



ANTIFREEZE RECYCLER OPERATING INSTRUCTIONS

FOR MODELS AF250, AF250HS, AF500, AF500HS

--- PLEASE READ CAREFULLY ---

Not for paint thinner, solvents, or carbon removing compounds

Such materials will damage the membrane element, as well as the filters, gaskets, and seals.

UNPACKING & START-UP:

Unloading and removal of the crating material should be done with care.

Proper tools and skill should be used so as not to drop the machine or mar the exterior of the machine.

After uncrating, inspect for any shipping damage. Damage should be reported to the delivering carrier immediately.

Location:

Access to front and side of machine and electrical power must be available.

Hook-Up - Utilities Required:

Electrical – This machine requires a single 115v, 60 Hz, 1 phase, 15 amp power source.

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ABOUT THIS MANUAL

This manual includes a SAFETY SUMMARY, operation procedures, machine preparation, maintenance instructions, and trouble-shooting procedures for recycling antifreeze/coolant. Anyone intending to use this machine should become familiar with ALL the information included in this manual (especially the SAFETY SUMMARY) before attempting to use the ANTIFREEZE/COOLANT RECYCLER machine. In order to properly perform a complete antifreeze/coolant recycle, follow all procedures in the order presented. Please take the time to study this manual before operating the machine. Then keep this manual close at hand for future reference.

SAFETY SUMMARY

Congratulations on the purchase of your new antifreeze/coolant recycler. The following safety information is provided as guidelines to help you operate your new antifreeze/coolant recycler under the safest possible conditions. Any equipment that used gases under pressure or chemicals can be potentially dangerous to use when safety or safe handling instructions are not known or not followed. The following safety instructions are to provide the user with the information necessary for safe use and operation. Please read and retain these instructions for the continued safe use of your antifreeze/coolant recycler.

A procedure step preceded by a **WARNING** is an indication that the step contains a procedure that might be injurious to a person if proper safety precautions are not heeded,

A procedure step preceded by **CAUTION** is an indication that the step contains a procedure that might damage the equipment being used.

NOTE may be used before or after a procedure step to highlight or explain something in that step.

SAFETY INSTRUCTIONS

Every craftsman respects the tools with which they work. They know that the tools represent years of constantly improved designs and developments. The true craftsman also knows that tools are dangerous if misused or abused. To reduce risk of discomfort, illness, or even death, read, understand and follow the following safety instructions. In addition, make certain that anyone else that uses this equipment understands and follows these safety instructions as well.

READ ALL SAFETY INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING to install, operate or service this equipment. Failure to comply with these instructions could result in personal injury and/or property damage.

RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

Published standards on safety are available. They are listed in **ADDITIONAL SAFETY INFORMATION** at the end of this SAFETY SUMMARY.

The National Electrical Code, Occupational Safety and Health Act regulations, local industrial codes and local inspection requirements also provide a basis for equipment installation, use and service.

POISONOUS FLUID HAZARDS WARNING

Antifreeze/coolant is poisonous if ingested. **Ingesting antifreeze/coolant can cause serious illness and even death.** If antifreeze is spilled on the skin or the clothing neXt to the skin, it can cause discomfort due to irritation.

1. Keep antifreeze/coolant where children and pets cannot get to it.
2. If some antifreeze/coolant should be accidentally swallowed, take the person or pet in for medical assistance immediately. Be sure to identify to the doctor the type of antifreeze/coolant that was ingested.
3. If medical assistance is not immediately available, call the local poison center.
4. If someone is experiencing discomfort due to irritation from antifreeze/coolant coming in contact with the skin, use water with a mild detergent and/or rinse thoroughly with clear water.

ADDITIONAL SAFETY INFORMATION

For additional information concerning safety, refer to the following standards and comply with as applicable.

ANSI Standard Z87.1-SAFE PRACTICE FOR OCCUPATION AND EDUCATIONAL EYE AND FACE PROTECTION – obtainable from the American National Standards Institute, 11 West 42nd St. New York, NY 10036 (212) 642-4900, fax (212) 398-0023 – [www, ansi.org](http://www.ansi.org)

COOLANT RECYCLER OPERATING INSTRUCTIONS

FILLING INSTRUCTIONS:

Coolant drained from the vehicles is poured easily into the "dirty" coolant tank through the bag type filter in the top of the machine: be sure that the bag type filter is in position in the opening of the "dirty" coolant tank.

WARNING

Antifreeze/coolant can cause sever skin irritation or burns, on contact. If antifreeze is spilled on the skin or the clothing next to the skin, it can cause severe discomfort due to irritation. When opening orifices or any portion of recycler system that could potentially contain antifreeze/coolant, take special care not to spill the fluid on skin or clothing. If a spill should occur, flush with large quantities of cool or tepid fresh water immediately.

After you have filled the "dirty" coolant tank to the 25 or 50 gallon fluid level with used coolant (coolant/water mixture.) You are ready to start the cleaning cycle.

CAUTION:

For use only with ethylene glycol coolant/water mixtures.

WARNING:

Do not operate with covers open.

