

MODEL SS980H

MOBILE HYDRAULIC COOLING SYSTEMS

INSTALLATION AND OWNERS MANUAL



Product Catalog: SS980H-IOM
Revision Date: 06-12-2024

HELPFUL INFORMATION

ORDERING – Orders can be placed with us by phone, fax or email at sales@apscopower.com **SHIPPING** – All orders will be shipped via APSCO's default method, UPS ground, with freight invoiced to the customer unless otherwise specified at the time of order. APSCO facilitates drop shipments at no extra charge.

RETURNS – Unused, standard products may be returned to APSCO for full credit within 30 days of purchase. A 20% restocking fee is charged thereafter.

An RMA is required for all returns.

QUALITY – APSCO commitment to quality was recognized by becoming certified to ISO 9001:2000 in 2004. Our continued commitment to quality in all of our processes is reflected by our current certification ISO 9001:2015.

WARRANTY – All APSCO Thermaflow models are warranted for 2 years from the original date of purchase. See page 20 for our warranty terms and conditions.

APSCO, Inc.

4221 S 68th E Ave., Suite A,
Tulsa, OK 74145
Voice +1.918.622.5600
Fax +1.918.622.5469
sales@apscopower.com
www.apscopower.com

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INSTALLATION GUIDE

Please read this guide carefully before installing and operating your THERMAFLOW system.

The THERMAFLOW assembly is designed to cool and filter the oil required to operate your hydraulic system. The oil is cooled by forcing air across cooling fins on the heat exchanger. This system utilizes a hydraulic fan motor to force air across the fins.

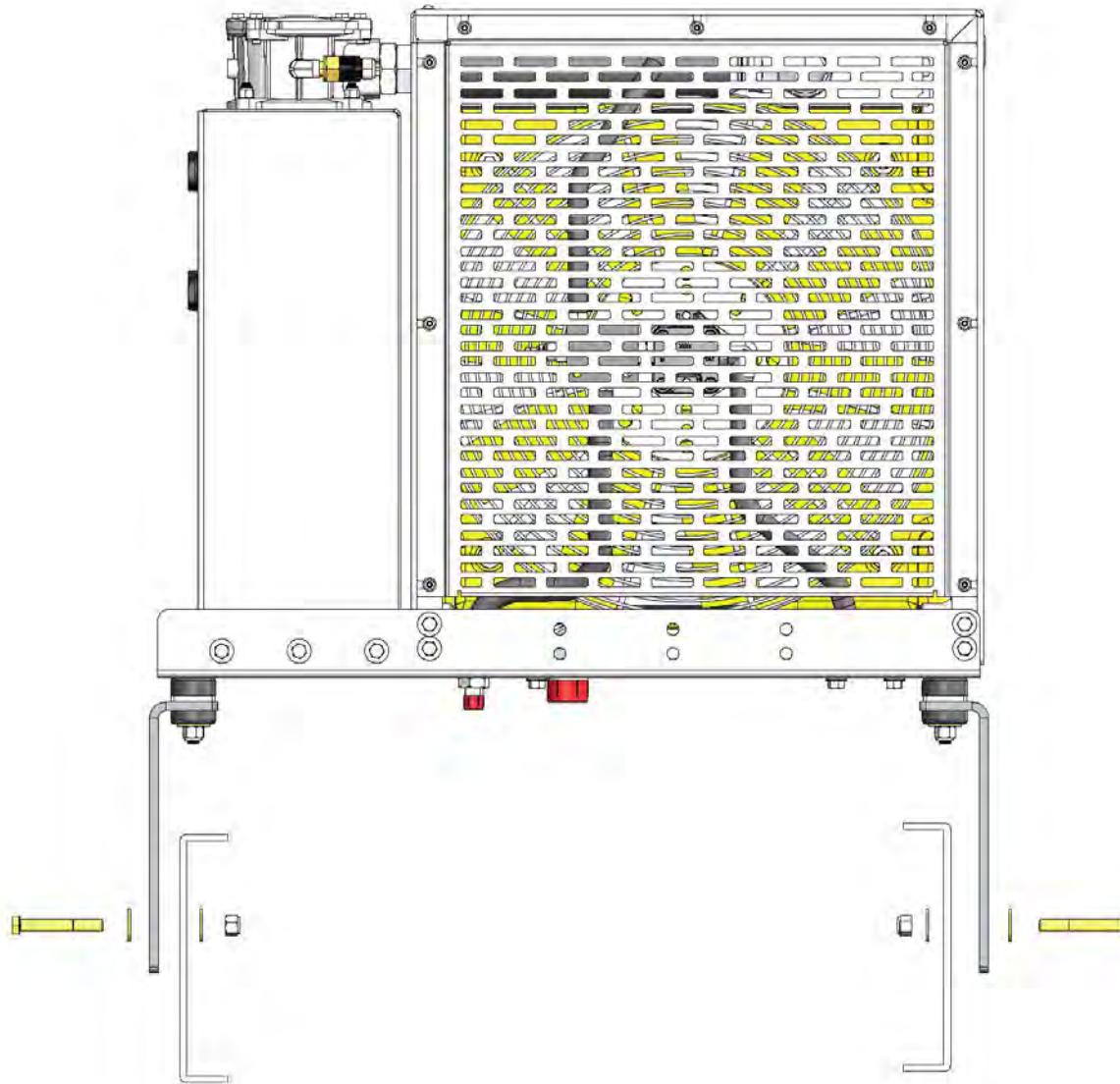
The Hydraulic fan motor has an adjustable flow control valve that automatically cycles the fan “ON” when the hydraulic system is running and “OFF” when not running. This comes plumbed from the factory.

Because different trailer applications require different speed and power requirements, your THERMAFLOW system was custom engineered for a particular application. If the system is operated beyond its designed capacity, overheating and/or component damage may result.

POSITIONING & MOUNTING

The Model SS980H is designed to mount behind the truck cab across the frame rail sides.

A) Diagram A illustrates the mounting of the SS980H. Allow a minimum of 4" on both sides of the unit for proper airflow.



