanks or poor fuel quality.

Before the expiration of the warranty, Owner must give notice to an Authorized Proheat Dealer of failures, if any, considered to be warrantable and deliver the defective heater system to such dealer. Owner is responsible for the cost of all repairs made to the equipment in which it is installed, other than the Proheat Heater system. Owner is responsible for lodging, meals and incidental costs incurred by the Owner as a result of a warrantable failure. Owner is responsible for "down-time" expenses, and all business costs and losses resulting from a warrantable failure.

SEASTAR SOLUTIONS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

If you have any questions or concerns about the Proheat warranty, contact your nearest Authorized Proheat Dealer or Proheat at 604-270-6899.



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