



System Clean-up Procedure

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- DIAGNOSIS** — Make certain that a motor burnout has actually occurred by running the proper electrical tests. Determine the severity of the burnout by analyzing the acid content of the lubricant from the burned out compressor. This can be done on the job with a TKO or ETK One Time Acid Test Kit, or OA1 Acid Test Kit. Note the color of the lubricant, the smell of the refrigerant, and if carbon deposits are present in the suction line.
- PLAN THE PROCEDURE** — Consider the following factors: If the lubricant is not acidic and none of the other indications of severe burnout are present, then the system can be classified as a “mild burnout” and cleaned up accordingly. Under these circumstances, it is easier to save the refrigerant. If a lubricant sample is desired for checking the progress of the clean-up, then a trap should be installed in the suction line. A semi-hermetic compressor can be examined and cleaned by having the head removed. A heat pump system will frequently require replacing the 4-way valve, or other special precautions. Systems with a critical charge must have the charge adjusted due to the added volume in the oversized filter-drier that is normally installed in the liquid line.
- MILD BURN-OUT** — If the analysis of the lubricant shows no acidity, then the system can be classified as a mild burnout, and cleaned up simply by installing an oversized Filter-Drier or PFG-163S in the liquid line. If the lubricant is not analyzed, and the other factors indicate some doubt, then the burnout should be considered severe and cleaned up as described below. **CAUTION** — Acid burns can result from touching the sludge in the burned out compressor. Rubber gloves should be worn when handling contaminated parts.
- SEVERE BURNOUTS** — These systems should be cleaned using the *suction line filter-drier method*. The refrigerant in the system can be saved, and must be removed using refrigerant recovery/ recycling equipment. The exact method chosen depends upon the availability of shutoff valves, the amount of charge, and the other equipment available. See the section on “Saving the Refrigerant.”
- Remove the burned out compressor and install the new compressor.
- Install a Suction Line Filter-Drier or Parker Replaceable Core Shell ahead of the new compressor. The access valve on the drier permits the pressure drop to be checked by installing gauges on the access valve and at the gauge port on the suction service valve. For systems without service valves, install a line tap valve downstream of the Catch-All Filter-Drier for the second connection.
- Remove the liquid line drier and install an oversized Filter-Drier or PFG-163S (one size larger than the normal selection size). Check the expansion valve and other controls to see if cleaning or replacement is required. Install a Sight Glass Moisture and Liquid Indicator.
- Evacuate the system according to the manufacturer’s recommendations. This will include the use of a high vacuum pump and a low vacuum micron gauge for measuring the vacuum obtained.
- Recharge the system through the access valve on the suction line filter-drier. Then start the system according to the manufacturer’s instructions.
- The use of a Filter-Drier installed permanently in the suction line permits the clean-up of a small system to be completed with one service call. The pressure drop across the suction line filter-drier should be measured during the first hour’s operation. If the pressure drop becomes excessive, then the suction line filter-drier should be replaced. If the equipment manufacturer’s recommendations are not available, the maximum pressure drop levels are suggested in the table below.
- In 24 hours take a lubricant sample. Observe the color and test for acidity. If the lubricant is dirty or acidic, replace the suction line and liquid line filter-driers. In two weeks re-check the color and acidity of the lubricant to see if another change of filter-driers is necessary. It may also be desirable to change the lubricant in the compressor. Before the job is complete, it is essential that the lubricant be clean and acid-free.

**SAVING THE REFRIGERANT** — The refrigerant is not damaged by the burnout, and can be reused, provided the contaminants are removed. When a mild burnout has occurred on a system with service valves, the refrigerant can be saved by closing the valves and trapping the refrigerant in the system, while changing the compressor. **The system can then be pumped down with the new compressor to save the refrigerant while installing an oversized Filter-Drier in the liquid line.**

If a severe burnout has occurred, the above procedure might damage the new compressor. Therefore, it is preferred that the refrigerant be removed from the system for reclamation. If no service valves are available then the refrigerant **must** be removed from the system. Recovery, recycling or reclamation of the refrigerant must be performed in accordance with EPA regulations. **Parker recommends the use of our HH style cores for cleaning up all systems after a hermetic motor burnout. These cores contain a desiccant mix that is suitable for removing all types of system contaminants.**

Maximum Recommended Pressure Drop - PSI for Suction Line Filter-Driers

System	Permanent Install		Temporary Install	
	R-22, 404A, etc.	R-12, 134a	R-22, 404A, etc.	R-12, 134a
Air Conditioning	3	2	8	6
Commercial	2	1-1/2	4	3
Low Temp	1	1/2	2	1

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