

# Wallas 85DU, 85DP Stove

## Owner's Manual and Installation Guide

Includes instructions for  
use with 270 blower lid.



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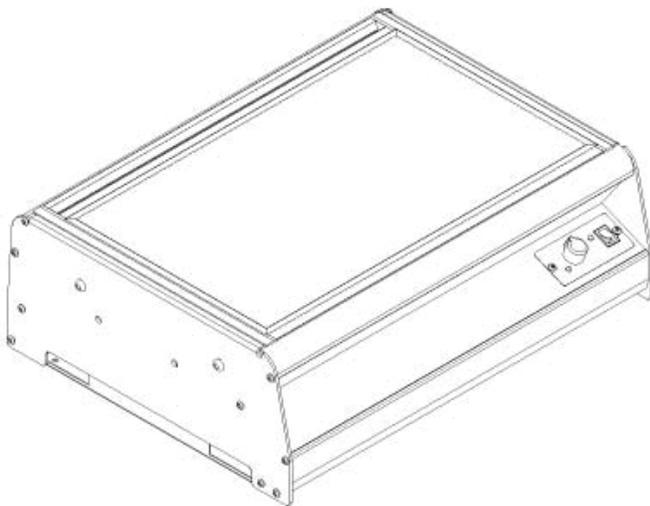
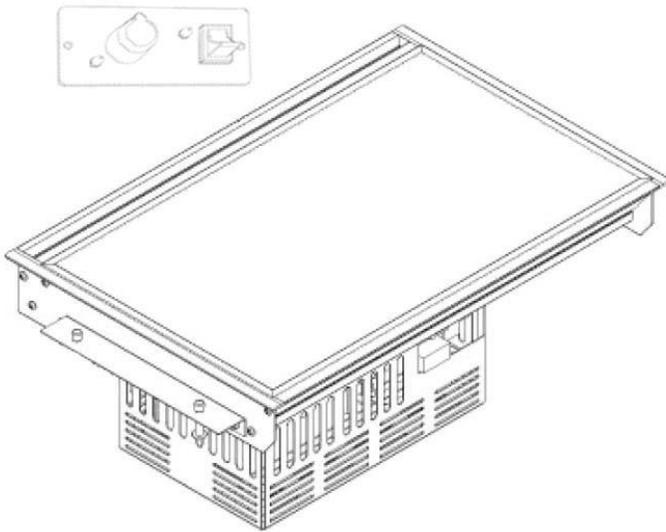
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2144 Westlake Avenue N. Suite D Seattle, WA 98109 USA 206-285-3675  
Fax: 206-285-9105 [service@scanmarineusa.com](mailto:service@scanmarineusa.com) [www.scanmarineusa.com](http://www.scanmarineusa.com)

# Wallas 85D Owner's Manual with Installation Guide

Figure 1: SafeFlame 85DU & 85DP



## Contents of the package

### 85DU:

- 1 pc Stove, 1 pc Control panel,
- 1 pc Accessory bag,
- 4 m Power cord,
- 4 m Fuel hose with filter,
- 2 pc Mounting brackets

### Contents of the 85DU accessory bag:

- 2 pcs control panel screw  
3.5 x 15
- 4 pcs mounting piece screw  
M6 x 12
- 4 pcs tightening screw M6 x 30
- 4 pcs protection plug
- 4 pcs locking nut M6
- 1 pc Hose clamp
- 1 pc Fuse box bag

### 85DP:

- 1 pc Stove,
- 1 pc Accessory bag,
- 4 m Power cord,
- 4 m Fuel hose with filter,
- 2 pc Mounting brackets

### Contents of the 85DP accessory bag:

- 4 pcs mounting screw 4.2 x 13
- 2 pcs locking screw M4 x 6
- 1 pc Hose clamp
- 1 pc Fuse box bag

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## Operation

The SafeFlame 85D is a modern diesel stove with no exposed flame. The stove extracts combustion air from the boat and blows the exhaust gases overboard. The exhaust gas will carry indoor moisture out of the boat. Therefore when the stove is used, the cabin air is replenished so the boat and stays warm and dry.

As the fuel burns, the resulting heat is blown up under the left side of the ceramic top, then moves to the right. The hottest area is on the left side, while the right side provides gentler heat. The heat volume is seamlessly adjustable using the control knob. The stove is ideally suited for cooking and heating of all kinds of food.

The stove is made entirely of corrosion resistant materials. ***This product is intended for recreational use only. Use for live aboard or full time heating or cooking will result in the need for more frequent servicing not covered under warranty.***

Table 1: Technical details of 85D stove.

<b>Fuel</b>	Diesel oil, furnace oil
<b>Operating voltage</b>	12 V DC
<b>Fuel consumption</b>	0,09 -1,9 dl/h, 3 – 6.5 oz/hr
<b>Heating capacity</b>	0,9 -1,9 kW, 3,100 to 6,600 BTU/hr
<b>Power consumption</b>	Start up: 8A for approx. 4 min Lid down: 0.65A / No lid or lid up: 0.19 A
<b>Dimensions</b>	85DU 456 x 306 x 159 mm 17.95" x 12.05" x 6.26" 85DP 475 x 370 x 161mm 18.7" x 14.57" x 6.34"
<b>Weight</b>	Approx. 8 kg (17.6 lbs)
<b>Maximum permitted length of the exhaust hose</b>	4 m / 13 ft
<b>Maximum permitted length of the fuel hose</b>	8 m / 26 ft
<b>Minimum area of the replacement air opening</b>	100 cm <sup>2</sup> , 16 in <sup>2</sup>
<b>Applicable exhaust lead-throughs</b>	1066, 2466 and 3467
<b>Accessories</b>	270 Heat blower lid, 85DP 1110 Pot holders, 1120 GImbal mounting , 1150 Toaster grill

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Note: 1" = 25.4mm (exact)

## Installation opening

Cut an installation opening for the embedded model as shown in figure 3 in the desired place and a separate opening for the control panel as shown in figure 4. The length of the control panel cord is 2 m.

