



POWER FLUSH KIT INSTRUCTIONS

GENERAL INFORMATION

ACE Power Flush is an ozone-safe solvent engineered specifically for flushing refrigeration and air conditioning systems. Used exactly like the old R-11 flushing process, ACE Power Flush is strong enough to rinse away particulate, sludge, carbon residues, acids, oils and water. It enhances system service and avoids the need for time-consuming repeat visits. ACE Power Flush should become an integral part of standard procedures for any major system repair, oil change-out or retrofit including cleaning of copper line sets in preparation of changing from R-22 Mineral Oil systems to R-410A P.O.E. Oil systems. Properly cleaned existing line sets can be used for new R-410A installations provided they are the correct size.

+++ SEE PAGE 5 FOR ADDITIONAL INFORMATION ON LINE SET CLEANING. +++

Based on new and patented HFC solvents developed by DuPont, ACE Power Flush is ozone-safe, non-toxic, non-flammable and compatible with most materials in a refrigeration system. The cleaner has excellent solvency characteristics.

A unique feature of the ACE Power Flush Injector Tank is the easy-to-use injection nozzle. Simply insert the rubber tipped injector into the refrigerant line and flush the system with no soldering in of extra valves or need for manifold gauges. The ACE Power Flush Injector Tank is also a 'one time' purchase, and can hold enough ACE Power Flush to clean a system with up to 14 tons capacity.

APPLICATIONS

From time to time, refrigeration and air conditioning systems suffer failures that result in contamination. The most common failure is a compressor burnout. During such an event, the refrigeration system becomes contaminated with large quantities of disintegrating particulate, sludge, acids, carbon residues and possibly moisture. All of these contaminants must be removed before the system is returned to service.

Previously, contaminated systems were flushed with the popular CFC-based solvent R-11. Due to the reduction of CFC products, R-11 is no longer practical. ACE Power Flush offers the benefits of R-11 without the environmental concerns. It is the solvent of choice to effectively scrub the inside of a refrigeration system. ACE Power Flush dries quickly, has a low boiling point (106°F), has no odor, will not attack components, provides optimum worker safety and is affordably priced.

FEATURES AND BENEFITS

- Safe, non-toxic, and non-flammable
- Used the same way as R-11

- Low boiling point enhances complete evaporation
- Cleaning is fast, efficient and verifiable
- Can be used for new system cleaning or retrofits
- The solvent is approved as part of the U.S. EPA's Significant New Alternatives Program (SNAP)
- Easy-to use refillable tank and injector tool make flushing the quickest and easiest of any system on the market.

GENERAL GUIDELINES

1. Use only the appropriate refrigerant, proper recovery equipment, component parts, tools and lubricants as established by industry standards and as listed in this service bulletin.
2. Do not inject the solvent into the compressor; only the supporting refrigeration system should be flushed.
3. Large systems, or systems with unusual configurations that could trap the solvent, should be disassembled and flushed section by section.
4. A single 16 oz. canister will flush a typical 5 to 7 ton capacity AC/R system. However, the exact amount of Power Flush required will vary by the internal design of the system, the nature of the system failure, the degree of contamination trapped in the system, and the temperatures at which the failure occurred.
5. If the system to be flushed includes larger components such as a receiver, we recommend a visual inspection. If these components appear to be contaminated and are small enough to be flushed with Power Flush, then do so. If they are too large to economically flush with Power Flush, then the use of the traditional degreasing solvent, such as ACE Super Degreasing Solvent (Part No. SDS) should be considered.

EQUIPMENT REQUIRED

The following equipment is required for each flushing operation:

1. For a typically soiled system, or when dealing with a refrigerant/oil change, you will need 2 oz of Power Flush for every ton of cooling capacity.
2. A small, re-sealable, waste container that will hold the solvent after it is flushed through the system. Ideally the solvent in the container must be visible so it can be inspected during the flushing process. This enables the technician to determine when the solvent begins to run clean, indicating that the system has been thoroughly purged.
3. A tank of clean compressed dry nitrogen with regulator set to 100 psig. The tank should be equipped with a clean refrigerant hose and will be used to pressurize the Power Flush Tool and drive the Power Flush through the ACR system. NEVER USE ANY OTHER GAS SOURCE OR OXYGEN!
4. A vacuum pump with the appropriate hoses and fittings.

5. Clean wipes or swabs to remove any residual oils or liquids that may drip or be spilled while purging the system.

6. Safety equipment: Never flush a system without eye protection and rubber gloves. Convoluted piping in certain systems can cause momentary spikes in the solvent flow during the flushing process, resulting in erratic purges, which could splash into eyes and onto skin.

SPECIFIC INSTRUCTIONS

- Confirm you have all the required components for the service as well as for the flushing operation prior to beginning.

- If system is still operational, remove the existing refrigerant and lubricant using the appropriate methods and recovery equipment.