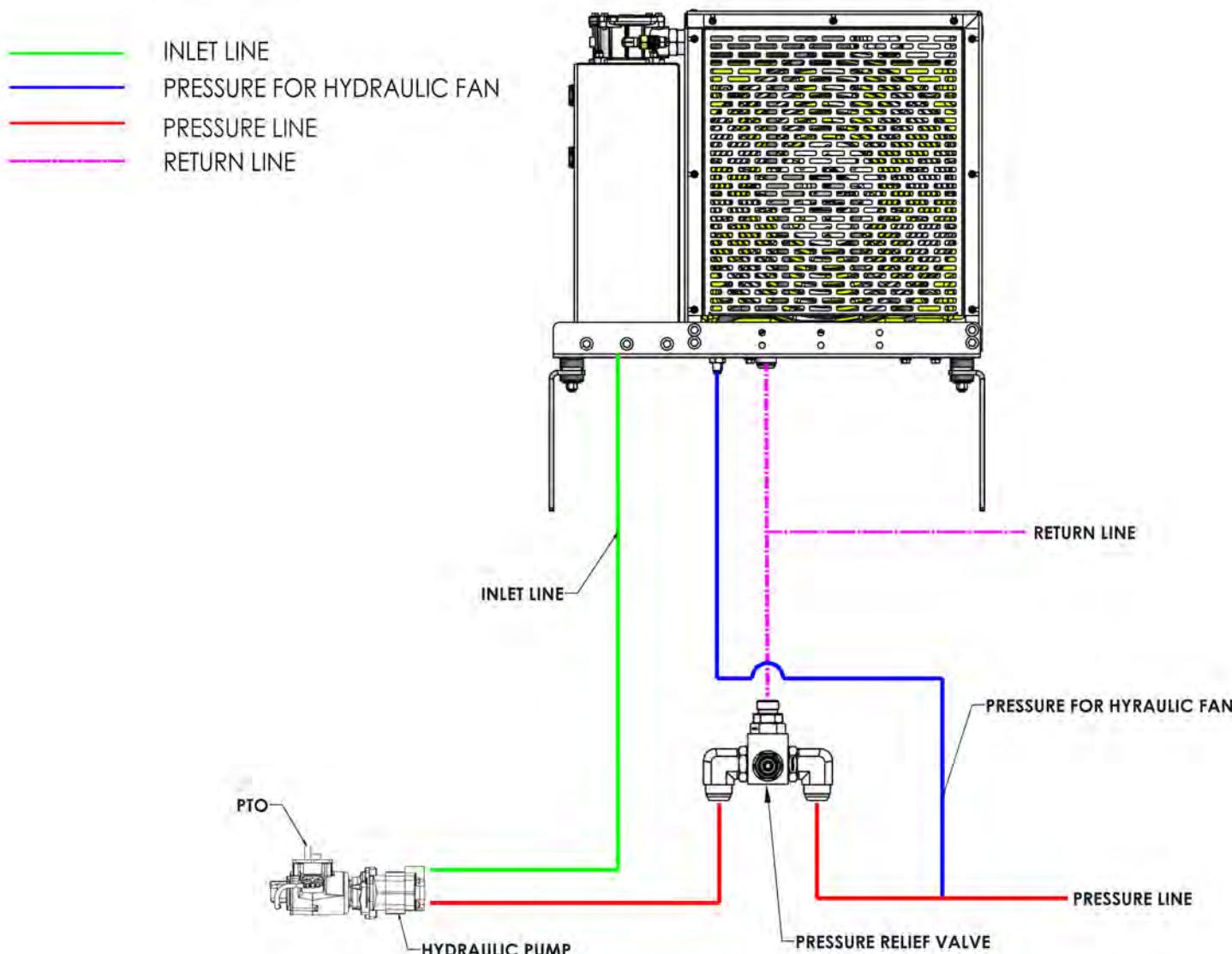
HYDRAULIC PLUMBING

INSTALLING THE PTO & HYDRAULIC PUMP

A) Install the PTO to the transmission and mount the hydraulic pump according to the instructions included with the PTO.

HELPFUL HINT:

If you are using a direct mount hydraulic pump/PTO combination, be sure that the pump splines are well lubrication with a heavy grease. This grease will prevent premature spline wear on the PTO and pump shafts. Also available from both MUNCIE and CHELSEA is a new option for a greaseable shaft. This option allows you to grease these splines without pulling the pump off the PTO



SYSTEM MAINTENANCE

Hydraulic Fluid:

- Drain and replace hydraulic oil every 6 to 12 months depending on use.
- Recommended Fluid: AW32MV or equivalent.

Filter:

- Remove 4 cap screws on top of filter housing.
- Remove filter cartridge and spring.
- Replace with new filter cartridge and spring Part Number 980331.
- Apply anti-seize to cap screws and tighten.

Pump:

- Inspect periodically for leaks.
- Check hoses for signs of wear.

Motor:

- Inspect periodically for leaks.
- Check hoses for signs of wear.

PTO

- Grease output shaft every 6 to 12 months depending on use.
- If PTO does not have a grease zerk on output shaft, remove direct mount hydraulic pump and grease the output shaft using a high quality gear lube.

FINAL ASSEMBLY

- A) Complete all hydraulic plumbing.
- B) Make sure suction lines are supported to prevent tank cracking.
- C) Fill the reservoir until the oil level gets to the bottom of the top site plug.
- D) Set relief valve for system requirements.

NOTE:

After the initial start up procedure you will need to add oil due to the hydraulic lines filling up to capacity.

Over-filling the reservoir will cause the oil to expand up through the breather assembly when the oil warms up.

We recommend using a high grade of hydraulic oil with a Pour Point of -50 F. This will ensure proper oil flow during extreme cold weather operation.

Use of synthetic hydraulic oils is also recommended. Recommended Oil: AW32MV or equivalent.

START-UP PROCURES

The following steps are to ensure that the THERMAFLOW assembly is operating properly.

NOTE: Before engaging the PTO, make sure that all hydraulic lines are plumbed and properly tightened.

- 1) Slowly engage the PTO with engine at idle speed.

NOTE: Watch the oil level in the reservoir. Be ready to add more oil as needed to maintain the oil level between the level indication lines on the site level gage.

- 2) Check for hydraulic leaks and repair as needed.
- 3) Check for fan operation.
- 4) Carefully Tach the product pump speed.
- 5) Slowly increase the engine speed until desired product pump speed is obtained.
- 6) Run system for at least five minutes to ensure that system is sufficiently cooling the hydraulic oil. Using a Hydraulic Flow Meter Kit, set required pressure and flow rates to system requirements.
- 7) Slow engine to idle and disengage the PTO.
- 8) System is ready for operation

TROUBLESHOOTING

Safety First!

Think about it before you do it. Our systems use controlled fluid pressure and converts it to rotational movement. This means that the system pressure operates as high as 5000 psi. A pin hole leak of fluid at this pressure can be dangerous. Use caution when loosening fittings, system pressure can be maintained for a period of time after shutdown.

Troubleshooting

Always inspect the things easiest to eliminate first. Look for faulty linkage or wiring that controls the PTO, pump or motor. Look at the fluid level and appearance of the oil. Check temperatures and pressures.

Excessive Heat:

- Clean air passages through heat exchanger.
- Check fan operation.
- Check setting of relief valve.
- Check temperature of suction line vs outlet line temperature. If the outlet temperature is noticeably hotter, the pump is cavitating.
- Check for contamination in relief valve. Clean and replace.
- Check for added flow controls. If a flow control has been added to the system, excess heat can be generated by the added restriction to flow.

