

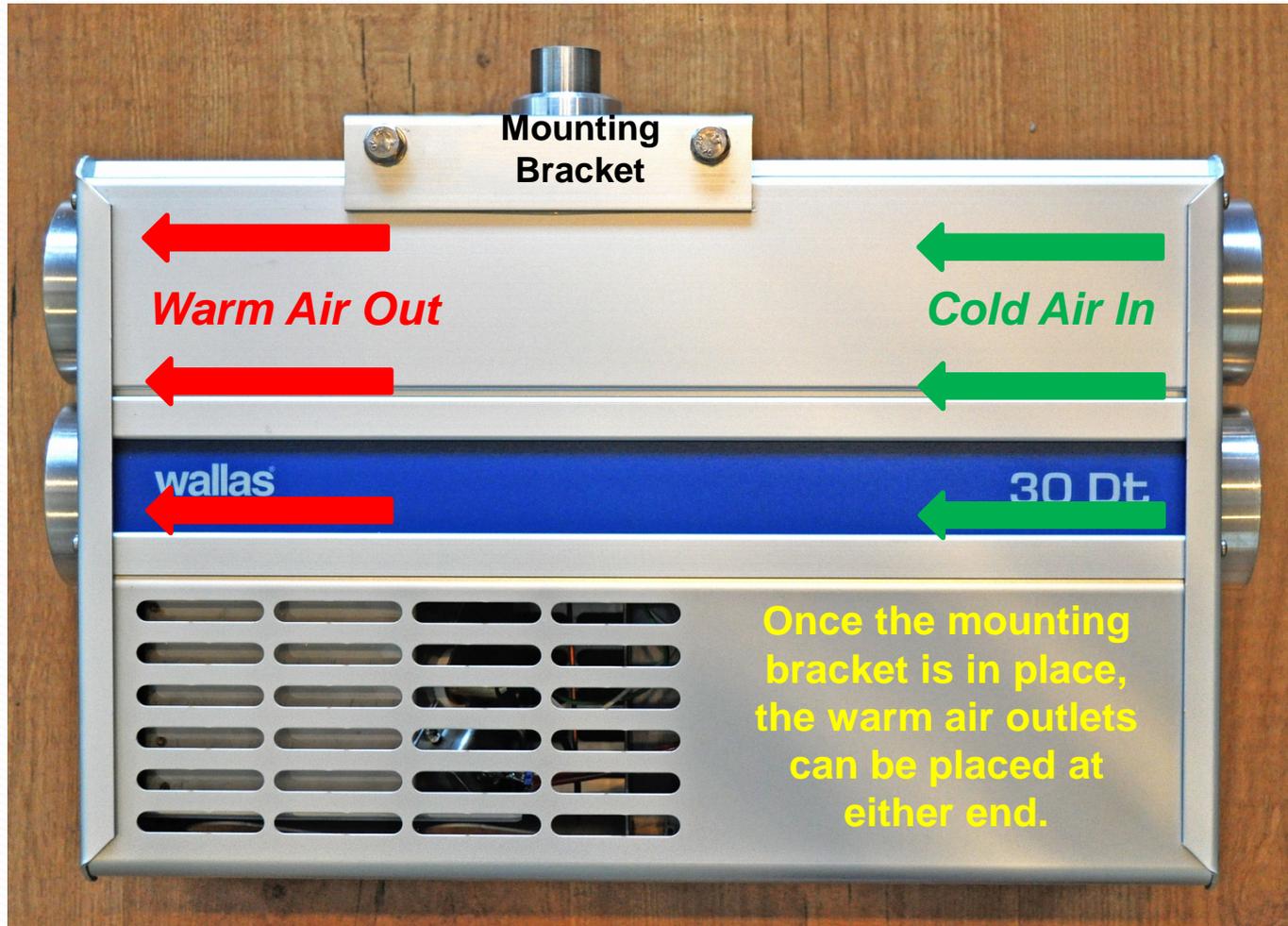
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Forced air mobile diesel heating systems.



