

MODEL NUMBER: H1000

A/C COMPONENT FLUSHER

OPERATING MANUAL

THIS ENTIRE OPERATING MANUAL MUST BE READ AND UNDERSTOOD BEFORE ATTEMPTING TO USE THIS EQUIPMENT. IF THERE ARE ANY QUESTIONS, THEY SHOULD BE CLARIFIED BY CALLING HECAT, INC. AT THE NUMBER BELOW.



Manufactured by:

[HECAT, INC.](#)

[2910 Ridge Court, Cumming, GA 30041](#)

Licensed under U.S. patent #6,162,304

For the exclusive use of [Honeywell's Genesolv® SF](#)

- Contact [HECAT, Inc.](#) at 1-800-380-9501 or thru the contact page at www.hecatinc.com

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SAFETY WARNINGS

- **Wear protective equipment, including safety goggles and gloves, when working with refrigerants and solvents. Refrigerants and solvents can cause injuries.**
- **Equipment must be operated by qualified, certified A/C service professionals. Operator must be familiar with air conditioning and refrigeration systems, solvents, and the dangers of working with pressurized systems and components.**
- **Operator is responsible for complying with any and all applicable laws and regulations governing the use of this equipment, as well as the disposal of used solvents, waste oils, the equipment, and any of its components.**
- **This flushing machine is designed for the use of GENESOLV® SF ONLY. Use of any other product, including other GENESOLV® products in this equipment will void the manufacturer's warranty.**
- **DO NOT remove the cover. Unauthorized removal of the cover will void the manufacturer's warranty. Call Tech line (1-800-380-9501) before attempting any repair. Repairs are to be**

performed by trained and approved service technicians ONLY.

- **If used, an extension cord should be #12 AWG minimum and no more than 50 feet in length.**
- **This equipment should only be used in locations with mechanical ventilation that provides at least four air changes per hour.**
- **Avoid Breathing A/C refrigerant, lubricant, and flush vapor or mist. Exposure may irritate eyes, nose, and throat. To remove refrigerant from the A/C system, use recovery equipment which meets the current requirements of the EPA, and is certified to current SAE standards. Additional health and safety information may be obtained from the refrigerant, lubricant, and flush manufacturers.**
- **Caution – Do not pressure test or leak test HFC-134a service equipment and or vehicle air conditioning systems with compressed air. Some mixtures of air and HFC-134a have been shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage. Additional health and safety information can be obtained from refrigerant manufacturers.**



H1000 Features

- Closed loop system – no fumes – no mess – no solvent residues – no environmental release.
- Uses only GENESOLV® SF (HFC245fa) flushing solvent – the most effective “refrigerant” flush available.
- High flow liquid flush – blasting contaminants loose and washing away oils, dyes, and debris.
- Flush is aggressively miscible with PAG & POE – flush picks up waste oils like a sponge.
- Non-bypass particle filtering – inexpensive spin on filter - first step in recycling – removes larger solid particles.
- Distill & Recycle Flush – evaporates flush to separate out the waste oils, dyes, sealants, and other contaminants.
- No Solvent Disposal – complete solvent recovery and recycling for use over and over again.
- Waste Oil Separation – waste oils (dyes, sealants, etc.) are expelled into capture bottle at end of cycle.
- Auto Air Purge – used to expel waste oils.
- Pulls Light Vacuum to Dry Component – no solvent residue – leaves a clean “like new” component.
- Fully Automated – one button start – performs entire flushing process unattended – cycles times vary with the sizes of the components being flushed (approx. 30 to 40 minutes for most automotive components).
- Filter Indicators- informs operator of necessary filter service intervals.



H1000 Technical Specifications

- Flush Solvent: Honeywell Genesolv® SF only.
(See www.genesolv.com)
- Height: 46 inches - Width: 23 inches - Depth: 21 inches
- Machine Weight (empty): 202 LBS
- Shipping Weight (H1000, Box, & Pallet): 250 LBS
- Max. System Pressure, High side: 60 PSI
- Max. System Pressure, Low side 40 PSI
- Initial High Flow Flush Rate: Has been measured on a Compressor test stand as high as 10-12 GPM
- Contaminant Removal: 99%+
- Waste Oil Removal: 99%+
- Residual Flush Remaining: None
- Flush Capacity (empty): 25 LBS (2.3 gal.)
- Flush Refill (between marks on sight gauge):
approximately 5 LBS
- Hose Connections: Parker Quick Coupler #BST-3
(ST series industrial interchange quick couplers)
- Adapter Requirement: Hecat #FAD-100 is recommended
- Voltage: 110 VAC
- Full Load Amps: 14.4A (UL Requires 20A plug)

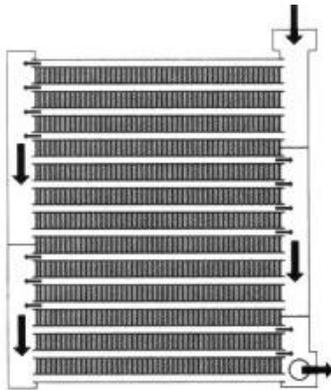
RECOMMENDED FLUSHING PROCEDURES

CONDENSERS

Complete or partially assembled systems cannot be flushed. You cannot flush through service ports. You must always isolate the heat exchanger and flush through the hoses or the most direct and unrestricted path to obtain the most satisfactory flushing results. Do not attempt to flush through compressors, orifice tubes, accumulators, or filter/dryers; these items must be replaced or serviced by other means.