Loss of Motor Speed:

- Check oil level.
- Ensure recommended engine idle speed is maintained.
- Check output pressure of the pump. If system pressure cannot be maintained, attempt to adjust the relief valve setting to max system pressure. If this does not make a noticeable change, make sure to return relief setting to original position and bring the pump and motor to a hydraulic specialist for bench testing and possible replacement.

Excessive Noise:

- Check oil level. Fill to proper level.
- Ensure use of recommended oil type and weight.
- Ensure suction line to pump is at least 1 1/2".
- Ensure there is no restriction in suction line.

Oil Discoloration:

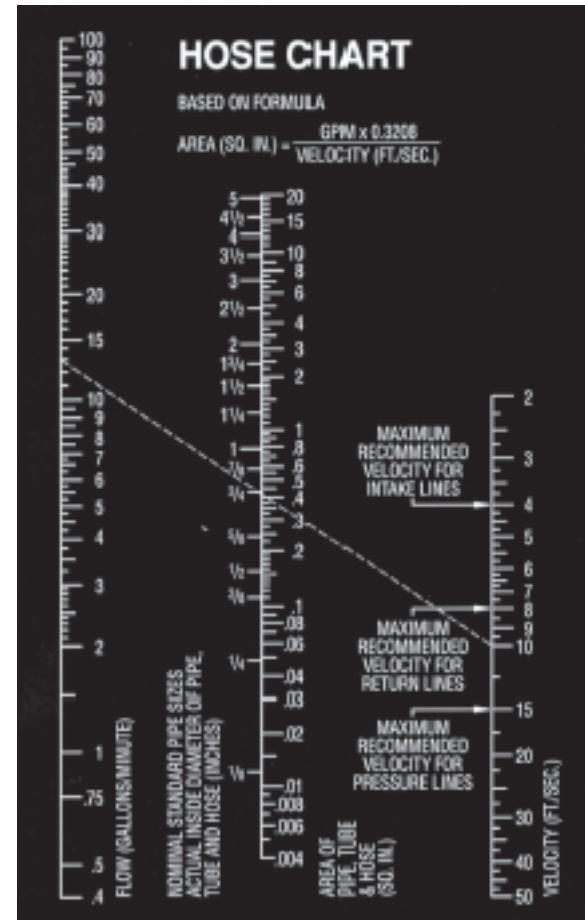
- Ensure suction line connections are tight. Ensure oil is free from water and contaminants. Drain and refill with recommended oil and replace filter.
- Ensure use of recommended oil type and weight.

SPECIFICATIONS OF HOSE

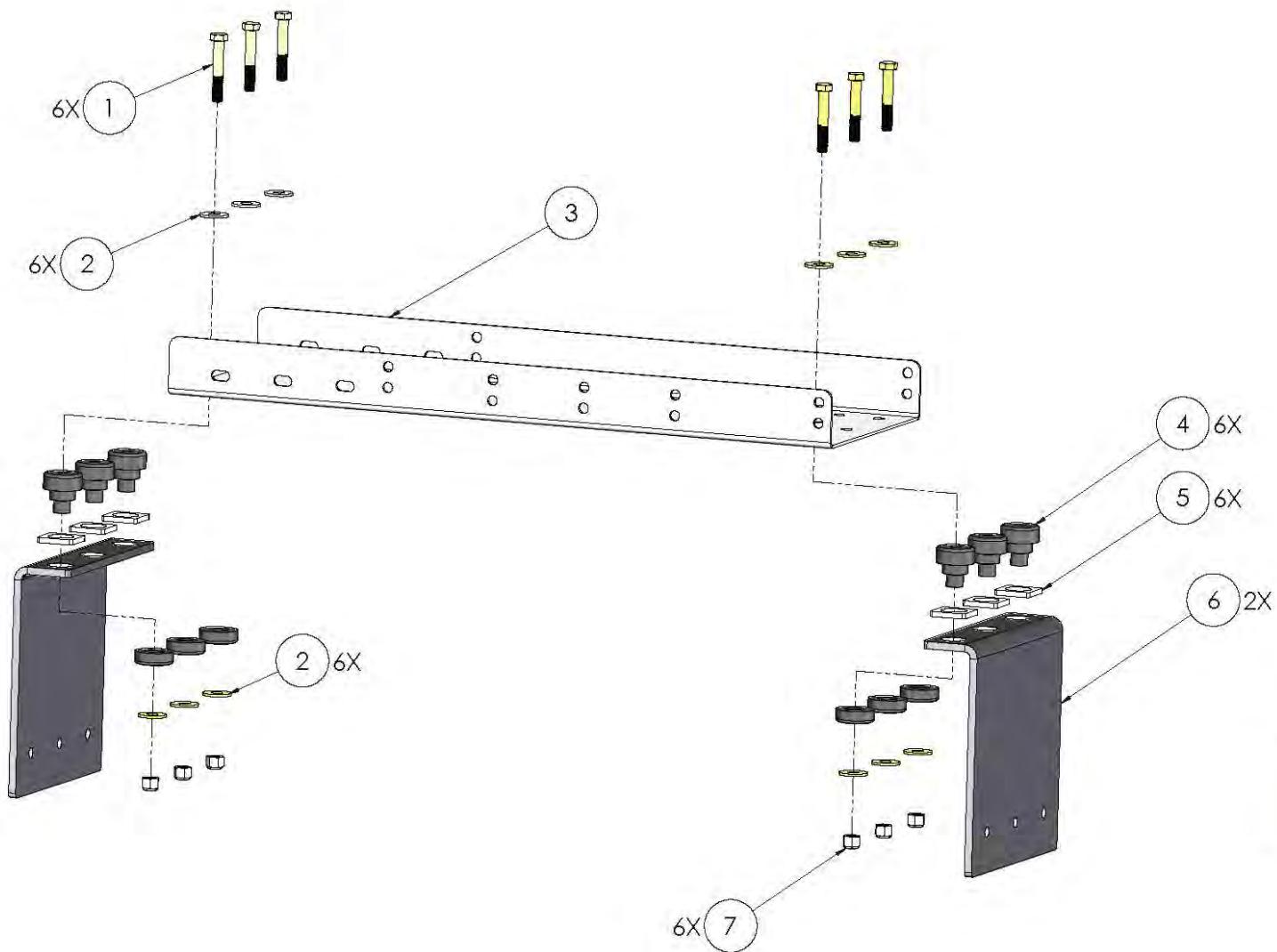
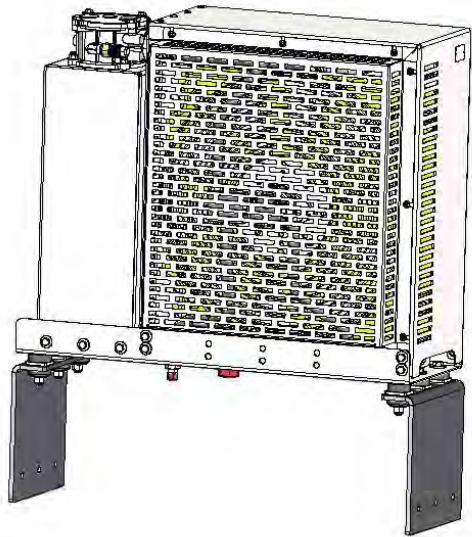
Max Flow Rate: 80 gpm
Max Pressure: 5000 psi
Reservoir: 9.4 gal
Weight: 100 lbs