NOTE: Coolant/water mixture of different colors should be recycled and stored in separate batches. Mixing colors will result in a dark dirty looking mixture.

CAUTION:

1. The first time you operate the Coolant Recycler, the membrane filter return valve will be in the closed position for shipping purposes.
The membrane filter return valve must be turned fully open.
2. Place discharge hose into an empty drum (plastic graduated drums are available as an option)
3. Start the machine by simply pushing the start button. The Recycler is now cleaning the coolant.
4. As the mixture is recirculated through the system, it flows from the membrane filter housing back to the "dirty" coolant tank. This flow is controlled by the membrane filter return valve. Slowly regulate this valve and the pressure will increase accordingly. **The Recycler should be operated with the pressure at 40 PSI** on the membrane filter intake pressure gauge. Do not operate the machine with the valve in the closed position, as it will damage the membrane filter.
5. You are now pumping approximately 10 gallons of solution per minute through the pre-filter. In less than five minutes, all of the dirty mixture has passed through the pre-filter at least once. Remember that the pre-filter requires changing on a periodic basis depending upon the amount of solids present. The pressure differential between the two pressure gauges indicates the condition of the pre-filter. An increase in the pump discharge pressure and a decrease in the main element intake pressure reading will indicate that the pre-filter is becoming clogged.

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GAUGE READINGS:

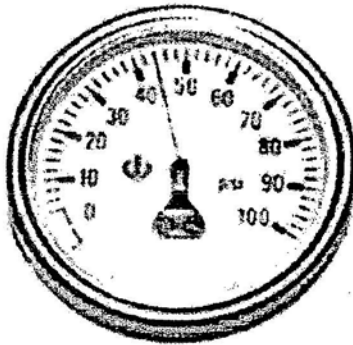
The pre-filter should be changed when a pressure differential reaches 30 PSI.

CAUTION: If the pressure differential reaches 40 PSI, it can collapse the pre-filter and may cause damage to the membrane filter.

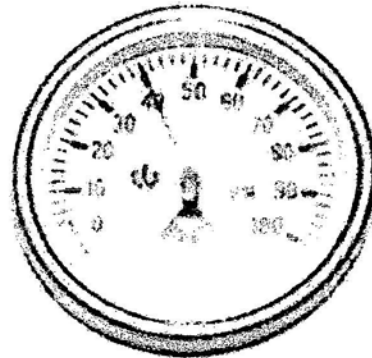
If the operator is at the machine and notices the pressure differential of 30 PSI or more, it is time to change the pre-filter. If the operator is not at the machine and the machine shuts down automatically, check the pre-filter condition by simply pushing the "On" button and reading the pressure gauges. It takes less than five minutes to change the pre-filter. See "Changing the Pre-Filter: described in this instruction manual. The pre-filter will normally process from 50 to 125 gallons before requiring changing. Again, it varies depending upon the condition of the mixture.

NORMAL GAUGE READINGS

Pump Discharge



Membrane Filter Intake



PRE-FILTER BECOMING CLOGGED



ADDITIVE INHIBITOR PACKAGES:

Add PR25 additive package to recycled coolant from automobiles and trucks *other than* heavy-duty diesels with wet sleeve liners. (For heavy-duty diesels use PR26 additive package.)

After processing the dirty coolant it is now ready fore adding the PR25 additive package. Test prior to use. See instructions on the PR25 additive package containers.

Add PR26 coolant additive package to recycled coolant from heavy-duty diesels with wet sleeve liners only. (for other engines use PR25 additive package)

After processing the dirty anti-freeze, it is now ready for adding the PR26 coolant additive. Test prior to use. See instructions on the PR26 additive package container.

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COOLANT ADDITIVE INSTRUCTIONS FOR GASOLINE ENGINES:

Add PR25 coolant additive package to recycled coolant from automobiles and trucks other than heavy-duty diesels with wet sleeve liners. (For heavy-duty diesels use PR26 additive package additive.)

1. Recycle used coolant
2. Add 1 gallon of PR25 additive package for each 25 gallons recycled, mix thoroughly. For diesel engines add 1 gallon of PR26 additive package for each 25 gallons recycled and mix thoroughly.
3. Test for freeze point with a hand-held refractometer. The freeze point reading is the shadow line on the scale. If the scale is white, the mixture contains too much coolant and needs to be diluted with distilled water. If the freeze point is between -84°F and +32°F, see the enclosed freeze point adjustment chart for the quantity of either coolant or distilled water which needs to be added in order to adjust the freeze point to the desired -34°F, or a 50/50 mixture as recommended by the major car companies.

