



Alde Compact 3020

Certified for use in recreational vehicles



Sales

Alde Corp.
6700 NE 152nd Ave Suite 160
Vancouver, Washington 98682
USA

Phone: 877-860-9814
Fax: 360-718-7077
info@alde.us
www.alde.us



Operating instructions, page 2.
To be kept in the vehicle. It is part of the furnace.



Instructions d'utilisation, page XX.
A garder dans le véhicule. Il fait partie de la chaudière.



ETL Listed
Conforms to ansi
std Z21.13
Certified to CSA
std 4.9

⚠ WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electrical switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

⚠ AVERTISSEMENT

Assurez-vous de bien suivre les instructions données dans cette notice pour réduire au minimum le risque d'incendie ou d'explosion ou pour éviter tout dommage matériel, toute blessure ou la mort.

- Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de tout autre appareil.
- **QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:**
 - Ne pas tenter d'allumer un quelconque appareil.
 - Ne toucher à aucun interrupteur. Ne pas vous servir des téléphones dans le bâtiment où vous vous trouvez.
 - Appeler immédiatement votre fournisseur de gaz depuis une maison voisine. Suivre les instructions du fournisseur
 - Si le fournisseur de gaz n'est pas joignable, appeler les pompiers.
- L'installation et l'entretien doivent être effectués par un installateur agréé, un service de réparation ou le fournisseur de gaz.

CONSUMER SAFETY INFORMATION

SAFETY WARNINGS

WARNING FIRE/EXPLOSION HAZARD

- Do not use the LP Gas operation on the hydronic heating system while refueling or pumping gas.
- Do not use any type of open flame when checking for gas leaks.
- Use genuine Alde replacement parts only.
- LP tanks must be filled by a qualified gas supplier only.
- Use with LP Gas only.
- Shut off the gas and the LP tank when the vehicle is in motion. This helps disable all gas appliances and pilot lights.
- Gas appliances must never be operated while the vehicle is in motion.

WARNING CARBON MONOXIDE POISONING

This hydronic heating system can produce dangerous carbon monoxide (CO) gas when using the LP Gas operation if it is not installed and used properly.

To help avoid the risk of asphyxiation, only use the LP Gas operation on the hydronic heating system outdoors to help dissipate the exhaust gases.

Never use in enclosed spaces or breathe in the exhaust gases.

Make sure that the exhaust gas outlet is placed outside, e.g. never under the recreational vehicle's awning.

- Do not use the hydronic heating system without adequate ventilation.
- Keep the air inlet and exhaust gas outlet unobstructed.

When cleaning the vehicle, never spray water into the furnace, e.g. if using a high-pressure cleaner, do not spray directly into the furnace's exhaust gas outlet.

To help ensure your safety, we strongly recommend that you install a CO detector and make sure that it is working properly before using the furnace.

Symptoms of CO poisoning include headache, dizziness and/or nausea. If you have any of these symptoms, get fresh air at once and seek immediate medical care.

⚠ WARNING HOT WATER HAZARD

Hot water at temperatures above 120 °F (49 °C) can cause serious scalding injuries and in extreme cases even death.

The furnace can deliver hot water at temperatures above 185 °F (85 °C).

- For safe operation, always use a mixing valve set at a temperature no higher than 118 °F (48 °C).
- **Always check the water temperature before entering a shower or bath.**
- **Hot water can be dangerous, especially for infants, children, the elderly or the infirm.**

How long can skin be exposed to hot water?

Temperature °F (°C)	Time before skin becomes scalded	
158 (70)	Extreme danger!	< 1 second
151 (66)	Very dangerous!	1 – 5 seconds
140 (60)	Dangerous!	10 seconds
129 (54)	Warning!	30 seconds
126 (52)		2 minutes
120 (49)		5 – 10 minutes
100 (38)	Safe	Safe bathing Temperature

Source: Moritz, A.R. / Herriques, F.C.: *Studies of thermal injuries: the relative importance of time and surface temperature in causation of Cutaneous burns*
A. J. Pathol 1947; 23: 695 - 720.

- Before using the hot water tap or using the shower, allow the hot water to run until the water temperature stabilizes.
- Test the temperature of the water before placing a child in the bath or shower.
- **Do not leave a child or an infirm person in the bath unsupervised.**

NOTICE

- There may be a variation between the temperature delivered from the hydronic heating system and the temperature at the tap due to water conditions or the length of the pipe to the hydronic heating system.

⚠ CAUTION

- Avoid damage to the hydronic heating system and voiding your warranty.
- No alterations! Any alteration to the hydronic heating system or its controls can cause unforeseen serious hazards and, in addition, will void the warranty.

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INTENDED USE

These instructions explain the operation of the hydronic heating system and control panel.

These instructions are approved for The Alde Compact 3020 hydronic heating system fitted in recreational vehicles. Installation and repairs may only be carried out by an Alde trained professional. This hydronic heating system must be installed in accordance with local codes if any; if not, follow ANSI Z223.1/NFPA 54 or CAN/CSA B149.1, Natural Gas and Propane Installation Code, as applicable.

PROHIBITED USE

To be used in recreational vehicles only.

SAFETY FEATURES

This hydronic heating system is equipped with the following safety devices:

Flame monitoring

If the flame goes out, the gas supply is switched off by a flame monitoring device.

Low-voltage shutdown

If voltage drops below 10.5 V DC, the gas supply to the burner will be switched off.

Monitoring of the exhaust fan

If there is a failure of the exhaust gas fan, the gas supply to the hydronic heating system is switched off.

Monitoring hot water temperature

A water temperature switch helps avoid excessively high water temperatures above 194 °F (90 °C).

Always use caution before exposing the skin to heated water.

1. OPERATING INSTRUCTIONS HYDRONIC HEATING

These instructions are approved for The Alde Compact 3020 hydronic heating system installed in Recreational Vehicles (RVs) as detailed in Standard ANSI 21.13-2014, CSA 4.9-2014.

We strongly advise that you read and follow these instructions carefully before using the hydronic heating system

⚠ CAUTION

The hydronic heating system comes installed with glycol heating fluid. If the fluid is drained for any reason, you must replace it before restarting the heating system.

Your warranty may be voided and the hydronic heating system may be damaged if you attempt to start it with little or no glycol heating fluid.

If the hydronic heating system has been out of use for some time, check the level of fluid in the expansion tank (see figure 1) before attempting to start the system.

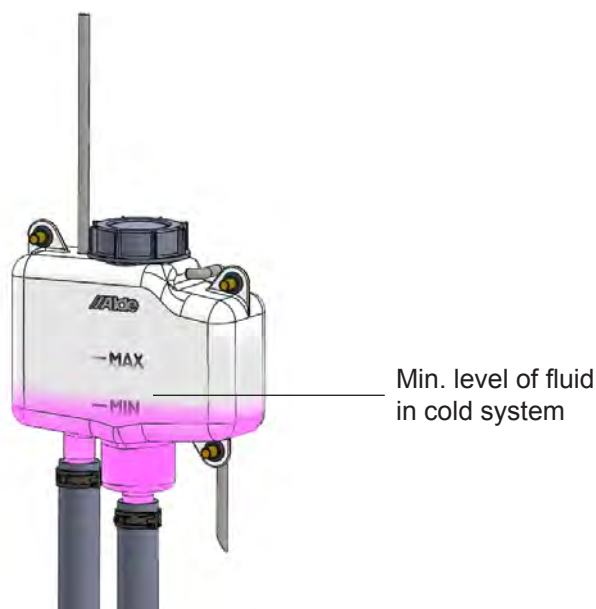


Figure 1. Expansion tank

1.1 DESCRIPTION OF THE HYDRONIC HEATING SYSTEM

The Alde Compact 3020 hydronic heater (figure 2) is designed to provide both heat and hot water.

