

MODEL MARK III

Transmission Oil Cooler Flusher

OPERATING INSTRUCTIONS

HECAT, INC.



THE ORIGINAL



PULSATING
FLUSHER

Hecat, Inc. 2910 Ridge Court. Cumming, GA. 30041 (800)380-9501

www.hecatinc.com

HECAT, INC.

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HECAT, INC.

TRANS COOLER FLUSHER - SAFETY WARNINGS

- **Please read and understand entire manual and all the instructions before beginning use of the flusher.**
- **A compressed air filter must be used in line before the flusher. Moisture should not be introduced into the flusher. Drain filter before each use. The use of non-filtered air will void warranty.**
- **Wear protective equipment, including safety goggles and gloves, when working with chemicals and solvents. Chemicals and solvents can cause injuries.**
- **Only qualified professionals must operate equipment. Operator must be familiar with the chemicals and solvents being used, and the dangers of working with pressurized air 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.**
- **Call Manufacturer's Tech Line (1-800-380-9501) before attempting any repair. Repairs are to be performed by trained and approved service technicians ONLY.**
- **This equipment should only be used in locations with mechanical ventilation.**

TRANSMISSION RETURN LINE ID CHART

MANUFACTURER	TRANSMISSION MODELS	THE TRANS RETURN PORT IS:
General Motors	TH125 / TH125C / 3T40	Top
General Motors	TH180	Rear
General Motors	TH200 / TH200-4R	Bottom
General Motors	TH325 / TH325-4L / TH350 / TH350C	Top
General Motors	TH400 / 3L80 / 3L80H	Top
General Motors	440-T4 / 4T60 / 4T60E	Horizontal Fitting
General Motors	700-R4 / 4L60 / 4L60E / ST300	Top
General Motors	4T80E	Main case
General Motors	4L80E	Lower front
General Motors	TH425	Outer, farthest from Torq. Conv.
General Motors	MX17 / A130L / F3A	Bottom
General Motors	Aluminum Powerglide	Top
Ford	A4LD / AXOD / AOD-E / 4R70W	Top
Ford	FMX / C3 / C4 / C5 / C6 / E40D	Rear
Ford	AOD / FIOD / AXOD-E / A4XN / A4XS	Bottom
Ford	CD4E / F4EAT / ATX	Nearest Pump
Chrysler	TF904 / TF727 / A500 / 518 / 618 / AW4	Rear
Chrysler	A404 / 413 / 470 / 670 / 42LE	Top
Chrysler	A604 / 41TE	Front
Chrysler	(Mitsubishi) KM170-KM175 / F4A / W4A	Farthest from differential
Honda	2, 3, & 4 speed	Nearest to differential
Honda	L4 / ML4A	Case (not bellhousing)
Mercedes	4 bolt pan	Drivers side
Mercedes	6 bolt pan	Passenger side
Renault	4139 / MJ / ML1 / MB	Bottom
Subaru	4EAT	Rear
Subaru	ECVT	Below and right of pump
Subaru	M41A	Case
Isuzu	AW55 / AW30-80LE / 4L30E / JF403E / NPR300	Rear
Isuzu	RL3F01A / RN3F01A	Bottom
Mazda	F3A	Bottom nearest pump
Mazda	F4A-EL / 4A-EL / G4AX-EL / L4A-EL	Nearest Pump
Mazda	3N71B / L3N71B / JM600	Rear
Mazda	N4A-EL / R4A-EL / R4AX-EL	Rear
Nissan	RN3-F01A / RL3F01A	Bottom
Nissan	RL4-F02A / RE4F02	Rear
Nissan	RE4-F03A / RE4F04A	Rear
Nissan	3M71B / 4N71B	Rear
Saturn	All	Near filter
Toyota	All rear wheel drive	Rear
Toyota	A55 / A55F	Rear
Toyota	All front wheel drive except above	Bottom
ZF	3HP22	Passenger side
ZF	4HP22 / 4HP24	Bottom

MARK III TRANSMISSION COOLER FLUSHER/RECYCLER

OPERATING INSTRUCTIONS

Due to the small passageways in a transmission oil cooler, debris will accumulate at the inlet, which cannot be pushed through. You must properly identify (Re: Return Line ID Chart) the oil flow path and always BACKFLUSH the cooler first.