For years, flushing Condensers has been very successful and there have been no major issues with flushing the simple pathways of the “Tube & Fin” or “Serpentine” designed Condensers. The most common Condenser flushing problems are associated with the “Parallel Flow” Condensers (PFC) and the phenomenon of “Black Death” or “Compressor Burnout”.

The following information is provided as a basic guide to flushing a condenser and cannot cover all the possible scenarios a technician may encounter.



◀ The arrows in this picture to the left are indicating the normal refrigerant flow path. In some PFC designs, a serviceable filter/dryer will be found as an integrated component. The filter/dryer desiccant bag and screen must be removed and the housing resealed before attempting to flush.

Condensers will have the inlet usually located at or near the top, and the outlet will usually be located at or near the bottom of the unit. As with most heat exchanger flushing, this unit should be back flushed first (bottom to top), in the opposite direction of normal refrigerant flow. This is done to back out possible debris that cannot be driven through the small passageways. Back flushing (bottom to top) “in car” may leave some acceptable solvent residue that will be removed following the “How to test a Component” section of this manual. A second flush in the opposite direction (top to bottom) can be done to be sure all the solvent is recovered. All HECAT flusher models are most efficient when recovering from the lowest point, which leaves a clean and dry component.

In cases of extreme high debris loads such as a catastrophic compressor failure, it may be necessary to even remove the PFC from its mountings and position the component to allow for gravity to assist in removing the larger metal pieces during the flushing process. A good understanding of the internal flow paths and design of the component being flushed is necessary to select the correct position. Contact the manufacturer’s tech line if necessary. Back flushing in the correct position, will provide for good debris removal and solvent recovery and usually can be accomplished with one flush.

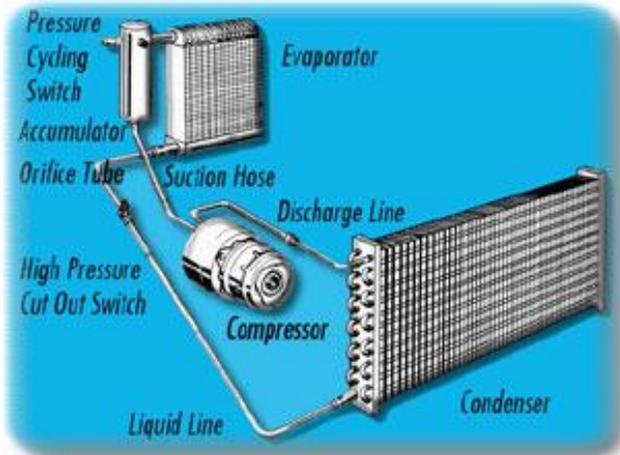
If flushing is for oil removal only and backing out debris is of no concern, then it would be acceptable to perform one flush in the normal refrigerant flow direction (top to bottom).

You can flush back and forth as much as you wish. Always make the last flush in the normal flow direction (top to bottom) to allow for the complete removal of the flushing solvent during the final purging and or vacuum process.

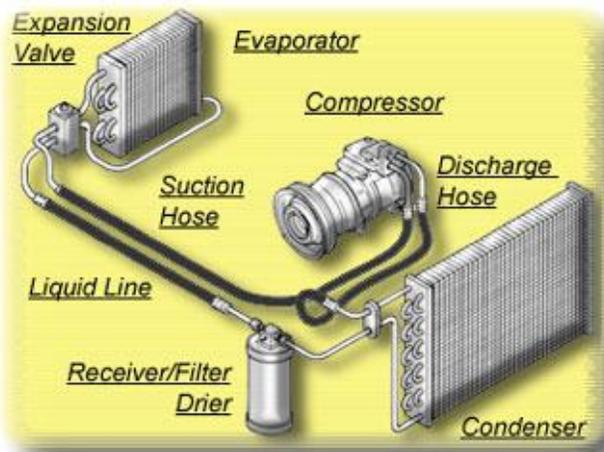
EVAPORATORS

Complete or partially assembled systems cannot be flushed. You cannot flush through service ports. You must always isolate the heat exchanger and flush through the hoses or the most direct and unrestricted path to obtain the most satisfactory flushing results. Do not attempt to flush through compressors, orifice tubes, accumulators, or filter/driers; these items must be replaced or serviced by other means.

