

Wallas Nautic 30D Operator's Manual with Installation Guide

(diesel furnace for marine use only)



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Operation

Nautic 30D is a marine diesel furnace with no open flame, intended for recreational use. Use as a live aboard product will mean more frequent servicing not covered by warranty. The furnace draws in preheated combustion air and exhausts through coaxial vent pipe. This process improves performance efficiency and provides a pressure buffer against wind forces on the vessel exterior. As the fuel burns, the released heat is transferred to the air circulating in the air ducts via heat exchanger. The furnace heating power is fully adjustable by way of a rheostat. The return and fresh makeup air is brought to the heat exchanger through the perforated body of the furnace. The furnace is intended for mounting in a space near or in the living area, with its location acting as an inlet plenum. The furnace can also be used as a ventilator, circulating air in the boat without heating through the air ducts. This keeps the air fresh in the boat in hot weather. The heating capacity of the device is best suited to 25' – 35' boats. Control panel options include a Basic Control Panel with indicator lamps or a Digital Info Control Panel. The furnace is made entirely of marine grade materials.

Table 1: Technical details of furnace 40D.

TECHNICAL DETAILS

Fuel	Diesel #1,#2, kerosene, JP4, Klean Heat
Operating voltage	12 V DC
Fuel consumption	0.026 – 0.078 US gph (3.4 -10.1 oz.)
Heating capacity	1 – 3 kW (3,500 – 10,500 btu)
Heating air volume	84 cfm
Ventilation air volume	67 cfm
Power consumption	1.0 – 1.9 A running, 8 A for about 6 min at ignition.
Dimensions	15 1/4" x 12 1/8" x 5"
Weight	Approx. 17 lbs
Maximum permitted length of exhaust hose	6.5' (Ø28mm + 45 mm)
Maximum permitted length of fuel hose	26'
Maximum permitted length of warm air duct	26'
Applicable exhaust through hull fittings	3468, 2467 and 2460
Accessories	3004 Basic Control Panel, 3005 Info Control Panel



Package contents

- Furnace
- 1 pc Accessory Bag
- 4 m Power cord
- 4 m Fuel hose with filter and adapter kit
- 1 pc Mounting bracket

Contents of the accessory bag:

- 6 pcs Mounting bracket screw 5 x 16
- 2 pcs Mounting bolt M8 x 120
- 2 pcs Corrugated base plate M8
- 1 pc Hose clamp 20/32
- 2 pcs Air duct fixing clamp 60/80
- 1 pc Fuse box bag

Mounting the device

Attach the furnace mounting bracket to the bulkhead (figure 2). Attach the furnace to the mounting piece by clicking the rails of the mounting piece to the grooves in the sides of the furnace (figure 3). Lock the furnace in place through its suspension loops with the two long mounting bolts (figure 4).

Mounting the control panel

Both control panels are attached to the wall with the enclosed screws (figure 5). If desired, it is possible to flush mount by removing the collar of the control panel, although this collar needs to be used on the Info Panel if the thermostatic feature is to be functional.

NOTE: This furnace is made for marine use at or near sea level. **Not for unattended use.**

Space Requirements

The furnace may be mounted either on a bulkhead or under the deck, and should be vertical when the boat is on an even keel. Although the furnace can withstand some tilting and large angles temporarily, the burner will not perform optimally if it is constantly at an angle.

The installation must maintain a minimum of 8 inches under the furnace to facilitate maintenance.

To avoid galvanic corrosion, the furnace should be isolated from the metal framework of the boat.

Take into consideration that the standard length of the control panel harness is 20ft. A 33ft extension is also available.

Exhaust pipe

The longest permissible exhaust gas pipe is 6.5ft. Exhaust runs over 4' should not have more than 360 degrees of turns.

The exhaust through hull fitting may be installed into the hull, the transom or the deck, depending on fitting type, hull design and other factors. If a deck fitting is desired and heavy water on deck is expected, then a closeable deck fitting (2460) with an extension (2469) should be used. On heeling sailboat through hull applications, the through hull fitting should be installed as far aft as possible, preferably at the stern. Recommended distance from the through hull fitting to the surface of the water is at least 12 inches.

Exhaust gas is hot! The exhaust pipe and fittings must be insulated well and installed away from flammable materials. Air must be allowed to flow freely past either the through hull or deck fitting. Please contact Scan Marine for information.

Figure 2: Attaching the mounting piece to the bulkhead with 5 x 16 standard screws.

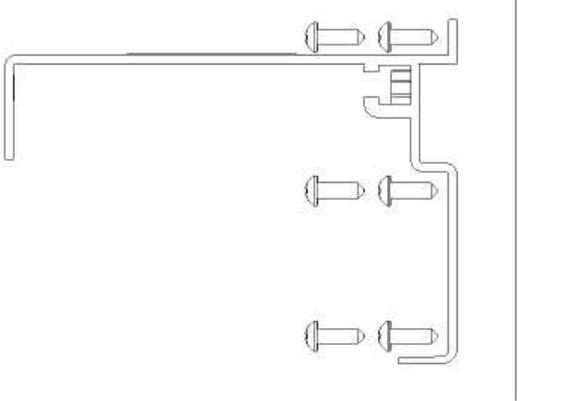


Figure 4: Attaching the furnace to the mounting bracket.