1. **FILL:** Confirm flusher is full and ready to use or remove filler cap and fill the flush tank approximately $\frac{3}{4}$ full (**2 gal.**) with clean flush, Mineral Spirits and other similar White Solvents are acceptable. Hecat Safe-Flush is designed to replace these White Solvents where their VOC emissions are regulated. **DO NOT OVERFILL.** An air space must be left above the flush level in order for the flusher to perform as designed. Replace the filler cap hand tight.
 - Exclusive use of Hecat Safe-Flush Trans will allow for this equipment to be covered by a [*Lifetime Warranty.*](#)
2. **ADAPTERS:** Select or make up the proper adapters and attach to the flusher hoses to the transmission cooler or lines. Do not over tighten.
3. **CONNECT FLUSH HOSES:** Attach quick couplers on the flush hose and clear return hose to the transmission cooler or line adapters. Connect lines so first flush is in opposite direction of normal oil flow (**BACKFLUSH**). See “Transmission Return Line ID Chart”.
4. **VALVES OFF:** Always be sure both air and solvent flush valves are in the off position.
5. **CONNECT AIR:** Attach filtered, clean, and dry full shop air (80 PSI min.) to air inlet quick coupler nipple. There is an internal factory set regulator to prevent over pressurization.
6. **PURGE WASTE OIL:** Before beginning flush operation, disconnect clear return hose at quick coupler on back panel of flusher. Place open end in waste container and open-air valve to purge the waste oil out of the cooler for approx. 5 seconds. This will dramatically extend the useful life of your flush fluid by limiting the amount of transmission fluid contaminating the flush. Reconnect the clear return hose to the back panel of the flusher.
7. **BEGIN FLUSHING:** Open the air valve and then open the flush valve to begin flushing in the opposite direction of normal oil flow (**BACKFLUSH**). Flush for approximately 45-60 seconds. Pay attention to the sight gauge on the flush tank, when the solvent level has dropped to the bottom of the gauge, you have used approximately 1 gallon of solvent.
 - **Flow verification:** A good strong pulse confirms adequate flow during the flushing process and no other flow verification will be required. The combined volume of flush and air when pulsing properly will exceed one gallon per minute. This meets and exceeds the generic cooler flow test of 2 quarts in 20-30 seconds.
 - **Hard Blockage:** A restriction or no flow will not allow the flusher to pulsate properly and may require additional attention or a cooler replacement. Connect flusher to the free flowing storage connection on the back panel to confirm flusher performance and to verify the problem lies in the cooler. Additional flushing may show improvement in the pulse indicating the cooler restriction is being flushed out; if not, a cooler replacement is recommended.
8. **STOP FLUSHING:** Close the solvent flush valve and leave the air valve on for 10 seconds to clear the lines of solvent. Turn the air valve off and allow a moment for system pressures to equalize.