Installing a Wallas Dt Forced Air Heater In An Away Space:

Figure 1: Heater Reference



Power, control harness and fuel connections are located on the bottom of the heater case.

Section 1: Location

- **Finding a location for the heater:**
 - It should be mounted upright, higher than the fuel, placed to allow duct runs and within heater exhaust run limits. It can be mounted parallel or athwart ships.
 1. **In a diesel engine room.**
 2. **In an outside locker or lazarette.**



Safety Note:

- Every boat or vehicle equipped with any kind of petroleum fueled engine or device should also be equipped with a CO (carbon monoxide) detector.



1. Should be capable of independent function.
2. Should be tested for correct operation regularly.

Section 2: Exhaust System

- **Find a place for the exhaust through hull or house fitting:**
 1. Within 7' exhaust run limits.
 2. Not facing the direction of travel.
 3. Aft of the widest point of the beam.
 4. Not on the back of the house to prevent “station wagon” effect.
 5. Allowing for 12” rise above through hull inside the hull.
 6. 14” or more above the waterline.
- See Figures 2 & 2S.



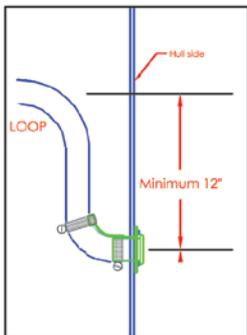
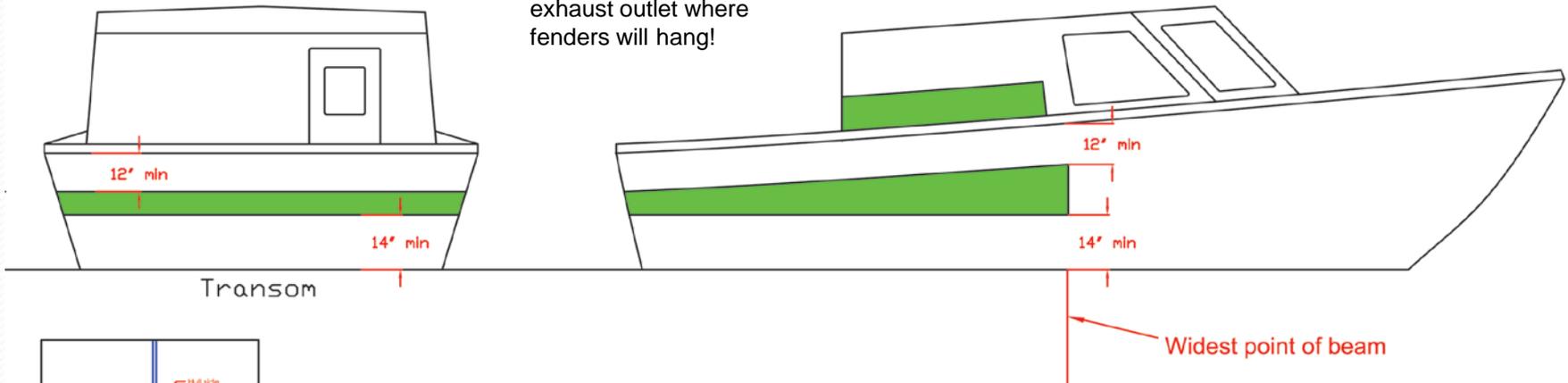
Figure 2: Exhaust outlet locations

Powerboat exhaust locating



= good places for Wallas through hull fittings

Note: Avoid placing exhaust outlet where fenders will hang!