FREEZE POINT ADJUSTMENT CHART

FREEZE POINT 32 °F	REMOVE (GALS)	ADD COOLANT (GALS)	ADD DISTILLED WATER (GALS)
-50	0	0	2 ³ / ₄
-48	0	0	2 ¹ / ₂
-45	0	0	2
-42	0	0	1 ¹ / ₂
-39	0	0	1
-36	0	0	¹ / ₂
-34 50/50 MIX	0	0	0
-31	0	¹ / ₂	
-29	0	1	
-27	0	1 ¹ / ₂	
-24	0	2	
-22	0	2 ¹ / ₂	
-20	0	3	
-18	0	3 ¹ / ₂	
-16	0	4	
-14	0	4 ¹ / ₂	
-12	0	5	
-10	0	5 ¹ / ₂	
-8	2	5 ³ / ₄	
-6	2	6 ¹ / ₂	
-4	3	6 ¹ / ₂	
-2	3	7 ¹ / ₄	
0	4	7 ¹ / ₂	
+2	4	8	
+4	4	8 ³ / ₄	
+6	5	9	
+8	5	9 ¹ / ₂	
+10	6	10	
+12	6	10 ¹ / ₂	
+14	7	10 ¹ / ₂	
+15	7	11	

CHANGING THE PRE-FILTER

1. Turn the machine off and unplug from electrical outlet.
2. Close the pump intake and membrane filter housing return valves.
3. Open breather valve at top of pre-filter housing and open drain at bottom of pre-filter housing. Allow solution to drain into container and then close both valves.
4. Loosen and spin filter housing off with an oil filter wrench, remove pre-filter. Empty remaining residue from filter housing into residue container. Be sure filter housing gasket is in place. To insure proper seal, lubricate O-ring with petroleum jelly.
5. Insert new pre-filter into housing. Spin filter housing back into place by hand. Be sure the pre-filter housing breather and drain are closed.
6. Reopen membrane filter housing return valve fully. Turn machine on. Check for any leakage. Check pressure gauge reading. Readjust the membrane element return valve to attain a pressure reading of 40 PSI for the membrane element intake pressure gauge reading.

IMPORTANT:

Prior to shutting down the machine for an extended period, place approximately 10 gallons of a clean 50/50 coolant/water mixture into the "dirty" coolant tank. Allow the machine to operate for approximately five to ten minutes. Open valve fully. This will flush the system and is necessary to provide maximum performance and life of the membrane filter.

CLEAN-OUT:

After approximately every 400 gallons of coolant/water is processed, drain residue from "dirty" coolant tank. Add 10 gallons of a clean 50/50 coolant mixture to the "dirty" coolant tank and operate the machine for approximately 10 minutes to flush the system. Open valve fully.

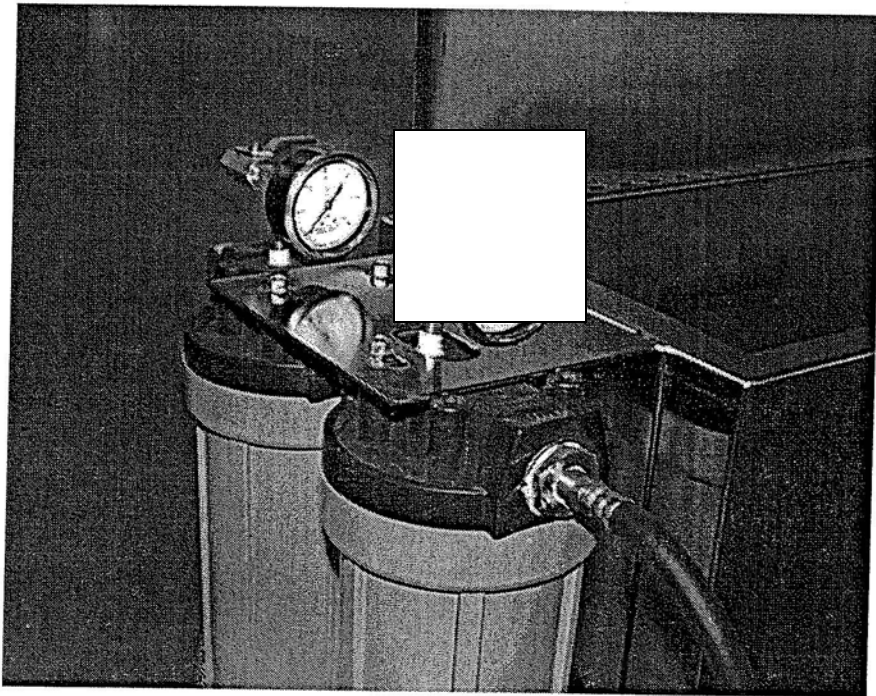
DISPOSAL:

The used coolant and contaminants removed during clean-out must be disposed of in accordance with all applicable Federal, State and Local regulations.

TROUBLESHOOTING:

CONDITION	CAUSE	SOLUTION
High pump discharge pressure reading	Pre-filter clogged Membrane element return valve closed.	Open valve
Pump shuts off, normal pressure reading	Dirty coolant reservoir is empty	Replenish reservoir
Pump running, low pump discharge pressure	Pump suction line is clogged	Remove pump & clear obstruction. To prevent reoccurrence, do not fill dirty tank without bag type filter in place.
Filter housing leakage	O-ring out of place	Liberally apply petroleum jelly to the filter housing and push O-ring back into place.

→
Prefilter



↑
Membrane
Filter