



## *Installation/Operating Instructions*

### *MES 12/24 L/s 12Volt Marine Air Conditioners*

## **Installation**

1. Locate the area where the unit will be mounted and double check that there are **NO** obstructions. Make sure that the location allows for the cold air to return to the units evaporator.
2. Install the A/C control unit in a convenient location. Plug Control Unit connector into A/C unit receptacle . *fig.1*
3. Connect ball valve and male threaded nipple to thru-hull pickup GROCO 34 STH500W 1/2". Use teflon tape on fittings to ensure a water tight seal. *fig.2*
4. Find a location under the hull in the transom area to mount the **thru-hull pickup**. Make sure the fitting has the grate area facing forward toward the bow and that the fitting will always be in the water when the boat is underway. **Note: Before drilling be certain there are no obstructions.** Install and seal with marine underwater sealant/glue. *fig.3*
5. Find a suitable location for the **thru-hull water dump**. *fig.4* Install and seal with marine underwater sealant/glue. Remember to install at least 1 foot above the water line. **Thru-hull water dump**. *fig.5*
6. 6. Find a suitable location to install the water pump (under the water line is recommended). Attach strainer to water pump per manufacture instructions *fig.6* . Run the 14 gauge power wires from the unit to the water pump. The (RED) wire is the positive and the (BLACK) is the negative power to the pump. These are 14 gauge wires, and should be crimped with waterproof connectors to the pump connector. Connect the pump connector to A/C unit. *fig.8* The water pump is required to flow 3 to 4 gallons per minute. The current draw of the pump should not exceed 5 amps.

7. Connect the 1/2" hose from the water pump to the "water in" on the A/C unit and double clamp each end. *fig.7*
8. Connect a 1/2 in. hose from the thru-hull water dump fitting to the "water out" fitting on the A/C unit and double clamp each end. *fig.7*
9. Run the primary power wires from the A/C unit to the battery. Install a 60 amp marine grade explosion proof fuse and holder to the positive battery terminal.
10. Connect A/C Control unit. *fig.8*
11. Connect the power and ground connections to the unit *fig.8* (make sure the power switch is in the off position). Do not remove the compressors power ring terminals that are already installed. Tighten securely.
12. Connect the main power negative (-) wire (4 gauge) to the battery using ring terminal \*.
13. Connect the main power positive (+) wire (4 gauge) to the fuse that you connected to the battery.

*\*Note: holder, 4 gauge wire and ring terminal not provided*

14. Connect 4" insulated vent hose to unit no longer than 6 feet and run hose to area that is to be cooled. Remember for best results aim the vent toward the person to be cooled. Mount vent or ducting assembly and connect hose be sure to use non conductive hose with a non conductive fastener. For best results, make sure that air from the cooled area can be returned with ease to the A/C air inlet on the front of the unit. The best way of doing this is to mount the unit in the area that is being cooled . By recycling cool air, unit will provide coldest air possible. Do not mount this unit in engine area or where exhaust and gas fumes can be exposed to this unit.

This unit is NOT explosion proof!! NEVER operate unit without cover in place and secured!!

15. Secure all hoses and wires using tie wraps. Be careful not to restrict water flow or have moving parts come in contact with wires or hoses. Place boat in water or connect water source to inlet fitting. Turn the unit on . Water should begin to flow in 10-15 seconds. It takes approximately 10-15 minutes for the unit to reach maximum cooling capacity. Remember if the pump can not pickup water when moving then the unit will not operate.

Caution: If water does not begin to flow within 1 minute shut unit off and check all connections. Check for leaks and make certain all connections are secure. Fuses are located inside the unit. If the unit fails to turn on, check to see that all fuse's are good. NEVER operate unit without top cover in place!! Improper Servicing can lead to fire, electrocution, or explosion. Never service, repair or troubleshoot a system unless you are a professional service person. Bi monthly check internal flexible lines for leaks and repair or replace if necessary.

Note: All Electric and refrigerant charging and recovery needs to be done by a qualified individual.