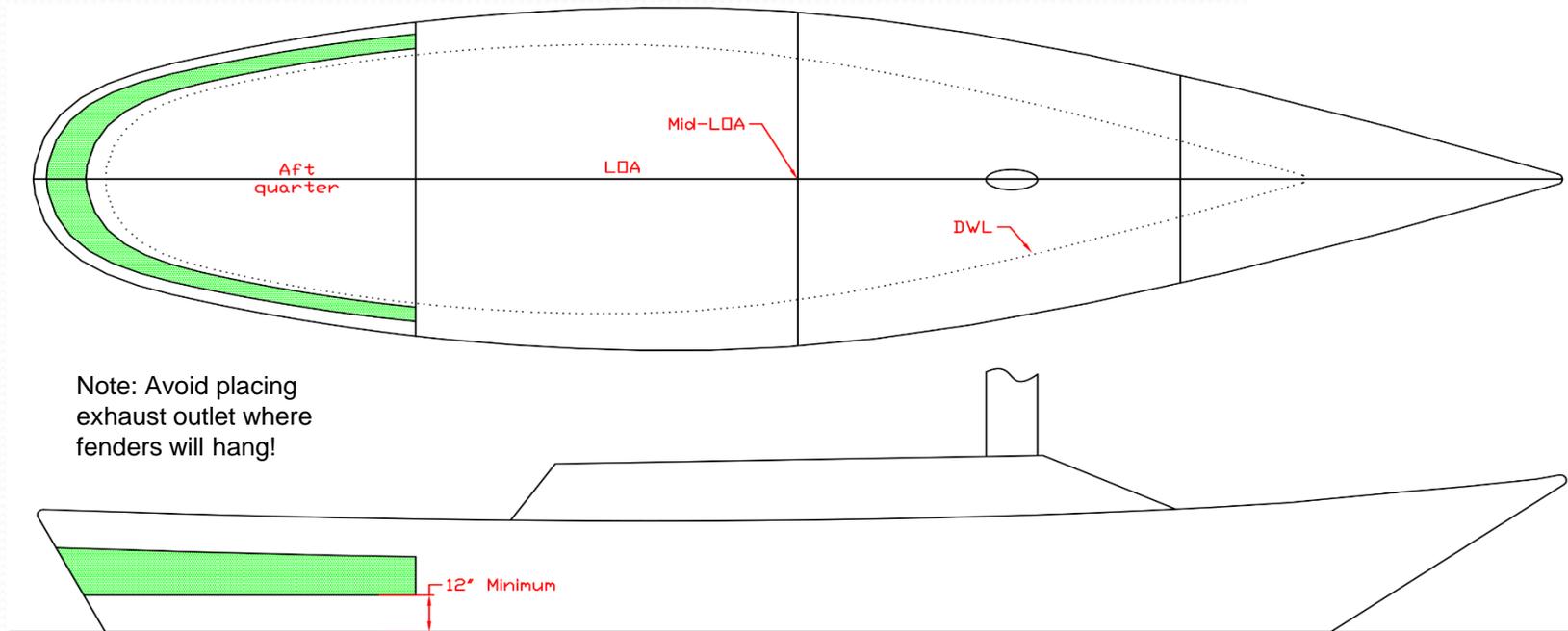
The 12" minimum noted above comes from the need to form a 12" loop above the through hull fitting, below the underside of the deck.

The 14" minimum above the w/l is a guideline, less important than keeping the 12" loop in the exhaust run.

For fast boats (> 20 kt), contact us about preventing blowback.

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Figure 2S: Sailboat exhaust outlet locations



Note: Avoid placing exhaust outlet where fenders will hang!

Green shaded area represents ideal locations for Wallas exhaust through hull fittings on monohull sailboats. Through hull routings must include a 12" vertical drop in the last 14 inches of the flexible exhaust run, to form a preventive loop to eliminate the possibility of water entering the system and becoming entrained.

Exhaust perforation can alternatively be made on top of house, providing a covered or elevated covered fitting is installed.

Section 2: Exhaust System

- Make the exhaust run as necessary. Avoid tight turns and keep away from wiring or plastic objects.
- Routing is not critical except for the last 12", which should point vertically downward before connecting to the through hull fitting, forming a riser, preventing permanent water entry.
- See the descriptions in figures 3. and 4.



Figure 3: Exhaust routings

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Wallas Furnace Exhaust Routing:

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

Exhaust pipe should be covered with fiberglass insulating sock. Configurations will be the same for either single pipe (40 Dt) or duplex exhaust pipe systems (30 Dt & 22 Dt).

