

WILLY VAC[®].com

by Wallace Marine Services, Inc.

Type II
220V AC 50 Hz



**Maintain
Your
Equipment
The Easy Way**

Bill Wallace
843-693-4336
info@willyvac.com
www.willyvac.com

Installation and Operation Manual



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Willy Vac Dimensions

Technical drawings and a 3D model of the Willy Vac unit. The top drawing shows the front view with dimensions: 22 inches wide, 18 1/2 inches high, and 12 3/8 inches from the top to the start of the main body. The side view shows a height of 15 1/4 inches and a width of 18 3/4 inches. The bottom view shows a width of 17 11/16 inches. The 3D model shows the unit with two blue hoses connected to the top ports.

Willy Vac Wiring Diagram

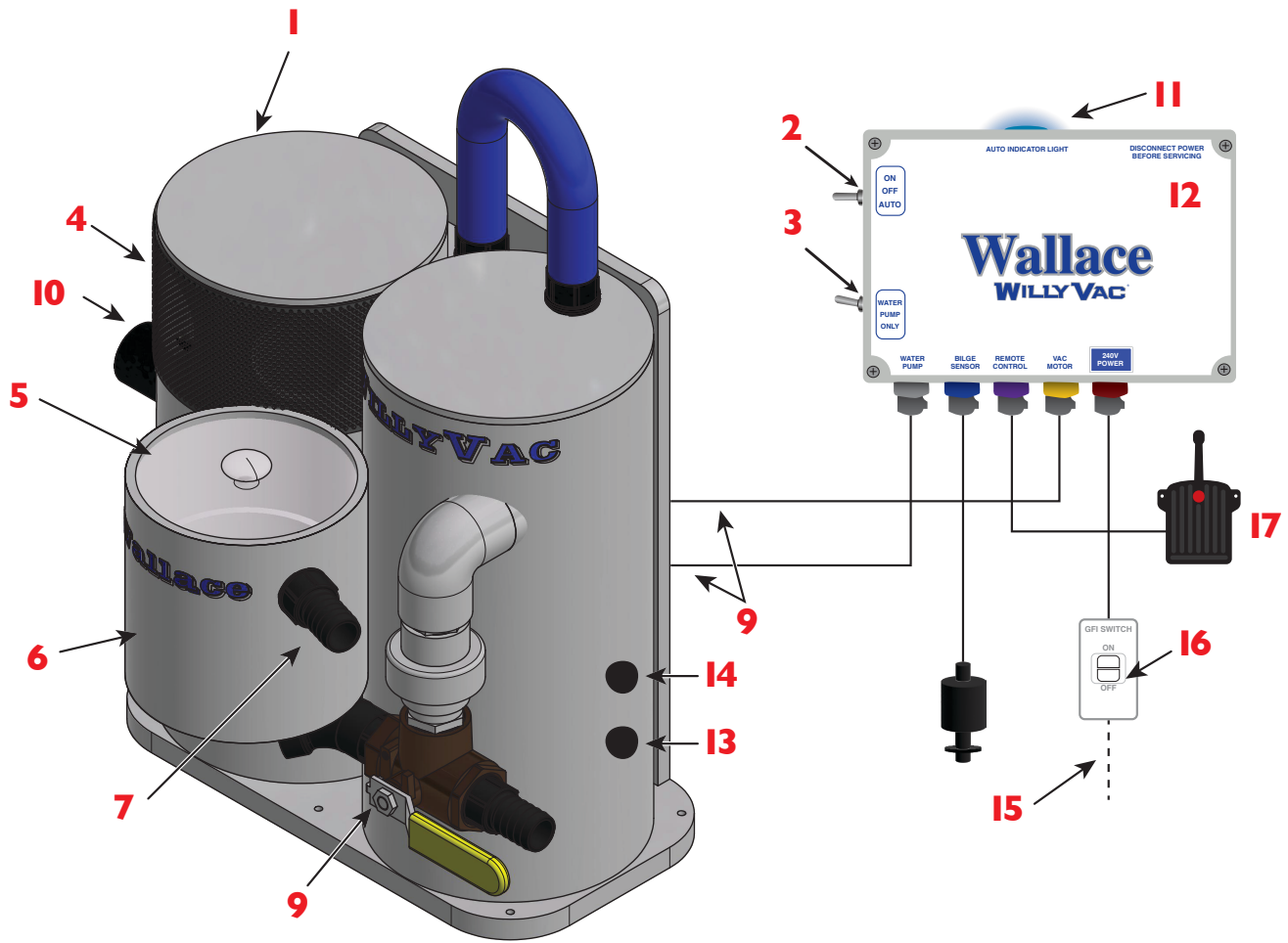


Figure 1: Legend for the Willy Vac

- | | |
|---|---|
| 1. Willy Vac Housing | 10. Air Outlet Fitting |
| 2. ON/OFF/AUTO | 11. Auto Blue Light |
| 3. Water Pump Only Switch | 12. Control Box |
| 4. Ventilation Grill | 13. Water Pump Sensor |
| 5. Lid | 14. Vac Sensor |
| 6. Strainer Basket | 15. Boat Wiring 220V AC, 50Hz, 10 AMP Supply |
| 7. Inlet (Water and Air) | 16. Builder/Owner supplied GFI (Must Have) |
| 8. Diverter Valve and Water Outlet | 17. Wireless Remote (Optional) |
| 9. Electrical Connections | |

Getting Started

Determine the Location of the Willy Vac

Before you start the installation process, familiarize yourself with the Willy Vac components and what they do. Every boat is different, and every captain's needs are different.

NOTE: Plan the hose and wire routing as you decide on your equipment locations.



- a. **Willy Vac:** Should be installed as low as possible, but no higher than 36 inches from the lowest section of the keel from which you will be vacuuming. You also want to have easy access to the lid/strainer basket, and the diverter valve. The Willy Vac comes with a short power cord connected to a GFI. You will need to connect the boat's power to the 3-pin deutchsh connector already installed at the end of the GFI box. Mount this level with or below the Willy Vac.