- Review the configuration of the system. On larger systems, disassemble sections of the system so those individual portions can be cleaned section by section.

- De-energize all of the electrical leads and ensure they are safely positioned. Remove the following components:

- Disconnect the old compressor and remove it from the system.

- Remove filter drier cores. If it is easier or more cost-effective, install a by-pass loop around the filter drier accumulators, etc.

- On heat pumps, remove check valves, if present, and four-way reversing valves. Again, configure and install by-pass loops, if needed.

- Connect a waste container to a discharge port to capture the contaminated flushing solvent. As this solvent exits the system, it will contain oils, condensed water, acids, particulate and possibly other mechanical residues. Waste residues should be captured and disposed of according to local waste disposal regulations.

+ Use caution when opening Power Flush cans. Can temperatures over 100° F may cause a build-up of pressure. If cans are hot, run under cold water until temperatures are under 80° F.

DETAILED PROCEDURE

1. ALWAYS USE PERSONAL SAFETY EQUIPMENT SUCH AS GLOVES, GOGGLES, & PROTECTIVE WEAR.
2. Determine correct amount of Power Flush needed for job. Figure 2 to 3 oz per ton (add a couple of extra ounces for space below tank dip tube.)

3. Open and fill to desired level, close tank. Keep tank vertical.
4. Close ball valve on tank and attach small hose with injector nozzle to outlet side (non-ball valve side) of tank.
5. Connect the nitrogen with regulator set to 75 psi to the Power Flush Tank with a clean refrigerant hose from nitrogen to ball valve side of tank.
6. Slowly open nitrogen valve.
7. Slowly open flush ball valve. Tank MUST be vertical.
8. Rubber tipped injector can be used on lines approximately 1/4 to 1/2 inch. For larger lines, crimp line, solder in access valve, or use another existing port.
9. Insure exit point on line is slightly restricted or crimped if line is over 3/8 in size to allow for increased solvent velocity and scrubbing action.
10. Insert rubber tipped injection nozzle tightly into refrigerant line, pull trigger to release flush into system. Typically, only a few seconds burst of ACE Power Flush will be required to force the necessary ounces of the cleaner through the line set or system (Note: an alternate method is to hook hose onto an available port that does NOT contain a Schrader valve and inject ACE Power Flush by attaching the hose directly onto the valve instead of hand holding the injector nozzle.
11. Once ACE Power Flush solvent is discharged, remove injection nozzle and directly blow nitrogen through the system for an extra 1 to 2 minutes to 'agitate and scrub' the inside of the system. Eventually, all of the solvent will flow into the receiving container on the other side of the system.
12. Observe the solvent being captured by the receiving container. If it is running clean and clear, the system has been successfully flushed. If the solvent is murky or still containing particulate, flush again.
13. Make your repairs. Remove any by-pass loops you installed. Tie-in the expansion devices. Replace the filter/drier cores or assemblies. Secure the system.
14. Evacuate the system to a low micron pressure range with the vacuum pump. This will also evaporate any possible residual liquid solvent from the system. As the internal pressure drops, the solvent will boil into vapor and be removed from the system. Time for pulling the vacuum should be approximately fifteen minutes for a five-ton system depending on humidity.
15. As a final step, recharge the system with refrigerant and lubricants as recommended by the compressor or equipment manufacturer and the system instructions. Reconnect electrical and

electronic connections. Test the operation of the system. Wipe down the system, leaving the work area neat and clean.

FOR R-410A CONVERSIONS – CLEANING NEW OR EXISTING LINE SETS

• Use ACE Power Flush to clean line sets. This is especially beneficial when converting from R-22 to R-410A as Mineral oil trace residue is not compatible with P.O.E. oil used in R-410A systems. Establish one end of the line set as the injection point. The other end of the line set will be the exit point. To provide for longer contact time and better cleaning simply crimp the line slightly at the exit point. Inject ACE Power Flush in to the line set as per previous instructions.

Approximate amount of Ace Power Flush needed for flushing line set 1.5 to 5 ton

3/8" tubing	8 ounces	Per 100'
3/4" tubing	16 ounces	Per 100'

SAFETY AND ADDITIONAL POINTS

The waste solvent will contain used oils and other organic contamination. Pour the contaminated solvent into a waste oil drum for proper disposal. If the solvent needs to be transported, care should be taken to ensure the container is properly sealed to prevent spillage. Always dispose of waste oils according to local waste disposal regulations.

Do not smoke or use an open flame around these materials. Always use personal safety protection.

Reseal unused ACE Power Flush by storing it back in the original can and tightly sealing, or leave it in the injection, sealing the fittings tightly with standard 1/4" valve caps with rubber gaskets. Always use open containers of ACE Power Flush as soon as possible.

ACE Power Flush Replacement Part # 's

- Complete kit with Injector tank and 16 oz can # APFK**
- Tank Part # # AFT**
- Refill 16 Ounce # APF16**

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