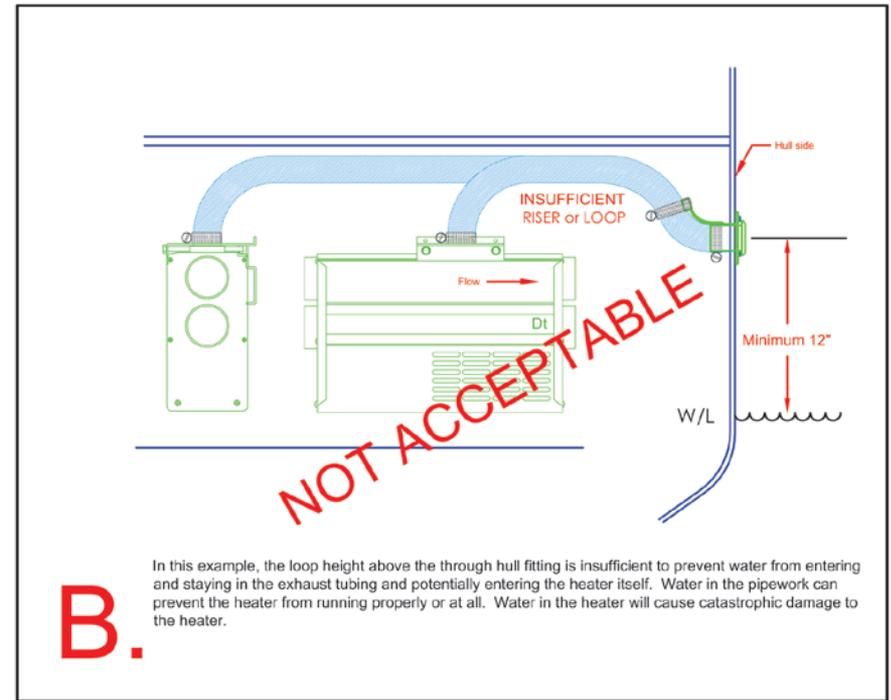
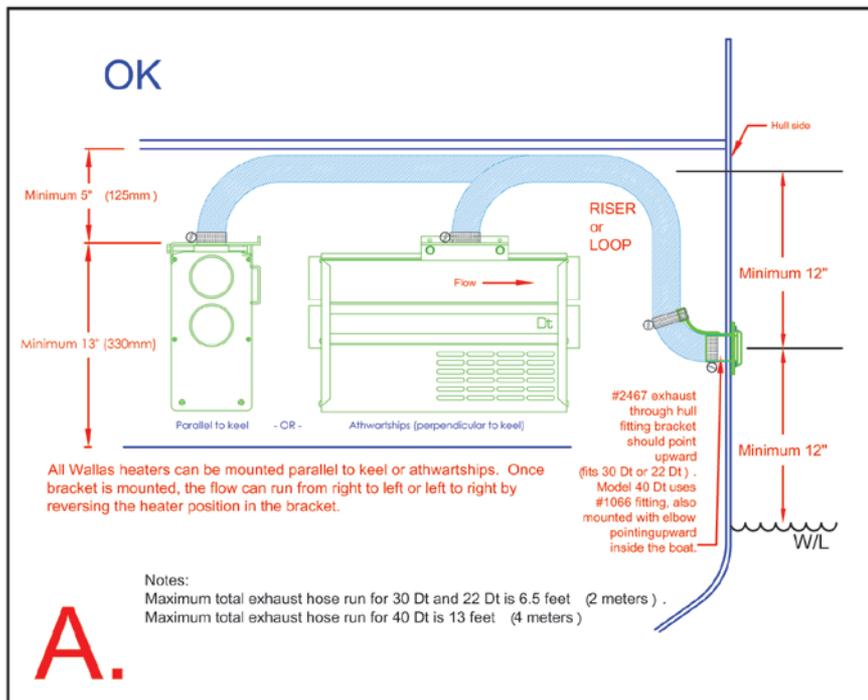