### ***Additional parts required***

Qty. 12 -1" hose clamps

Qty. 4 gauge ring terminals

Qty. 1-Ball Valve brass 1/2"

Qty. 1-Underwater marine sealant

Qty. 1-female 1/2" NPT to 1/2" nipple brass fitting

Qty. 1- male 1/2" NPT to 1/2" nipple brass fitting

Qty. 1- 1/2" Inline water strainer

Qty. 1-Thru-hull 1/2" water dump

Qty. 1-Thru-hull 1/2" water pickup GROCO 34 STH500W 1/2"

Qty. 1-70 amp waterproof and explosion proof resettable breaker.

- \* 4 Gauge marine grade power and ground wire. Solder, crimp and heat shrink 3/8" marine grade terminals
- \* Measure from the battery to the mounting location of the unit to determine length. Avoid splicing if possible.
- \* 1/2" marine grade vinyl reinforced hose. Measure from the unit to the water fittings below and above the water line.

Qty.1 -12 volt self priming pump, continuous duty, run dry capable (3 gallon per minute minimum)

## **Maintenance**

1. **Winter:** In climates that reach 32 degrees F you must remove all water so that it does not freeze. Shoot pressured air into the outlet hole for at least 30 seconds to remove any water in the system.
2. **Bi-Monthly:**
  - a. Check, clean or replace air intake filter on front of evaporator.
  - b. Check, clean or replace water pump filter/strainer (not included)
  - c. check system and hoses for water leaks, especially 2 hoses inside unit fix any as required.
  - d. check evaporator condenser drain for blockages.

## **Troubleshooting**

**fig.1**



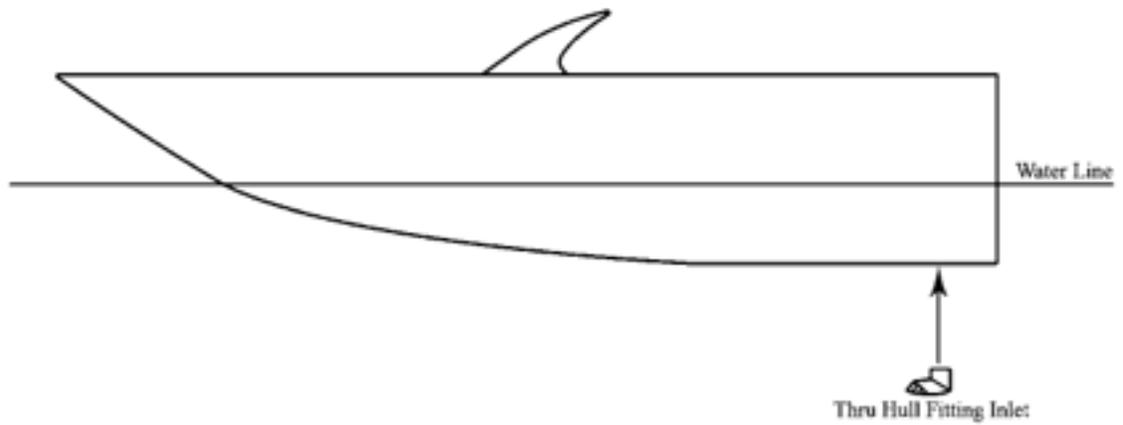
**fig.2**



Sympton				
<b>Unit will not cool</b>	Check Battery Level	Check for adequate water flow	Check for return air blockage	Check for blockage in water line
<b>Unit will not turn on</b>	Check Battery Level	Check control cable	Check for blown fuse on battery	