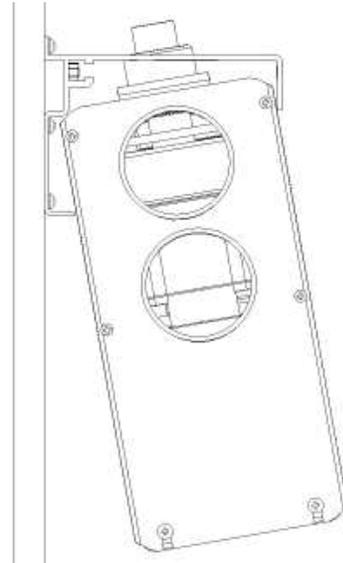


Figure 3: Locking the furnace in place with two M8 x 120 locking bolts.

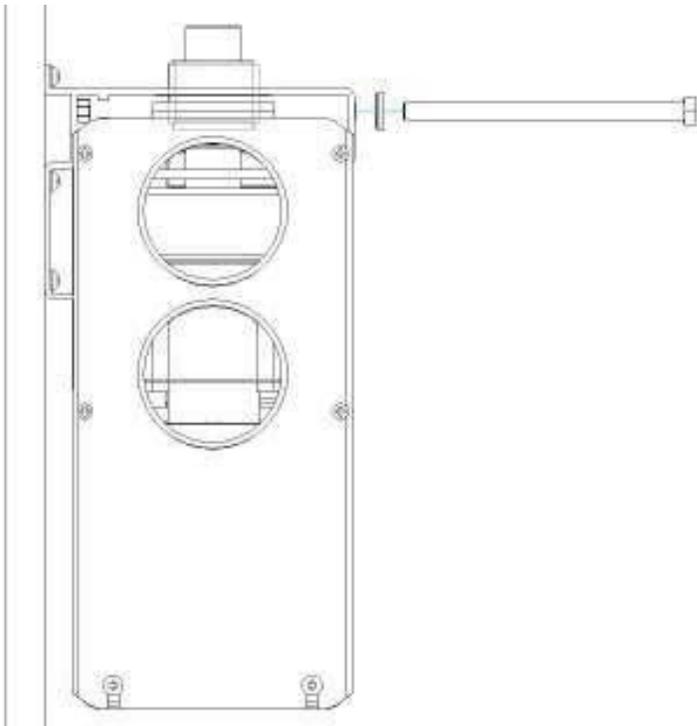
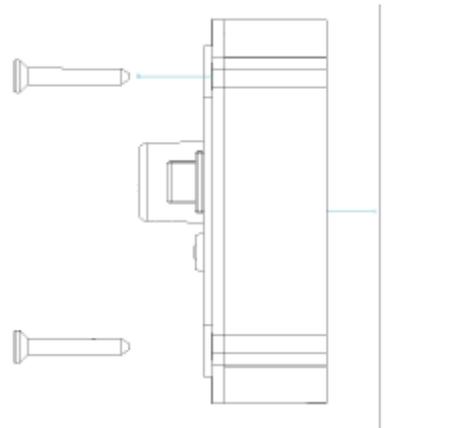


Figure 5: Attaching the control panel.



Connections

Make the connections for the heater as shown in the figures below.

Figure 6:

- a) The exhaust gas pipe and the heater's connector must overlap at least 1.5" to prevent any flow leakage.
- b) The jacket tube is attached with a hose clamp to the heater's connector.

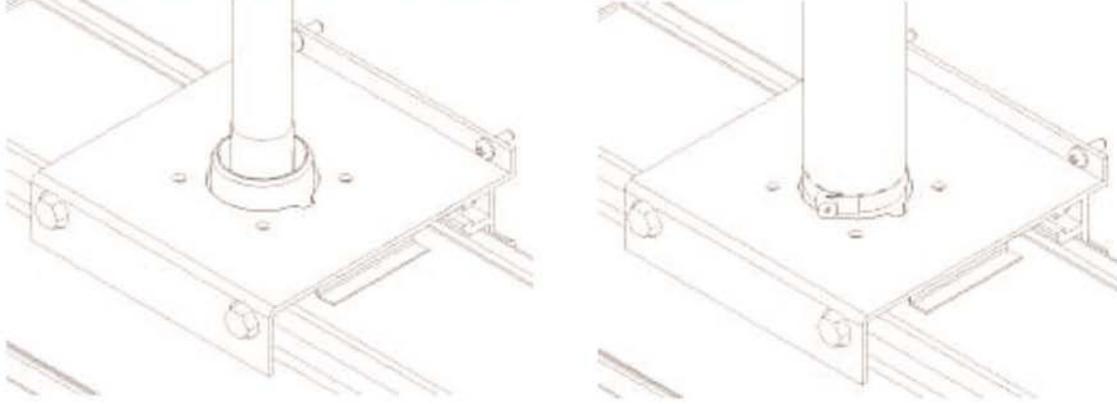


Figure 7: The pipes of the air duct system are attached with hose clamps.