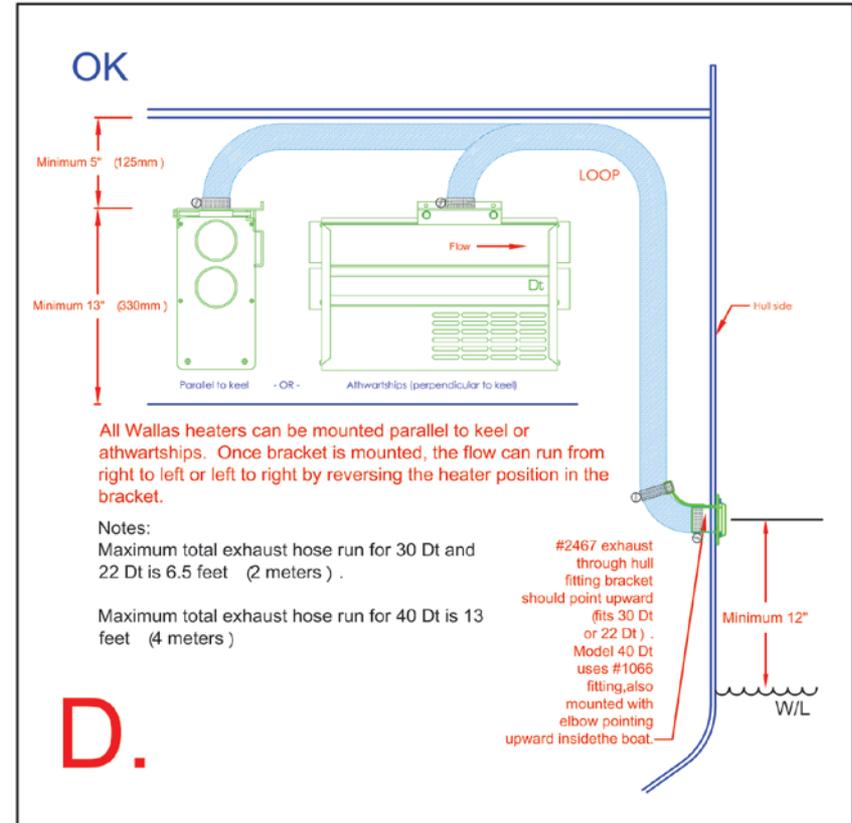
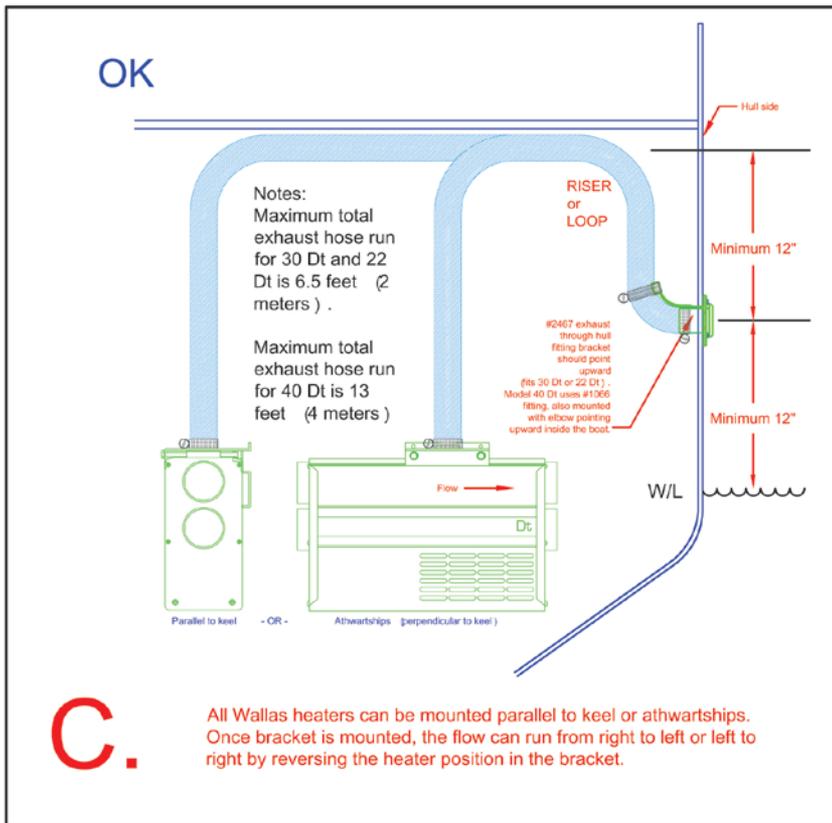


