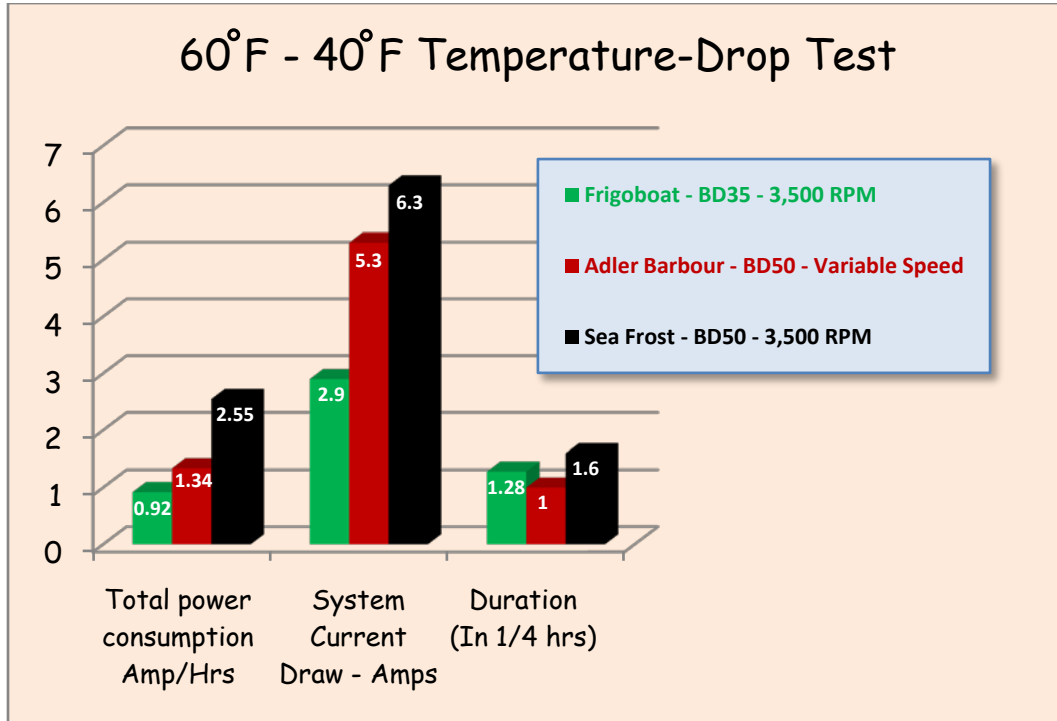
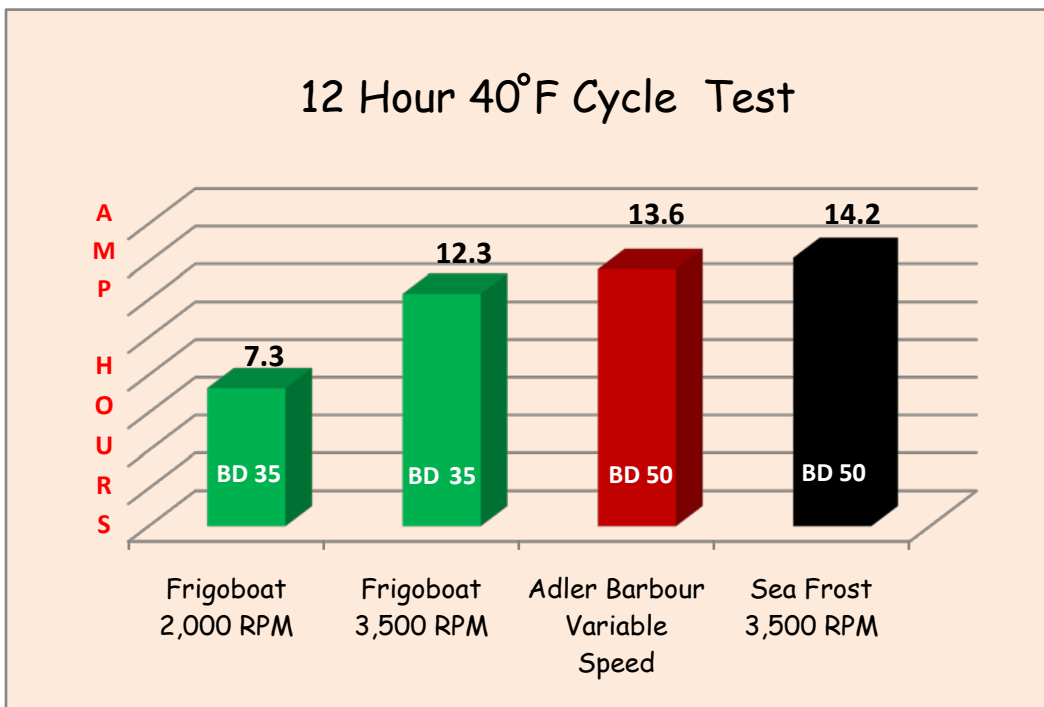