**fig.3**

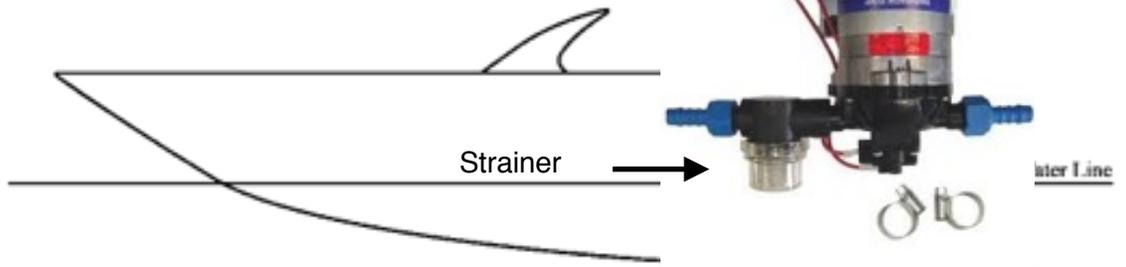
**fig.4**



**fig.5**



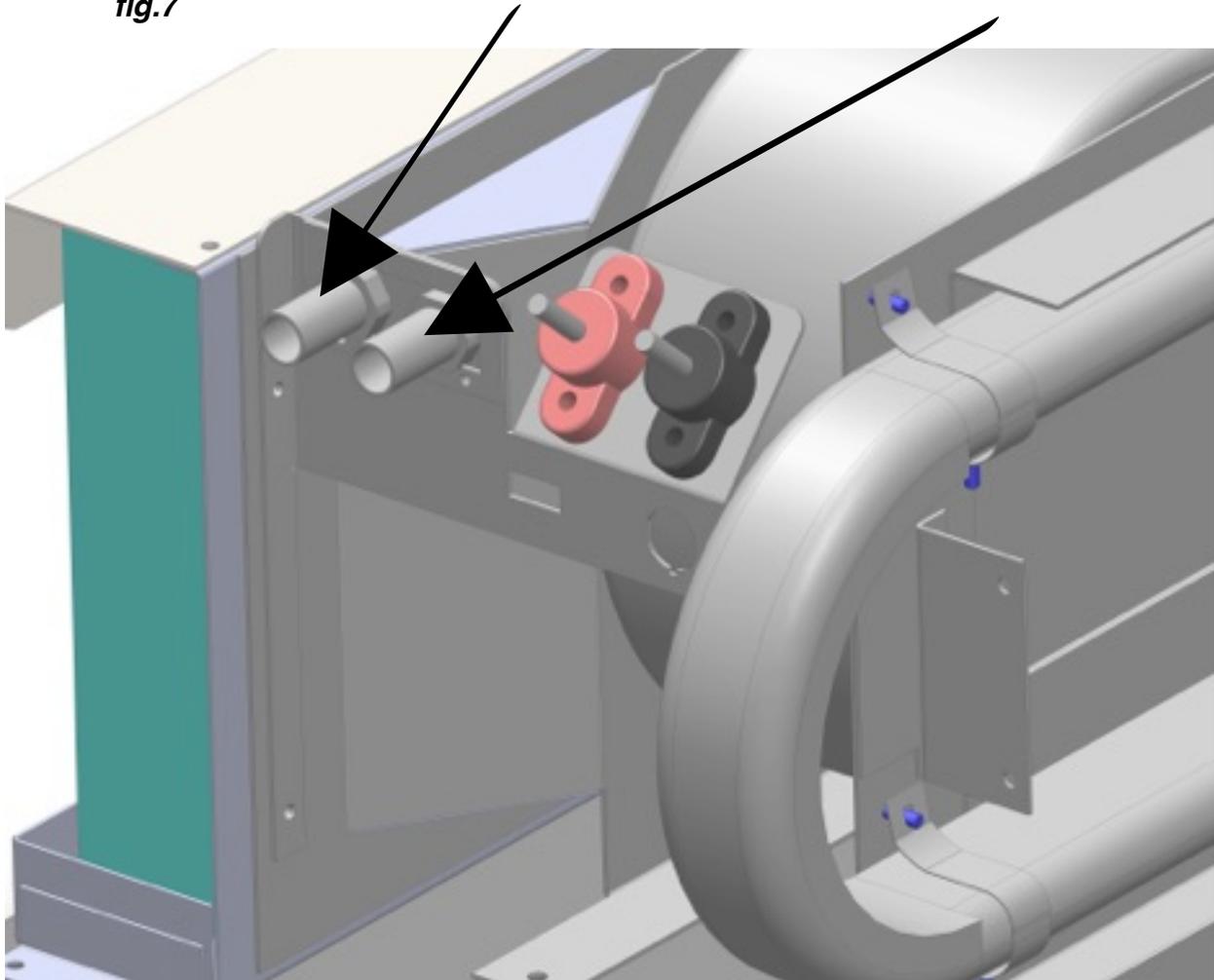
**fig.6**



Water out to thru-hull fitting