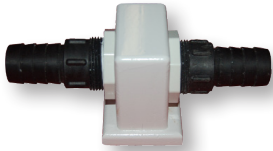
- b. **Air Box Fitting:** The air box dump fitting mounts towards the top of the engine room air box. The air discharge from the Willy Vac should be plumbed here to allow moisture-laden air to be discharged into the air box and not straight back into the engine room. Soap suds may blow out of this as well if you're vacuuming soapy water. If you cannot route the Willy Vac air discharge into an air box, at least route the air discharge somewhere where it will not damage equipment when it blows out a little water and soap suds. See the installation instructions on page 8.



- c. **Control Box:** Mount the control box in a dry, easily accessible location. Installer must supply 220V 50 Hz power through a GFCI that is to be supplied by installer.



- d. **Bilge Sensor and Bilge Pickup:** These two must be mounted very close to one another! They are typically installed at the lowest point in the bilge while the boat is at rest. Mount the bilge sensor as close to the bottom as possible leaving enough room for a finger to get between it and the keel for cleaning. Mount the pick up as close to the bottom as possible but not so close that it chokes down the water flow to the Willy Vac. (This may take some little trial and error. It should be around $\frac{1}{4}$ " to $\frac{3}{8}$ ".) The bilge sensor comes with a 25 ft wiring harness.



e. Fixed mount hose coupler: Mount this in the suction line between the bilge pick up and the main unit in a convenient location so a flexible hose can easily be attached for vacuuming in remote locations.

f. Hose and Wire Routing: Keep the vacuum hose as low as possible; the higher the unit has to lift the water, the slower it works. Strap your wires up in order to keep them out of the water.

g. Plumb the diverter valve of one discharge overboard: either through its own thru-hull, or an existing thru-hull. Make sure the thru-hull is large enough to accommodate the flow of water (especially if the thru-hull is accommodating other components such as an air conditioner). Remember that the Willy Vac can pump 1500 GPH.

