OPERATORS MANUAL

HYDRA-SUPREME FLUID SCRUBBING SYSTEM

Model 810-001

HYDRAULIC FILTRATION SYSTEM

INTRODUCTION:

Hydra-Supreme fluid scrubbing systems are high performance industrial filters designed to remove particulate, oxidized oil and water from hydraulic oils. This particular model, 810-001, is specifically designed for cleaning the hydraulic oil in systems using directional and proportional valves with oil up to 500 SUS viscosity. Constructed from durable, corrosion resistant materials, it is designed for constant, uninterrupted use without immediate supervision. This system will assure a high degree of fluid purity with an absolute minimum of maintenance and service requirements.

SYSTEM OPERATION:

The Hydra-Supreme fluid scrubbing system utilizes a patented cellulose element to clean the working fluid of accumulated debris. The cleaning process utilizes three interlocking processes to remove solid particulate, varnish and water from the oil. By combining barrier filtration, chromatographic separation and absorption all three of the listed contaminants can be removed from the oil simultaneously and efficiently. As the filter traps the contaminants it builds up pressure and the flow decreases, signaling the need for filter replacement.

The proper function of the filter depends on the correct placement of the inlet and return lines, the correct flow volume, delivery and pressure. The transfer lines should pull fluid from the lowest area of the reservoir and return it to a location at least 24" away to prevent recirculating the same oil repeatedly. An indicative drawing is provided with the installation kit showing typical inlet and return line locations. The Hydra-Supreme utilizes an extremely smooth delivery to prevent fluid pulsation from flushing debris from the filter element. Combining smooth delivery with the proper flow volume assures high trapping efficiency and long element life. Under normal conditions your Hydra-Supreme element should last many months before requiring change out.

SYSTEM PRESSURE:

Pressure readings will vary with the viscosity of the oil used, the operating temperature of the reservoir and the amount of debris absorbed by the filter. A rule of thumb is to change out the filter when a 20 PSI increase has occurred under identical operating temperatures.

Viscosity	Flow Rate	Typical Pressure	Change Out Pressure
ISO 32 (165 SUS)	3.0 GPM	20-25 PSI	60-65 PSI
ISO 46 (238 SUS)	3.0 GPM	25-30 PSI	60-65 PSI
ISO 68 (335 SUS)	3.0 GPM	30-35 PSI	60-65 PSI

Typical filter change out points are 30-40 PSI increase in original operating pressure or a maximum of 70 PSI.

Under no circumstance should your unit ever exceed 75 psi. Should this occur shut down the system and contact HTI's Technical Service Department at (714)9 490-8800 for assistance.

SYSTEM LOCATION:

Although the Hydra-Supreme system uses a self priming pump it is important to keep the filter as close to the reservoir as possible. The suction line should be less than 8' long and a suction line vacuum condition no greater than 20" Hg should be verified at start-up. Vacuum levels above 20” can result in pump damage.

Set the filtration system on a solid, level surface. Allow a minimum of 24" of frontal clearance for service access. The pump and motor should be protected from falling and pooling water.

PLUMBING:

The suction port utilizes a 3/4" inlet with NPT hose fittings. A maximum hose length of 8' is recommended as is the use of sealing caulk or tape on all threaded fittings.

The return port utilizes a 1/2" line with NPT hose fittings. Sealing caulk or tape is also recommended on all non-JIC, threaded fittings.

Ball valves can be installed on both connections for easy shut-off during installation or service.

ELECTRICAL:

The 120 VAC power system should be independent of the machine power as the oil scrubbing system should run continuously for efficient contaminant control. Check the motor name plate for proper voltage and amperage requirements before wiring the motor.

INITIAL START-UP PROCEDURE

Upon completion of the electrical and hydraulic connections the Hydra-Supreme is ready for start-up. The internal pump relief is factory set for a maximum operating pressure of 85 psi. If your unit exceeds this level during any phase of operation it should be turned off immediately and Hydra-Tech should be contacted for instructions.

Open all valves on the inlet and return lines.

Turn on the electrical power.

Crack open the bleed valve on the top of the canister.

As soon as the fluid starts to flow from the bleed hole close the valve securely and wipe away the fluid from the canister lid.

Let the system warm up to typical operating temperature.

This system uses replacement filter element HTI Part # 800-024

FILTER ELEMENT REPLACEMENT

Step 1: Turn off the Filter System. It is not necessary to turn off the host machine to service the Hydra-Supreme filter.

Step 2: With the drain hose positioned over a bucket open the drain valve on the bottom of the canister. Open the bleed cock on the top of the lid. Drained oil can later be used to refill the canister. Once the oil has drained sufficiently you can remove the lid.

Step 3: Examine the canister "O" ring for cracks and wear spots. Replace the canister lid seal if it was leaking, or if it shows signs of wear.

Step 5: Unscrew the "T" handle assembly that holds the filter in place. The cup seal on the handle assembly should be smooth and free of rough spots or tears. Replacement seals are available.

