

## COMPRESSOR REPLACEMENT PROCEDURE (R-134A)

Inspect the expansion valve to be sure it is flowing and did not have a blockage. A blockage would be caused by excessive compressor heat burning the lubricating oil to sludge and the compressor locking. Excessive running with low or no charge is a factor.

If the v/u is plugged or shows evidence of black oil or deep vacuum, clean the V/U. Cleaning instructions are on the following page.

- Refit the v/u. Follow Swagelok re-assembly instructions.
- Install new RFD and a new compressor. Be sure the compressor is properly fitted to the base bracket. There must be no play between the compressor and base bracket.

**Do not add oil to this compressor.** The oil quantity has been adjusted to account for a new RFD and no standing oil in the system.

- Evacuate to the best vacuum.
- Close gauge valves and let the system stand. This is a preliminary test not a final leak test. The vacuum reading should hold steady.
- Add charge to bring the system pressure to bottle pressure.
- Carefully leak check all the connections in the system.
- Turn the compressor drive disk by hand 5 times to displace any oil that might be in the cylinders.
- Start the engine and operate the compressor at 1200 rpms while adding 12 oz. of refrigerant as vapor. Observe the sight glass as the line returning to the compressor becomes frosted.
- Slowly add more charge at a pressure under 20 psi by regulating the gauge valve until the glass shows foam then clears. .

**Refer to the Sea Frost engine drive manual.** Total (maximum) charge for this system will be 24 oz. The sight glass must clear or the unit will not operate properly. High velocity foam should transition to slow clear flow with occasional bubbles.

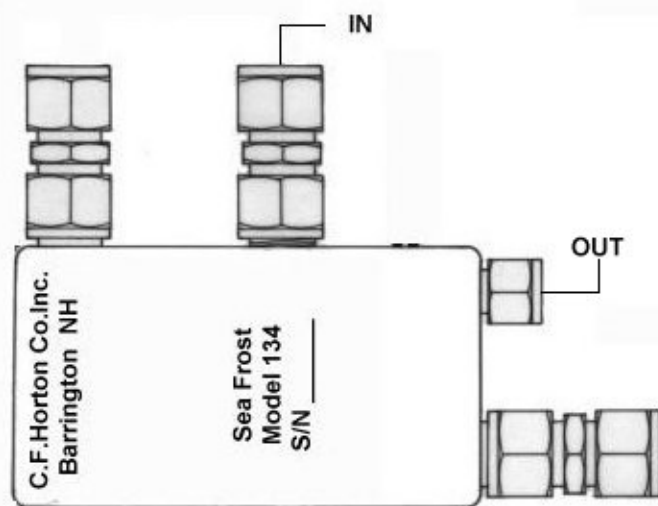
The low side pressure should drop slowly as the unit cools until after about 30 minutes it is in a slight vacuum. (This will depend upon the starting temperature and the number of holdover plates.) After charging a rapid drop into a vacuum indicates that the valve is plugged or frozen. See attached pressure charts. The high side will drop after the plates become frosted.

If the pressure exceeds 220 psi the high-pressure switch will disconnect the clutch and the timer lamp. If the unit cycles in the beginning of the cooling process it is overcharged or operating with low cooling water flow (check engine water pump and strainer). The compressor cycling may stop after a few minutes; however, cycling is an indication that the unit is operating at a higher-than-normal pressure. Do not allow the system to be operated in this overcharged state; doing so will cause excessive wear on the compressor. A warm start should never trip the high-pressure switch.

- Warm water pressures (Tropical) will be 140 to 170 on the high side.
- Cold-water pressures will be under 100 on the high side.
- Charging in cold water can overcharge the system causing the high pressure cut out to cycle as the water warms up later in the season or as the boat sails to southern waters. Accurately measuring the charge will help.
- Engine rpms, engine water pump size, and water temperature are all factors in the operating pressures of this system. Please call if you have questions.
- Operate the system through a complete pull-down cycle after charging. This may require waiting for the plates to warm up.

### Cleaning the valve unit (v/u)

With the v/u in this position fill this fitting with clean paint thinner (mineral spirits). Carburetor cleaner will also work. Make an adaptor from rubber hose to pressurize this fitting with compressed air. Use low air pressure (10 psi). High pressure will shut the valve.



Sludge, dirt, and contaminants will blow out. Collect the contaminants in a clean cloth. Repeat this process several times until the solvent comes out clean and there is air passage through the valve.

Note: The valve is a restrictive device that will not pass full volume high pressure input air. The valve will close under pressure if forcing air through the 1/4" input. (The drawing shows a backflow path for cleaning.)