Water in from water pump

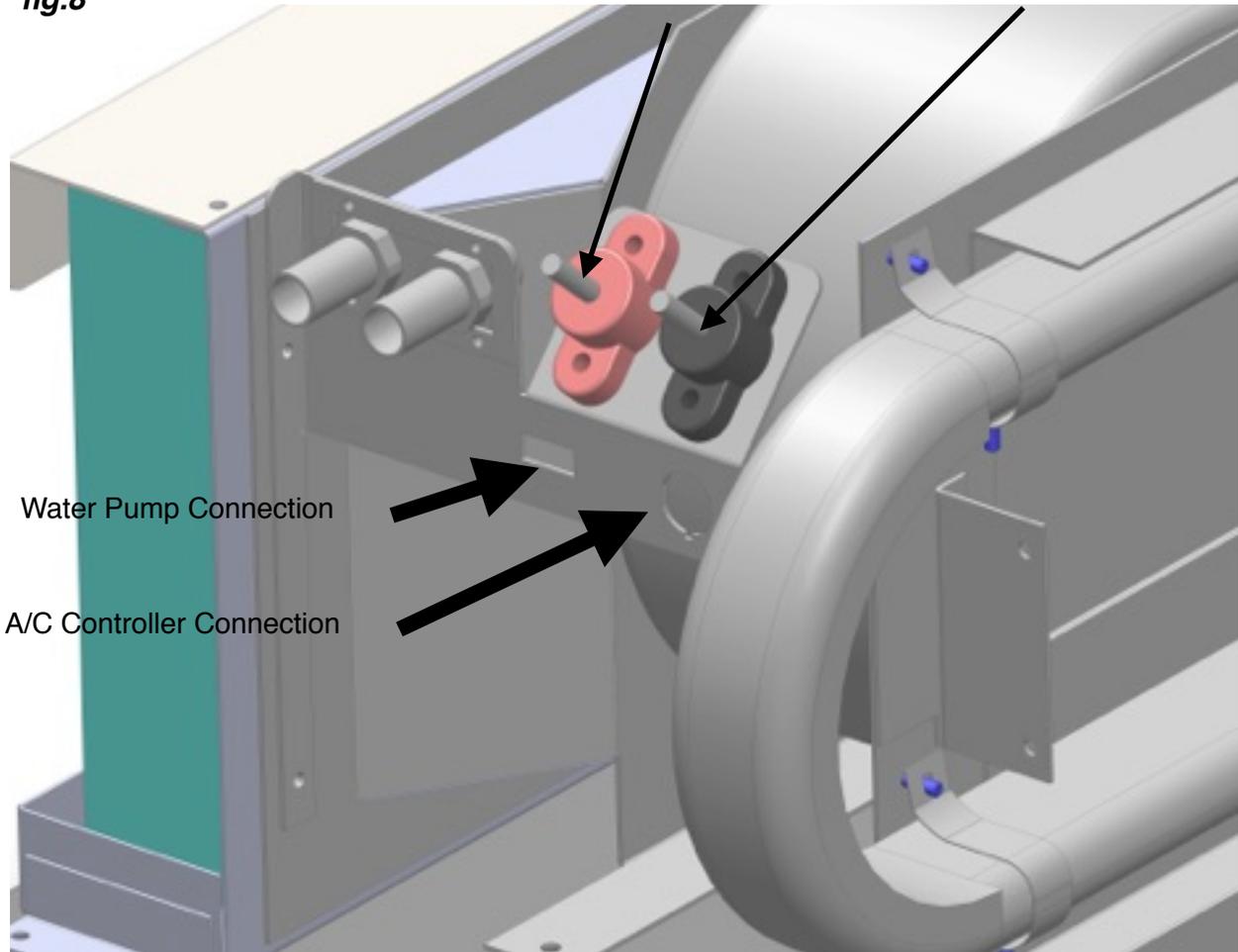
**fig.7**



Primary Power Positive

Primary Power Negative

fig.8



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