

**Service Notes – Starting problems on keel cooled Danfoss BD35F and BD50F – R-134a systems
(This applies to Frigoboat keel cool systems and Isotherm SP systems.)**

A keel cooled system has a condenser located inside a thru hull fitting that is normally the lowest component in the refrigerator system.

It sometimes happens that after a system has been shut down for an extended period the oil that is mixed with the refrigerant may collect inside the fitting. This can make it difficult to restart the system until the oil has been re distributed inside the system. This will be especially difficult if the water temperature is cold.

The first item to check and before doing any other procedures is to make absolutely certain the power supply is good. Even small voltage drops will cause the system to be unreliable. **See the Danfoss Troubleshooting sheet for details**

Procedure for re starting a hard to start keel cooled system.

The best way to restart the system is to set the compressor at the lowest possible speed setting and allow the system to run until the box temperature comes down to normal. The compressor may stop but will normally restart after a few minutes. Allow the system to stop and restart and continue running until the box temperature comes down. This may take several hours.

The system should be set to low speed operation – a simple way to do this is to place a jumper between terminals T and C directly on the Danfoss controller module.

Alternative method for systems with Frigoboat SSC (Smart Speed Control)

If the system is fitted with a Frigoboat SSC you can use the SSC in manual mode to set the speed to the lowest setting. If the system stops you will observe an error code on the red LED. The exact error is determined by counting the number of times the LED blinks. **See the Danfoss Troubleshooting sheet for details.** Allow the system to restart and continue running until the box temperature comes down. This may take several hours.

Once the system has been brought down to temperature the oil will be evenly distributed and the system will run normally. If you placed a jumper on the Danfoss module disconnect it now and reconnect the controls for normal operation.