Successful flushing of A/C evaporators has proven to save technicians the time and frustration related to the difficulty of in dash replacement, eliminates the guessing about how much waste oils are remaining and the concern of unknown debris, and reduces the overall repair cost, which will turn quotes into jobs. The following information is provided as a basic guide and does not cover all possible scenarios.



Common Orifice Tube (OT) systems will usually have an Accumulator located between the Evaporator and Compressor and the debris load is limited to what can pass through the OT and its screen. The Evaporators inlet is the lower or smaller of the two ports. Usually only one flush in the back flush direction by flushing in through the larger or upper port is required.



Common Thermal Expansion Valve (TXV) systems will usually have a filter/dryer located between the Condenser and the TXV and the debris is usually very limited from entering the Evaporator through the filter and TXV. However, in the case of a catastrophic Compressor failure, with nothing between the Evaporator outlet and the Compressor inlet, large debris does back up into the Evaporator when the system pressures equalize. This large debris cannot be flush through the component and must be backed out the direction it came in. The TXV should be removed and the component should be

flushed through the smaller of the two ports (normal refrigerant flow direction).

REAR AIR

For vehicles with rear air, the recommended procedure is to access the rear Evaporator and bypass the expansion device and flush the rear Evaporator. While disconnected from the front and rear, the long hoses can be connected together at one end and flushed like another component.

FLUSHING THROUGH A TXV

With more and more TXV's located on the passenger side of the fire wall, in rear air situations, and buried in aircraft interiors; access to these components can take many labor hours and this makes flushing through a TXV desirable.

There was success at this in the past with now regulated refrigerant flushes such as R-11 and R-113, and the HECAT H1000 has shown success due to the use of a similar highly evaporative "refrigerant" solvent (Genesolv SF) and the vacuum recovery process.

Please Note:

- No other model of HECAT flusher should be used to flush through a TXV.
 - If it is accessible, removal or bypass of the TXV is always highly recommended.
 - If you decide to flush through a TXV the following procedures should be followed.
1. With rubber tipped blow gun, blow compressed air (full shop pressure) through the TXV in the normal refrigerant flow (smaller line) first, to confirm that no debris is blocking the TXV or its inlet screen, if so equipped.
 2. Now blow in the back flow direction.
 - Be aware that TXV's can throttle closed at a set back pressure. You may need to regulate your air blow pressure below this point to allow for and confirm air flow (clear path).
 - If the TXV does indeed throttle closed at a set back pressure; it is recommended that you follow up by applying full pressure to confirm that it does throttle closed properly.
 3. If restrictions and debris are present, you can blow back and forth until you are satisfied restrictive debris was removed from the TXV inlet, before proceeding with a flush through the TXV.
 4. If the TXV cannot be cleared, it cannot be flushed through; and will need to be removed.
 5. Once you have confirmed clear air flow in both directions, you can proceed with flushing. Always flush through a TXV in the normal refrigerant flow direction (smaller line).
 6. When flushing is completed, following along with the instructions on "How to Test a Component"; repeat the steps 1 & 2 above to be sure the TXV is clear and ready to return to service.

LARGER COMPONENTS AND LOWER AMBIENT TEMPERATURES

The parameters this unit was originally designed around anticipated A/C service work in a hot summertime workshop environment. However, due to the development of many use applications, we have observed a unique issue occurring when operating this machine in climate controlled areas and in cooler climates, primarily when working with larger systems and or larger components (test stands, aircraft, etc).

The issue is Component "chilling" that will slow the recovery process

- Recovery may slow and time out (finish) resulting in a small amount of remaining solvent.
- This remaining solvent can be simply (and safely) blown out of the open component with nitrogen
- Or, it will naturally evaporate from an open component, as the component is allowed to warm; providing the ambient air temp is around 70 degree F or higher.
- If this is a persistent issue, and if possible to do so during the flushing process; apply a minimal heat load to the component with forced air and or even direct sunlight, to reduce this "chilling" effect, and improve the solvent recovery.

H1000 MACHINE OPERATION

YOU MUST READ ALL INSTRUCTIONS BEFORE OPERATING FOLLOW ALL SAFETY PRECAUTIONS

It is critical that you have read and understand the "Recommended Flushing Procedures". Understanding the system design differences and the types of failures that can occur is required for you to select the correct component flushing methods and directions that will yield the most desired results. Complete or partially assembled systems cannot be flushed. You cannot flush through service ports. You must always isolate the heat exchanger and flush through the hoses or the most direct and unrestricted path to obtain the most satisfactory flushing results. Do not attempt to flush through compressors, orifice tubes, accumulators, or filter/dryers; these items must be replaced or serviced by other means.