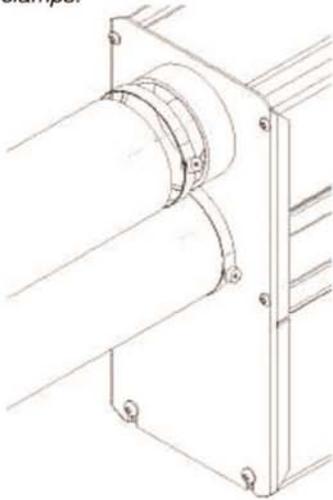


Figure 8: Connections of the fuel hose, power cord and control panel.

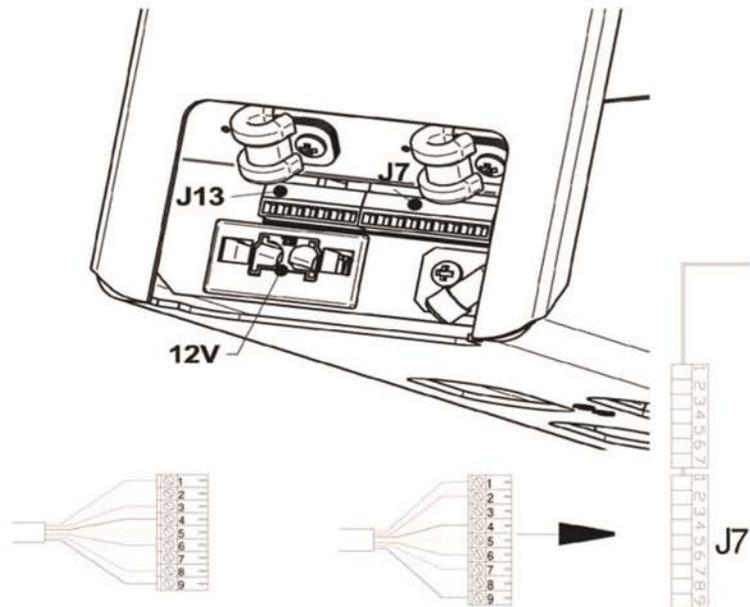
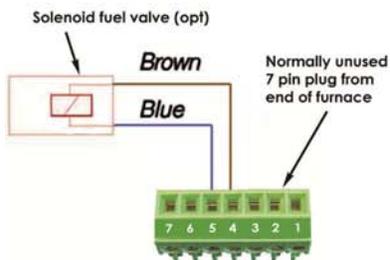


Figure 9: Wiring diagram of the solenoid valve.



Wires in the Info Control Panel

- 1 Green
- 2 Empty
- 3 Pink
- 4 White
- 5 Yellow
- 6 Brown
- 7 Empty
- 8 Grey
- 9 Blue

Wires in the Basic Control Panel

- 1 Green
- 2 Pink
- 3 Empty
- 4 White
- 5 Yellow
- 6 Brown
- 7 Grey
- 8 Empty
- 9 Blue

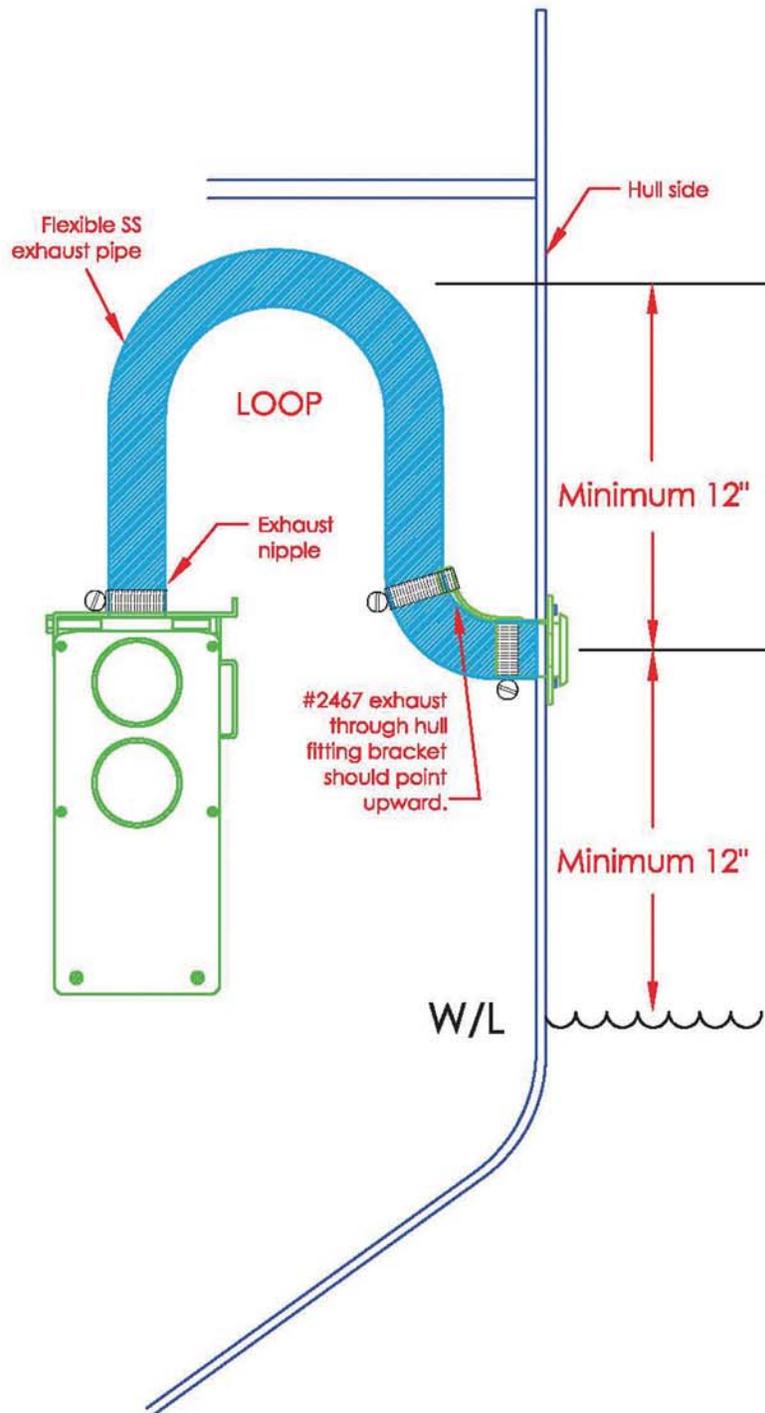
Wallas Furnace Exhaust Routing:

