

# AMERICAN AIR COMPANY, INC.

Box 19646, Charlotte, North Carolina 28219

27 January 93

Dr. Alan D. Roth  
Advanced Product Distributors, Inc.  
10849 Bucknell Drive  
Wheaton, Maryland 20902

Dear Dr. Roth:

We are a custom air conditioner manufacturing facility that specializes in transport systems. Our day-to-day business involves fan motors, motor compressors, engines, and motor generators. We also manufacture a complete line of marine air conditioning systems.

In a boat, the more compact you make the system, the easier it is to sell. For this reason we use rotary compressors. In our field, a number of major manufacturers have produced systems with rotary compressors but many of these companies have had major problems over the years with motor burnout and have since dropped the rotary format. We, on the other hand, have continued to use it. Coupled with quality design and the best compressors on the market, we have had good success. However, we remain sensitive to the need for protection against motor burnout if there is a loss of refrigerant or voltage.

After seeing your demonstration and reading the documentation on Militec-1, we saw a potential for added protection for the rotary compressor. We decided to try it out and the following is how we tested it and what we found:

We first established a baseline for the subject compressor, a 13,500 Btu/hr Matsushita rotary that was drawing 11.2 amps and operated at about 230°F with a 73°F ambient temperature. Through an oil pump hooked into the suction line, we added 1/4 ounce of Militec-1 to the 9.8 ounces of compressor oil already in the compressor (which held 31.8 ounces of R-22 refrigerant). We then allowed the compressor to operate for about an hour, giving the Militec-1 time to bond with the metal. At the end of the hour, the compressor body was 194°F, a drop of 36°F. We also noted the amp draw was down to 9.4, a drop of 1.8 amps.

To further test Militec-1, we recovered the refrigerant from the system and ran the unit dry. This was a very risky test as the refrigerant is needed to cool the system and without it the compressor would normally overheat and lock up within a few minutes. Instead, we watched the system operate for two hours, at the end of which it had only heated up to 249°F. It is rated to handle 266°F, but we then reset the overload to 249°F to shut the system down. We let the system cool for two hours, reintroduced the refrigerant and restarted it. It ran as it had before we recovered the refrigerant. The two hours of operation without refrigerant had no adverse effect.

Without any changes, this system is operating today as our display model. It just ran 10 hours a day for 10 days inside our show area at the New York National Boat Show. Prospective customers were impressed as it was producing a 20°F differential in temperature while 16-18°F is the norm. We are now using Militec-1 in all our systems with good results.

Sincerely,

Dan Kovach  
Sales Engineer