1. **Valves Closed:** Always be sure all 6 yellow handled ball valves (3 on source tank, 1 each on the T-strainer, flush hose, and return hose) are in the off position. These valves should only be opened when ready to start flushing procedure and closed immediately after flushing procedure is completed.
2. **Solvent:** Always verify flush level is between the red high and low marks on the source tank sight tube. Re-charge if necessary per included instruction in this manual. If you are flushing test stands, aircraft, and extremely large components; it is necessary to always start the flushing process with the solvent level at or very near the full mark.
3. **Waste Oil Bottle:** Verify waste oil bottle is empty and in place. Always dispose of waste oils in the proper manner according to federal, state, and local regulations & guidelines.
4. **T-Strainer:** Always install the T-Strainer accessory with the return hose. Turn the bowl to one side to eliminate another solvent pool to recover. Filter service intervals have been calibrated including the use of the T-Strainer. Failure to use the T-Strainer will require a spin on filter change with every run to prevent operational problems. Do not clean this polycarbonate bowl with alcohol or brake cleaner.
5. **Connecting Adapters:** Hecat Universal Adapter Kit #FAD-100 is recommended. It is recommended to use the system hoses and or lines for difficult to access components, this also cleans the hoses and lines ready for reuse. It is critical that you have read, understand, and connect the flush and return hoses to the proper ports according to the "Recommended Flushing Procedures". It is important to make the most proper and leak free connections. Leaking connections will require stopping the process to correct; and may require additional time to follow the procedures to get the unit ready for a re-start.
6. **Verify Pressure in the Solvent Flush Tank:** Verify a minimum of 20 PSI gas pressure exists (if not see 6a below) in the tank before starting; this minimum pressure may be present in most summer and warm climate days. Lower ambient temperatures can cause the gas pressure created by the refrigerant cleaner to be low at the start point. For maximum flush velocity and equipment performance; before starting a flush job, apply a nitrogen charge the tank, to raise the tank pressure to 20 PSI max. In extreme cold temperatures a 30 lb refrigerant tank heater blanket may also be needed.
 - a. To charge, remove the cap from the vent port under the black handled "vent" ball valve, and attach your charging line (see solvent re-charging procedure for picture). Open the black handled ball valve and charge in pressure until the tank gauge reads 20 PSI (MAX). Close the black handled ball valve, remove the charging line, and reinstall the cap. Dry compressed air may be substituted when nitrogen is not readily available.
 - b. In rare occasions the nitrogen charge from the supply tank can enter the fixed solvent flush tank. In this case you must bleed off this excess pressure until the gauge reads 20 PSI.
7. **Power:** Plug the power cord into a 110 volt 20 amp receptacle. The NEMA 5-20P plug is required by UL, and the appropriate 20 amp receptacle will be needed.
8. **Valves Open:** Now open all 6 yellow handled ball valves at source tank, T-Strainer, flush, and return hoses.
9. **Turn power on:** The circuit board will run quickly through a self-check by cycling through all the LED's. The Caution LED will flash when system is ready to start.
 - a. **NOTE:** Should a **power failure or any other power interruption** occur during the automated cycle, turn the power switch off and unplug. Because of possible residual

pressure it is recommended that you leave the machine connected to the component being flushed until power problem is corrected; unless you have found it necessary in step #12, to shut down and correct leaks at the connection points.