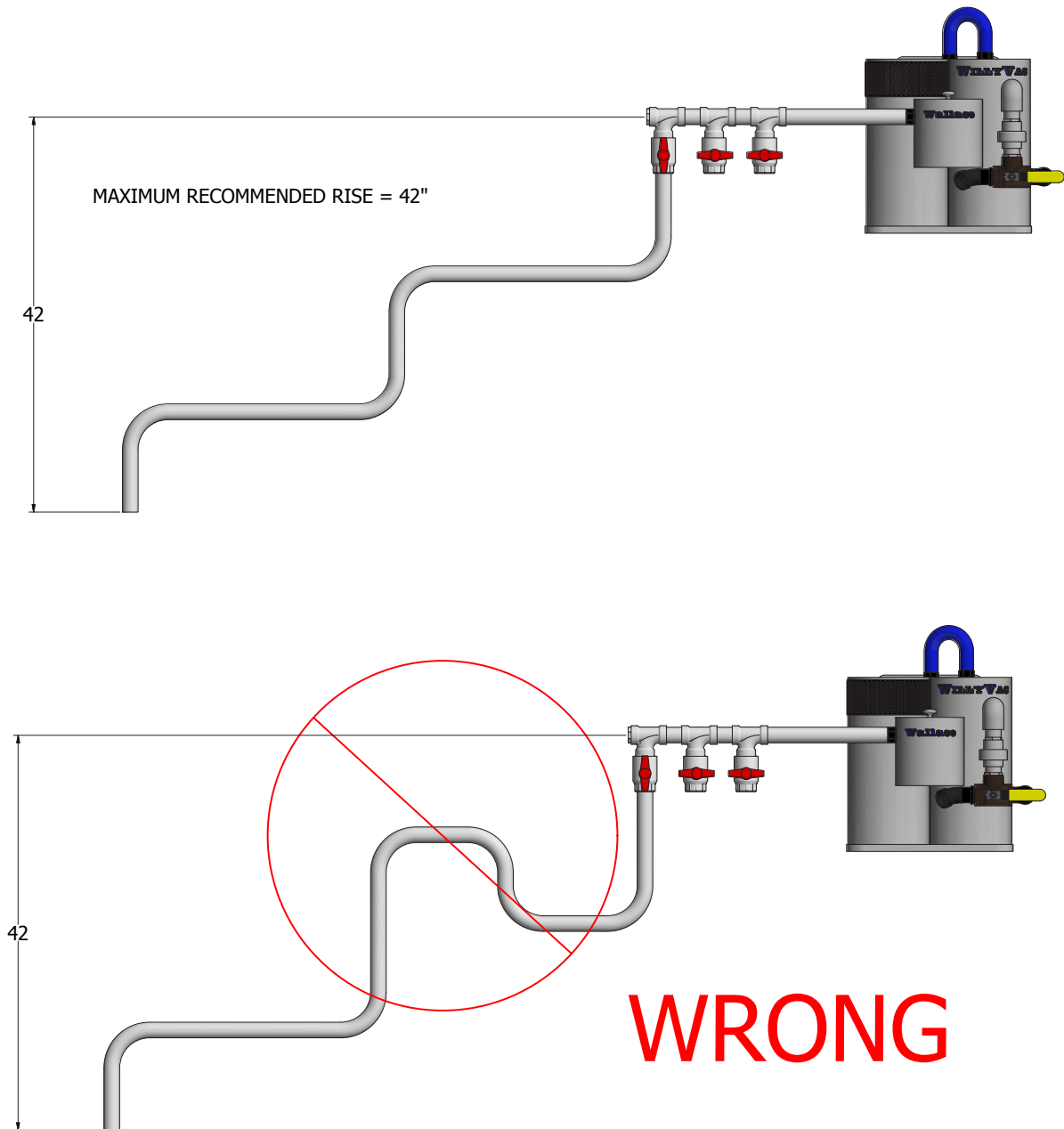


h. Optional Wireless Remote

Installation

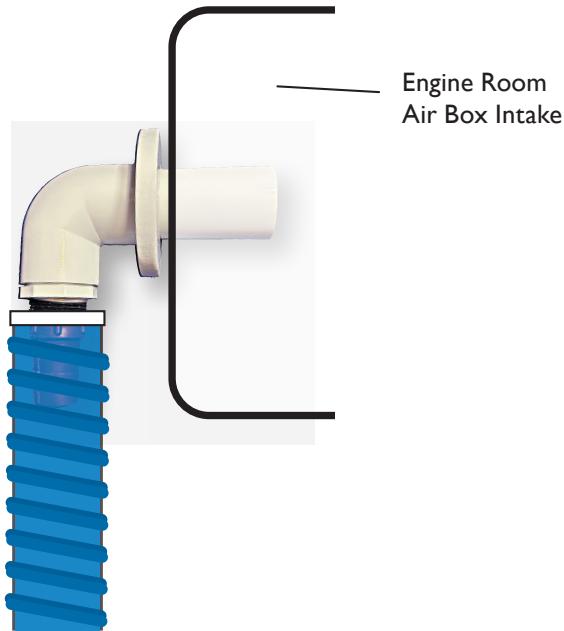
Once the location has been determined for the above components, mount them firmly in place and plug in the components.

Figure 2: Rack Assembly Layout



1. **Air Box Fitting:** Drill a 2" hole in the upper portion of the air box and install the air box fitting making sure the fitting is pointed down. Drill 3-4 holes in the fitting and use these holes to mount the fitting to the air box using 5200 (or the like) to seal the fitting in place. The holes were not drilled because depending on your engine room equipment you may not be able to get to one or two holes easily. It is up to you to decide the best place to drill the holes in the fitting for your application. Now connect a hose from the air discharge of the Willy Vac here. The air coming out of the Willy Vac will get