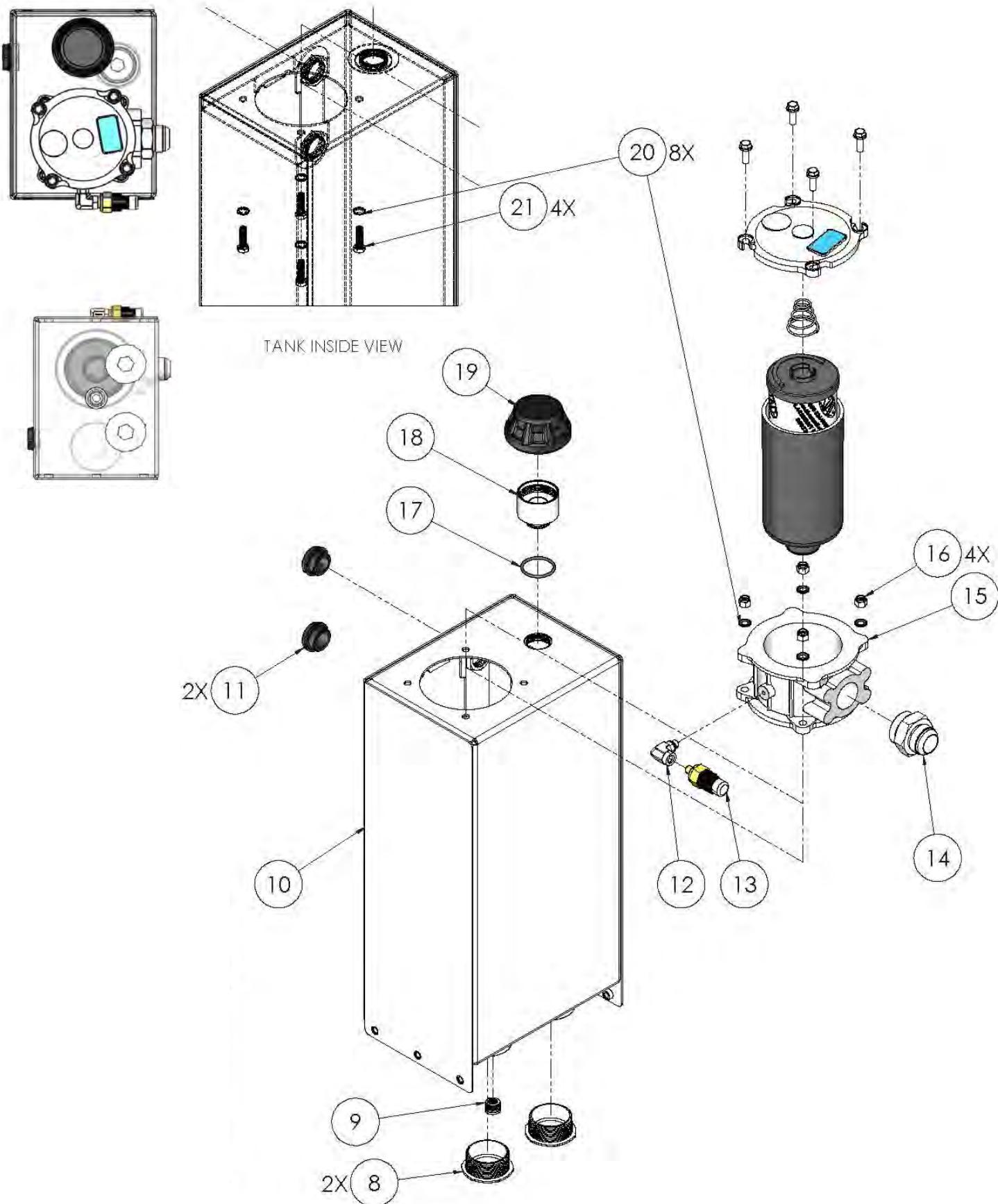
Suction Line: Two, 2" FNPT
Fan Pressure Line :1/2" MJIC
Return : 1-1/4" MJIC

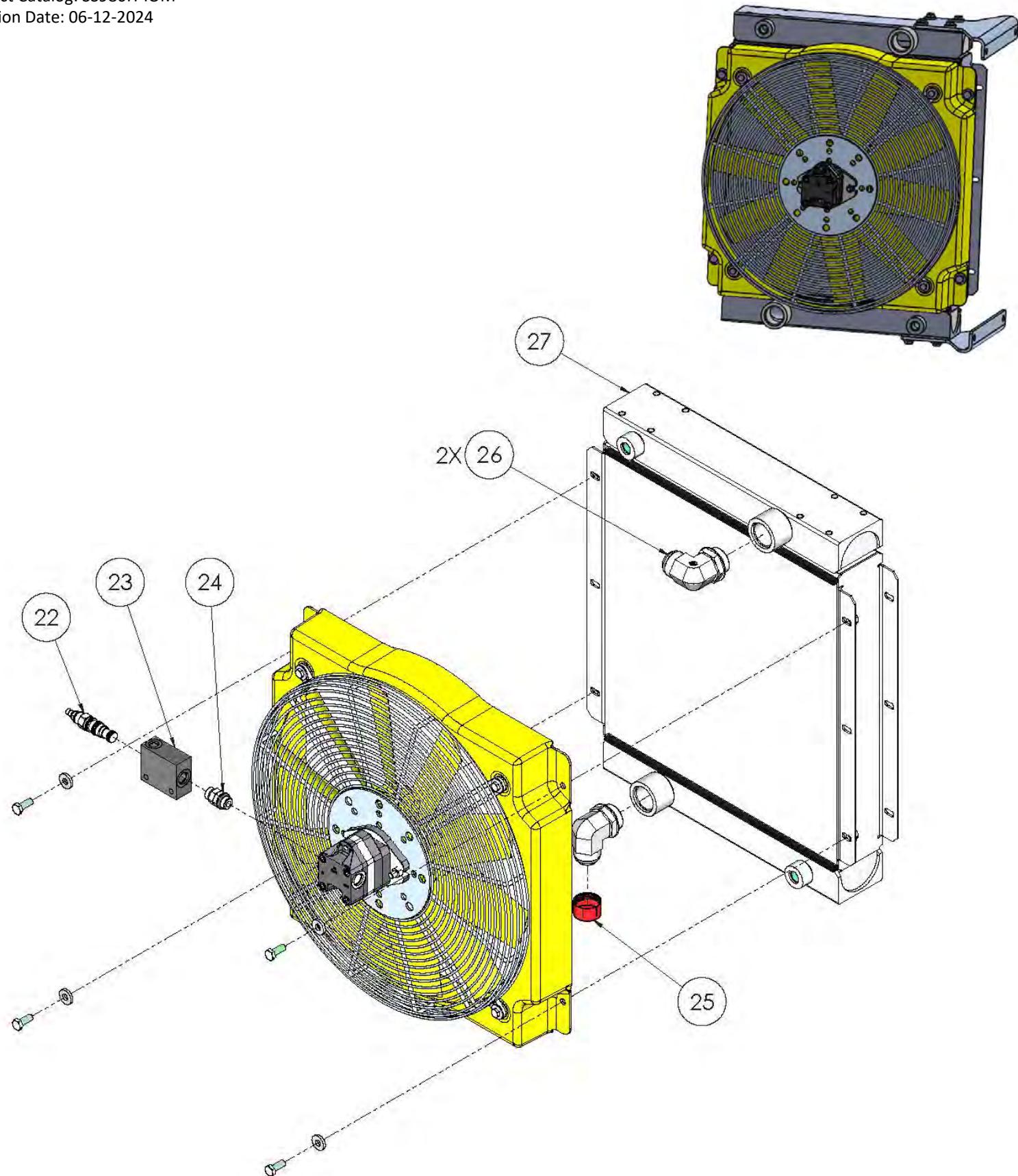
Oil - The recommended oil is AW32MV or equivalent. AW32MV is a supreme performance anti-wear hydraulic oil engineered for wide temperature range applications. It exhibits optimum flow characteristics at sub-zero temperatures and is resistant to shearing and viscosity loss so that system efficiency is maintained and internal pump leakage is minimized at high operating temperatures and pressures.