If your Wallas device is to be mounted in a location where the exhaust nipple is more than 12" above the through hull point, simply route the exhaust pipe from the stove to the through hull, without any low points or "bellies" in the run.

If your Wallas device is to be mounted in a location where the exhaust nipple is less than 12" above the through hull point, or you can't avoid having "bellies" in the run, use the installation method shown here. The loop shown prevents any water from entering the system.

Exhaust pipe should be covered with fiberglass insulating sock.

Configuration will be the same for either single or duplex exhaust systems.



Location in relation to the fuel tank.

The longest permissible fuel line is 26ft; the supplied length is 13ft. The fuel line must always contain a Wallas fuel filter.

We recommend that the furnace is placed 15 to 24 inches higher than the average level of fuel in the fuel tank. The fuel pump has been adjusted for this difference in height.

If the fuel level in the tank is more than 15 inches above or more than 60 inches below the furnace, the pump must be adjusted according to separate instructions available from your Wallas service center.

A solenoid valve must be installed into the fuel line near the fuel tank if the surface of the fuel is above the furnace.

Warm-air ducting

The furnace is equipped with 2 x 3 inch (75mm) blower connections. In most cases, two outlets are sufficient, installation of more than three outlets is not generally recommended due to air speed drop at the individual vents. Short radius turns should be avoided where possible.

At full power air velocity/pressure from the upper 30D warm air outlet is slightly (about 20%) greater than from the lower outlet, while the lower outlet air temperature will be about 7% warmer than the upper outlet. These outlets share a common plenum, however, so the flow and temperature difference between the outlets is reduced once ducting is attached.

The ducting attaches to two 3 inch (75mm) outlet adaptors at the end of the furnace.

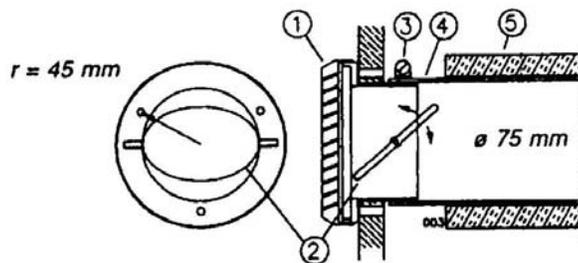
The longest permissible length of one branch of the warm air duct is 26 ft.

The minimum diameter of the warm air ducts is 3" to prevent excessive back pressure, based on a minimum of three outlets.

The 3 inch outlet vents installed at the ends of the warm air ducts are equipped with an air valve to regulate the flow of warm air into the cabin. The air valve should be removed from the vent in the branch leading into the area needing the most heat. The flow of air to other areas may be controlled by adjusting the position of the appropriate valve. (See Figure 11)

Figure 11: Warm-air vent details

- 1. Vent grid,
- 2. Air Valve,
- 3. Clamp,
- 4. Air duct,
- 5. Insulation.



WALLAS 30D Operator's Manual and Installation Guide

The use of a booster fan (P/N 3415) is recommended for ducts of excessive length. Information about the booster fan and its use can be obtained from your Wallas dealer.

All ducts over 3 ft. long, passing through unheated spaces should be insulated and all duct connections should be secured with hose clamps.

Inlet air considerations

Inlet air for the Nautic 30D furnace is taken through the sides and bottom of the furnace housing. This air is then blown over the heat exchanger and out the warm air ducts into the cabin. Please refer to Figures 13 and 14.