# “Green Graphs” of Practical Sailor Tests

*“... a combination of efficiency, reliability and capacity gave line honors to Frigoboat”*



As expected, the larger compressor and evaporator surface area of the Adler Barbour system produced the quickest pull-down, but the Frigoboat was by far the most efficient overall.



The Sea Frost running at 3,500 RPM used almost twice the energy of the Frigoboat operating at 2,000 RPM. Even at 3,500 RPM, the higher efficiency of the Frigoboat BD35 compressor results in the lowest amp/hour consumption.

Once again, Adler Barbour completed the test in the shortest time due to the larger evaporator surface area, but used the most power in doing so. The Sea Frost system took a full 3 hours longer than Adler Barbour, and over 1.5 hours longer than Frigoboat.

### Prices, as tested (as of 9/1/09)

<b>Adler Barbour</b>	\$1,508 - West Marine
<b>Frigoboat</b>	\$1,367 - Retail. Available through dealers
<b>Sea Frost</b>	\$1,695 - Sea Frost web site

### Equipment Notes

#### Compressors

<b>Adler Barbour</b>	Danfoss BD50 with automatically varying speed controller - AEO
<b>Frigoboat</b>	Danfoss BD35 with standard controller and user-adjustable speed control from 2,000 to 3,500 RPM
<b>Sea Frost</b>	Danfoss BD50 with AEO controller set to run at maximum speed – 3,500 RPM

Both Adler Barbour and Sea Frost utilized the BD50 compressor, while Frigoboat employed the smaller capacity BD35 model for better efficiency and lower overall power consumption. The Frigoboat Capri 35 is also available with a BD 50 compressor for larger applications and is designated the Capri 50.

#### Evaporators

<b>Adler Barbour</b>	Large aluminum “Bin” type with internal freezer section. Surface area – 3.3 sq ft. Freezer volume – 0.63 cu ft
<b>Frigoboat</b>	Small aluminum “Bin” type with internal freezer section. Surface area – 2.5 sq ft. Freezer volume – 0.4 cu ft
<b>Sea Frost</b>	Stainless steel flat panel with no freezer capability. Surface area – 3.0 sq ft. No freezer

For the 8 cu ft test box, Adler Barbour chose to send their large Bin evaporator model, even though their smaller Bin is rated for boxes up to 9 cu ft. The extra surface area of the large bin gives a faster pull-down but would result in poor freezer performance. Frigoboat also has a large Bin evaporator available, but submitted their small Bin, which is the appropriate choice for an 8 cu ft box. Sea Frost uses flat panel evaporators made of stainless steel, which is durable and attractive but has poor heat transfer properties. (Aluminum has a heat transfer rate approximately 16 times greater than stainless steel). Adler Barbour and Frigoboat both offer aluminum flat plates that, unlike the Sea Frost plates, can be bent to conform to the contours of an insulated box or cabinet.

#### Metering Devices

<b>Adler Barbour</b>	Capillary tube
<b>Frigoboat</b>	Capillary tube
<b>Sea Frost</b>	Automatic Expansion Valve – AEV (Also known as a Constant Pressure Valve)

The capillary tube (cap tube) used by Adler Barbour and Frigoboat has no moving parts and operates efficiently over a wide range of conditions. The AEV used by Sea Frost is a mechanical device with several moving parts. AEV’s are best suited for constant loads.

#### Thermostats

<b>Adler Barbour</b>	Mechanical type with sensing tube attached to evaporator. Dial adjustment.
<b>Frigoboat</b>	Mechanical type with sensing tube attached to evaporator. Dial adjustment.
<b>Sea Frost</b>	Digital thermostat/thermometer with remote sensors for display and control. Digital temperature read-out.

Sea Frost uses a mechanical thermostat in their basic system, of the same type that Adler Barbour and Frigoboat sent to the tests, but chose instead to send their optional digital thermostat/thermometer. Both Adler Barbour and Frigoboat also offer digital versions as an option, as these can result in far more accurate control of a system, resulting in better performance and efficiency.