- b. **RESTART**: When power failure, leak problems, or any other reason for the shutdown have been corrected, it will now be necessary to recover potential flooded solvent from the system. This is done by starting the machine with the yellow handled liquid valve (above charging port) and the yellow handled ball valve at the end of the return hose, in the closed position (all other yellow handled ball valves should be opened). You will need to time 2 minutes and 15 seconds from the start, at which time you will open the valve at the end of the return hose, leaving the liquid valve closed for this entire “solvent recovery” run. Upon completion of this run, the unit will now ready to return back to proper flushing operation.
 10. **Push the start button**: The H1000 will require monitoring only for the first few minutes.
 11. **Quick results to see**: After vacuuming the component for 2 minutes the flusher will begin its pressurized liquid flush procedure. Observe the rapid liquid outflow and look for the flush to appear in the return hose. Because of the highly effective quality of the GENESOLV® SF you will see the majority of dark waste oils and dyes come out of the component in this initial return flow. The majority of the particulate debris will now also be seen in the T-Strainer.
 12. **Check for leaks**: During the observation of the initial liquid rush, you should verify there are no fluid leaks observed at the connections to the component being flushed. If no leaks are observed it is safe to perform other services to this vehicle while the flusher completes the remainder of its automated cycles.
 - a. **If leaks are observed**: Carefully try to tighten or correct. If this is not possible then shut the machine off and close all 6 yellow handled ball valves. Be very careful to safely bleed off any pressure before correcting a leak at the connections to the component being flushed. This leak must be satisfactorily resolved or the machine will not be able to pull a good vacuum during the recovery cycle. When the problem has been corrected, you will not be able to just restart and must refer to and follow the restart procedures in step #9b.
 13. **Flushing LED**: When lighted, the machine is running through the initial air evacuation process, blasting liquid flush processes, and some gassing agitation will be seen.
 14. **Recovery LED**: When lighted, the machine will finish the gas purge process, move to the final vacuum recovery; while constantly running the GENESOLV® SF recycling process.
 15. **Waste Oil Purge**: At the end of the recovery cycle you will hear a slight hiss as captured air is being purged and used to push the waste oils (dye, sealer, etc) out into the capture bottle on the back of the machine. Always dispose of waste oils in the proper manner according to federal, state, and local regulations and guidelines.
 16. **Complete LED**: A beeper will sound (5 beeps) and the LED will light indicating all cycles are now complete.
 17. **Valves Closed**: Immediately close all 6 yellow handle ball valves at source tank, T-Strainer, flush, and return hoses. The yellow handled ball valves should be closed as quickly as possible to provide for a safe disconnect. Failure to close the valves timely, may allow for vacuum to decay and/or a few PSI of pressure to be produced.
 18. **Safe to Disconnect**: Remove both the flush and return hoses using proper caution. It is normal to hear a slight hiss as the vacuum is lost when you disconnect the flush and return hoses from the component being cleaned. Keep the T-Strainer installed and follow the instructions on “How to test a Component for Cleanliness” found in this manual.
 19. **Turn power off and unplug the flusher**: Although this machine does pull a vacuum to recover all of the flush. The A/C system, when reassembled, must be properly evacuated and recharged with the correct types and amount of refrigerant and refrigerant oil according to the vehicle manufacturer’s specifications.
 20. **Error LED**: Follow instructions in the Troubleshooting Guide.
 21. **Service Filter(s) LED (Green & Red)**: Follow instructions in Filter Service Guide to change filters as necessary and reset this service indicator. Always clean Return Line T-Strainer after every use.
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How to Test a Component for Cleanliness

Although HECAT is very confident in the performance of the H1000, so many variables exist that can affect the flushing results such as ambient temperatures, component size, types of failures, and debris load; it is recommended that the technician employ the following suggested method to confirm satisfaction in component cleanliness and complete solvent recovery. It is known as the air “Pop” and considered by some to be “Old School”, but we prefer to consider it what “Experienced” technicians do to confirm cleanliness.

Using a high flow rubber tipped blow gun with nitrogen or very dry and filtered shop air, blow through the component using the T-Strainer accessory (cleaned) on the opposite port to catch and inspect for any remaining debris.

Always blow in the most desired flushing direction used to remove debris as outlined in the “Recommended Flushing Procedures”. Failure to blow in the correct direction will just push any possible remaining debris deeper into the component.

- Condenser – Blow in at lower port with T-Strainer at upper port.
- Evaporator (TXV system) - Blow through small port (refrigerant flow direction) whether flushing through the TXV or not.
- Evaporator (OT system) – Blow through larger port, opposite of refrigerant flow direction.

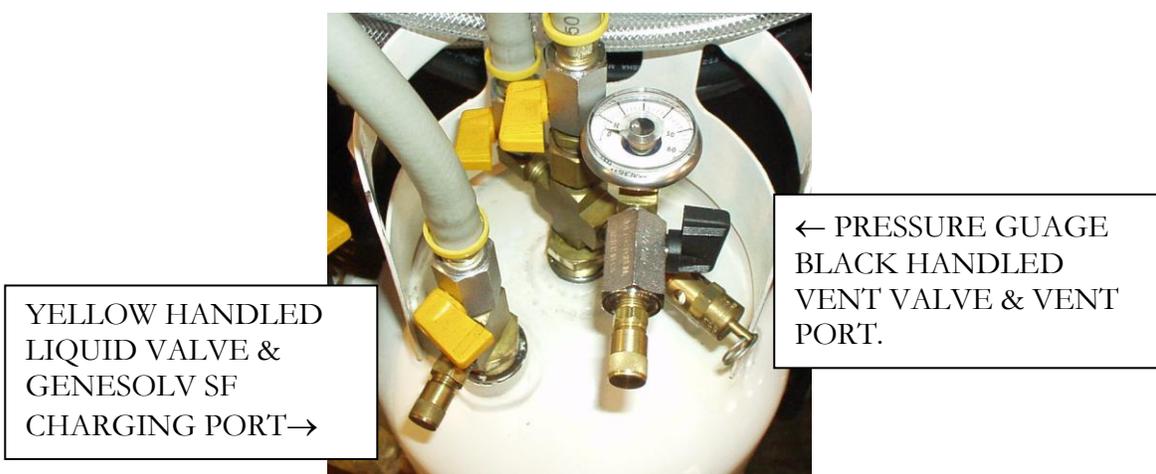
The first “Pop” is to confirm complete removal of the solvent. In the rare occurrence that trace solvent is found to be remaining, this will quickly and completely evaporate with a short blow. If remaining solvent seems to be regularly reoccurring, please contact the manufacturer’s tech line at (800) 380-9501 or contact us thru our web site at www.hecatinc.com.