Figure 4: Exhaust routings

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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. See example D.



Section 2: Exhaust System



- Installing duplex exhaust (on 30dt and 22Dt, 40Dt uses a simple single hose w/insulation):



Section 3: Fuel connections

- **Make fuel connection.**

1. If using a Wallas supplied day tank, just connect the parts, shorten the fuel line from the filter end as appropriate to the installation, and attach the tank appropriately to prevent it moving.
2. If using a dedicated day tank from other suppliers, verify it is a top of tank pickup, use a Wallas filter and fuel line only. If the tank pickup ends in a ¼" hose barb, this will make connections easy.



Section 3: Fuel connections

3. If taking fuel from the main tank or a shared tank, assure the Wallas device has its own pickup.

a)



b)



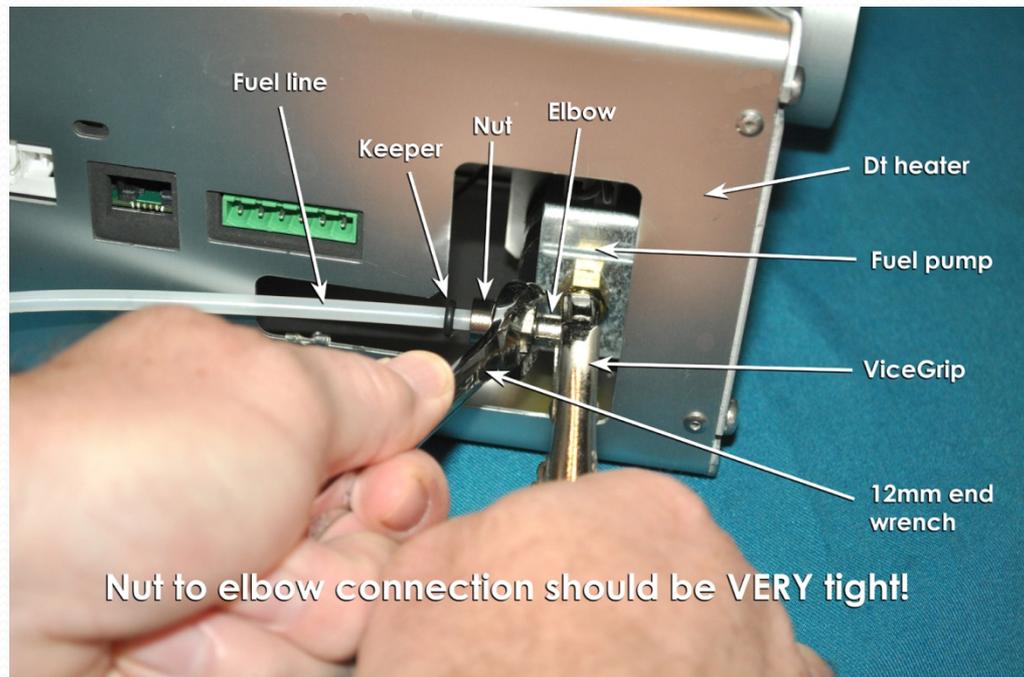
You can use a #50011 custom drop tube to match an existing female fitting, or adapt to a breather fitting,

or use a #30011 drop tube to make a new penetration into the top of the tank.

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Section 3: Fuel connections

4. When connecting the fuel line to the fuel pump, **ALWAYS** hold the fuel pump elbow with ViceGrip® or equivalent and use a 12 mm end wrench to tighten the fuel nut to the elbow **VERY TIGHT**. This will assure no air leaks. Do **NOT** turn the elbow relative to the pump body, as this will damage the pump metering.



You may find it easier to make the fuel connection before mounting the heater in the bracket, as shown here!

