



WORK BOAT OR PLEASURE BOAT KEEPING COOL ON THE WATER IS NO EASY TASK.



Arctic Wave air conditioning systems get it done.



Working with many boat builders supplying the US Navy, Arctic Wolf™ has designed several engine driven AC systems to keep you cool. *If it keeps the Navy cool, it can keep you cool, too.* These 12 or 24 Volt systems produce 24,000 BTU of cooling and 30,000 BTU of heat, all in a box that measures 21.5”L x 20”W x 7”H. Small enough to be installed underneath flooring or behind bulkheads, this unit provides 600 CFM to 4 vents that can be installed around a cabin, as required.



A larger cooling unit is also available that provides 6 or more vents at 900 CFM with 31,000 BTU cooling and 34,000 BTU heat.



Both systems can be configured as a cool only unit to increase the cooling effectiveness and are available in a variety of mounting orientations. Built with predominantly aluminum and stainless steel components, these systems resist corrosion for an improved service life. A cupronickle water cooled condenser is mounted in the engine compartment. It is supplied with 6 GPM of sea water from the engine sea water pump outlet. Compressor mount and drive packages are available for many engines. Mount packages can be designed by request for engines not currently available.

When designing and installing an engine driven Marine air conditioning system for a work boat there are a number of factors to consider.

Capacity:

To determine the air conditioning requirements for a cabin area, multiply the cabin length x width and then multiply that by a load factor. Most work boats have an above deck pilot cabin and lots of window area and multiple person occupancy therefore use a higher load factor of 130 to 150. Below deck cabins often use a load factor of 60 -80 and mid deck 90 - 120

Example; Cabin size is 8 foot wide and 12 foot long (8 x 12 x 150 = 14,400 Btu's)

Ducting:

A variety of discharge set ups are available, however the flex hose outlets are the most common because they allow easy connections at louvers and can have outlets multiple places. Discharge outlets should be installed in a fashion that directs air flow near occupants and towards the top of the cabin area. Often one or two discharge outlets located in or near the operators instrument panel goes along way towards personal comfort. To ensure good air flow, try to keep the flex hose lengths to a maximum of 15' and minimize the bends. Also stretching the flex hose helps reduce air flow restriction. Return air to the evaporator box is equally important, and return air vents should be as large as possible. Its is often not possible to direct the return air right at the intake of the evaporator box, but only to that area, however restricting air at the intake will reduce air flow output to the louvers.



Evaporator box configuration and location:

The location of the evaporator box will be determined by the layout of the boat, so Hammond offers a large variety of evaporator configurations. Consider space to service the unit as well as ducting, drainage and hose hook ups. The ideal set up, would have short discharge hose lengths and ample return air from cabin.

Heat:

The typical evaporator box has a heat coil that utilizes engine coolant to generate the heat required for cabin heating. It is possible to operate the heater and air conditioning simultaneously to assist in the removal of humidity from the cabin. The heater coolant flow is controlled by an electronic water valve, and the operators control has a rotary pot switch. Generally heater hose is included with the kits, but not the connections to the engine unless requested.

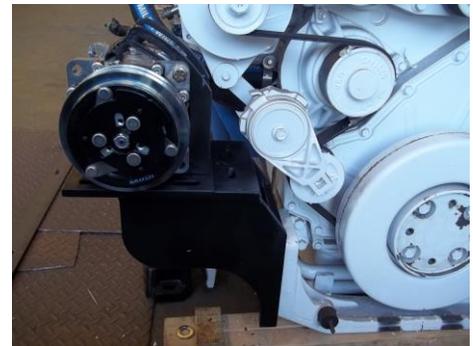
Condenser:

Most of Hammonds workboat set ups include a tube-in-tube style cupro-nickel seawater cooled condenser. This is a highly effective condenser for marine a/c systems. They are available in two, three or four ton sizes. The most common in our workboat kits are the three ton with a capacity of up to 36000 BTU. We recommend about 6 GPM of seawater flow. Hammond does not include or sell a seawater pump. Many boat builders utilize the water uptake pump for the engine, and tie in prior to exhaust so water supply to the condenser is as cool as possible. Generally the condenser is mounted in the engine compartment just a bit higher than the water line.



Compressor:

Most commonly utilized compressor with our kits for work boats is a seven cylinder Sanden FLX 7. This has been a very reliable unit. A larger capacity TM 21 compressor is also available for special situations, generally in a dual evaporator set up. Depending on the engine and set up, typically kits includes compressor drive pulley when required, the belt, compressor mount and all required hardware. Compressors in kits already have UV tracer dye added. Carefully check belt alignment and tension prior to starting the engine.



Controls:

The kit includes operators control panel with blower switch, AC on/off switch, rotary heater pot switch, and all the wiring to various components. Hammond uses tinned wiring throughout and weatherpack connectors for all our marine applications.



Hoses:

Aeroquip GH134 a/c hose and E-Z Clip™ fittings make life easy for the installer. Be sure to protect hose in areas where rubbing may occur and keep hose away from engine exhaust. Never string hoses too tight, leaving room for some movement. Kits include all required fitting and access ports for filling and servicing. Bulkhead fittings are available when requested. Heater hose and water hose for the condenser and clamps are all included with our marine kits.



Other:

Be sure to lightly oil “O” rings before assembly. Follow plumbing diagram and do not leave any A/C system open for any length of time. Only a qualified technician should hook up, vacuum or fill the a/c system with 134a refrigerant. Most of the workboats with the three ton condensers and medium length hoses will require 2.5 – 3 lbs of refrigerant. For more information on the Arctic Wave AC systems you can contact us at sales@hammondac.com.



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