Continue to blast the component hard with a generous volume. Because of the known effectiveness for the solvent to remove all the contaminant holding waste oils and sludge, any possible remaining debris particles are now loose and dry and should readily blow out. If nothing or a few very small specs are found in the T-Strainer, this confirms the component is clean. If a concerning amount of debris is blown out, the technician at this point can “Pop” more to remove this now dry debris or repeat the flushing process to confirm their complete satisfaction in the goal of a clean and dry component.

INSTRUCTIONS FOR CHARGING & RE-CHARGING SOLVENT

CAUTION: It is very important that you read and understand instructions before beginning re-charging procedure.

1. Unplug the H1000's power cord.
2. Be sure to use the appropriate safety precautions (GOGGLES AND GLOVES SUGGESTED).
3. Obtain a full, 50 lb. supply cylinder of **GENESOLV® SF**
4. Supply cylinder is shipped unpressurized to meet Non Hazardous Material & Export standards. Cylinder is a dip tube type for upright pressure filling and needs to be charged with 100 PSI of Nitrogen to be able to perform the proper pressure filling of the H1000 fixed source tank. If Nitrogen is not available, "paint booth" quality filtered and dry shop air can be used. 100PSI ONLY
5. Be sure all 3 yellow handled valves on the H1000 fixed source tank are closed.
6. Using a standard refrigerant charging hose supplied with the H1000; connect the straight end of the charging hose (hand tight only) to the 50 lb. supply cylinder of **GENESOLV® SF**
7. Remove cap and attach (hand tight only) the other end of the charging hose (with the bent end and Schrader valve depressor) to the H1000 fixed source tank charging port. The charging port is located under the single yellow handled valve (it is not necessary to open this valve). When recharging, this tank is under pressure, make this connection quickly and be prepared for some release.



8. Open **GENESOLV® SF** supply cylinder valve and begin the filling process of the H1000's fixed source tank. Remove the cap and slowly open the black handled vent valve located at top of H1000 fixed source tank nearest to safety pop-off valve, to vent off gas pressure and allow for the fluid to come in. BE SURE THIS TRANSFER IS DONE IN WELL-VENTILATED AREA.
9. Fill the H1000's fixed source tank to the max/full level between the high and low marks (red lines) on the sight tube. DO NOT OVERFILL, as this will limit headspace. Headspace is required to maintain safe gas pressure levels, overfilling may cause safety valve to open and release valuable product.
10. Close the valve on the supply cylinder of **GENESOLV® SF**. USE CAUTION: Liquid under pressure may now be trapped in the charging line. Allow a moment for this pressure to dissipate some, then carefully and quickly, to allow the Schrader valve to seat; disconnect charging hose from H1000's fixed source tank first and then the supply cylinder of **GENESOLV® SF**.
11. Close the vent valve on the H1000's fixed source tank and cap the vent port. Cap the H1000 fixed source tank charging port.
12. After charging is complete, let the freshly filled tank sit for about 30 minutes to allow for gas pressure to build and stabilize. The H1000 is now ready to be used again.
13. Store your supply cylinder of **GENESOLV® SF** in an appropriate area.

H1000 Service Parts

Solvent: Use only **Genesolv® SF** from HECAT
DO NOT SUBSTITUTE

There is no other solvent that can be used in the H1000. **This item must be ordered directly from Hecat, Inc. or one of its Distributors.** This item should be kept in stock for regular refills of the solvent tank as outlined in the Service Guide. Available in 50 lb. Dot 39 container.

Spin on particle filter: Use only **Fram #PH2951** from HECAT
DO NOT SUBSTITUTE

There is a pick up tube built into the filter head that is sized for this filter. Substitution with shorter element will block pick up tube. Substitution with a longer element will affect the recovery cycle. **This item can be sourced locally or ordered directly from Hecat, Inc. or one of its Distributors.** This item should be kept in stock for regular service intervals (20 cycles) as outlined in the Service Guide.

Suction Filter/Dryer: Use only **Parker SLD8-3SVHH** from HECAT
DO NOT SUBSTITUTE

The Compressor manufacturer requires this filter for internal compressor warranty. This item is **modified** by Hecat for use with the H1000 Flusher. **This item must be ordered directly from Hecat, Inc. or one of its Distributors.** This item should be kept in stock for regular service intervals (60 cycles) as outlined in the Service Guide.

**Solvent and filters can be purchased from your supplying Distributor.
To order directly from equipment manufacturer...**

- Call (800) 380-9501 for current pricing and availability.
- All direct orders will ship Prepaid or COD, FOB factory.

Hecat, Inc. 2910 Ridge Court, Cumming, GA 30041

H1000 FILTER SERVICE GUIDE

Flashing Green LED: This indicator has measured 20 completed flush cycles. It is now recommended you replace the spin on filter. This inexpensive service is recommended to prevent buildup of debris that could cause a restriction and reduce the effectiveness of the unit. Note: If for any reason, you flush a system component without using the return line T-Strainer; the spin on filter must be changed every time the T-Strainer is not used.