9. **REVERSE LINES:** Swap the flush and return hoses at the transmission cooler line quick coupler connections.
10. **FINISH FLUSHING:** Open the air valve and then the flush valve to now flush in the same direction as normal oil flow, for approximately another 45-60 seconds using up the remaining solvent load. If the pulse is strong, because of the impacting action of the pulsating flusher, we now know the cooler is clean.
11. **AIR PURGE:** Turn flush valve off leaving the air valve on to allow for 3 to 5 minute air purge.
12. **VALVES OFF:** Turn air valve off. Disconnect the flushing lines and remove the flushing adapters. Flushing is now completed.
13. **CLEAN T-STRAINER:** Always clean the return line T-Strainer after every flush.
14. **RECYCLE:** To drain the recovery tank you will need a suitable capture container, a closed top, pour spout type, 5 gallon bucket is recommended. Make sure the flush and return hoses are both connected to the storage fitting located at the top of the back panel. Turn on the air valve. Put the drain hose into your container and slowly open the drain valve. **CAUTION:** This fluid is being pushed out by air. You may experience a sudden gush of air when all fluid is expelled.
 - **Recycle or Change:** If the proper procedure to purge the waste oil from the cooler before flushing is followed and filters are changed as needed. It is possible to get 10-20 flushes per 2 gallons of Hecat Safe-Flush. It is up to the technicians using this unit to monitor number of flushes and flush cleanliness to determine the best time to replace the fluid with fresh. Keep in mind as the viscosity increases with the load of transmission fluid the pulsating effect may be decreased as will the effectiveness of the solvent cleaner.
15. **REFILL:** Whether it is recycled or new, it is recommended you refill the flusher ready for the next use.
 - **Common Mistake:** Failure to Recycle & Refill the flusher as recommended could cause you or your co-workers to believe the flusher is empty when 2 gallons of used solvent are actually in the recovery tank. In this situation, filling the flush tank will cause an overflow situation which will present itself as solvent being forced out of the charcoal air vent filter (big mess).
16. **FILTER SERVICE:** The filter is NOT part of the flushing flow circuit. The fluid is run through the filter as you drain your fluid 2 replacement filters come with every case of Safe-Flush Trans or available through a local supplier; use FRAM PH2951 or equivalent. The filter head has no bypass; if the drain hose flow is restricted or not present then the filter may be clogged.
17. **DISPOSAL:** Because Safe-Flush Trans is a very low odor petroleum based solvent, combined with the fact that it is heavily laden with transmission fluid at the time of disposal; it has been found acceptable by many customers to dispose of this product with other waste oil products. However, it is the responsibility of the user to be sure this is acceptable and always follow your local, state, and federal guidelines to dispose of contaminated fluids in the proper manner.

If you have any problems with this unit, please contact the manufacturer for technical assistance directly at 1-800-380-9501 or contact us through our web site at www.hecatinc.com. We will be happy to answer your questions and assist with any problems.

Hecat Safe-Flush Trans

Transmission Oil Cooler Flush

The most common fluid used to flush a transmission cooler circuit with Hecat's Pulsating Flushers has been Mineral Spirits and other similar White Solvents (Varsol, etc.). If you are **NOT** facing restrictions on its use where you live then it is still an acceptable and approved flush for use in the Hecat "Pulsating" Flushers.

The California Air Research Board has identified Mineral Spirits as an excessive VOC emitter. Hecat developed Safe-Flush Trans to address this hazard to the health of automobile technicians. After extensive testing with many different compounds we have found the formula of Hecat Safe-Flush Trans combined with our Patented "Pulsating" Flusher, has the highest cleaning qualities without all the hazards of many other solvents used in the industry. Tested with our "Pulsating" Flushers, Hecat Safe-Flush Trans does not exceed California VOC emission standards.



- Ships UPS Ground (31 lbs)
- Available by the case (4-1gal.).
- Includes 2 **FREE** filters (used on the Mark III and Mark IV Flusher models).
- DOT classification - not regulated.
- Operator safe & friendly.
- Breaks down waxy deposits.
- Breaks down varnishes.
- No noxious fumes or odors.
- No need for special ventilation.
- Miscible (blends) with all transmission fluids so any minor trace residue will fully dissipate into the system without any harm.
- Tested to be compatible with all common transmission materials.
- Easily disposed of with waste oils.
- Any Hecat Flusher that uses Safe-Flush Trans exclusively, Hecat, Inc. offers an extended...

LIFETIME WARRANTY

If you wish to use another flush, your one-year manufacturer's warranty will apply as long as it is an approved flush. If you have any questions about flush approvals contact Hecat, Inc. at 1-800-380-9501. www.hecat-inc.com.

Note: It is the Technician's responsibility to research and follow local, state, and federal regulations in regards to the flush chosen for use and the disposal of the used flush and its original containers. Because conditions of use are outside of Hecat's control, we can assume no liability for results obtained or any damages that occur from the use of this product. MSDS is available upon request.