The location of the furnace acts as the makeup air plenum for the furnace. If mounted in the cabin itself, then all of the makeup air will be warm air from the cabin. If the furnace is mounted in a closet, hanging locker, under or behind seating, etc., then that area can be used to control the kind of air that enters the furnace as makeup air.

Make-up air taken from the cabin is typically warm (because the furnace has already warmed it), moist (because of condensation and respiration) and oxygen poor (because of respiration). Makeup air taken from outside the cabin is typically cool, dry and oxygen rich. If a blend of these kinds of air can be fed into the location of the furnace, then heating, drying and oxygen replenishment to the cabin can be accomplished.

If the furnace is mounted in a hanging locker or closet, that space will become a very active drying and warming space. This can be a very important addition to any boat.

If the furnace is mounted in an away space like a lazarette, then warm air from the cabin should be ducted to the mounting area in order to improve furnace efficiency. All ducting to and from the cabin should be insulated if it passes through unheated areas.

The 30D furnace is not intended for mounting in engine rooms of any kind. Please consult with Scan Marine if you have questions.

Operation Using Basic Control Panel

Heating

The furnace starts when the power switch is turned to the HEAT position. There is first a self testing phase during which the yellow and red lamps blink in turn. Then the yellow power indicator lamp will light up and the actual ignition process will begin. Ignition takes about 5 minutes during which the red heating lamp will light up. The heating lamp is lit when the combustion has stabilized in the burner.

After ignition the furnace can be adjusted with the control panel. The furnace will not necessarily start on the first try after installation, when the fuel hose is empty. Failure to start is indicated when the heating light starts to blink after the start-up. If this happens, move the power switch to the OFF position. The furnace cannot be restarted until the cooling fans have stopped and all indicator lamps have gone out. Once the indicator lamps have gone out, restart the furnace by switching it to the HEAT position.

Stopping

Turn the power switch to the OFF position to switch off the furnace. The cooling cycle of the furnace takes about 10 minutes after

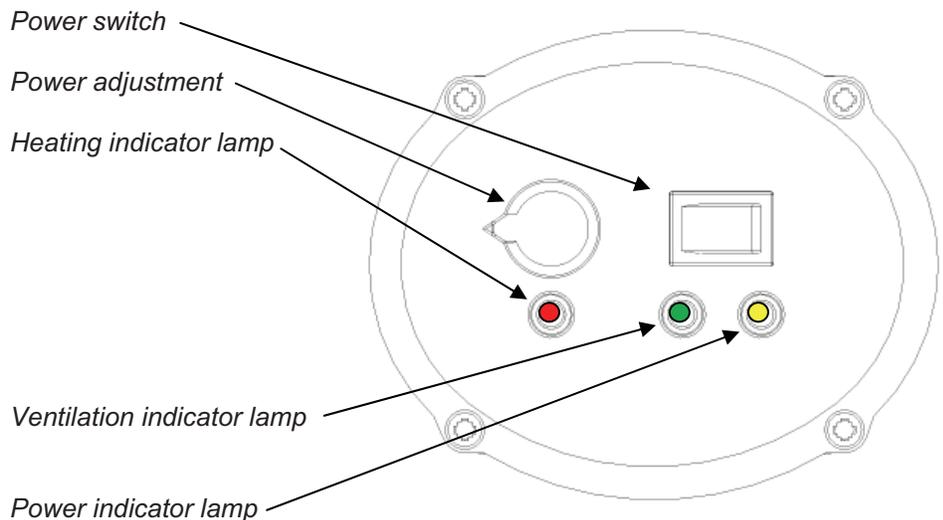
switch-off. During cooling the power lamp is lit, and the red heating lamp blinks. After cooling all indicator lamps will go out.

Ventilation

Turn the power switch to VENT position to start ventilation. Both the yellow power indicator lamp and the green ventilation indicator lamp light up immediately. The efficiency of the ventilation air flow can be adjusted with the power adjustment knob. Turn the power switch to OFF position to stop ventilation.

BASIC CONTROL PANEL

Figure 12: Basic Control Panel 3004



Servicing

The technical parts of the furnace should be serviced according to general servicing recommendations of Wallas equipment. The safety functions in the furnace's electronics switch the furnace off in case of an error.

Fault Indication

When using a Basic Control Panel, the indicator lights show the cause of a system fault. Reset the fault by disconnecting the power from the furnace (i.e. unplug the power leads from the furnace). The cause of a fault must always be examined and repaired before the next start-up.

If necessary, contact Scan Marine Equipment for assistance.

System Fault Indications:

Table 1: Error state indicator lamps in the #3004 basic control panel.

Overheat	Red light blinks:	- - - - -
Flame out	Red light blinks:	- - - - -
Undervoltage (at ignition or after the flame is out)	Yellow light blinks.	- - - - -
Glow plug, combustion blower or ventilation blower failure	Red light blinks:	- - - - -

If you purchase the #3005 Info Control Panel, please refer to the user manual for that device.