### Note:

There must be a supply air opening with a minimum size of 100 cm<sup>2</sup> (16 in<sup>2</sup>) into the space where the stove is installed.

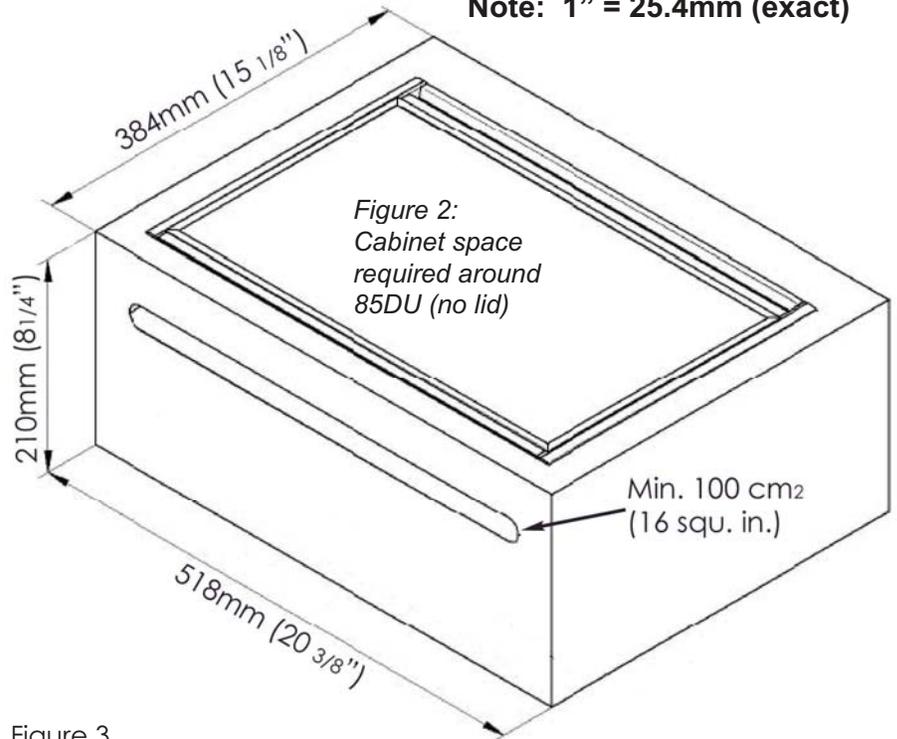
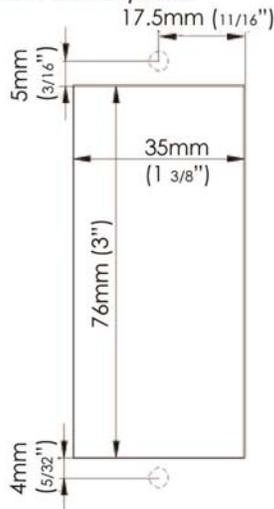


Figure 3

Figure 4: Installation opening 85DU control panel.



Note: There must be at least 20mm (3/4") between the stove and any vertical surface.

## Mounting rails

The surface model requires no installation opening. Just attach the rails to the desk as shown in figure 5.

b) Installation opening 85DU.

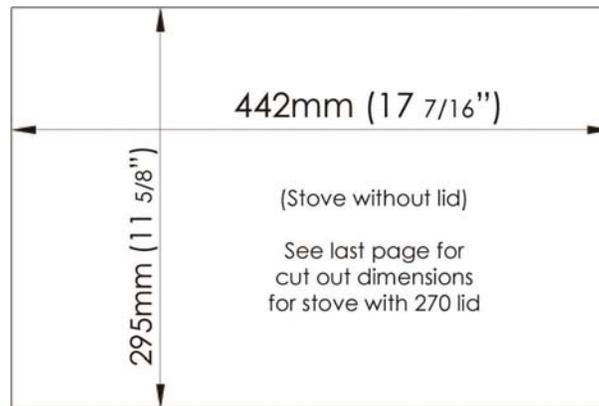
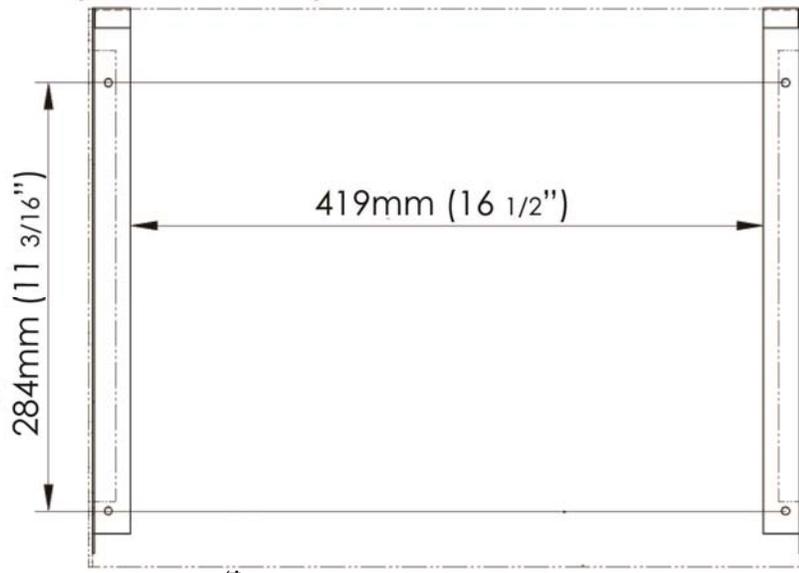


Figure 5: 85DP Attaching the installation rails.