The hydronic heating system includes both an LP Gas burner and an electric heating element and you can use the system with either LP Gas, electricity or both.

The hydronic heating system consists of the heater unit as well as an expansion tank (figure 1), which is installed at the highest point on the RV. Check with your RV owner's manual to determine where the expansion tank is installed. The hydronic heating system works by circulating hot glycol fluid through pipes and heat convectors, similar to the hydronic heating system used in many homes.

The hydronic heating system is fitted with a 12-volt electrical circulation pump that is used to circulate the heated fluid. The heat convectors located near the floor of the RV allow air to be heated by the hot fluid in the system and then the air rises and circulates to heat the space in your RV. The hydronic heating system is also fitted with a built-in water heater that has a volume of approx. 2.5 gallons (8.5 liters) of fresh water.

The LP Gas heater in the hydronic heating system can produce around 3 gallons (12 liters) of 104 °F (40 °C) water every half-hour. If the electric heating elements are used instead of gas for powering the hydronic heating system, the capacity is slightly less. You may use the hydronic heating system to heat the RV without filling the water heater.

⚠ WARNING HOT WATER HAZARD

Hot water at temperatures above 120 °F (49 °C) can cause serious scalding injuries and in extreme cases even death.

The hydronic heating system can deliver hot water at temperatures up to 185 °F (85°C).

- For safe operation, use a mixing valve set at a temperature no higher than 118 °F (48 °C).

NOTICE

The Compact 3020 hydronic heating system is designed to be used with a thermostat control. This manual includes instructions for controlling the system using the Alde control panel 3020 624 (see figure 3), which is an optional part of the system. If your RV has a different control system installed, please refer to the instructions for that system.

The control system allows you to select LP Gas, electricity or both as the energy source. If both electricity and gas are selected, the system gives priority to electrical power.



Figure 2. Alde Compact 3020 hydronic heater



Figure 3. Alde control panel 3020 623

1.2 HEATING WITH LP Gas

• ABOUT LP GAS

LP Gas is a petroleum product, formally known as “liquid petroleum gas.” It consists primarily of propane and butane gas. The advantage of propane is that it remains gaseous at temperatures as low as -40 °F (-40 °C).

For this reason, propane is used in colder climates.

LP Gas cylinders contain LP Gas in both liquid and gaseous forms. When the cylinders are filled, the pressure turns the gas into liquid. When the gas cylinder valve is opened, the liquid becomes a gas again.

WARNING FIRE/EXPLOSION HAZARD

The risk involved in using LP Gas is that any leaking gas can ignite and explode. Since LP Gas is heavier than air, leaking gas will collect at the lowest point in the area where the leak occurs. To make it easier to detect gas leaks, a substance with a distinctly strong smell has been added to the gas.

- For your safety install a gas alarm according to the gas alarm manufacturer’s recommendations.

WARNING ASPHYXIATION HAZARD

LP Gas contains no toxic substances, but breathing in concentrated gas may cause suffocation due to lack of oxygen. Incomplete combustion of LP Gas can produce carbon monoxide (CO) gas, which is a asphyxiation hazard.

- For your safety, install and use a CO detector.

• USING THE LP GAS HEATING

WARNING HIGH EXHAUST TEMPERATURES

The exhaust temperatures from the LP Gas burner can be up to 392 °F (200 °C).

Refer to the control panel instructions (page 16).

When LP Gas operation is selected on the control panel, the LP Gas burner in the hydronic heating system and the pump for circulating the glycol heating fluid start automatically whenever heat is called for by the thermostat. The LP Gas burner keeps operating and the pump keeps circulating until the thermostat reaches the set temperature. Should the LP Gas burner go out for any reason, a sensor will be activated and the hydronic heating system will attempt to automatically restart (in about 10 seconds).

• SNOWY CONDITIONS

WARNING ASPHYXIATION HAZARD

To burn properly and safely, the LP Gas burner in the hydronic heating system must have adequate air intake. Inadequate air intake may cause the build-up of CO gas, which is an asphyxiation hazard. The inlet air to the the gas burner enters through the flue, which is usually installed on the side of the RV near the heater. While camping during the winter, make sure that the flue is kept clear of snow and ice.

- Do not start the LP Gas operation on the hydronic heating system until the flue is completely free of snow and/or ice.

1.3 HEATING WITH ELECTRICITY

• ELECTRICAL HEATING

All Alde Compact 3020 hydronic heating system are fitted with two 120V heating elements with a maximum output of 950 W each. These heating elements require a 16-amp breaker.

NOTICE

Ensure that correct electrical service is available before using the electrical heating.

Refer to the control panel instructions (page 16).

When electrical operation is selected on the control panel, the electrical heating elements are used to heat the hydronic heating system. The heating elements and the circulation pump are controlled in the same way as the LP gas operation.

1.4 THE PRINCIPLE OF CONVECTION

• AIR CIRCULATION

Both LP Gas and electric heating use hot glycol fluid to heat the space in the RV. To achieve the best possible result from the principle of convected heat, it is important to allow air to circulate freely under bunks and behind backrests and wall-mounted cabinets (see figure 4).

If the vehicle has a fitted carpet, ensure that the carpet does not obstruct the air supply to the convectors. It is just as important that cushions or blankets do not interrupt the flow of air behind backrests and wall cabinets.

NOTICE

Obstruction of the air supply to convectors cause poor or no heating of the vehicle.

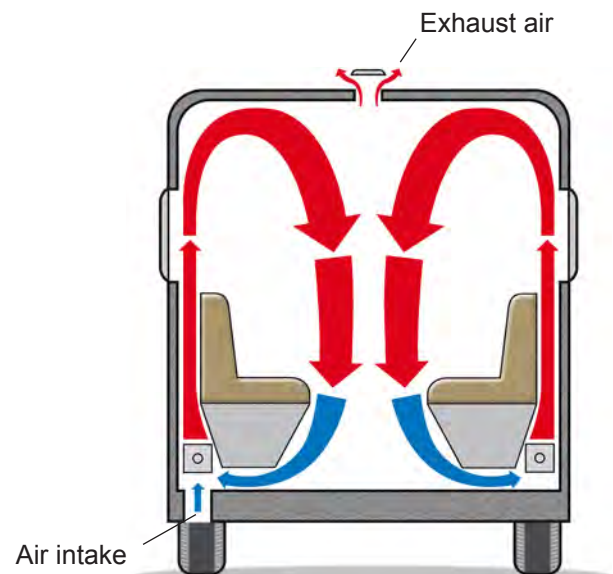


Figure 4. Air circulation

1.5 USING THE HYDRONIC HEATING SYSTEM

• DOMESTIC HOT WATER

The Alde Compact 3020 hydronic heating system can supply domestic hot water using either LP Gas or electricity. Please see the control panel instructions for details.

To make hot water with the hydronic heating system:

1. Make sure that the RV's water tank is filled up with clean, uncontaminated water or connected to a main water supply.
2. Fill the hot water tank in the hydronic heating system with clean, fresh water. If the hydronic heating system is used for the first time or if the hydronic heating system has not been used for some time, flush it out with water by opening any hot water tap in the RV and allowing approximately 3 gallons (12 liters) to run through the tap.
3. Close all taps and start the hydronic heating system using the control panel.