Step 6: Slice open the end of the plastic bag holding the new element. Remove the new element and set in a clean area. Lift used element off of center post **using the lifter handles** at the canister edge and slide it into plastic bag or into a bucket.

CAUTION: Do NOT lift the element with the small metal bale! It may pull out and the loose end can severely cut your hand! Put one hand in each of the opposing **lifter handles** and carefully lift the element out. Wet elements can be very heavy. Be sure of your footing and get help if needed.

Step 7: Slide new element over the center post. Make sure the lifting bale is at the top. Insert the threaded "T" handle and turn CW until the filter is firmly seated.

Step 8: Close drain cock and refill canister with as much of the drained oil that will fit.

Step 9: Put the “O” ring back on the canister lip, replace lid, install the clamp and tighten it.

Step 10: Start the pump motor and allow air to bleed out through bleed cock on top of canister. Close bleed cock when fluid starts to come out. Wipe up any spilled oil and check for leaks.

IMPORTANT NOTE: Do not leave canister until you have visually verified that it is not leaking. A slow leak will eventually drain the gearbox reservoir.

The spent filter must be drained free of oil before it is disposed of. This is typically done by allowing the filter to drain for 24 hours before disposal.

CAUTION

Some hydrocarbon oils are not suitable for extended use after they have been mixed with water. These non-hydrolytically stable lubricants tend to precipitate out their additives, which are captured by the Hydra-Supreme filter element. These oils look acceptable but no longer have the original anti-wear and anti-oxidization characteristics of new oil.

HTI Filtration recommends that you use a premium grade lubricant whenever you have an on-going water contamination problem and that you consult your lubricant supplier for specific information on your specified oil.

HTI FILTRATION INC.

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May 11, 2021

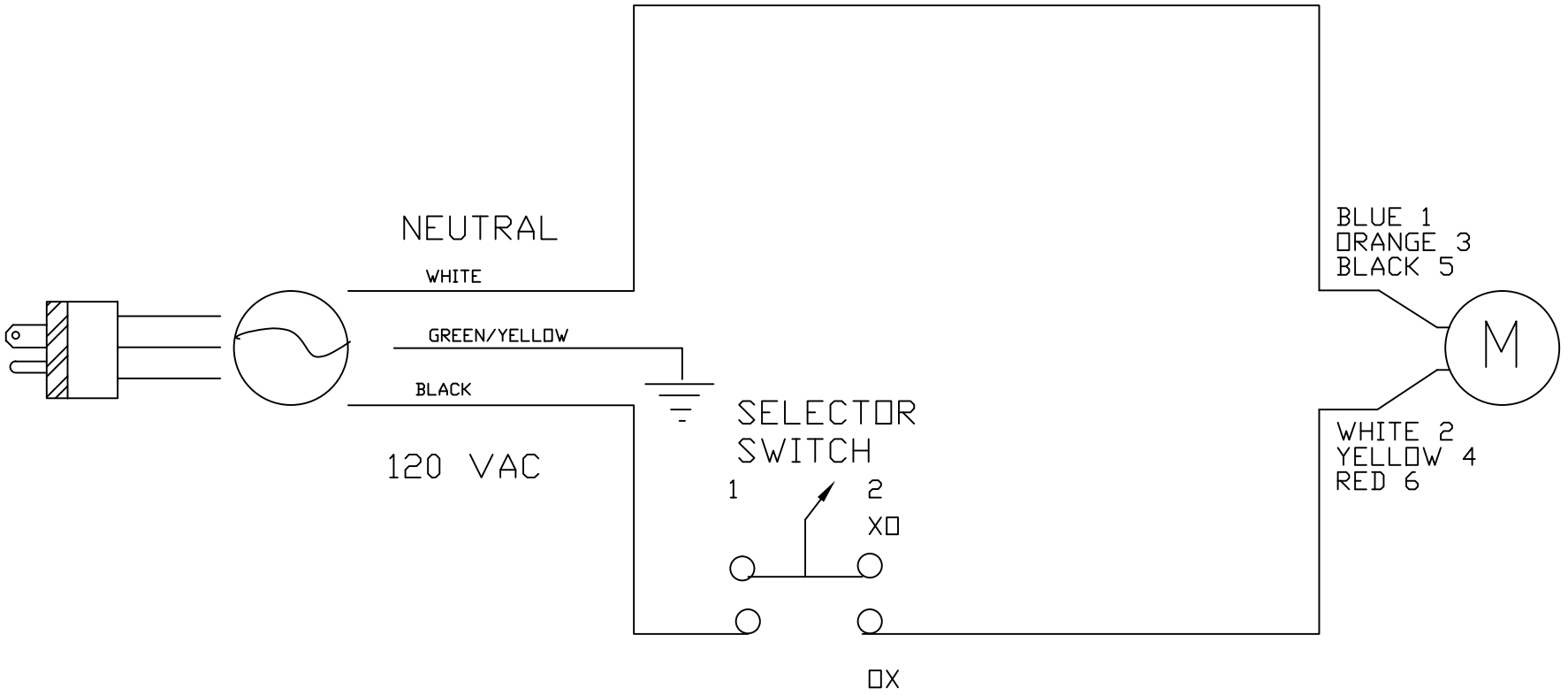
Product Safety Bulletin

Lid Clamp Tightening Instructions
HTI Part # 540-010 & 540-012

HTI Filtration continuously monitors our products in the field to improve our equipment capabilities and safety. We have been informed that some canisters are developing leaks at the lid seal area after being in service for several years. After consulting with the canister manufacturer, it has been determined that this can be caused by overtightening the stamped steel 2-piece lid clamps, HTI Part # 540-012.
To prevent distortion of the canister body and lid flanges, please follow the following torque specifications for the older 540-012 lid clamps and the newer 540-010 V-Band clamps.