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## Mounting the stove

### 85DU (figure 6)

Place the stove in the installation opening and attach the mounting brackets to the nuts at the ends of the stove using the screws in the accessory bag. Then tighten the mounting screws against the underside of the counter. Notice the locking nuts. The control

panel is attached to the counter face or backsplash with the screws in the auxiliary bag

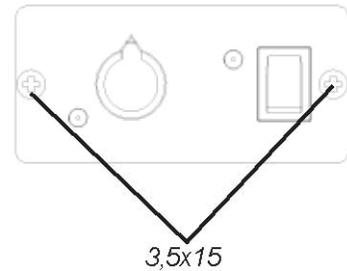
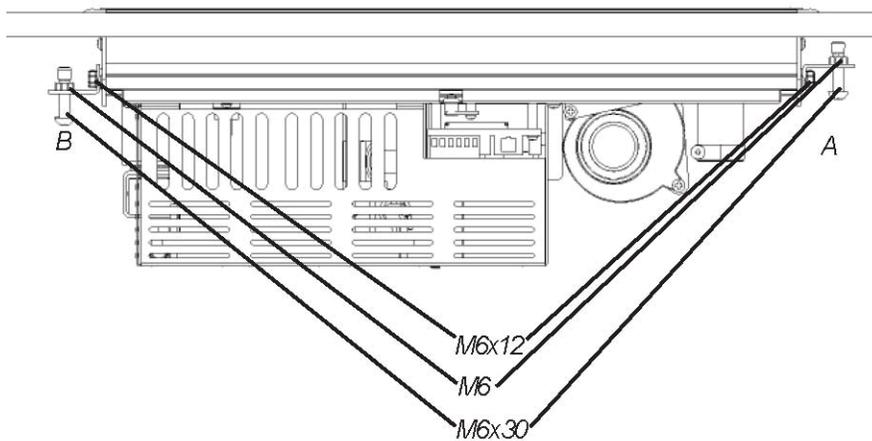
### 85DP (figure 7)

Lower the stove over the mounting rails so that the stove legs rest on the tabletop. Then push the stove backwards until it meets the limiters in the rails.

- a) Finally, attach the stove to the rails with screws or;
- b) from the front side with separate mounting kit.

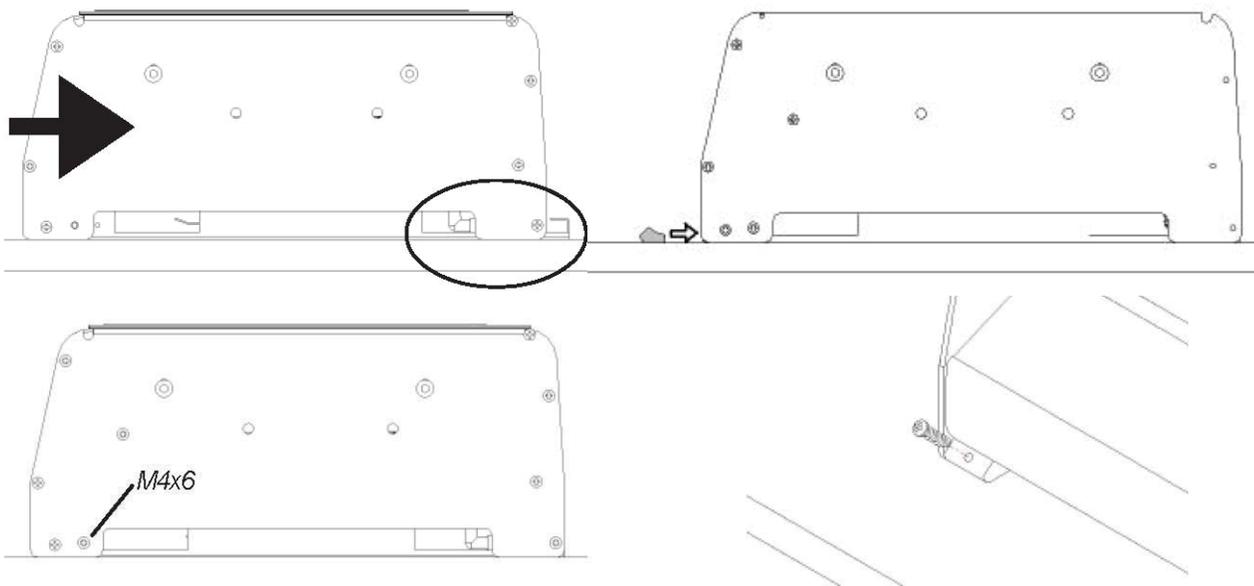
All models can be removed by repeating the steps in reverse order.

Figure 6: Attaching the 85DU to the counter. You can choose to orient brackets for thin counters (A) or thicker counters (B).