SS980H PARTS BREAKDOWN







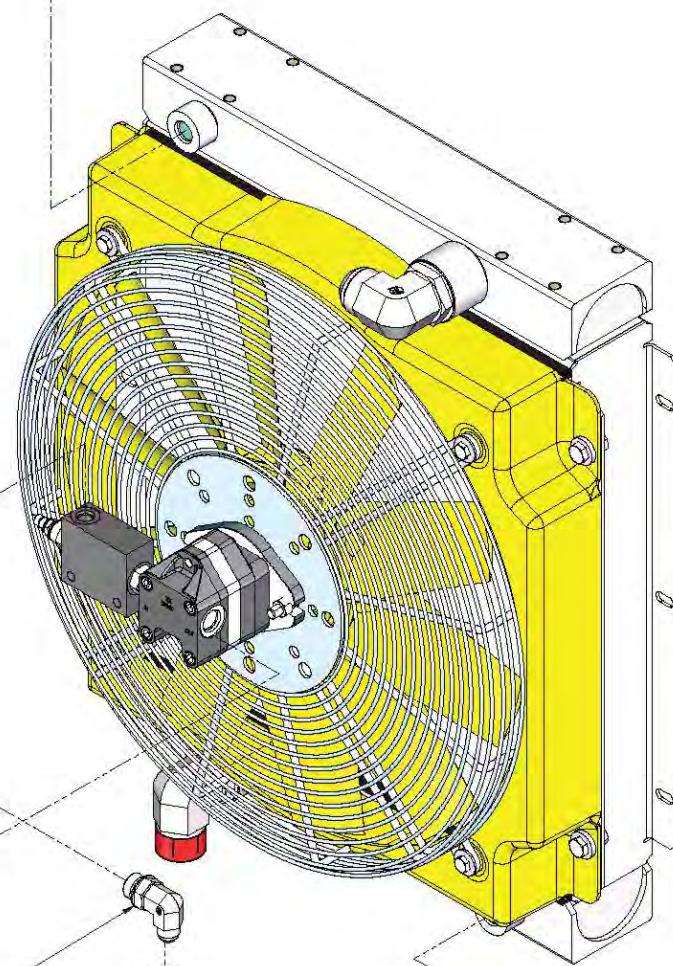
TOP SIDE OF HEAT EXCHANGER

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INLET SIDE OF FAN MOTOR



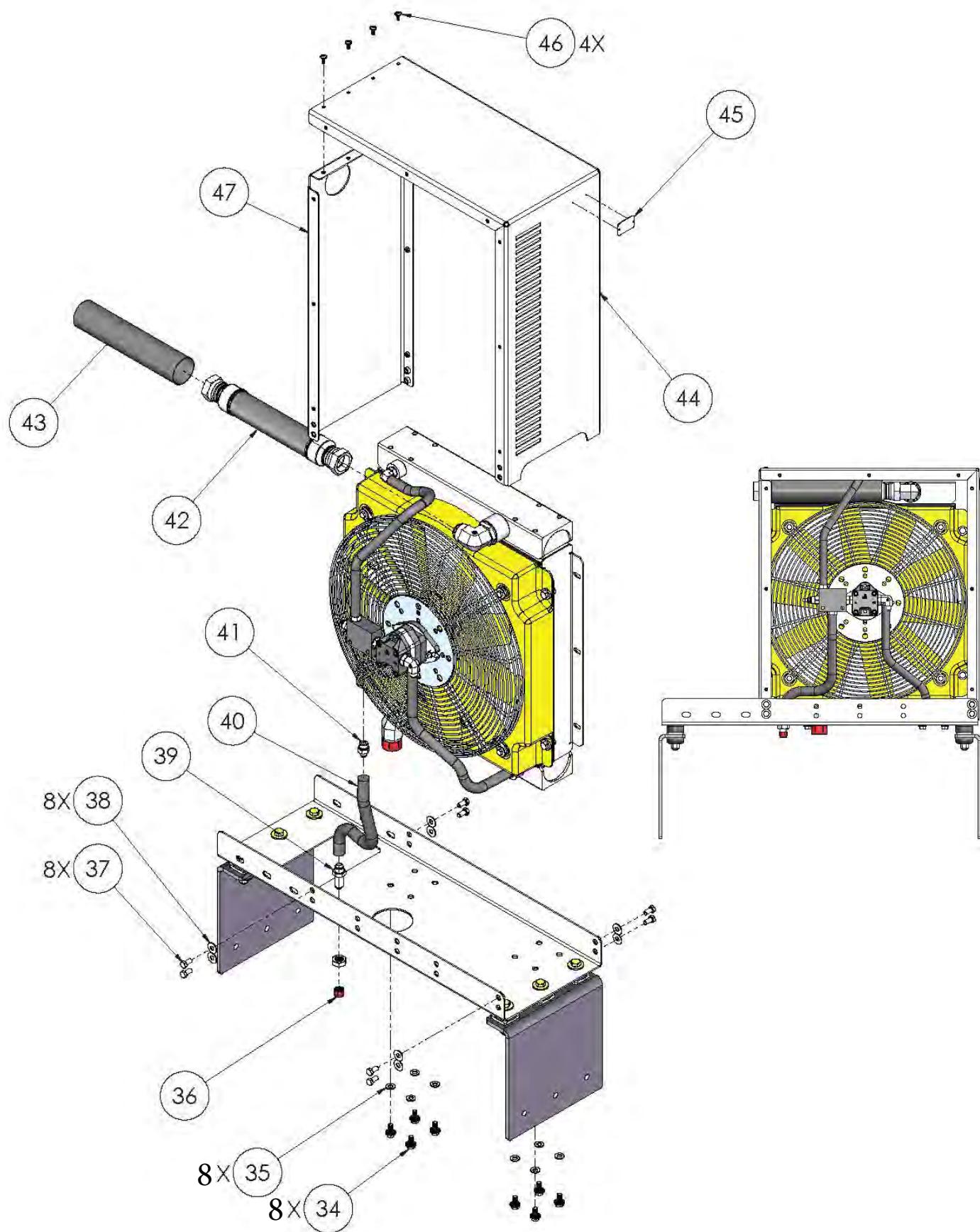
OUTLET SIDE OF FAN MOTOR

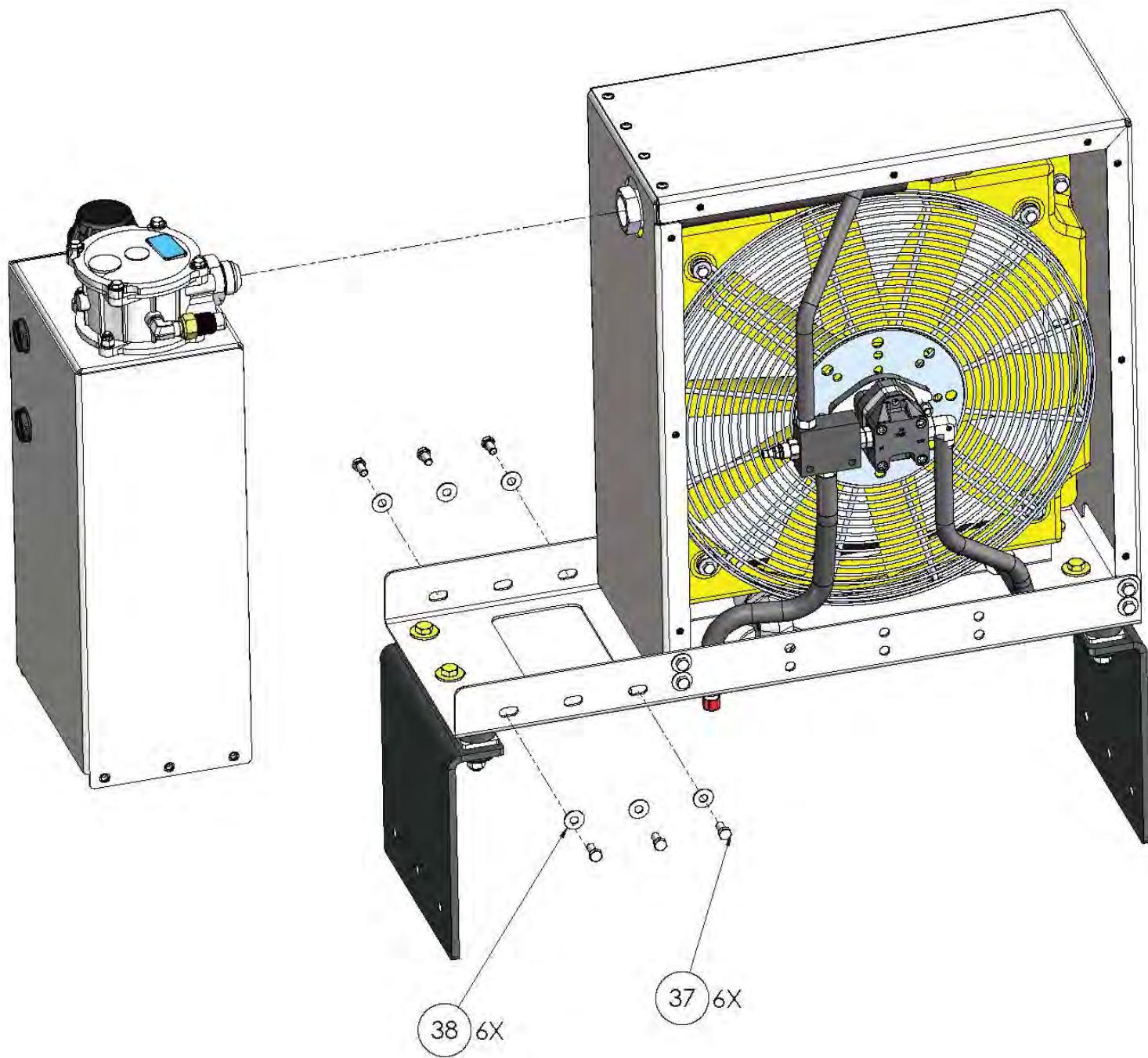