hot so the hose needs to be a little more substantial than typical vacuum hose. We use Trident Blue silicone hose which works well, but your hose choice doesn't have to be heavy duty.

Figure 3: Air Box Fitting



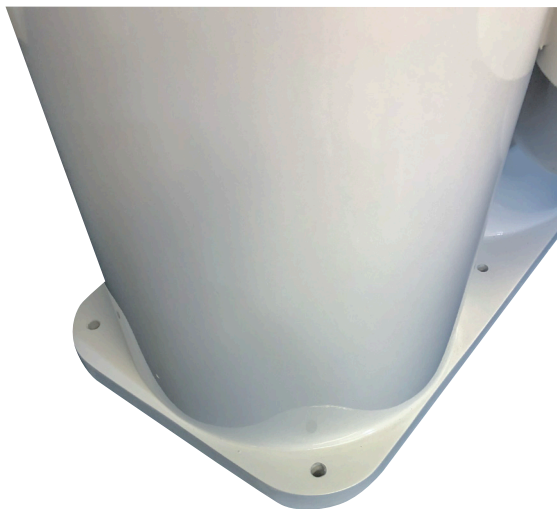
2. **Bilge Sensor and Pickup:** using your wet vac, vacuum out all the water in the bilge and dry the bilge as best you can. Use screws and sealant to mount the bilge sensor and pickup.

Figure 4: Bilge Pickup



3. **Willy Vac:** using #14 x 1½" screws, screw down the Willy Vac to the deck.

Figure 5: Willy Vac



4. **Manifold Assembly (Optional):** If installing the optional suction valve manifold, once again, mount this as low as possible.

NOTE: *Still only one valve at a time should be open.*

Figure 6: Manifold Assembly



5. **Control Box:** Mount the control box and attach the wires matching colors on cables to colors on the components.