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Section 4: Inlet duct connections

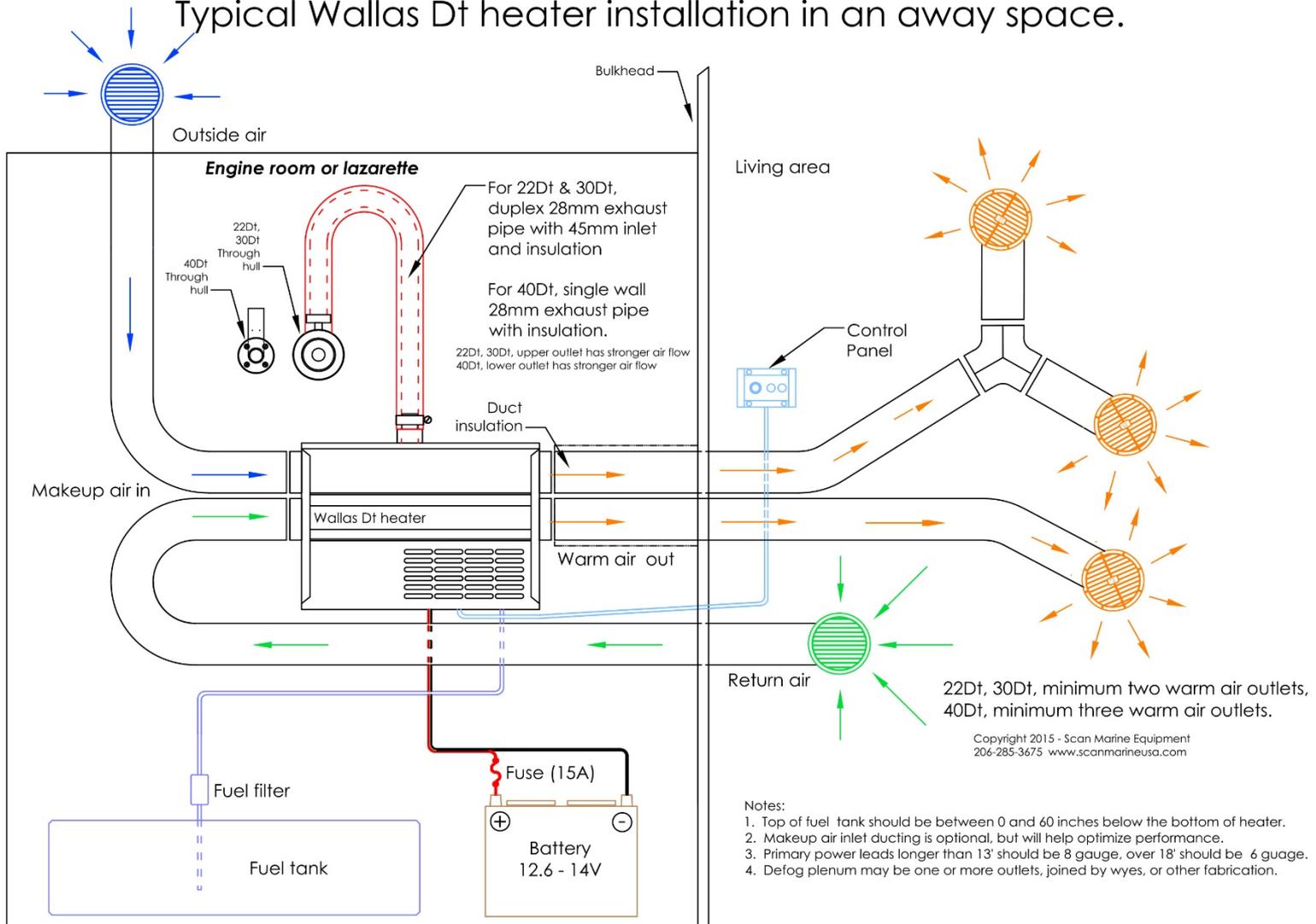
- C. If mounted in a diesel engine room (See Figure 8), the heater **must draw all makeup air from outside the engine spaces.**
 1. Run a dedicated duct from outside the boat to the upper inlet fitting on the heater. Make sure that water can't directly enter the outside inlet fitting under any circumstances.
 2. Run a dedicated return air duct from the living quarters to the lower inlet fitting on the heater. The fitting inside the cabin should be distant from any warm air outlets, and will help to warm the place where it is located.
 3. Each makeup air duct run should be less than 8 feet long.