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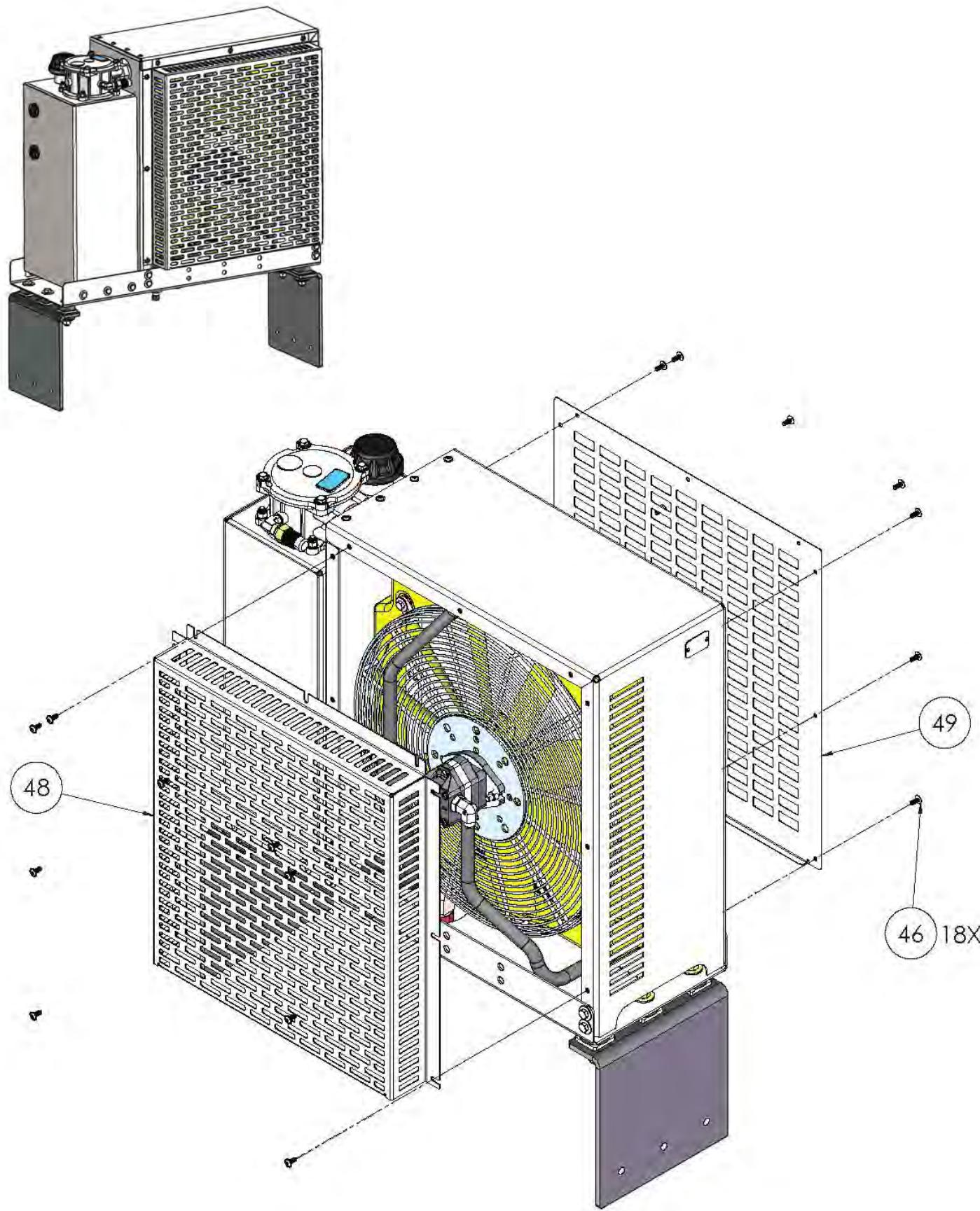
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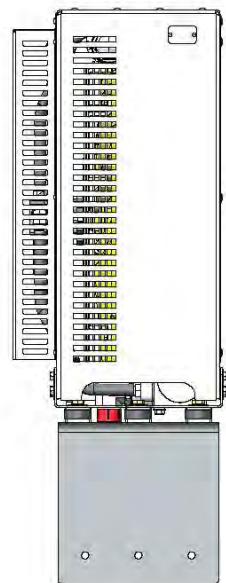
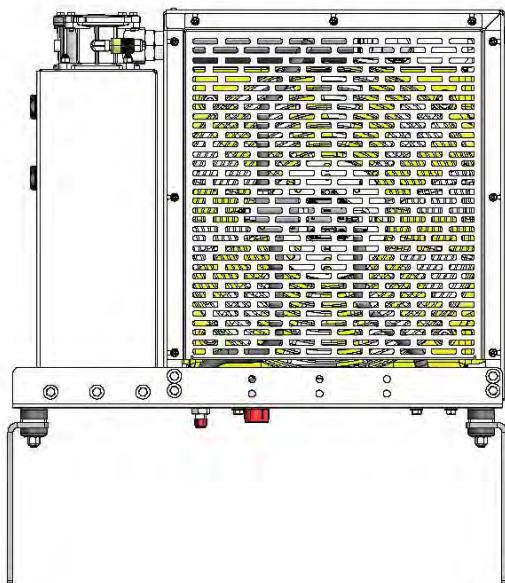
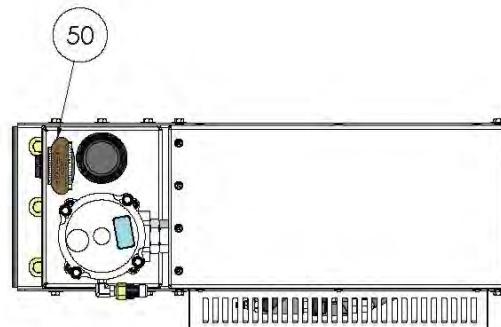
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BOTTOM SIDE OF HEAT EXCHANGER