Using an external thermostat on Nautic 30D heater with 3004 control panel

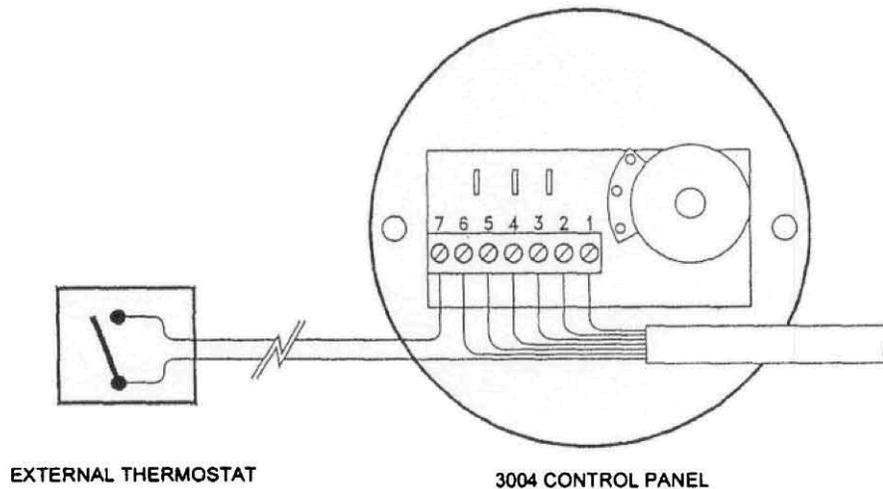
An external thermostat can be connected to the 3004 control panel cable as shown in Figure 13. (Connector pin 7 = grey wire). Because the current is small the wire thickness is not significant.

Any thermostat with closing contacts is suitable. When installing, please note the thermostat manufacturer's instructions.

The thermostat will not switch the heater on or off, but will adjust the heater between minimum power and the user determined power setting.

The desired temperature is set on the thermostat, and the heater power setting is set to the user's requirement (determined by environment / outside temperature).

Figure 13



Installation checklist:

- When choosing the place for the device, remember the need to detach it for service.
- Ensure sufficient air supply for the device..
- Ensure sufficient circulation of air in the boat.
- Openings for incoming heating and ventilation air are placed at a minimum distance of 16" away from the fuel fill fitting and the tank breather fitting.
- The rated voltage of the device is 12 VDC, 12.6+ VDC required at unit prior to start.
- The current for the device is taken directly from the battery terminals or a battery buss using as short of cables as possible. See table 2.

Table 2

Cable Length in feet	Wire Size (AWG)
0-13	10
13- 20	8
Over 20	Contact Scan Marine

- An inline fuse is installed in the positive power cable near the battery.
- The fuel for the unit is from a separate tank pickup, not through the engine pickup.
- Install a filter in the fuel line. Note the need for replacing the filter periodically.
- Cut the fuel line to a suitable length during installation. Ensure that the fuel line joint surfaces are clean before assembling. Tighten the fuel line joints carefully and firmly, using a 12mm wrench. For initial installation, assemble & tighten fully, then loosen and re-tighten to assure an airtight seal.
- If the unit is situated lower than the fuel surface in the tank, install a solenoid valve in the fuel line close to the fuel tank.
- Note the temperature of the exhaust while choosing the place for installing the through hull.
- Any water entering the through hull is prevented from reaching the unit by using a gooseneck, a drain lock or a sealable exhaust fitting.
- Boats with a metal hull must isolate the unit and the through hull from the hull of the boat to prevent galvanic corrosion.
- Remember to read the instructions for installation, operation and service before installing the unit.

Figure 14: Example of typical Wallas Nautic 30D installation.