Section 4: Inlet duct connections

- **D. If mounted in a lazarette or external locker, verify that space is completely separate from the engine spaces.**
 1. Run a dedicated duct from outside the boat to the upper inlet fitting on the heater. Make sure that water can't directly enter the outside inlet fitting under any circumstances.
 2. – or - leave the upper inlet fitting disconnected if the lazarette or external locker has sufficient air flow from outside. This will help dry the area surrounding the heater when it runs.
 3. Run a dedicated return air duct from the living quarters to the lower inlet fitting on the heater. The fitting inside the cabin should be distant from any warm air outlets, and will help to warm the place where it is located.
 4. If the space is not separate from engine space, it must be treated as an engine space.

Figure 8:

Typical Wallas Dt heater installation in an away space.



Section 5: Outlet duct connections

- **C.** If mounted in an engine room, lazarette or external locker, you can: (See Figure 8)
 1. Run ducts to two or more locations, normally low in the boat, since heat will rise naturally. 40 Dt units need to have three outlets as a minimum if the outlets are to retain their valve controls.
 2. Ducts can all be full sized (3") or the duct size can be reduced to 60mm when running to small spaces.
 3. (OPTION) For defogging windows, a branch to the windows should always be located **after a wye**. In some applications, an in-line blower can be incorporated to boost flow to the windows for short durations.
 4. Insulate any ducting exposed in non-heated areas to reduce heat losses.

Section 5: Outlet duct connections

- **D. Adding duct outlets beyond the two or three normally required for these heaters can add a lot of expense and labor. Sometimes it is worth the extra cost and work, but sometimes not. Excessive numbers of outlets can reduce apparent performance by slowing the time to heat cabin air due to losses into the surrounding structures of the ductwork. Heating the air first means you will heat the occupants more quickly. Less outlets leads to more aggressive stirring of the air, heating it more quickly.**



Section 6: Electrical connections

- **The Wallas power supply should be fuse or breaker protected to 15 amps.**
 1. **The system will arrive with 13' of 11 GA wire. If this is long enough to reach the battery or main bus, it should be large enough to carry the starting amperage to start the heater.**
 2. **Longer wire runs WILL require larger wire gauge.**
 3. **When testing the heater, a flashing yellow panel light may indicate low voltage, possibly power lead drop due to undersized or too long power leads.**
 4. **The heater should always be shut off using the control panel. Do not cut the power supply while the heater is running.**



Section 7: Mounting the control panel

- **The Wallas Dt heater control panel comes fitted with a 20' wire harness.**
 1. **The panel can be mounted with or without the supplied bezel. Thermo control function will work either way.**
 2. **Mount the panel in a good location for thermo control operation.**
 - a) **Away from outside walls.**
 - b) **At or about 4' from the floor**
 - c) **Where sunlight will not hit it directly**
 - d) **Away from heat or cold generating sources**



Section 8: Lockout feature.

- The Wallas Dt heater has a lockout feature that locks the system up if it has failed to start on two consecutive tries. On the third try, yellow, red and green panel lights will all flash rapidly for about five minutes.
 - **To clear lockout:**
 1. Leave panel on, all three lights must be flashing.
 2. While lights are flashing, kill power to the unit:
 - Pull the plug, remove the fuse or turn off breaker.
 3. Return power to the unit:
 - Reconnect the plug, replace the fuse or turn on breaker.
 4. Wait ten seconds, then push power button for two seconds, background lights will go out.
 5. Heater is ready to start again, but before you do, investigate the system to figure out why it has not been starting successfully: fuel, power, glow plug failure, etc.
 6. When you are ready, push the power button once again for two seconds to start the system.





Thank you!

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