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PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	375266	CAPS 1/2-13 X 3 HEX GR 8 ZINC	6
2	300270	WASHER FLAT 1/2 ZINC	12
3	980030	980 TRAY	1
4	300200	SHOCK MOUNT	6
5	300032	SPACER SS675	6
6	980071	980 LEG	2
7	8123	NUT, 1/2-13 NYLOCK GR 8 ZINC	6
8	5247	STAT-O-SEAL 600-0002-3/8	8
9	980260	CAPS 3/8-16 X 1-1/4 HH SS	4
10	600332	BREATHER CAP	1
11	9361	BREATHER RISER 1 BSPP	1
12	9474	O-RING 2-223 1 7/8 OD 1 5/8 ID	1
13	7660	SIGHT LEVEL PLUG 1" BSPP	2
14	9502	980 TANK	1
15	7845	PLUG, #08 SAE MAGNETIC	1
16	9321	PLUG 2" MNPT. PLASTIC	2
17	68150404	FTG 04MAORB-04FORB 90 ELB FOR	1
18	934333	FILTER VISUAL IND 2 BAR 4 SAE	1
19	975730	FTG 20MJ-24MORB STG	1
20	980330	980 FILTER ASSEMBLY	1
21	600254	NUT, 3/8-16 NYLOCK G2 ZINC	4
22	934836	PRESSURE REDUCING VALVE	1
23	934835	STEEL BODY PR VALVE	1
24	150908	FTG 8MORB - 8MAORB STR	1
25	9314	CAPS 20FJ, PLASTIC	1
26	7872	20MORB-20MJ90	2
27	9545	980 HEAT EXCHANGER W/206 MTE	1
28	7878	8MORB-8MJ90	1
29	980982	980 DRAIN HOSE (AKG COOLER)	1
30	64000806	FTG 8MJ-6MORB STG	1

PARTS LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
31	9540	FTG 08MJ-10MORB ADJ 90	1
32	980894	980 FAN RETURN HOSE	1
33	64000808	8MJ-8MORB STR	1
34	9250	HH FL SER M10X1.5, 20 LG ZINC	8
35	9251	WASHER, M10, ZINC	8
36	9313	CAPS 08FJ, PLASTIC	1
37	8169	HH 3/8-16 3/4 LG, SS	14
38	675258	WASHER FLAT 3/8 SS	14
39	2700LN08-08	FTG 8MJ-8MJ BULKHEAD W/LN	1
40	980981	980 FAN PRESS HOSE	1
41	150912	FTG 06MJ-08MORB STRAIGHT	1
42	980891	980 RETURN HOSE	1
43	9808931	980891 HOSE SLEEVE	1
44	9065	HT EXCHANGER PANEL-1	1
45	9452	TAG, SS980H	1
46	7709	1/4-20 X 5/8" TORX T30 ADHESIV	22
47	9066	HT EXCHANGER PANEL-2	1
48	980650	980 FAN COVER	1
49	980040	980 SCREEN	1
50	MAINTDECAL	980 MAINTENANCE DECAL	1
51	980083	980 THERMAFLOW DECAL	1