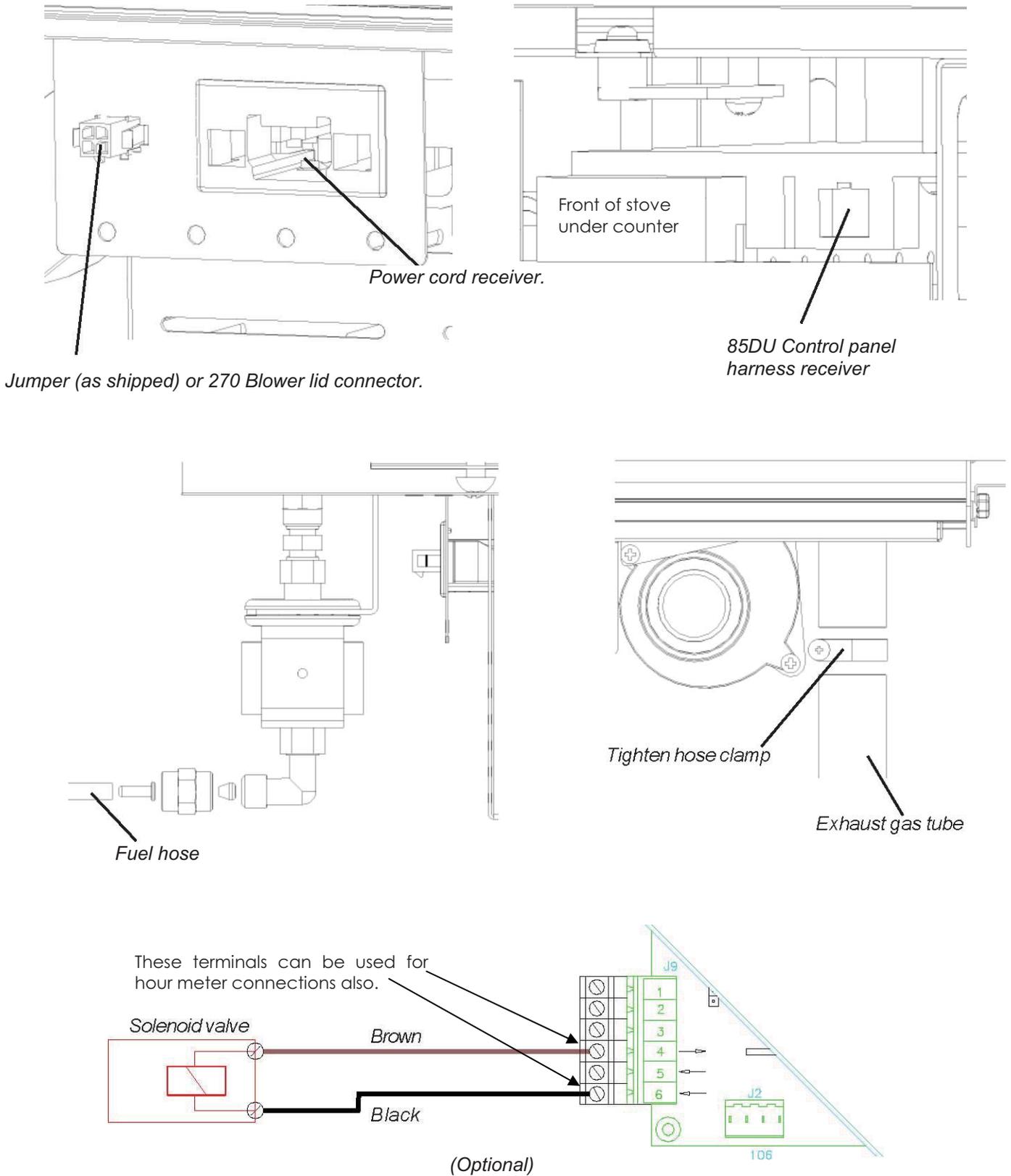
The control panel should be mounted in a vertical surface.

Figure 7: Attaching 85DP to mounting rails.



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Figure 8: 85DU/85DP Connections.



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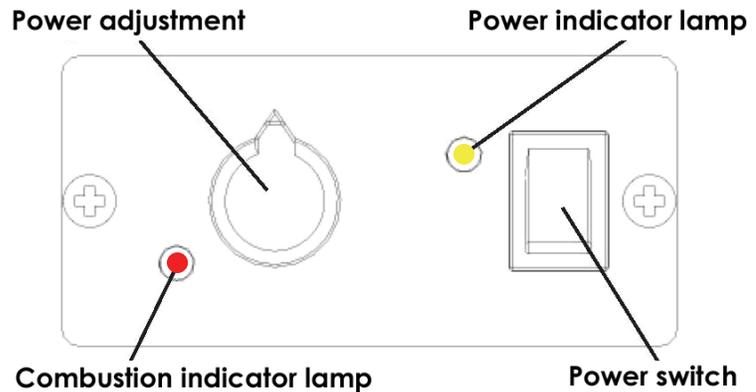
## Use of the stove

The stove begins its start cycle automatically when the power switch is turned to the ON position. The yellow indicator lamp lights up as soon as the stove is switched on. The red combustion lamp will light up when the combustion has progressed in the burner, about 2.5 to 4 minutes after start-up.

The stove may not light immediately if it has lost its fuel prime (when newly installed or having been run out of fuel). If this occurs, the combustion light will start to blink about 4.5 minutes after start command. Turn the power switch to OFF position. The device cannot be restarted until both indicator lamps have gone out (cooling).

Once the indicator lamps have gone out, restart the stove.

Figure 9: 85DU operating switches.



After starting, the power can be adjusted with the control rheostat. Avoid unnecessary rapid adjustments, as this can accelerate soot deposition.

Priming:

1. Replenish fuel in tank.
2. Push the power switch on. After a few moments, you will hear the fuel pump begin to click. Each click should move the fuel about 5/8 inch (16mm).
3. Stove should ignite shortly after fuel reaches pump.

Turn the power switch to OFF position to shut down the stove. The red combustion lamp will keep blinking for about 5 minutes while the stove is cooling. You can't restart the stove until the combustion lamp has stopped blinking.

The orange signal light glows in the forward edge of the ceramic plate when the stove is hot.

**Do not keep the stove running without cooking or putting the heat blower lid down.**

## Please note the following when using the stove:

We recommend you only use vessels with a machined smooth bottom in order to make good contact for heat transfer. If you use the cold plate as a worktop, wipe it carefully afterwards. Even small grains of grit can scratch the plate when a kettle is placed over it. Minor scratches in the cooking surface do not affect the heating properties of the stove in any way.

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In order to keep your cooktop clean and easy to use, you should clean it regularly, preferably after each time it is used. Once cooled, remove any scraps with a spatula. Pour a few drops of detergent intended for ceramic plates on the cooking surface and wipe it with a paper towel. Rinse the surface with water and wipe dry with a clean cloth. Do not use a scratching sponge or scrubbing agents. You should also avoid strong chemical detergents, such as oven cleaning spray or spot removers.

Clean any melted aluminum foil, plastic, sugar or mixture containing sugar from the ceramic straight away to avoid damage to the surface. Before cooking anything containing a lot of sugar, the ceramic should be wiped with a protective agent to prevent any damage to the surface if the food boils over.