Figure 7: Control Box



Operation

NOTE: *The Willy Vac should have fresh water run through it weekly to keep water pump operational.*

IMPORTANT! *Never pump flammables through the Willy Vac!*

Manual Operation

In the manual mode the Willy Vac will run continuously as a vacuum-assisted pump similar to a wet vac.

- If your system is equipped with the optional suction valve manifold , open the valve that corresponds to the desired bilge to be vacuumed.**

Figure 8: Willy Vac Manifold



2. **Locate the diverter output valve on the sump assembly and turn the handle to the desired outlet location. (Keep in mind that one of the outlets is plumbed to send the contents overboard.)**

Figure 9: Diverter Output Valve



3. **Make sure the strainer basket and Plexiglas lid on the unit are properly in place.**

NOTE: *There is no latch to hold the lid in place, it is critical that the gasket remain free of debris that would prevent the lid from sealing when vacuum is applied.*

Figure 10: Strainer Basket and Plexiglas Lid



4. **Switch the toggle switch located on the control box to the ON position.**

The vacuum motor will run as long as this switch is ON. The liquid pump inside the sump assembly will run continuously as well.

On initial start up or after the unit has been drained, it is common for the Willy Vac to take a couple more seconds than usual to purge itself. This is realized by the vacuum motor stalling during liquid vacuuming. Once the pump has purged itself, the vacuum motor will resume running and the system will be fully operational.

NOTE: *This could be critical information to remember to prevent a mess if you are using the Willy Vac to keep up with a leak or if you are draining fluid directly into the vacuum hose. We strongly recommend to pre-purge the Willy Vac with some fluid initially to prevent a long delay in the vacuuming process causing a fluid spill.*

NOTE: *It is normal for the vacuum motor to cycle on and off during maximum water/liquid transferring. The machine will not vacuum liquids **in** any faster than it can pump them out.*

Automatic Operation

In the auto mode the unit will operate similar to a bilge pump. Use this mode during normal boat storage and operation.

- a. Open the valve (located on the suction valve manifold) that corresponds with the bilge area fitted with the auto water sensor.

NOTE: *Be sure that only one manifold valve is open at any time.*

- b. Locate the diverter valve on the sump assembly, turn the handle to the overboard discharge position.

- c. Switch the ON/OFF toggle switch down to the auto position. The blue LED light on the top of the Willy Vac control box should illuminate. The WATER PUMP ONLY switch should be switched to the DOWN position.

Figure 11: Control Box Switches



If there is water in the bilge compartment that is being monitored, the unit will turn on automatically and not turn off until:

- This water has been vacuumed from the bilge, *OR*
- The unit has run continuously in AUTO for 5 minutes.

Once the water has been removed from the water sensor, the Willy Vac will continue to run for approximately 45-60 seconds. This should be adequate time to vacuum the remaining water from the bilge and suction hose to prevent the water from draining back down the hose and into the bilge.

Water Pump Only Switch

The control box is equipped with a water pump only switch so you can rinse the Willy Vac out with fresh water to clean it and the sensors as well as help displace soap suds if there is too many in the machine without running the vacuum motor.

To activate the water pump only mode, simply switch the “water pump only” toggle switch on the control box to the up position and turn the machine on.

You will hear the water pump in the bottom of the machine running but not the vacuum motor.

Now you can remove the clear lid and strainer basket and squirt water into the Willy Vac. It should pump the water out of the Willy Vac faster than you can squirt it in.

Do this as often and as long as you feel necessary to flush and clean it out.

This really depends on what you do with the Willy Vac, If you ran some nasty stuff through it, clean it out and leave it as empty as possible and with fresh water in it, not muriatic acid and or oily water.

 **CAUTION**

**DO NOT SUPPLY POWER TO THE MACHINE UNTIL ALL
COMPONENTS ARE MOUNTED AND PLUGGED IN.**

Please call or email with questions:

Willy Vac Tech Support:

(843) 693-4336

www.willyvac.com