WARNING HOT WATER HAZARD

Hot water at temperatures above 120 °F (49 °C) can cause serious scalding injuries and in extreme cases even death.

The hydronic heating system can deliver hot water at temperatures up to 185 °F (85 °C).

- For safe operation, use a mixing valve set at temperature no higher than 118 °F (48 °C).

NOTICE

There may be a variation between the water temperature delivered from the hydronic heating system and the temperature at the tap due to the length of the pipe.

• USING ONLY HOT WATER

When only hot water is required (for example during the summer), no settings need to be changed. The hydronic heating system will handle this function automatically.

Refer to the control panel instructions for details on using hot water.

• AIR CUSHION

The hydronic heating system is designed to have an air space, called an air cushion, at the top of the tank. This air cushion is essential for absorbing pressure surges in the hydronic heating system. Always renew the air cushion in the hydronic heating system after 10 days of use.

This can be done by opening the safety/drain valve on the hydronic heating system for a few seconds.

The air cushion allows expansion to take place and helps protect the hydronic heating system against pressure surges from the water pump.

NOTICE

To maintain the air cushion, the hot water tank should be emptied approximately once a week to help ensure that a new air cushion is formed in the hydronic heating system.

Draining the hot water tank in the hydronic heating system using the combined safety/drain valve:

⚠ WARNING INJURY/SCALDING INJURY

Never actuate the drain valve lever as long as the hydronic heating system is under water pressure and/or is still warm.

1. Switch off the fresh water pump. Consult your RV owner's manual to find the location of this control.
2. Open all water taps.
3. Open the safety/drain valve by turning the lever (see figure 5). Check your RV owner's manual to find the location of the safety/drain valve.
4. The hot water tank in the hydronic heating system will now drain directly below the vehicle through the safety/drain valve hose. Check that all the water is emptied out (about 2-3 gallons/7-10 liters). Leave the valve in the open position until the next time the heater is used.

NOTICE

Ensure that the automatic check valve (see figure 6) is open and is allowing air to enter the hydronic heater when it is being drained and that the hose is not blocked.

For emptying specially-adapted hydronic heating systems, as well as any other water systems in the vehicle, please refer to the manufacturer's instructions.

Opening safety valve/drain valve

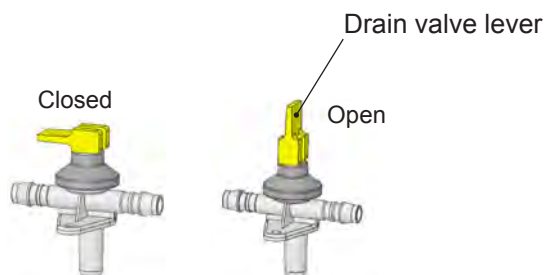


Figure 5. Safety/drain valve

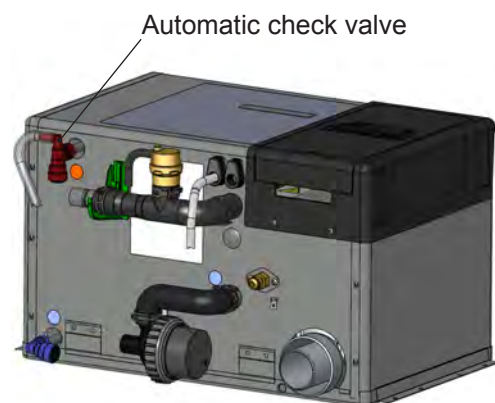


Figure 6. Check valve location

1.6 STORAGE AND WINTERIZATION

⚠ CAUTION

The hydronic heating system and its plumbing components should always be drained of fresh water when there is a risk of freezing and when the RV is not in use.

The warranty does not cover frost damage.

For this reason it is advisable to follow the recommendation(s) below if the hydronic heating system is to be stored in a freezing environment or for long periods of time. At the start of the winter season or before traveling to a location where freezing conditions are likely, the furnace must be winterized. Winterization can be accomplished using one of the two common methods of winterization used for RV water systems:

- Drain the hot water tank in the hydronic heating system, refer to “Draining the hot water tank in the hydronic heating system using the combined safety/drain valve:” on page 10.
- Antifreeze method: Follow the RV manufacturer’s recommendations and fill the water system with a non-toxic antifreeze. Make sure that the antifreeze flows from each tap to complete the process.

Also:

- Turn off the main power supply to the hydronic heating system. The main power supply should always be switched off when the vehicle is not being used.
- Turn off the LP Gas supply tank.
- When washing the vehicle, take care not to get water in the vent.

1.7 MAINTAINING THE HYDRONIC HEATING SYSTEM

Repairs must be performed by a qualified service technician. Verify proper operation after servicing.

⚠ CAUTION

Read all instructions first before maintaining the hydronic heating system!

⚠ CAUTION

Do not drink any alcohol or take any drugs before or during the maintenance of the hydronic heating system and follow the safety instructions carefully.

⚠ WARNING SHARP EDGES CAN CAUSE CUT INJURIES

Always wear protective gloves to avoid injuries from sharp edges during maintenance.

1.8 LP GAS CONNECTIONS AND HOSES

⚠ CAUTION

Only specialty hoses rated for use with LP Gas should be installed with this system. The use of other types of hose may result in hose failure and leakage. Hoses must be changed by a trained professional.

NOTICE

The LP Gas system must be checked regularly (preferably once a year) by a professional to help ensure that there are no leaks from connections or hoses.

Rubber hoses have a propensity to dry out and crack and therefore LP Gas hoses must be changed according to national regulations, at least once every 5 years. Check the date stamp on the hose.

1.9 GLYCOL HEATING FLUID

NOTICE

Always ensure that the level of ethylene glycol is correct in the hydronic heating system.

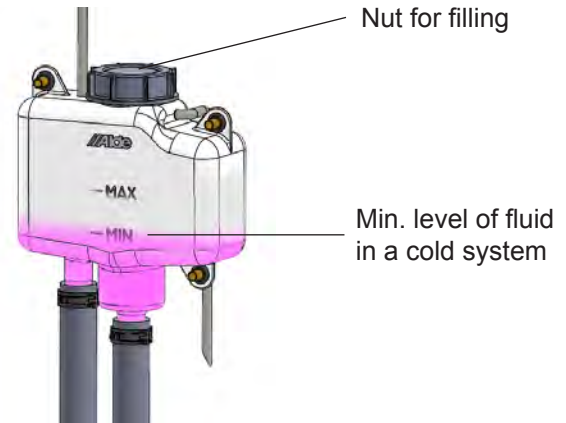


Figure 7. Expansion tank

Regularly check the fluid level in the expansion tank. The markings on the side indicate the maximum and minimum fluid level (see figure 7). The level should be about 0.5 in (1 cm) above the minimum indicator in a cold tank. Please see the directions below for filling the hydronic heating system.

The hydronic heating system must be filled with a mixture of water and glycol. Use only high quality ready-mixed glycol (with inhibitor) intended for aluminum heating systems. The glycol must be labeled "GRAS" (Generally Recognized As Safe). Contact Alde for a list of approved glycol suppliers.

If you are using concentrated glycol, the mixture should consist of 60% distilled water and 40% glycol. If the heating system will be exposed to temperatures below -15 °F (-25 °C), the glycol content must be increased but not to more than 50%.