The technical parts of the stove should be serviced according to the general servicing recommendations of Wallas equipment.

## Signal lights of functions and operational faults.

Table 2:

Indicator lights linked to different functions and operational faults:

### Notes:

**If the device will not start, even though the fuel has reached the pump, do not try to start it more than twice without checking the cause of the problem.**

**Do not turn the stove upside down if you detach it for servicing. Otherwise any fuel remaining in the burner will leak out and be absorbed in the insulation.**

If necessary, please contact Scan Marine Equipment.

	LED color	Blinking rate	Meaning
Function:	Yellow	Lights continuously.	Power is on
	Red	Lights continuously.	Combustion indicator, combustion has started normally.
	Red	0,25 s	Aftercooling
	Yellow	2 s	Glow problem
	Problem:	Yellow	0,125 s and 2 s
Error indication lasts for 5 minutes and then only the red LED will blink.	Yellow	3 quick, pause	Lid blower problem
	Yellow	1 s	Under Voltage
	Yellow and red	0,125 s	Locked; the device locks itself after 2 unsuccessful starts.*
	Red	0,25 s	Overheat
	Red	30 s	Lights after failure signal.

\* Unlocking the stove:

1. Switch stove ON (lock blinking).
2. Disconnect the main power supply (blinking stops).
3. Reconnect the main power supply (the yellow LED lights up)
4. When the yellow LED has gone out, switch the power OFF for 1-3 seconds).
5. Switch stove control ON to initiate start cycle again.

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## 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 stove 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.

*Metal fuel lines and filters are available upon request.*

Figure 10

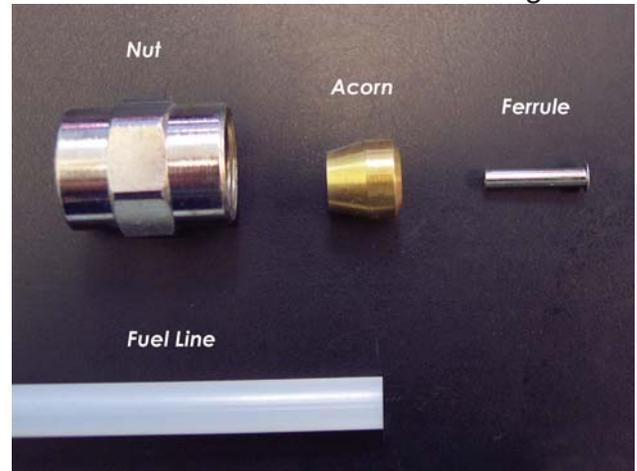
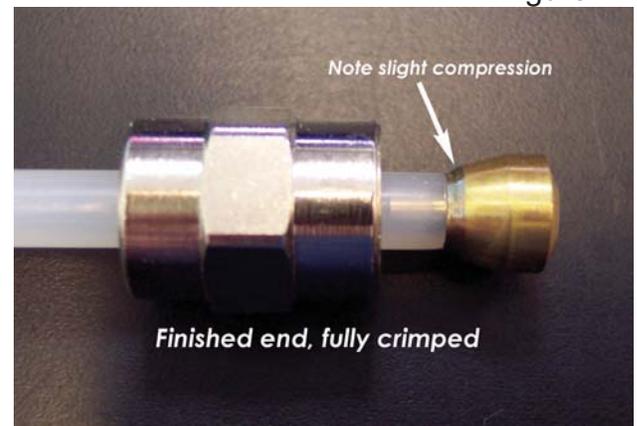
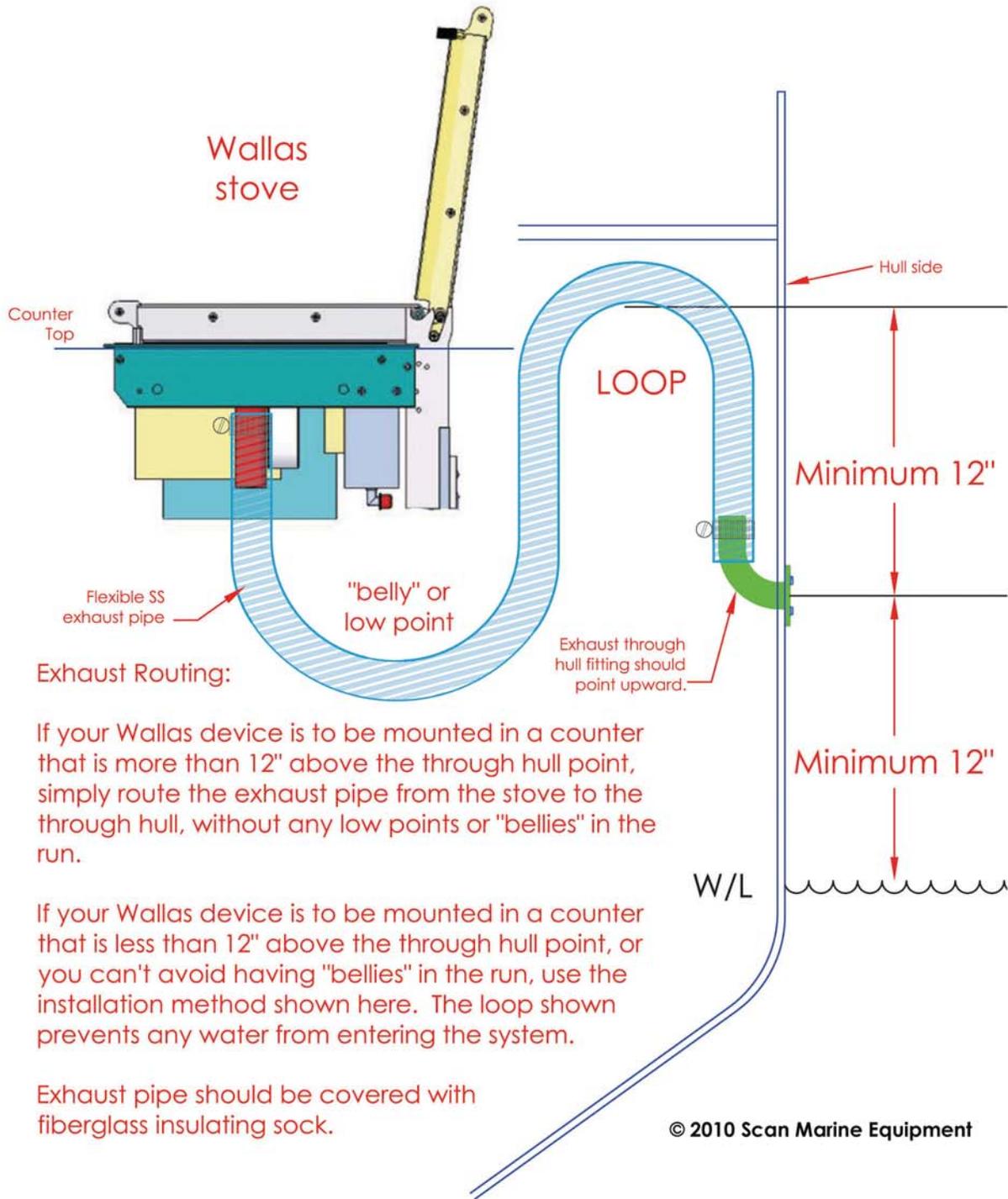


