



October 9, 2003

MACBONE FIELD SERVICE ADVISORY

Subject: Thermostat

Observation

The device in all MacBone air conditioning units with the operator adjustable knob on it is a 60° to 90°F comfort thermostat. The sensing tube on this thermostat is intended to be located so that it senses the temperature of the air returning to the MacBone unit from the cab. To accomplish this, we wrap this tube around the thermostat, which is in the return air stream, and secure it with tie wraps.

Problem

Recently, we have had cases where this tube was removed from around the thermostat and the end of the tube inserted into the fins of the evaporator as if the thermostat were a "FREEZESTAT". This device is NOT a freezestat and inserting the tube into the evaporator coil fins is NOT correct. If this is being done because the evaporator coil is icing, you are on the wrong track; the problem is elsewhere. It will stop the coil from icing, but will also keep the compressor off most of the time, resulting in poor cooling.

Result

If the tube is inserted into the coil fins, the thermostat will turn the compressor off when the coil temperature reaches 60°F, which is almost immediately, and back on again when the coil warms up 3 degrees, which is almost immediately also. This quick cycling of the compressor, especially after some system head pressure builds up, is hard on the drive train and the evaporator will never get cold enough to do much cooling.

Solution

If you know of, or ever see the thermostat tube removed from around the thermostat where it is originally installed, and pushed into the coil fins, pull it out of the coil fins and secure it back around the thermostat. If the tube gets broken in the process, the thermostat will think the cab is cold and will keep the compressor off so that the unit will not cool. In this event, replace the thermostat, part # C1010-00.

Comments

Upon completion, every MacBone unit is bench tested for an hour or more and bench tested again just before shipping. At any time, if a MacBone unit does not operate like you think it should, don't pick up a hammer, pick up the telephone and call, 24 hours a day, 7 days a week, toll free, 888-MACBONE, and review your thoughts with us. We are as close as your cell phone and we can help avoid costly and time consuming service errors. The MacBone product is different by design and cannot be serviced like any other systems or units.



Recent Case

Last month, a new MacBone unit was installed. It did not cool well, air flow was poor and the evaporator coil iced. The problem was diagnosed as the “freezestat” sensing tube not being inserted into the evaporator coil fins, so the tube was unwrapped from around the thermostat and inserted into the coil fins where it “should” be. When restarted, the unit still did not cool well but it was operated anyway with the compressor cycling rapidly. The real problem with this installation was that the drive oil supply and return lines were reversed during installation, resulting in the motor, fans and compressor turning backwards. (The motor in all MacBone units must turn clockwise when viewed toward the shaft end.) Backward operation won’t harm the motor or the compressor or the fans, but the fans won’t blow much air turning backwards, and this lack of air flow will cause the evaporator to freeze. Now we have a rapidly cycling compressor, because of the relocation of the thermostat tube, a buildup of head pressure, because the backwards condenser fan isn’t blowing much air, and, because of the rising head pressure, a compressor which is requiring high starting torque. The extra startup load is now causing the belts to slip because, also, when the system is turning backwards, the belt tensioning idler is pulled upward which loosens the belts. Now the slipping belts are being worn away resulting in failure. But there was no harm done, due to the careful design accomplished by the MacBone engineers in considering all field abuse possibilities and by using components which would stand the gaff. To fix the unit, we required only that the thermostat tube to be put back where it belonged, the belts replaced and the supply and return hydraulic lines connected properly.

Don’t Forget

Questions, problems, or just lonely, pick up the telephone, not a crowbar, and call:

888-MACBONE

WE CAN HELP!