Any containers used for the glycol must be spotlessly clean and the pipes in the heating system must be free of contamination. This will help inhibit the growth of bacteria in the system. The glycol content should be checked at the expansion tank using a pH tester before topping up with new liquid to help ensure that the concentration of glycol in the mixture is not too high.

If the fluid level falls for reasons other than evaporation, please check all joints, drain cocks and bleeder screws for leakage, including the bleeder located at the end of the convector.

⚠ WARNING

Be sure to thoroughly clean up any puddles of leaked glycol. Rinse the area with water and wipe up the excess. The recommended glycol product is considered nontoxic, but we still recommend that you use care to help prevent accidental ingestion by children or pets.

NOTICE

The glycol mixture should be changed every second year to help ensure maximum corrosion inhibitor effectiveness

1.10 FILLING THE HYDRONIC HEATING SYSTEM WITH GLYCOL FLUID

NOTICE

Any containers used to carry the fluid must be spotlessly clean and the pipes in the system must be free of contamination. This will help inhibit the growth of bacteria in the system.

Fill the hydronic heating system through the expansion tank, either manually or using the Alde filling pump, which both tops up and bleeds the system. To purchase a filling pump, contact your Alde dealer. For manual filling, remove the nut (see previous page, figure 7) from the tank. Slowly pour the glycol mixture into the tank. Bleed the hydronic heating system (see directions on page 13). Top up with more liquid if the level has fallen after bleeding. Bleed a newly filled hydronic heating system regularly during the first days the heating system is in operation.

1.11 BLEEDING THE SYSTEM

Depending on how the pipes have been fitted, air pockets may form when the hydronic heating system is filled with glycol fluid. A sign that there is air trapped in the hydronic heating system is that the heat released into the pipes only extends 2-3 ft or so from the hydronic heater, even though the circulation pump is operating.

In newly filled hydronic heating system, small air bubbles can form in the expansion tank, creating a gurgling sound. If the circulation pump is stopped for a few seconds, the bubbles will usually disappear; however, if the problem persists, bleed the hydronic heating system to remedy the problem.

• AUTOMATIC BLEEDING

All hydronic heating system sold in North America come with an automatic air vent (see figure 8), which will bleed the hydronic heating system automatically. If you do not have an automatic air vent, a bleeder screw is fitted to the outgoing pipe for manual bleeding.

• MANUAL BLEEDING

To bleed the hydronic heating system manually, follow the steps below:

1. Switch off the circulation pump.
2. Open the bleeder screw and leave it open until it starts to discharge water.
3. Close the bleeder screw.
4. Open the remaining bleeder screws in the system (please refer to the instruction manual of the RV for their locations).
5. Leave the bleeder screws open until they start discharging fluid and then close them.
6. Start the LP Gas operation on the hydronic heating system.
7. Start the circulation pump and let it run for a while. Check that the pipes and convectors around the vehicle are heating up.
8. Check that the pipes and convectors around the vehicle are heating up.

NOTICE

Never open the bleeder screws while the pump is running, because this will induce air into the system.



Figure 8. Automatic air vent

• PERSISTENT AIR LOCK

If air lock persists, try the following:

Single-axle trailers:

1. Stop the circulation pump.
2. Lower the front of the trailer as far as possible. Leave it in this position for a few minutes to allow the air to travel upward in the heating system.
3. Open the bleeder screw at the highest point. Leave it open until it discharges glycol fluid.
4. Raise the front of the trailer as far as possible and repeat the procedure in this position.
5. Position the trailer horizontally and start the circulation pump.
6. Check that the pipes and convectors around the vehicle are heating up.

Motorhome or twin-axle trailers:

The easiest way to bleed the heating system is to place the vehicle on a sloping surface or to raise one end of the vehicle using a jack. Bleed the hydronic heating system as described above. Alternatively, the heating system can be bled using the approved filling pump. To obtain a pump, contact your Alde dealer.

1.12 TROUBLESHOOTING

Always start by checking any fault messages in the control panel. If a fault occurs in the system, the cause will be shown on the display. This is only displayed when the control panel is in standby mode.
(See chapter 2.12 Fault messages)

• THE HYDRONIC HEATING SYSTEM DOES NOT START ON GAS

1. Check to make sure that there is gas in the LP Gas tank. If it is empty, have the tank refilled.
2. Check to make sure that the main gas valve is fully open. If not, open the gas valve all the way.

NOTICE

If the hydronic heating system has not been operated for some time, or if the gas cylinder has been changed, it may take longer than normal to light the LP Gas burner in the hydronic heater.

Check that the hydronic heater is connected to the electricity supply (> 11 V DC)

3. Check that the 12V fuse for the hydronic heater is intact.
4. Check whether the electric connections on the hydronic heater are securely in position.

If none of the above helps, contact a service workshop.

• THE ELECTRIC HEATING ELEMENT IS NOT WORKING

WARNING SHOCK HAZARD

The 120V electrical service presents a risk of electrical shock. Do not attempt to service the electric heating element yourself.

1. Check that there is an electricity supply (120V ~) to the vehicle.
2. Check that the relays fitted to the hydronic heater come on (a slight click can be heard from the relays when the heating element is switched on at the control panel).

If none of the above helps, contact a service workshop.

1.13 IMPORTANT INFORMATION

- Always switch off the main isolating switch for the hydronic heating system when the vehicle is not in use.
- The LP Gas burner must not be in operation when refueling the vehicle or when filling a fixed LPG tank.
- When washing the vehicle, do not spray water directly towards the flue.
- When camping in winter conditions, ensure that the flue and exhaust air valves are kept clear of snow and ice.
- The vehicle may be heated even if the hot water heater inside the furnace is not filled with water.
- The LP Gas burner and electric element may be operated simultaneously.
- Always drain the hot water tank in the hydronic heating system when there is a risk of frost and when the vehicle is not being used. Failing to do so could lead to a risk of serious frost damage.
- Always renew the air cushion in the hot water tank after 10 days of use to create a new air cushion. This can be done by opening the safety/drain valve on the hydronic heating system for a few seconds.
- Always maintain the proper level of ethylene glycol fluid in the hydronic heating system.
- The ethylene glycol mixture should be changed every other year because certain properties such as corrosion protection deteriorate over time.
Omitting to change the fluid can result in frost damage, corrosion, bacterial growth and/or overheating.
- Sterilisation fluids for water can cause harmful corrosion to the stainless structure of the furnace. Always read the data label regarding additives that are used and make sure that the system is flushed of all additives before using the hydronic heating system.
- Hard water is water that has a high dissolved-mineral content, particularly calcium. If the furnace is used in a hard water area for prolonged periods, install a water filter. Hard water can lead to a build-up of lime scale that can reduce the functionality of the system.

NOTICE

Close the main LP Gas valve in the following circumstances:

- When a leak in the LP Gas system is suspected.
- When the vehicle is not intended to be used.
- The national legislation of the country you are in may require you to close the main LP Gas tap when the vehicle is in traffic.
- When repairing the hydronic heating system.

2. OPERATING INSTRUCTIONS CONTROL PANEL 3020 623

Please read these instructions carefully before using the hydronic heating system. For Operating and Installation Instructions of the hydronic heating system, please see separate instruction. These instructions are approved for the Alde Compact 3020 furnace fitted in recreational vehicles, in accordance with ANSI 21.13-2014, CSA 4.9-2014.