Figure 11



Figure 12





**Exhaust Routing:**

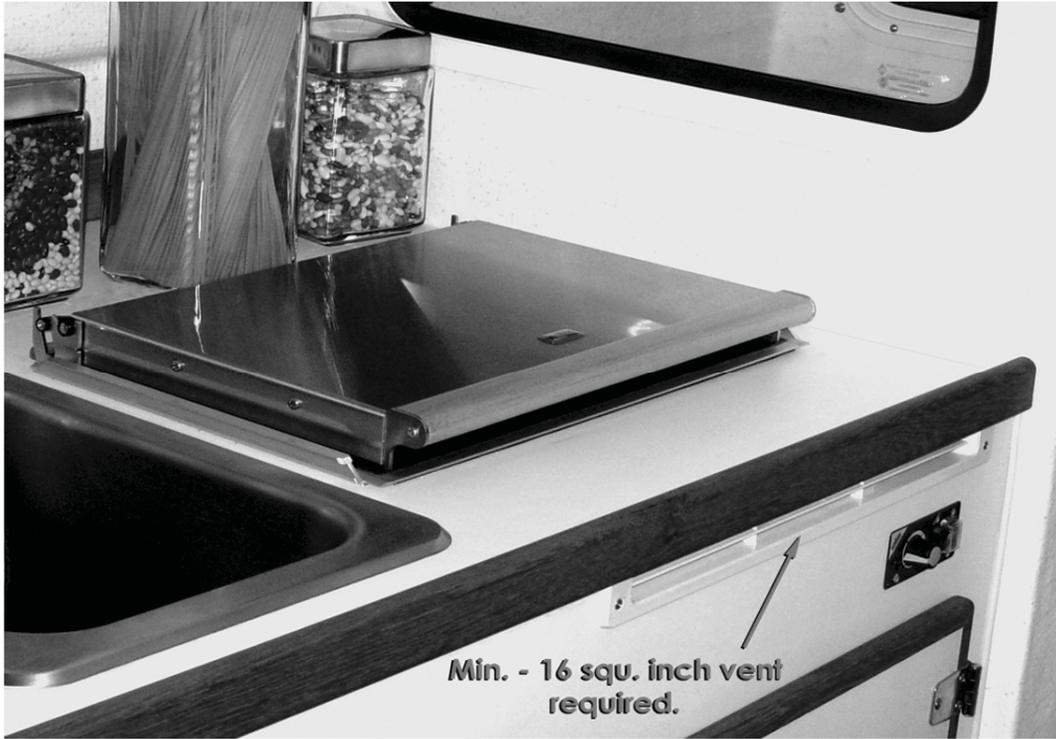
If your Wallas device is to be mounted in a counter that is more than 12" above the through hull point, simply route the exhaust pipe from the stove to the through hull, without any low points or "bellies" in the run.

If your Wallas device is to be mounted in a counter that 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.

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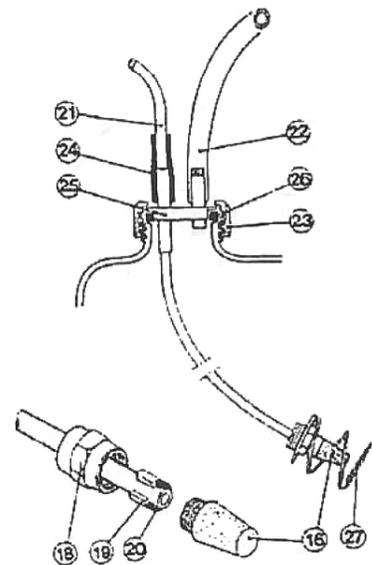
When mounted into a counter/cabinet top, the Wallas 85DU or 85DU/270 needs to be provided with ample ventilation in the cabinet front, within 3" of the counter top. The installer is free to select a vent design that is complimentary to the rest of the decor, but the vent size must be equal to or greater than 16 square inches.



## To shorten the fuel tube

Refer to the numbers in the picture below.

1. Push #27 spring back.
2. Unscrew #16 fuel filter.
3. Remove #18, #19 & #20 nut and fittings.
4. Open #24 rubber sleeve at the top with a small screwdriver.
5. Insert a little soapy water or detergent into the crack.
6. Pull the fuel tube through.



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## TIPS TO INSURE SUCCESSFUL INSTALLATION

In addition to the instructions supplied with your model 85D, please follow these easy, extra steps during your installation.