Flashing Red LED: This indicator has measured 60 completed flush cycles. It is now recommended you change the spin on filter again (another 20 run cycle) and test or replace the suction filter dryer. If you are not going to test this filter (taking responsibility to monitor its performance), then it should just be replaced.

THIS PROCEDURE HAS NOW CHANGED. SEE FIELD SERVICE NOTIFICATION ADDED AT END OF MANUAL

To test the suction filter for pressure drop/vacuum increase; you will need to connect two low-pressure standard refrigeration test hose with gauge (capable of reading pressure & vacuum) to the two test ports on the suction filter dryer. Run the flusher through a full cycle (you will need to reset LED first) while periodically observing and noting pressure drop (depending on what cycle the unit is in, this can also be read as a vacuum increase) across the suction filter dryer. Flow path is from top to bottom.

- Replace the suction filter dryer if pressure on top port is 4 PSI or more than pressure noted on bottom port (ex. top gauge reads 15 PSI and bottom gauge reads 10 PSI – replace suction filter dryer).
- Replace the suction filter dryer if vacuum on lower port reads 8 in/mercury or lower than vacuum reading than top port (ex. bottom port is at 19 in/mercury and the reading on top port is 10 in/mercury – replace suction filter dryer).

To replace the suction filter you will need to loosen the band clamp and the two flare fitting connections. The 90 degree fittings will need to be removed from the old filter and reused. Clean the threads before reusing. We use and recommend the Loctite hydraulic thread sealant to be used on the 1/8 NPT threads (do not use sealant on flare fittings). Install new filter (flow arrow points down) and tighten flare fittings and clamp. Connect Low Side Pressure Gauge to Low Side service port. Connect regulated (30 psi max) nitrogen or dry air line to High Side service port and apply pressure. Use spray soap solution to verify there are no leaks at the suction filter connections (repair if necessary). Remove pressure line from High Side service port and connect vacuum pump; pull system down to 12 inches of vacuum. Disconnect vacuum pump and low pressure gauge; system is now ready to run again.

LED reset procedure: Be sure power switch is off and then plug in machine. While holding start button down, turn power switch on. Continue to hold start button for 5 seconds until you hear 2 short beeps. Flashing filter service LED has now been reset.

H1000 TROUBLESHOOTING GUIDE

It is very important to remember:

Should the error LED light and the machine has shut down...

FOR SAFETY REASONS, **DO NOT** disconnect any lines. This may cause a messy, expensive, and unnecessary loss of solvent.

ERROR CODES:

The machine will shut down to prevent additional damage.

- Flashing Error LED: The circuit board has failed to receive a consistent signal from the thermostatic sensor.
- Solid Error LED (w/beeper): No temp rise indicates potential heat wire or circuitry failure.

As this error may just be a programmed “time out” in a sequence; the first diagnostic step is to restart following **step 9b** in the “Machine Operation” section of this manual.

If this does not resolve the issue and the error continues, call Hecat, Inc. at 1-800-380-9501 or e-mail tech-info@hecatinc.com for assistance and further instructions.

During proof testing, no other problems have appeared that justify entering any more error codes into the software programming. You should not experience any other issues that will light the error LED.

WARRANTY STATEMENT

MODEL #H1000 A/C COMPONENT FLUSHER

PLEASE READ!!!!

CAUTION: This machine is designed and approved to use **Honeywell Genesolv® SF** flush only.

This warranty shall not apply to any flusher or part thereof which has been damaged due to misuse, neglect, accident, or due to the use of a non-approved solvent. Neither shall this warranty apply to any flusher repaired by an unauthorized person. Evidence of such will void any warranties.

Hecat, Inc. offers to the user of the Flusher a one-year limited warranty. This warranty covers all manufacturing defects in materials and workmanship for one year from the date of purchase and is offered only to the original purchaser.

To make a warranty claim, contact **Hecat, Inc.** directly at 1-800-380-9501 for shipping instructions and a return authorization number that will be needed.

Units for warranty evaluation must be shipped freight *pre-paid* to the manufacturer's address above. Collect shipments will be refused. Any flusher returned must be accompanied by a letter referencing the return authorization number, briefly outlining the malfunction, proof of purchase with date purchased, and owner's name, address, and contact information.

Upon receipt of unit for repair, **Hecat, Inc.** will evaluate the warranty claim and then, if approved, repair or replace at its option any unit returned.

Our policy is to inspect a warranty claim immediately; complete repairs as necessary and ship unit back out to the customer within 24 to 48 regular business hours. We are not responsible for any delays caused by holidays or transit times.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the following statement may not apply in your state. Incidental or consequential damages occurring as a result of usage of this flusher are not covered by this manufacturer's warranty.