MSDS – HECAT SAFE-FLUSH

EMERGENCY PHONE NUMBER: 1-800-380-9501

Last Revised: March 2006

<u>SECTION 1</u>	<u>COMPANY IDENTIFICATION AND CHEMICAL</u>
Company Name:	Hecat, Inc
Address:	2910 Ridge Court. Cumming, GA 30041
Phone/Fax:	770-205-5600 / 770-205-5633
Trade name:	Hecat Safe-Flush A/C & Hecat Safe-Flush Trans
Chemical name:	Synthetic Hydrocarbon Cleaner
Composition:	Hydrocarbon Mixture – Cas# 64742-47-8 / P-Menta-1, 8-Diene – Cas# 5989-27-5
Application:	Flushing fluid used with or without Hecat flushing equipment to clean automotive heat exchangers.
<u>SECTION 2</u>	<u>COMPOSITION / INFORMATION ON INGREDIENTS</u>
General:	This product is non-hazardous. The product contains no known Carcinogens. No special warning labels are required Under OSHA 29 CFR 1910-1200.
<u>SECTION 3</u>	<u>HAZARDS IDENTIFICATION</u>
Appearance:	A/C version - Clear liquid / Trans version - Red dye added.
Known hazards:	Contains no known hazardous ingredients
<u>SECTION 4</u>	<u>FIRST AID MEASURES</u>
Eyes:	Flush with clean lukewarm water. Seek physician's assessment if eyes are inflamed
Skin:	Wash affected areas thoroughly with soap and water. Wash contaminated clothing.
Inhalation:	Avoid breathing oil mists. Remove to fresh air. If breathing is difficult, get medical attention.
Ingestion:	Do not induce vomiting. Force fluids. Has a laxative effect.
<u>SECTION 5</u>	<u>FIRE FIGHTING MEASURES</u>
Flash point:	165 - 170 F min.
Flammable limits:	N/A
Auto ignition temp:	N/A
Fire & explosion hazards:	Low fire hazard. Do not cut, drill, or weld empty containers
Extinguishing media:	Dry chemical foam, water spray, and carbon dioxide for small fires.
Fire fighting procedures:	Contain liquid, cover with extinguishing agent; use water to cool fire-exposed containers.
<u>SECTION 6</u>	<u>ACCIDENTAL RELEASE MEASURES</u>
Spill or leak	Contain spill, absorb with commercial absorbents, or by using pumps.
Waste Disposal:	Dispose in approved containers through a licensed waste reclaimer.
<u>SECTION 7</u>	<u>HANDLING AND STORAGE</u>
Storage temp:	<120 F recommended.
Shelf life:	12 months in original closed HDPE container.
Precautions:	Not for internal use. Avoid prolonged contact with skin, eyes, and clothes.
<u>SECTION 8</u>	<u>EXPOSURE CONTROL / PERSONAL PROTECTION</u>
Eye protection:	Chemical goggles if splashing is likely. Normally none required.
Skin protection:	PVC or Nitrile gloves if in direct contact for more than 2 hours. Normally none required.
Respiratory protection:	If mist is present, wear approved organic respirator. Normally none required.
Ventilation:	General ventilation.
Exposure limits:	N/A
<u>SECTION 9</u>	<u>PHYSICAL AND CHEMICAL PROPERTIES</u>
Appearance:	A/C version - Clear liquid / Trans version - Red dye added.
Boiling point:	> 300 degree F
Vapor pressure:	< .4 mm/hg
Specific gravity:	0.83 (water = 1)
Volatiles, % volume:	100%
Odor:	Very slight hydrocarbon odor.
Solubility in water:	Non soluble
Evaporation rate:	< 1 (butyl acetate = 1)
<u>SECTION 10</u>	<u>REACTIVITY</u>
Stability:	Product is stable.
Hazardous polymerization:	Will not occur.
Incompatibilities:	Strong oxidizers and chlorine.
Decomposition products:	Analogous compounds evolve, carbon monoxide, carbon dioxide, and other undefined fragments when burned.
General:	<u>SECTION 11</u> <u>TOXICOLOGICAL INFORMATION</u>
<u>SECTION 12</u>	Acute LD. >5000mg/Kg (rat: oral) Practically non-toxic. Negative when tested by Ames test.
General:	<u>ECOLOGICAL INFORMATION</u>
<u>SECTION 13</u>	Biodegradable CEC L33T82 > 80% @ 45 days
Waste disposal:	<u>DISPOSAL CONSIDERATIONS</u>
<u>SECTION 14</u>	Used product must be disposed of in according to federal, state, and local environmental regulations.
Technical name:	<u>TRANSPORTATION INFORMATION</u>
DOT hazard class	Synthetic hydrocarbon cleaner
U.N./N.A.#:	Not regulated.
Product label:	Not regulated.
<u>SECTION 15</u>	Hecat Safe-Flush
OSHA status:	<u>REGULATORY INFORMATION</u>
TSCA status:	Non hazardous under 29 CFR 1900 1200
RCRA status:	N/A
<u>SECTION 16</u>	If discarded in its purchased form this product would not be a hazardous waste either by listing or characteristic. However, It is the users responsibility to determine if it is hazardous and the type of disposal. (40 CFR 261.20-24)
General:	<u>OTHER INFORMATION</u>
	This information is furnished without warranty, expressed or implied, except that it is the accurate to the best knowledge of Hecat, Inc. The data on this sheet related only to the specific material designed herein. Hecat, Inc assumes no legal responsibility for the use or reliance upon this data.