### PRIOR TO INSTALLATION

1. Please assemble this short list of tools and keep them handy for installation and future repairs and maintenance:
  - (1) 12mm end wrench;
  - (1) #2 phillips driver;
  - (1) 1/8" blade slot driver;
  - (1) small adjustable wrench or vise grip.
2. Take the time to verify that ALL electrical connections on the underside of the cook-top are secure and tight. The units are manufactured in Finland and have traveled many miles and handled many times before your purchase. Things can, and often do "get loose."
3. Make sure the two set screws holding the white "male" plug on the main power wires are tight
4. The small black plug from the lid blower assembly must be oriented correctly and inserted fully until it "clicks" into position in the back of the stove section. The small clip that holds the power cord securely into the receptacle is always in the DOWN position.

### AFTER INSTALLATION AND BEFORE START-UP

1. Make sure the black connect cable from the controller to the front of the cook-top under the counter on the DU model, "clicks" into position on both the controller and the cook-top.
2. Make sure the red and black power cable with the white plug is fully inserted into the white receptacle on the back side of the cook-top under the ceramic.

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3. VERY IMPORTANT! The fuel line to fuel pump connection under the cook-top is critical for proper starting and running of the stove. The fuel line fitting is a well designed part and must be assembled and installed correctly. IF THERE IS EVEN A TINY AIR LEAK AT THIS CONNECTION, THE UNIT MAY NOT START OR RUN PROPERLY. Please refer to page 9., above.

### INITIAL START-UP

The control panel is dual purpose. It controls the start-up and heat output of the cook top and it serves as a diagnostic tool. This second purpose is particularly valuable if the unit will not start. On the panel are two LED lights. The right side "yellow" light verifies the power supply, and the left side "red" light verifies that ignition is complete and the unit is starting to warm up. If either or both lights are blinking there is a problem you need to solve. This diagnostic feature is described on page 8. We recommend you copy this page, have it laminated, and keep in on the boat. Here is an additional description of the "light messages" you eventually see:

1. Pushing the start switch to "on" will trigger an alternating red and yellow flashing to a "steady" yellow in a few seconds. During this initial flashing the unit is doing a self test to insure all critical components are in working order. The steady yellow means that voltage at the unit is sufficient for the unit to start.
2. A flickering or flashing yellow light ONLY means voltage is NOT sufficient to start the unit. Check all the power line connections for tight crimps on the wire and tight connects to the power source. Check the power source for voltage that is AT LEAST 12.6v. Check the voltage at the white power plug. The minimum voltage to start must be 12.4-12.5v.
3. A uniformly, simultaneous flashing of BOTH red and yellow lights means the units is "locked up" from more than two unsuccessful starts. To unlock the machine:
  - a. Leave the power switch in the "on" position.
  - b. Disconnect the main power supply in some way:
    - i. Pull the fuse or,
    - ii. Pull the plug out of the stove or,
    - iii. Disconnect the battery wire or,
    - iv. Some other way specific to your application
  - c. Reconnect power
  - d. Turn power switch off
  - e. Turn power switch back on to start stove.

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4. A solid yellow light accompanied by a uniformly flashing red light means the unit is in "after cooling." Basically this means the unit did not start on the last try or the power was disconnected before the after cooling cycle (about 3 minutes) was completed. Turn off the switch and wait for the flashing red to stop before restarting.

If you get a solid yellow light and no flashing red, the unit is now in the start mode. At this time the lid motor and the combustion motors under the cook top will start running. You should be able to hear both of them, and feel the cool air coming from under the lid, and a steady flow of air out the exhaust. At the same time the glow plug inside the cook-top is starting to preheat. At the 35 second point after the start cycle has begun the fuel pump will start pulsing (making a subtly "clicking" sound) and fuel will start to travel from the fuel tank towards the cook-top.

The start cycle is timed to about 5 minutes. If the fuel does not reach the inside of the combustion chamber in that time period, the red light will start flashing telling you the unit did not start. Not to worry. Turn the switch off and wait for the red light to stop flashing (about 3 minutes.) Turn the start switch on again and proceed as before. If the fuel is coming from a remote plastic "day tank" and is within a few feet of the cook-top, the unit should start on the second try and the red light will come on steady. Full heat will occur in about 12 minutes. We tell customers that you can boil a pint of cold water in 20 minutes from a cold start.

If your fuel is coming from a "main" tank and/or the fuel run is more than a few feet, it will take several and possibly many tries for the fuel to reach the cook-top. REMEMBER, the unit will "lock-up" after two unsuccessful tries to start (both light flashing on the third try.) You may want to pre-fill the fuel line as best you can if the run is longer than 5-6 feet.

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## TROUBLESHOOTING

It is important to understand that initial start-up of the stove may be challenging for some owners because of the many variables encountered during the large variety of installations. Please be assured that once these shortcomings are overcome, your unit will give you hundreds and often thousands of hours of trouble free use. Here are a few of the simple "problems" we solve every day over the telephone:

Problem: "The unit will not start, and the operator only gets a flashing red light after a few minutes."

Solution: The most likely cause for this situation is that the unit is not getting enough fuel (if any). Please make these checks:

1. Make sure the fuel line fitting is assembled correctly and is **DOUBLE WRENCH TIGHT**.
2. Check **ALL** electrical connections. If the externally available connections are good and the system still does not function properly:  
Make sure that the blue and red power leads from the PC board to the back side of the white power plug are tight using a small slot driver on the two set screws. Check all connections and make sure they are clean and tight. You may want to use some dielectric grease on the electrical connections.
3. Make sure that the fuel pump is **ACTUALLY** "clicking" starting at the 35 second point after starting. If you can't hear the pump clicking, put your thumb and forefinger on the fuel line close to the fuel pump connection. You should feel a "pulse", much like a human pulse at about 30 beats per minute.
  - a. If there is no pulse or click, the small piston inside the pump may be dry or stuck. The piston can most often be "unstuck" by several sharp taps to the fuel line to fuel pump connection with the end of the 12mm end wrench.
  - b. If there **IS** clicking, verify that fuel is actually moving along the fuel line. If not, the pump may need to be primed. Disconnect the fuel line and squirt a small amount of light oil into the bottom of the pump and retighten the line securely.
    - i. Make sure there are no vacuum leaks at the inline filter if the fuel is coming from a main tank.
    - ii. Make sure the fuel has its own dedicated fuel source is coming from a main tank, and that the fuel supply does not share a common supply with **ANY** other device.