Installation and repairs can only be carried out by a professional. National regulations must be adhered to.

⚠ CAUTION

Do not drink any alcohol or take any drugs before or during operating the hydronic heating system and follow the safety instructions in this manual carefully.

2.1 STARTING THE FURNACE

1. The control panel and the hydronic heating system are switched off.
2. To start the hydronic heating system, press the On/Off button and the start-up display will appear. The furnace starts with the most recent setting.

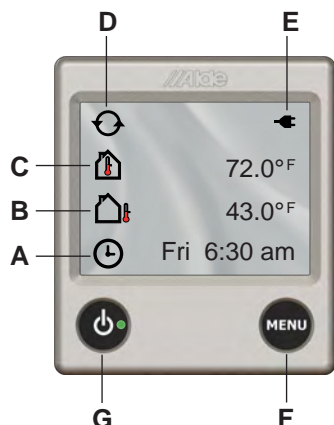


A green LED comes on beside the On/Off button when the panel/hydronic heating system is on.

2.2 THE CONTROL PANEL IN STANDBY MODE

NOTICE

If "Standby Brightness" is set to Off, the display goes out when it enters standby mode, but lights up if you press the screen. See settings in chapter 2.10, section 8.



A. Clock

The clock shows day and time. The clock is set under 2.10, section 4.

B. Outdoor temperature

The outdoor temperature is displayed if a sensor probe is installed.

C. Indoor temperature

The indoor temperature is displayed automatically.

D. Circulation pump

This symbol is displayed when the circulation pump is requested.

E. 120 volts

This symbol is displayed when 120V is connected to the furnace

F. MENU button

Button for setting Menu.

G. On/Off button

Shut down / turn on the furnace.

2.3 FROM STANDBY MODE TO THE SETTING MENU

When in standby, the indoor temperature is displayed and the outdoor temperature is displayed if an outdoor temperature sensor has been connected. The background lights up when you press the screen or the MENU button. Start the Setting menu by pressing the MENU button. The background lights up and those functions which can be set are displayed. The settings are automatically saved after 10 seconds. The control panel reverts to standby automatically after 30 seconds if no buttons are pressed (or if the MENU button in the Setting menu is pressed).

1. The control panel in standby



2. The control panel in setting menu.



2.4 SET THE REQUIRED TEMPERATURE



The temperature can be set from +41 °F/+5 °C to +86 °F/+30 °C in steps of 1 °F/0.5 °C. Hot water is always available when the furnace is on and running on LP Gas and/or electricity.



- The temperature displayed is the temperature which is set at present (in this case 72 °F/22 °C).
- Raise the temperature by pressing the + button. Lower the temperature by pressing the – button.
- The settings are ready and the central heating will circulate at the set temperature.

2.5 DOMESTIC HOT WATER



There are three different alternatives for regulating the hydronic heating system depending on the need for hot water: no hot water, normal operation and extra hot water.



- No hot water.** If hot water is not needed, press the "–" button. (the symbol is empty)
If night or day automation is activated, see 2.10, sections 1 and 2 and when hot water is turned off, it is not possible to make hot water adjustments. The plus and minus symbols are then gray.



2. **Normal operation.** If hot water is required, press the "+" button (the symbol will then be half-shaded). If the 10.12 (Floor heating*) function has been set to Cont., this option cannot be selected. When only hot water is required, e.g., during the summer or when no heating is needed, no settings need to be made; the hydronic heating system handles this function automatically.

⚠ WARNING

Since the hot water and antifreeze in the hydronic heating system are heated simultaneously, the hot water can be very hot when a high level of heating is required.



3. **Extra hot water.** If you need more hot water, the water temperature can be temporarily increased to about 149 °F/65 °C. Press the "+" button so that the symbol is fully shaded (black). The hydronic heating system returns to normal operation after 30 minutes. Once you have selected extra hot water, the circulation pump stops. If the 2.10 sect. 12 (Floor heating*) function is set at Cont., the continuous pump operation function is turned off for 30 minutes, but returns thereafter to continuous pump operation. If an Alde Flow* (part no. 3020 163) is installed and the panel is in extra hot water mode, up to 1 gallon (3.78 liters)/minute of hot water can be supplied. The hot water function can then remain in operation for longer than 30 minutes.

2.6 HEATING WITH ELECTRICITY ⚡

Proceed as follows to activate heating with electricity. Set the power level according to the fuse for incoming electricity to the vehicle. Or set the power to max (2kW) and use a load monitor* (part no 3010 642). If both electricity and gas are selected, a priority can be set, see 2.10, section 3.



1. Start and stop between the various power steps (Off, step 1, step 2) with the + button or – button. The set value is displayed on the screen. When activated, the plus symbol changes color to green.
2. The settings are ready and the furnace is working at the set temperature.
3. To switch off electrical operation, step with the – button to Off.

2.7 HEATING WITH GAS 🔥

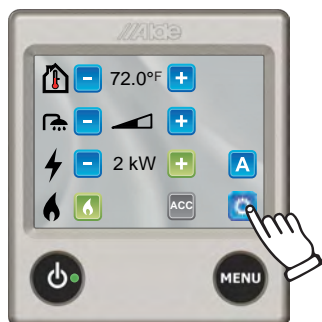
Proceed as follows to activate heating with gas. If both electricity and gas are selected, a priority can be set, see 2.10, section 3.



1. Start gas operation by pressing the flame symbol. Gas operation is activated and the flame symbol changes color to green.
2. The settings are now complete and the hydronic heating system will operate at the set temperature.
3. To switch off gas operation, press the flame symbol, which will change color to blue.

2.8 TOOL MENU

It is possible to go from the Setting menu to the Tool menu. Under the Tool menu you can access the control panel's other functions, which are described in chapter 2.9 Tool menu - functions.



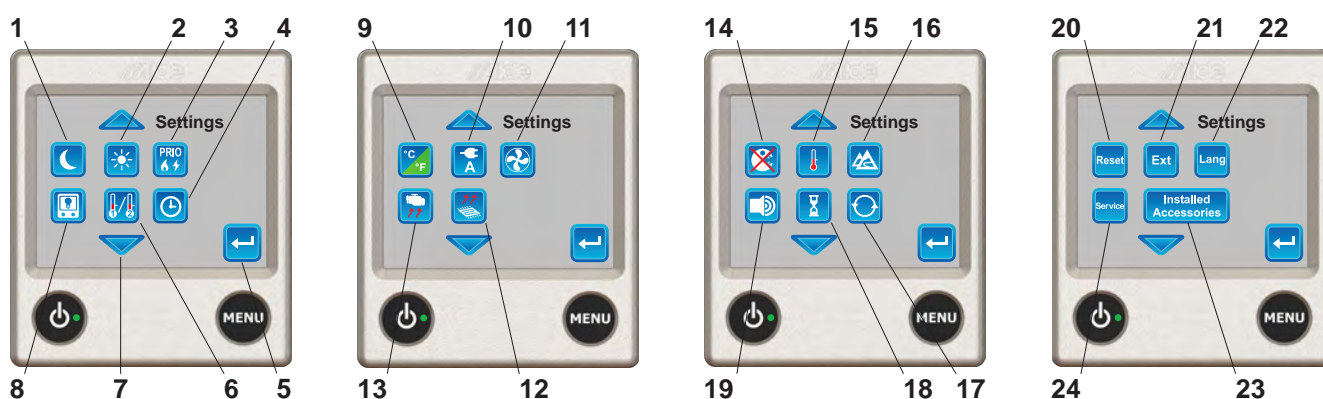
1. Press the tool symbol to access the Tool menu.