HECAT Flushing Adapters For Transmission Oil Coolers

The **BASIC Trans Adapter Kit** will fit most domestic and import applications. Includes 12 compartment storage box with room to add the OEM quick connects listed below or some of your own creations.

NOTE: The **BASIC Kit** is **included** with the Mark II, Mark III, & Mark IV flusher models.



BASIC Kit includes:

- (from top left, clockwise)
- (2) 14 x 1.5mm **female banjo**
- (2) 5/16" SAE inverted flare fittings
- (2) 3/8" SAE inverted flare fittings
- (2) 1/2" SAE inverted flare fittings
- (2) 3/8" (10mm) beaded barb
- (2) 5/16" (8mm) beaded barb
- (2) 3/8" SAE male flare fittings
- (2) 5/16" SAE male flare fittings
- (1) 12 compartment storage case

The following OEM quick connect adapter sets are available as an additional purchase.



FORD SET



GM SET



CHRYSLER SET

HECAT, Inc. welcomes the information that will help us identify and develop kits for late model applications. If you have such information or are in need of a specialty kit, then please do not hesitate to call us at 1-800-380-9501 with this information. HECAT, Inc. reserves the right to change design, specs, and materials without notice. See the full line of Hecat products at www.hecatinc.com.

HECAT, INC.

WARRANTY STATEMENT

This warranty covers all models of the patented HECAT Air Operated Pulsating Flushers. (Models: MARK II, III, and IV. FAC-200, 300 and 400)

If you have a problem with this flusher, please do not call the distributor you purchased this item from. They are instructed to direct you to our toll free number, which is 1-800-380-9501 or you, can contact us through our web site at www.hecat-inc.com. Warranties are 100% the responsibility of, and handled directly by, the manufacturer. You must contact Hecat and obtain a return authorization number before returning any unit to the manufacturer.

HECAT, INC. offers to the user of the HECAT 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.

HECAT, INC. also offers a LIFETIME EXTENDED WARRANTY at no extra charge. By simply exclusively using the HECAT SAFE-FLUSH and keeping good proof of purchase records. The one year limited warranty will be extended to the original purchaser for lifetime.

This warranty shall not apply to any flusher that has failed due to misuse, neglect, accident, or failure to follow printed instructions.

This warranty shall not apply to any flusher showing evidence of using a non-approved flush. Non-approved flushes are Gasoline, Brake Fluid, Water, Acids, Corrosive liquids, foaming products, and known Ozone depleters.

This warranty shall not apply to any unit repaired by an unauthorized person or shows any evidence of failure to use an in line air filter to supply filtered dry air to operate any flusher.

If returning to the factory is necessary, HECAT, INC. will evaluate warranty claim and then, if approved, repair or replace at its option any unit returned. Units for warranty evaluation must be shipped freight pre-paid to the manufacturer's address provided with the return authorization. Any flusher returned must be accompanied by a letter referencing the return authorization number, outlining the malfunction, proof of purchase with date purchased, proof of original purchase and SAFE-FLUSH purchases if claiming extended warranty, and owner's name, address, and contact information.

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.