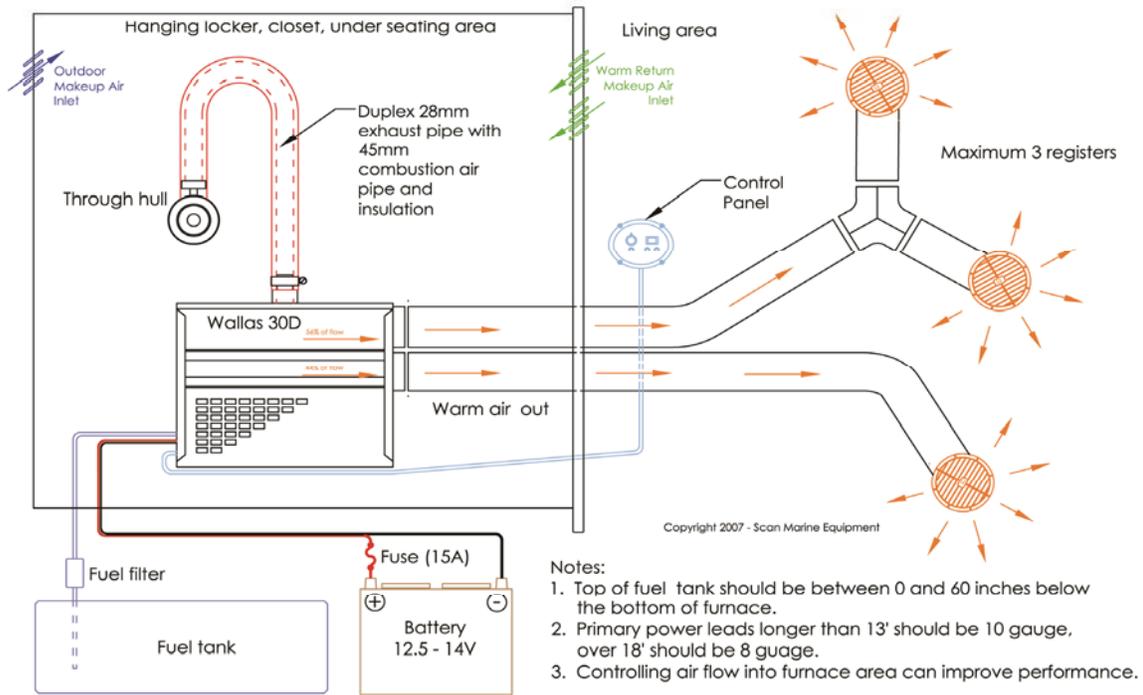
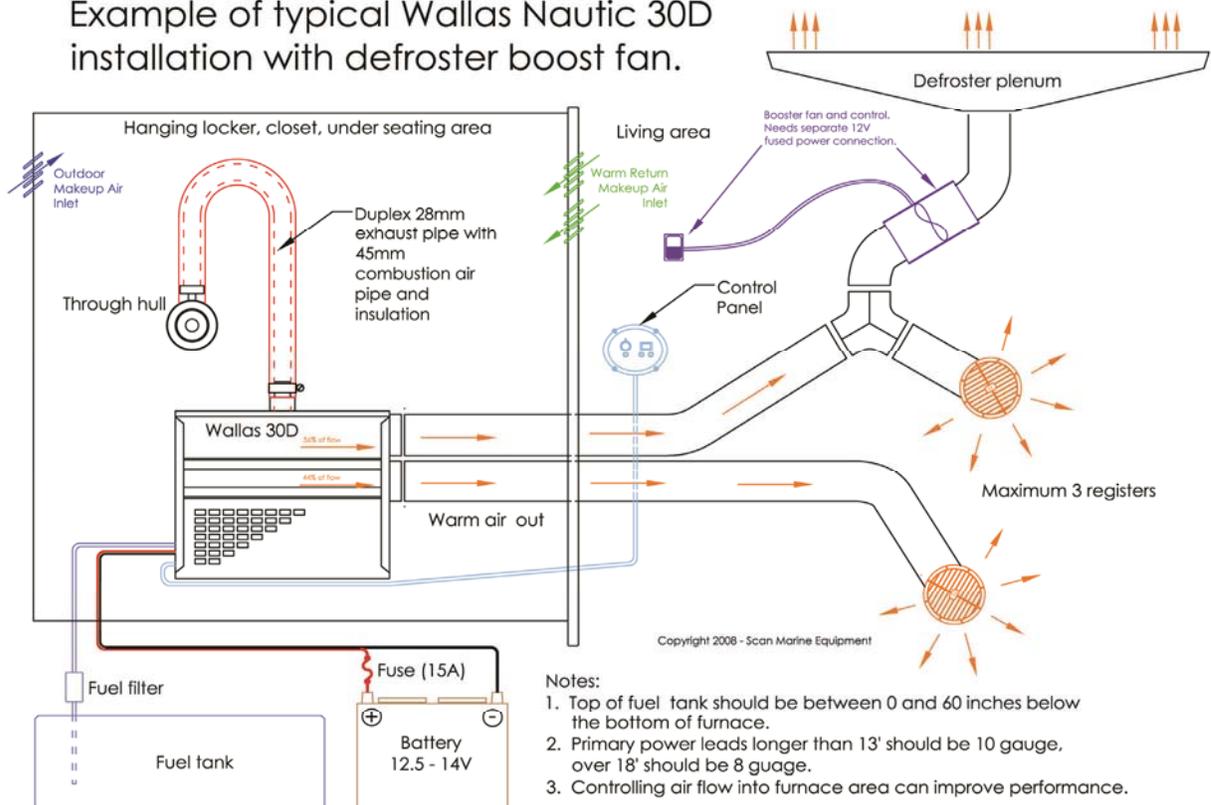


Figure 15: Example of typical Wallas Nautic 30D installation with defroster boost fan.



Fuel Lines & Filters

Wallas diesel products come with polyethylene fuel line kits shipped in the carton, which include a fuel filter & miscellaneous adapters.

If you purchase a Wallas day tank, these fuel line kits are not used, being replaced by a complete #367215 tank adapter kit. The #367215 kit has its own tank end filter. Only one filter should be used.

The fuel lines are attached to the furnace using a three part compression fitting, shown in the images to the right. Correct first assembly of the fuel line fitting and mounting to the Wallas appliance is very important.