2.9 TOOL MENU – FUNCTIONS

When you are in the Tool menu, you can use the tools described below. Step between the various tool fields by pressing the up or down arrow symbols. You can always leave the Tool menu by pressing the MENU button.

NOTICE

Functions marked with an asterisk (*) indicate that the symbol for the function is displayed on the control panel even if the accessory function is not installed.



1. Night automation

Automatically changes certain functions during the night. This can be set to take place every night or on specific nights of the week. The functions that can be changed are:

- Temperature
- *Change of room sensor
- Turn off warm water
- *A/C in quiet mode



2. Day automation

Automatically changes certain functions, e.g. if you are away for a while during the day. Select that it takes place every day or a specific day each week. The functions that can be changed during the day are:

- Temperature change
- Turn off hot water



3. Prio setting

With this function you can choose to prioritise (select) electricity or gas as the main alternative



4. Clock

The clock must be set if you want to use the timer for the engine heater, the night and/or day mode or automatic start with a timer. If 12V power is lost, the clock will stop and will no longer be displayed. Installing battery backup (Art. No. 3010 420) will help prevent this from happening.



5. Return

Press this symbol to return to the previous menu.



6. *Setting a room sensor

Select the temperature sensor that will be active (the sensor in the living area, sleeping area or in the panel). If Auto is selected, the sensor in the panel is active and will automatically switch to a room sensor (sofa and/or bed) if one is connected. If two room sensors are connected, the one for the living area will be active (sofa).



7. Arrow symbols

Step between the various tool fields by pressing the up or down arrow symbols. You can always leave the Tool menu by pressing the MENU button.



8. Background lighting

The standby screen can be set in three different modes: Dark, Bright and Invert.

Dark: Turns off background lighting.

Press the screen or the menu button when standby is activated and the screen comes on, but returns to dark after 30 seconds if the panel is not touched.

Bright: Background lighting in standby mode.

Invert: Inverted background lighting in standby mode.

Standby is activated automatically after 30 seconds if the panel is not touched.

Brightness can be adjusted to three levels (1-3).



9. Celsius/Fahrenheit

Change temperature from Celsius to Fahrenheit.



10. *Load monitor

This function is used to help prevent the 120V breaker from being overloaded. If the vehicle's total power consumption exceeds the set value, the hydronic heaters power will be automatically reduced. To handle voltage variations and tolerances, different setting levels can be selected (e.g. for a 20A breaker, 18, 20 or 22 amp settings can be selected). If the breaker does not hold, set a lower value.

NOTICE

The load monitor has to be installed for the function to be used (see the manual for the vehicle).



11. *Booster

There are two possible booster control speeds. Fan start and stop are controlled from the hydronic heating system. If the furnace circulation pump starts up, the fan on the booster will also start. When the circulation pump stops, the fan will continue to run for approx. six minutes and also stop unless the circulation pump has started again, thereby providing automatic booster fan control.



12. *Floor heating

This function governs the underfloor heating pump's operation in intervals, which means that the underfloor heating pump operates for 5 min and then switches off for 5 min when heat is required.

Mode: Select Delay or Cont. Underfloor heating is switched on in either of these modes. In Off mode, underfloor heating is off.

In **Cont.** mode, the temperature in the vehicle may become higher than desired since the heat control is turned off.

Delay: The underfloor heating pump is on for a certain period after the furnace's circulation pump has stopped. This period can be set to 15, 30 or 120 min.



13. *Engine heater

This function makes it possible to use the hydronic heating system to heat up the engine in a motorhome, bus, etc.

Start engine heater: Press the button marked Off. The text will change to On and the button will turn green. Then set the required starting time and day. Engine heating starts at the set time and day. Heating is then active for 60 minutes and will stop automatically. The clock in the control panel must be set for the function to work.



14. Automatic temperature increase

The furnace will start at 2 AM (if the clock is set) and run as indicated for "Extra hot water" for 30 minutes (see 2.5, Domestic hot water - section 3). This is to help reduce the risk of legionella.



15. Offset (temperature adjustment)

Using this function, you can calibrate the temperature on the control panel if you notice that the stabilized room temperature is not the same as the temperature shown on the panel. This also applies to the outdoor temperature probe.

**16. High altitude mode**

The function only needs to be used if the hydronic heating system will be powered by LP Gas at altitudes above approx. 3,000 ft (1,000 m).
If the LP Gas burner runs unevenly at these altitudes, turn off the furnace (see section 1, Starting the hydronic heating system" on page 16) and then start the hydronic heating system in high altitude mode.
When heating with LP Gas at high altitudes, use propane to help obtain stable combustion.

**17. Circulation pump**

Pump settings: (Mode)

Cont.: The pump is in constant operation.

NOTICE

A remote control pump must be installed before this function can be used (see the manual for the vehicle, boat or building)

Therm: The pump is controlled by the room sensor. This is the normal mode for heat and hot water.

**18. Starting the hydronic heating system automatically**

This function is used to start the hydronic heating system automatically at a later point in time.

With automatic start, the hydronic heating system works for 24 hours and then stops. After that, it repeats the automatic start once a week; on the same day and time, as long as the function is activated. For automatic start to function, the On/Off button must be set to Off.

**19. Sound**

Provides audible alerts in different situations:

- Button for sound On and Off,
- Audible signal when hot water temperature is reached when Alde Flow* is installed and more hot water is selected
- Audible signal in the event of "Gas Failure".

**20. Resetting the heating system**

Use this function to reset the control panel to factory settings. After resetting, the panel is set as follows: the hydronic heater is in Off mode, electrical operation is in level 1, LP Gas heating is in On mode and the indoor temperature is 72 °F/22 °C. Other functions are deactivated.

**21. External start**

This function is used when starting the hydronic heating system from outside the vehicle. When external start has been activated, the control panel must be turned off. External start has three modes, Off, Ext and 120V. In the Off mode the function is turned off.

***Ext.** This function is used when starting the hydronic heating system through an external signal. When the Ext. function has been activated, the control panel must be turned off, but a 12V power source has to be connected. The desired parameters/functions for the hydronic heating system when it starts have to be set before turning off the control panel. This function requires installation of an accessory for external starts.

120V. This function is used to start the hydronic heating system when a 120V power source is connected to the vehicle from outside. When the 120V function has been activated, the control panel must be turned off but a 12V power source has to be connected. The desired parameters/functions for the furnace when it starts have to be set before turning off the control panel. (120V connected).

**22. Language**

This function is used to set the screen language. The languages available are: English and Canadian French. However, the service menu is only available in English (see chapter 2.11).

**23. Installed functions**

The accessories that are installed are activated here (see chapter 2.13).

**24. Service menu**

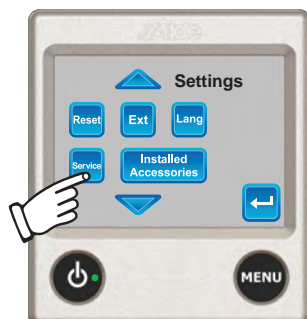
The following readings are shown here:
Glycol temperature
Hot water temperature
12V power to the furnace

To exit the Tool menu, press Return or Menu.