WARRANTY- TERMS AND CONDITIONS OF SALE OF THERMAFLOW MODELS

Buyer's assent to these terms and conditions of sale shall be conclusively presumed from Buyer's execution of a Sales Contract, submission of an Order Receipt of any material ordered or services rendered or from APSCO's commencement of work on the goods. Acceptance of Buyer's order shall be conditioned upon and subject to these terms and conditions. No other term that purports to vary these terms and conditions, shall be binding upon APSCO unless set forth in writing signed by APSCO. Additional terms listed on the reverse side hereof. If inconsistent herewith, shall control and be deemed a part hereof: All negotiations, proposals and representations, if any, made prior and with reference hereto are incorporated herein. This writing shall constitute a complete and exclusive statement of the terms of the agreement between Buyer and APSCO.

1. Prices and shipping terms are F.O.B. APSCO's dock Tulsa, Oklahoma. Payment is due net thirty (30) days after the rendering of this invoice and is to be making in the U.S. funds or their equivalent. Buyer agrees to pay a sum equal to 18% per annum until paid and all cost of collection, including attorney's fees, on any sums not paid when due.
2. Dates of delivery are determined from the date of APSCO's acceptance of any order by Buyer and are estimates of approximate dates of delivery, not a guaranty of a particular day of delivery. APSCO shall not be liable for failure or delay in shipping goods if such failure or delay is due to an act of God, War, Labor difficulties, Accident, inability to obtain containers or raw materials, or any other causes of any kind whatever beyond the control of APSCO.
3. Prices do not include, and Buyer agrees to pay any tax, duty, tariff, or other assessment imposed by federal, state or other governmental authority on the sale of the merchandise and service shall be paid by Buyer in addition to the purchase price.
4. Buyer hereby indemnifies, agrees to hold harmless and defend APSCO, its officers, directors, employees, agents, divisions, subsidiaries and affiliates from and against any, and all liabilities, claims, losses, damages, costs and expenses (including without limitation, special and consequential damages, damages for patent infringement or similar cause of action) resulting from Buyer's use, furnishing of any specification, plan, design, or modification of the goods; omission, neglect, or Buyer's misapplication of proprietary or other information furnished regarding the goods sold by APSCO, whether or not the goods or information originated with APSCO; and further from any, and all, damage to property or personal injury or death arising out of or attributable to the goods, including but not limited to any part not manufactured by APSCO. Buyer accepts all responsibility for the installation and use of adequate safety guards and devices and agrees to hold APSCO harmless in the event of personal injury resulting from inadequate safety guards or devices. APSCO warrants to the original Buyer only, the goods sold conform to the specifications set forth on the invoice and shall be tested to indicate that the same are free from defects in materials and workmanship under normal recommended use for 1 year of service, but in no case more than 2 years beyond the original date of purchase. Thermaflow SS models are 2 years from the date of purchase. Except for the warranty that the goods are made in a workmanlike manner and in accordance with the specifications therefore supplied or agreed to by buyer and are made or packaged pursuant to the customary manufacturing procedures of APSCO. TO THE EXTENT IMPERMISSIBLE UNDER APPLICABLE LAW THIS WARRANTY IN

LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED; INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHETHER ARISING BY LAW, CUSTOM OR CONDUCT. THE FOREGOING RIGHTS AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF OTHER CLAIMS, RIGHT OR REMEDIES WHATSOEVER, WHETHER STATUTORY OR BASED ON CONTRACT, TORT OR OTHERWISE.

5. APSCO's obligation under this warranty is limited to repair or replacement of any part judged defective by APSCO at a point designated by APSCO. APSCO will not be liable for any consequential damages, loss or expense arising in connection with the inability to use its good for any purpose whatever. APSCO's maximum liability shall not in any case exceed the contract price for the goods claimed to be defective or unsuitable. This warranty does not apply to any goods manufactured by manufacturers other than APSCO, which are separately warranted by such other manufacturers (appropriate adjustments therefore being provided by their respective manufacturers); and any of the goods which have been altered, subjected to misuse, negligence or accident.
6. The products covered hereby shall be deemed finally inspected and accepted within ten (10) days after delivery thereof, unless notice of non-conformity is given in writing to APSCO within said period. Acceptance as aforesaid shall be deemed full performance of APSCO's obligation hereunder.
7. APSCO shall not be responsible for products that have been modified in any way after leaving APSCO's facility, and APSCO does not assume responsibility for any rework applied to parts without its consent. No goods shall be returned without APSCO's permission. Defective material will be replaced or credited, whichever APSCO elects.
8. This Agreement shall be governed by the laws of the State of Oklahoma, United States of America, without regard to its provisions for conflict of laws. The parties specifically exclude application of the United Nations Convention on Contracts for the Sale of Goods. The parties agree that each will in good faith attempt to resolve any controversy or claim arising out or related to this agreement promptly through negotiations between authorized representatives of APSCO and Buyer within ninety (90) days of such claim or written notice of dispute. Should such negotiations not resolve such claim or dispute within such period, such claim or dispute shall be finally settled under the Rules of the American Arbitration Association by one or more arbitrators appointed in accordance with the rules thereof, and whose decision will be binding upon both parties. The arbitration proceedings, if any, shall be conducted solely in the English language, including any documentation supplied by the parties in connection therewith. Application may be made to any court for confirmation of any award rendered in any arbitration proceeding having jurisdiction over the parties for a judicial acceptance of such award and for an order of enforcement or other legal remedy as the case may be. The arbitration proceedings shall be conducted in the City of Tulsa, Oklahoma, United States of America. Consent is hereby given to the jurisdiction of any court regarding any matter arising out of such arbitration or the enforcement of any such award. The arbitral award shall be final and binding upon both parties. Application may be made to any court for confirmation or enforcement of any such award having jurisdiction over the party against whom such enforcement is sought. Each party represents that any such arbitral award shall be enforceable against it under the laws of its domicile.

Product Offering

Fans

Spal
Multi-Wing

Fittings

Tompkins
Stucchi
Ryco

Heat Exchangers

Thermal Transfer
Flat Plate
AKG

Hydraulic Motors

Eaton/Char-lynn
Muncie
Permco
Hydro Leduc

PTO's

Muncie
Bezares
Chelsea

Pumps

Muncie
Parker
Permco
Hydro Leduc

APSCO, Inc.

4221 S 68th E Ave., Suite A,
Tulsa, OK 74145

Voice: +1.918.622.5600
Fax: +918.622.5469
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