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- iii. Make sure the fuel line and filter have not been pushed too far into a day tank and the filter is now above the fuel level.
- iv. Re-check the fuel line to pump connection, making sure it is "two wrench tight".

Here are some more common problems and solutions:

Problem: "I have two lights flashing at start-up." In this case the unit is "locked up."

Solution: Perform the unlock procedure on page 8 of the manual. However, the reason for "lock up" is likely that the unit would not start after two tries for lack of fuel.

Problem: "I always have a solid yellow and red flashing at start up."

Solution: In this case, the most likely cause is that the small black lid plug has been inserted under the cook-top incorrectly, OR that the plug on the cord has a loose wire. Look closely at the plug end for proper construction.

Problem: "I have a flickering yellow light and the unit won't do anything."

Solution: The control panel has determined that the voltage is insufficient for starting. Check all the power wire connections all along the main power leads. Try starting your main engine or activating your battery charger and then try starting the stove again. If the stove starts under these conditions, verify your battery voltage and check all connections.

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## 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.
- 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.
- If not using a Wallas day tank. 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.
- 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.

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## 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 24 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](http://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.

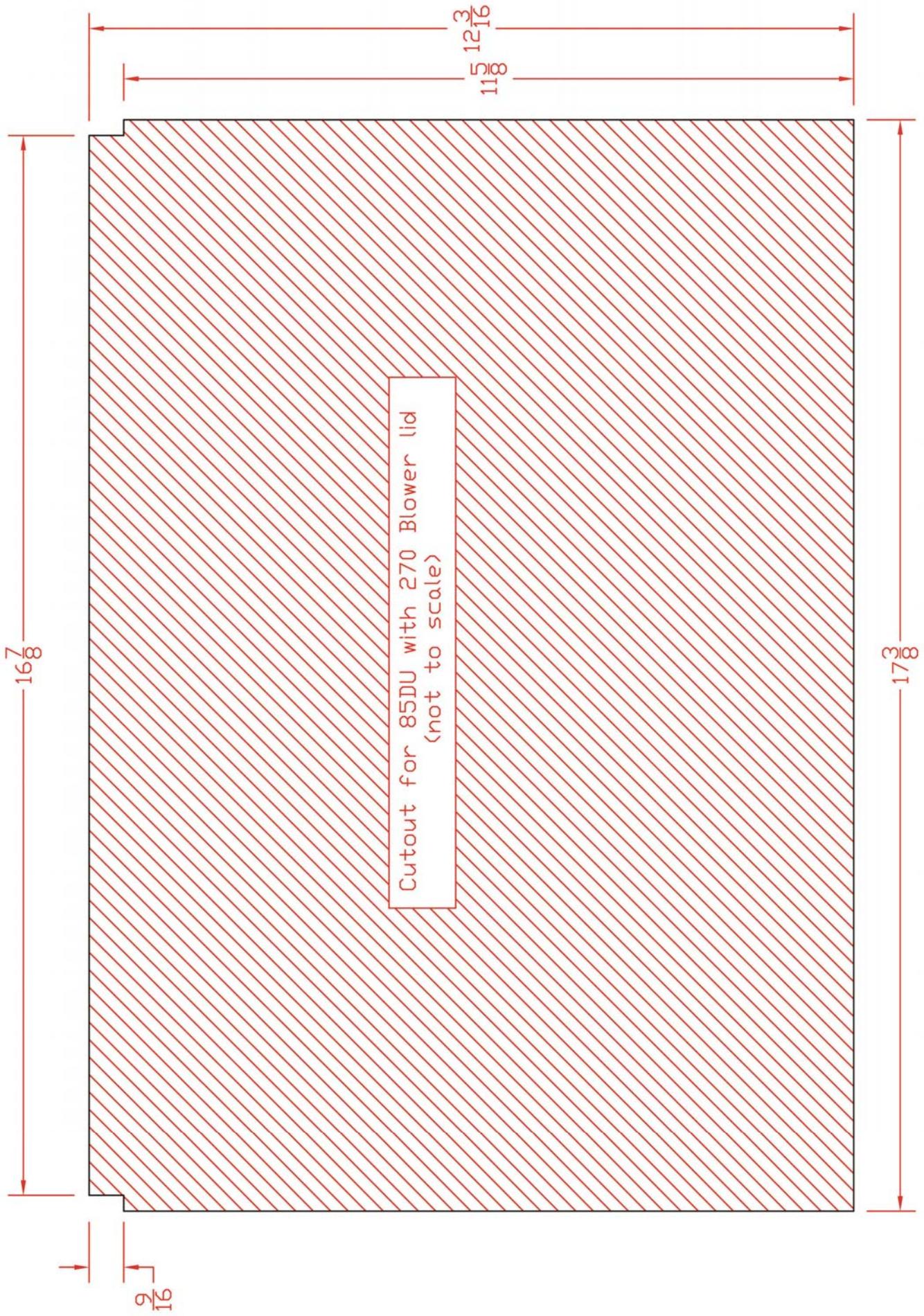
### 7. This warranty does not limit rights written down in the consumer protection laws. When making a warranty claim, the customer must provide proof that the maintenance and safety instructions have been thoroughly followed.

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

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NOTES:

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www.scanmarineusa.com - 206-285-3675 - fax: 206-285-9532 (measurements in inches)