



System Cleanup after Compressor Burnout

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GENERAL	NOTES
<p>The cleanup of a heat pump system after a burnout of the hermetic motor should be done with great care and may not be universally successful.</p> <p>Electrical shorts in a compressor result in high temperature that causes an amount of the refrigerant/oil mixture to break down into carbonaceous sludge, a corrosive acid, and water. These contaminants must be carefully removed because even small amounts of acid and water will attack replacement compressor motors. This recommendation is intended to provide a guideline in cleaning up our water based heat pumps after a burnout and are to be considered the minimum requirements.</p> <p>!! There is no guarantee this procedure will successfully rid the system of aggressive residual substances.</p> <p>PROCEDURE</p> <p>The following procedure is effective only if the system if the system is monitored after the installation of the replacement compressor to insure the cleanup is properly accomplished.</p> <ol style="list-style-type: none">1. Check to insure that burnout has occurred. Remove wires from the compressor terminals. Check the compressor for ground between the terminals and the compressor housing.2. Check for continuity between the common terminal and the run terminal and between the start terminal and the common terminal. Be sure that the compressor is cool to the touch if it has internal overload.3. Smell the refrigerant for the characteristic acid odor of a burnout.4. Recover the system charge, preferably in the liquid state, to an approved container.5. Remove the compressor.6. Check suction and discharge stubs. If clean, burnout may have occurred while the compressor was not rotating. If sludge is evident in the discharge line, the compressor was running during the burnout. If so, several changes of the liquid and suction filter-drivers will be necessary.7. Inspect the expansion valves and check valves. Clean or replace these valves.8. Replace the reversing valve.9. Correct the system fault that caused the burnout.10. Install the new compressor with new electrical components. (Run and start capacitors, start relays, and overload protections.) Thoroughly flush the system with whichever refrigerant it was intended to contain, or an alternative commercial flushing refrigerant solvent, and blow clean with dry nitrogen.11. Install an oversized liquid filter-drier with changeable cartridges.12. Install an oversized suction line filter-drier.13. Thoroughly flush accumulator (if used) and receiver tanks (if used) to remove any trapped sludge.14. Evacuate the system to less than 500 microns for several hours. Allow the system to stand for several hours to insure vacuum.15. Charge the system and place into operation. Immediately after stat-up, check	



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the pressure drops across the suction line filter-drier. This will serve as a base point to which subsequent pressure checks can be compared.

16. After running the system for an hour, measure the pressure drop across the suction line filter-drier.
17. Charge the suction line-drier whenever the pressure drop exceeds 15 psig.
18. Keep changing both the suction line filter-drier and the liquid line filter-drier until the pressure drop is less than 3 psig.
19. If the System has suffered multiple burnouts, it is advisable to test the oil in the replacement compressor for acid. It should be judged to be acid free before the system is considered satisfactorily cleaned.

SUMMARY

The above procedure for cleanup of systems after burnout, through the use of suction line filter-driers and liquid line filter-driers, will be satisfactory in most instance provided that the system is monitored and kept clean by repeated filter-drier changes as needed. The failure to follow these minimum cleanup recommendations will result in an excessive risk of a repeated burnout.