There are no other warranties implied or stated.



FIELD SERVICE NOTIFICATION

DATE ISSUED

September, 2014.

MODEL(S) EFFECTED

HECAT H1000 Refrigerant Flush Cart (S/N ALL).

FLUSH & RETURN HOSE ASSEMBLY REPLACEMENT

H1000 Flush and Return hoses are identical and available individually as Part Number 410002 (T-Strainer assembly is also available as Part Number 410001). The Flush and Return hoses have a female thread on the end which connects to the back panel of the machine. Identify the differences in early and later models below to be sure to order the necessary pieces needed to change the hose assemblies. Always clean threads to be reused, and assemble with a very small amount of liquid thread sealer or Teflon tape.

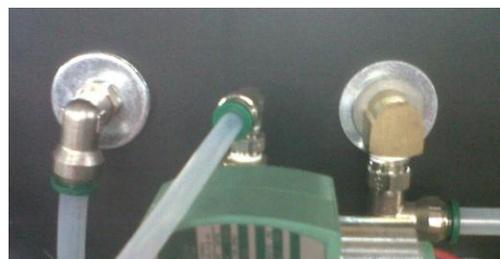


RE: Later Models (S/N 2523 and higher). There is an adapter located at the back panel that the female hose end attaches to. Hold the adapter nearest to the back panel from turning (to prevent rotating anything internal) and turn the female hose end counterclockwise to remove the hose assembly from this adapter. No additional pieces should be needed to change these hose assemblies.



RE: Early Models (S/N 2083 thru 2522). As you can clearly see the adapters referenced above were not used on early models. In addition to the hose assemblies you will need to order the 2 adapters (Part Number 134209). It is also recommended that you order 1 each of the 2 internal fittings (134425 & 136411) as seen in the picture below just in case you have any problem with the following disassembly and reassembly instructions.

In order to remove the hoses from Early Model units the cover and PCB control panel will need to be removed (instructions will be included with fittings), so that the fittings internal can be held in place to remove the hoses. The external adapters can then be carefully installed (do not over tighten) so the hoses can then be installed and changed again, when needed, without having to go back inside the unit.



An option to opening up and going inside the Early Model unit; would be to leave the female hose ends in place, carefully split the brass ferrules, and remove the old hose assemblies. Cut the female ends off the replacement assemblies, push the new hoses onto the barb fittings and secure using high quality worm gear clamps.

Please contact Tech Support at Tel. (800) 380-9501 or email tech-info@hecatinc.com with any questions.



FIELD SERVICE NOTIFICATION

DATE ISSUED

September, 2014.

MODEL(S) EFFECTED

HECAT H1000 Refrigerant Flush Cart (S/N 2083 thru 2552).

ITEM EFFECTED

HECAT internal part no. 400007A, a.k.a. Parker Hannifin SLD8-3SVHH Suction Filter Drier (**SFD**). This filter is modified (ports tapped 1/8 NPT) for use with the H1000.

SERVICE PROBLEM

It has come to our attention that Parker has made a running change in the overall body dimension of this SFD without any notice, obvious revision reference, or part number change. The original SFD (old) had an overall length of 4.31 inches and the current SFD (new) is 5.30 inches overall. This new 1 inch longer length poses a field install problem given the size and position of the holes in the back panel and the internal copper line sets.

HECAT will continue use of this (new-longer) Parker SFD moving forward with production, but with a H1000 design change making it no longer a field service item; by physically relocating the SFD internal. Justification comes from 10 years of field application data now available, which can be summarized as the creation of many fitting leaks, and no SFD restriction issues (pressure differentials out of spec) noted.

SERVICE SOLUTION(S)

1. Reset the SFD Service Indicator, change the spin-on filter, and do not change the SFD. If necessary, you can set up a schedule to periodically test the SFD for pressure differential as per the operating instructions. This is not a difficult test; gauges are installed and differential noted during the next normal use operating cycle; differential pressures within specifications validates no filter service is required. We do anticipate this to be the most suitable solution.
2. We do have many customers that change the SFD regularly. Currently we are unable to locate a suitable replacement. However, HECAT will continue to seek an alternative SFD that meets both the performance and dimensional criteria required to fit the affected carts. If such a filter can be sourced, it will be offered as the manufacturer's replacement for the (4.31 inch - dimensionally obsolete) Parker SLD8-3SVHH.
3. If no other suitable option is proven satisfactory. The H1000 can be shipped to HECAT for Inspection and Service (please contact us for Return Authorization); at such time, in addition to any other service needs noted, we will modify the holes in the back panel, and the internal line sets, to accept the (new - 5.30 inch - longer) Parker SLD8-3SVHH.

Caution: Do not attempt to remedy this issue by modifying the cart, as this may cause internal damage.

Please contact Tech Support at Tel. (800) 380-9501 or email tech-info@hecatinc.com with any questions.