1. Make sure the fuel line end is cut cleanly and squarely.
2. Slide the nut on the fuel line, with the threads toward the line end.
3. Push the acorn over the end of the fuel line.
4. Slide the ferrule into the end of the fuel line until the flange sits snugly against the plastic tube.
5. Check the fuel fitting on the Wallas product and the acorn/ferrule end, making sure they are clean and free of debris.
6. Place the end of the acorn against the Wallas product's fuel fitting and slide the nut against the threads.
7. Spin the nut onto the threads and tighten very firmly. This process compresses the fitting.
8. Loosen the nut and re-tighten for a fully sealed fit.

Please note: ABYC and NMMA rules may require the use of fire rated fuel lines in new vessel applications. Please contact Scan Marine for these products and their correct application.

Figure 16

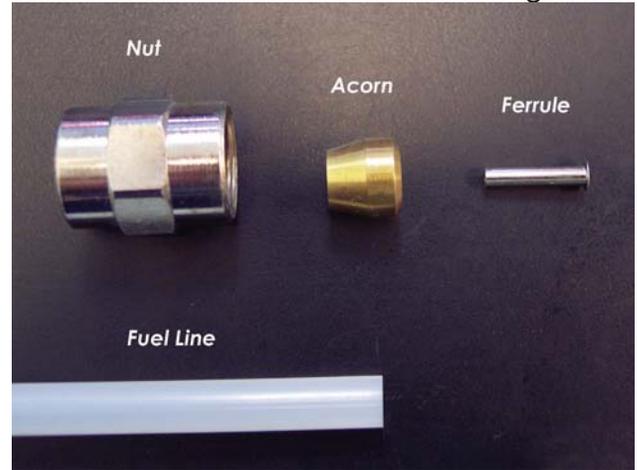
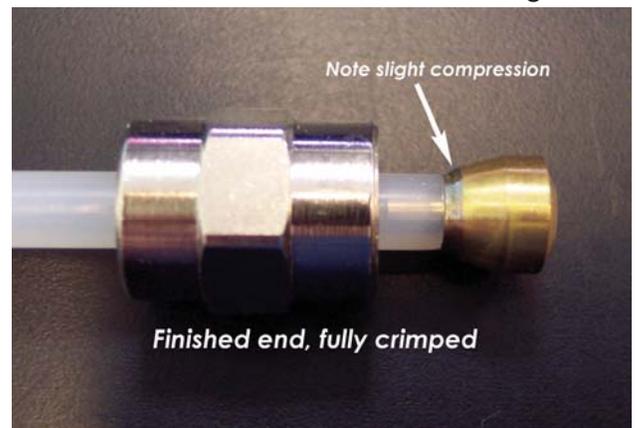


Figure 17



Figure 18



WARRANTY:

Wallas Marin Oy (the manufacturer) shall be liable for eventual defects in the raw material or manufacture of the products and items sold by the importer for 12 months from the day of sale on the following conditions:

1. Measures to take in the event of a defect:

- a) Look on the check list on the website (www.wallas.com) to make sure the defect in question is not related to use, i.e. a simple problem not covered by the warranty.
- b) Notification of the defect must be given in writing immediately if possible and no later than two months after the appearance of the defect. After the warranty period ends, a referral back to a notification at the time of the warranty period is not valid unless the notification was made in writing. A valid receipt or another reliable official document of the time of purchase is required for the warranty.
- c) For repairs under warranty, the customer takes the product to the place of purchase (the seller is responsible for warranty issues) or to an authorized repair shop. Warranty service is not to take place outdoors or on a boat. The warranty does not cover costs for the removal and securing of the device or for damage caused by the incorrect packing of a device that has been sent for repair.
- d) The customer must provide the following information in writing for warranty service:
 - Description of the problem
 - A description of where and how the device was installed
 - Product type and serial number

2. The warranty is not valid in the following cases when:

- Components which are not approved by the manufacturer have been added to the device and/or if its structure has been modified without the consent of the manufacturer.
- The instructions for installation, operation or maintenance have not been followed.
- Storage or transport has been inappropriate.
- A problem has resulted from an accident or damage, which Wallas has had no control over (force majeure).
- Problems arise from normal wear and tear. The fan motors of the heaters (and ventilation hood assembly (85D+270) have a natural wear limit of 1500 hours. Exceeding this limit within the warranty period means the customer is no longer entitled to replace the motors under warranty.
- The product has suffered from improper handling, unsuitable fuel, low voltage, excess voltage, damage due to dirt or water.
- The device has been opened without the explicit permission of the importer
- Components other than Wallas' spare part components have been used in the repair of the device.

3. Repairs carried out during the warranty period do not renew or alter the original warranty period.

4. Indirect damages arising from a defective product are not covered by this warranty.

5. The warranty is only valid for boat products that have been installed in boats and for collage products that have been installed in cottages. The warranty does not cover installation in vehicles or other areas.

6. To enable us to offer a high standard of service, the seller must keep a buyer register to inform buyers, if necessary, of eventual matters concerning the warranty period or technical information, modifications or the updating of the device after the warranty period has expired.

7. This warranty does not limit rights written down in the consumer protection laws. When making a warranty claim, the customer must provide proof that the maintenance and safety Instructions have been thoroughly followed.

This warranty does not apply to defects which have arisen due to carelessness in following installation, operation and maintenance instructions.

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30D

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