2.10 SERVICE MENU & RESET

• SERVICE MENU

The Service menu is accessed by pressing Service (see figure A) The function shows the readings from the hydronic heating system on the screen (figure B and C). The readings are updated once a second.



A.



B.



C.

• RESET

The panel can be reset to its factory settings by pressing Reset. After resetting, the panel will be set as follows:

Hydronic heater – Off mode

Electrical operation – 1 kW

LP Gas heating – On mode

Interior temperature – 72 °F/22 °C

Hot water – In normal mode

Other functions are switched off.

The functions that are checked under Installed functions (see chapter 2.13) will not be affected by Reset.



2.11 FAULT MESSAGES

Low battery: 12V supply to hydronic heating system has dropped below 10.8V, possibly causing system brownout. This message clears automatically when the current reaches 11V. If the voltage decreases, various error messages can also appear. These are not actual faults. Ensure that the furnace has the right voltage.

Fan restarts: Incorrect fan speed. New start attempt is made. Repeated faults result in "Fan failure". If "Fan failure" recurs after resetting, contact a dealer. If "Fan restarts" is displayed, no action is necessary.

Gas failure: Out of gas or gas is not igniting. Check that the gas cylinder is full. Try a different gas cylinder, ensuring it is propane gas. Check the gas regulator and that any isolation valves are open and not frozen. Ensure that gas is available.

Overheat red fail: Overheat (red cable). Bleed the system of air. Check the fluid level in the expansion tank. It should be approx. 0.5 in (1 cm) above the Min mark when cool. Check that the circulation pump is responding. Wait 15 mins for the fluid to cool down. This fault can arise if the hydronic heating system is run at high power at the same time as there are air pockets in the heating system; the hydronic heating system should then be vented properly. If the fault recurs, contact a dealer.

Overheat blue fail: Overheat (blue cable).

Overheat PCB: Failsafe in the hydronic heating system has been triggered. Check the fluid level in the expansion tank. It should be approx. 0.5 in (1 cm) above the Min mark when cool. Check that the hydronic heating system compartment is ventilated and that the vents are unobstructed. Do not stow items in the hydronic heater compartment.

* **Window open:** Optional window sensor has been triggered; gas heating is suspended. This message clears automatically and gas heating resumes when the window is closed.

Heater not found: Break in comms between the Alde control panel furnace. Check the cable between the Alde control panel and the furnace.

3rd party C. fail: Communication fault between Alde's panel and external panel.

Panel failure: Moisture is trapped in the control panel. Remove the Alde control panel from the vehicle and air it in a warm, dry place overnight.

Red connection failure: Problem with the red cable or red contacts. No communication is available with 3020 furnace, A/C or iNet.

Yellow connection fail: Problem with the cable between the Alde panel and the CI master panel or its connectors.

To reset some of the faults and reboot, close the furnace from the control panel and disconnect the 120V to the vehicle and disconnect 12V from the furnace.

2.12 ACTIVATING INSTALLED FUNCTIONS

The first time you use the hydronic heating system, check that the right accessories/functions are activated. This also applies when you supplement the hydronic heating system with accessories/functions. Activate accessories/functions by pressing the installed accessories, (see fig. A) and ticking the respective function/ accessory to activate.



A.



B.



C.

The respective box should be ticked if you have:



Connected an external panel.



Connecting load monitor



Connected a Booster



Connected a 12V pump to the floor heating.



Connect an Alde Flow* to increase the hot water capacity.

If an Alde Flow* (Art. No. 3020 163) is installed and the panel is in extra hot water mode, up to 1 gallon (3.78 liters)/minute of hot water can be supplied.



Connected a 12 V pump for heating the vehicle's engine through the Alde heating system.

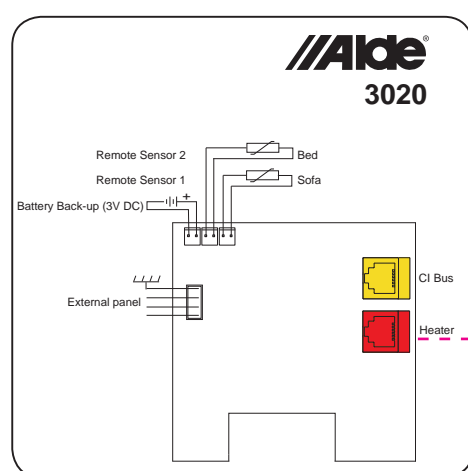
2.13 CONTROL PANEL 3020 623 CABLE CONNECTIONS

Connect accessories to the control panel as shown in the diagram below.

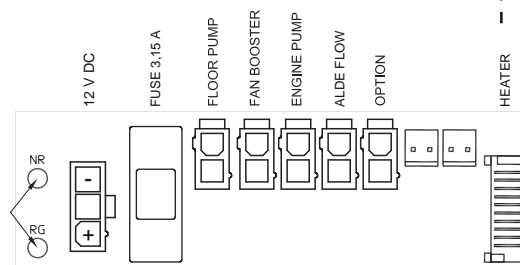
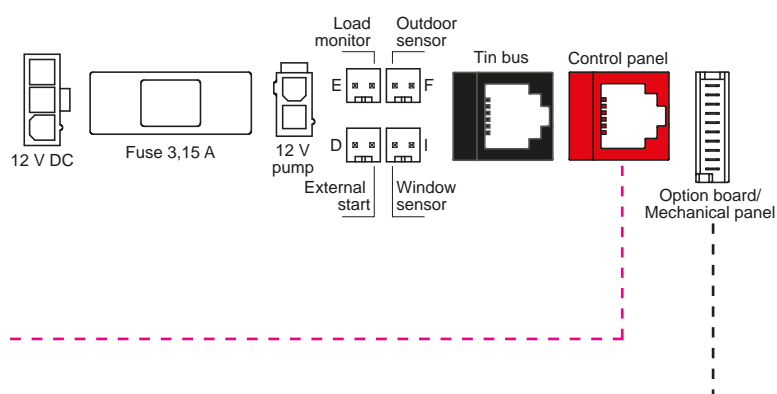
NOTICE

Do not clamp or bind 12V cables or sensor cables together with 120V cables. It is preferable not to place the cables close to each other. If the cables are bundled, the risk of shutdown increases.

Rear side of control panel



Circuit board on Compact 3020 HE



Optional board for Compact 3020 HE

PRODUCT WARRANTY REGISTRATION ALDE COMPACT 3020

Product Warranty Registration: Alde 3020 RV Furnace

Thank you for purchasing the compact 3020 Furnace. Registering your Alde Product is quick, easy and can help obtain more efficient warranty service in the event of a problem.

The registration is done online at:
<http://www.alde.se/usa/warranty-registration/>



Alde International systems respects your privacy and will not disclose (share, sell or divulge) any personal information, such as address, e-mail, telephone and fax numbers, to third parties.



The serial number and model number you will find on the label located on the top of the Alde 3020 RV Furnace.

Alde Corp
4018 NE 112th Ave D-5 • Vancouver • WA 98682
Phone: 877-660-9814; 360-597-3017
Fax: 360-717-7077
info@alde.us • www.alde.us

ETL Listed
Conforms to ANSI
std Z21.13
Certified to CSA
std 4.9

DIRECT VENT BOILER.
Certified for use in recreational vehicles
For installation on combustible flooring.
ANSI Z21.13-2014 • CSA4.9-2014 Low Press. Boiler

CHAUDIERE À ÉVENT DIRECT.
Certifié pour une utilisation dans les véhicules de loisirs
Installer seulement sur un plancher combustible.
ANSI Z21.13-2014 • CSA4.9-2014 Low Press. Boiler.

This boiler must be installed in accordance with local codes if any; if not, follow ANSI Z223.1/NFPA 54 or CAN/CSA B149.1, Natural Gas and Propane Installation Code, as applicable.

Cette chaudière doit être installée selon les règlements locaux; en l'absence de tels règlements, se conformer aux codes d'installation ANSI Z223.1/NFPA 54, ou les Code d'installation CAN/CSA B149.1, selon le cas.

Serial no.	123456789
Model no.	123456789

Heat Input Propane:	11000 / 18700 Btu/hr	3.2 / 5.5kW
Manifold pressure:	3.2" / 10.5" w.c.	(0.8, 2.7kPa)
Maximum inlet gas pressure:	14" w.c.	(3.5kPa)
Minimum inlet gas pressure:	10.5" w.c.	(2.7kPa)
Power Input:	120vac, 3.15amps	
Electrical elements:	120vac, 60Hz, 16 amps, 1.9kW	
Maximum radiator pressure:	7.3 PSI	0.05MPa
Maximum domestic hot water pressure:	44 PSI	0.3MPa
Domestic hot water volume:	2.1 US gal	(8.4L)

CLEARANCE.
The boiler is also for closet installation, minimum measurement for the space is 25.5 x 17 inches (650x440mm), height 12.6 inches (320mm) and must be ventilated with a ventilation area of at least 10.8 in² (70 cm²).

DÉGAGEMENT.
La chaudière peut également être installée dans un garde-robe, les dimensions minimales de l'espace sont de 25,5 x 17 po (650 x 440 mm) et celui-ci doit être bien ventilé avec une surface d'aération d'au moins 10,8 po² (70 cm²).

This appliance requires a special venting system. Refer to installation instructions for parts list and method of installation.

Cet appareil doit être équipé d'un système d'évacuation particulier. Voir les instructions d'installation pour la liste des pièces et la méthode d'installation.

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury (exposure to hazardous materials)* or loss of life. Refer to user's information manual provided with this boiler. Installation and service must be performed by a qualified installer, service agency or gas supplier.

AVERTISSEMENT: Une installation, un réglage, une modification, une réparation ou un entretien non conforme aux normes peut entraîner des dommages matériels, des blessures (exposition à des matières dangereuses) ou la mort. Lisez attentivement le mode d'emploi fourni avec la chaudière. L'installation et l'entretien doivent être effectués par un installateur ou un service d'entretien qualifié ou le fournisseur de gaz.

FOR YOUR SAFETY
Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

POUR VOTRE SÉCURITÉ
Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.

WARRANTY STATEMENT ALDE COMPACT 3020

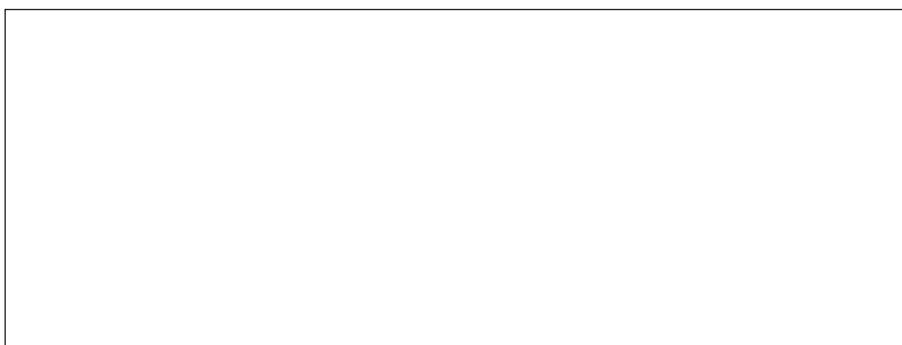
Alde Corp warrants to the original owner and subject to the below mentioned conditions, that this product will be free of defects in material or workmanship for a period of one year from the original date of purchase.

Alde Corp liability hereunder is limited to the replacement of the product, repair of the product or replacement of the product with a reconditioned product at the discretion of the manufacturer.

This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material workmanship.

This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For a period of two years from the date of purchase, Alde Corp will replace the complete water tank if the inner tank leaks due to corrosion. This warranty includes reasonable labor charges required to replace the complete heater tank.
2. For one year from the date of purchase, Alde Corp will repair or replace any part defective in material or workmanship. This warranty includes reasonable labor charges required to remove and replace the part. Service calls to customer's location are not considered part of these charges and are, therefore, the responsibility of the owner.
3. This warranty does not cover the following items classified as normal maintenance:
 - a. adjustment of the gas pressure.
 - b. cleaning or replacement of the burner orifice.
 - c. cleaning or adjustment of the combustion fan.
 - d. cleaning or adjustment of the gas valve.
 - e. cleaning or adjustment of the thermocouple.
 - f. adjustment of the pressure relief valve.
 - g. replacement of the thermal cut-off device.
4. In the event of a warranty claim, the owner must contact, in advance, either an authorized Alde Corp Service Center or the Alde Corp Service Department. Warranty claim service must be performed at an authorized Alde Corp Service Center (a list will be provided at no charge) or as approved by the Consumer Service Department: Alde Corp. 6700 NE 152nd Ave Suite 160 Vancouver, WA 98682. Phone: 877 860 9814/360 608 4803. Fax: 360 718 7077. info@alde.us www.alde.us).
5. Return parts (heaters) must be shipped to Alde Corp "Prepaid". Credit for shipping costs will be included with the warranty claim. The defective parts (or Alde Compact 3020) become the property of Alde Corp. Products must be returned to the Consumer Service Department: Alde Corp. 6700 NE 152nd Ave Suite 160 Vancouver, WA 98682. This warranty applies only if the unit is installed according to the installation instructions provided and complies with local and state/provincial codes.
6. The warranty period on replacement parts (or heater) is the unused portion of the original warranty period or ninety (90) days, whichever is greater.
7. Damage or failure resulting from misuse (including failure to seek proper repair service), misapplication, alterations, water damage or freezing are the owner's responsibility.
8. Alde Corp does not assume responsibility for any loss of use of the vehicle, loss of time, inconvenience, expense for gasoline, telephone, travel, lodging, loss or damage to personal property or revenues. Some states/provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.
9. Any implied warranties are limited to one (1) year. Some states/provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state/province to province.
10. Replacement parts (components or tanks) purchased outside of the original Alde Compact 3020 warranty carry a 90 day warranty. This includes the part at no charge and reasonable labor charges to replace it. Alde Compact 3020 is designed for use in recreational vehicles for the purpose of heating radiators and water as stated in the "data plate" attached to the heater. Any other use, unless authorized in writing by the Alde Corp. Engineering Department, voids this warranty.



Alde Corp

6700 NE 152nd Ave Suite 160 • Vancouver • Washington 98682 • USA
Phone: 877-860-9814 • Fax: 360-718-7077 • info@alde.us • www.alde.us

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Over the years of running a mobile RV repair service, having a dedicated place to access service manuals for all the different appliances and components found on RVs was something that I always had a desire to create.

I hope this resource makes your RV repairs easier, as it has mine, but please be careful and follow proper safety practices when attempting to repair your own RV.

If in doubt, please consult with a professional RV technician!



DARREN KOEPP - OWNER, MY RV WORKS, INC.

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