540-012 – Alternate tightening: from one side to the other until clamps are fully nested into each other and you have achieved an even pull down of the cover. DO NOT OVER TIGHTEN.

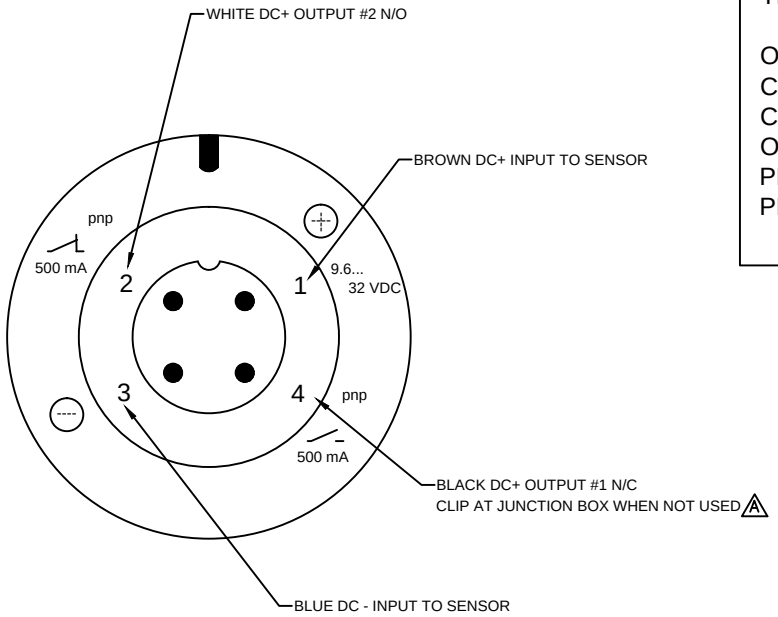
540-010 – Hand tighten to a maximum of 30 Ft L\Lbs.



DWG. TITLE: 810-001 ELECTRICAL SCEMATIC		HTI FILTRATION	810-001
PROJECT DESCRIPTION: HYDRA SUPREME HYDRAULIC FILTER		7716 GARY WATSON PT COLORADO SPRINGS CO 80915	
JOB NO.: —	DRAWING NO.: 810-001 ES	REVISION: B	CUST. CONTR. NO.: —

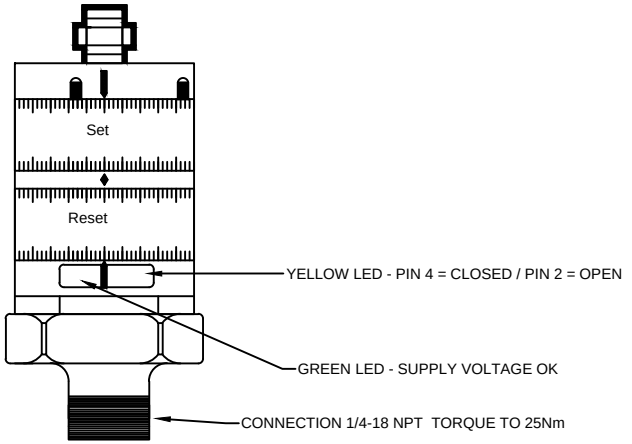
REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION
B	02-29-24	SP	SP	REMOVE PRESSURE SENSOR
A	02-29-01	SP	SP	

CUSTOMER



TECHNICAL DATA -

OPERATING VOLTAGE -	9.6 TO 32 VDC
CURRENT RATING (mA) -	500
CURRENT CONSUMPTION -	<25
OPERATING TEMPERATURE -	-25 TO 80 C
PROTECTION -	IP 67 / III
PRESSURE RANGE-	0...10 BAR 0...145 PSI



NOTE:
USE 620-005 RIGHT ANGLE CONNECTOR
M12 micro DC (4 pin) 5m 22 AWG, Black PUR jacket

USE 620-006 CLEAR COVER

DWG. TITLE
PRESSURE SWITCH ILLUSTRATION

PROJECT DESCRIPTION
PRESSURE SWITCH 620-004

JOB NO.	DRAWING NO.	REVISION	CUST. CONTR. NO.
–	620-004	A	–

HTI
FILTRATION
7716 GARY WATSON PT
COLORADO SPRINGS
CO 80915

REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION
A	02-20-24	SP	SP	ADD NOTATION
0	08-10-12	SP	SP	ORIGINAL ISSUE

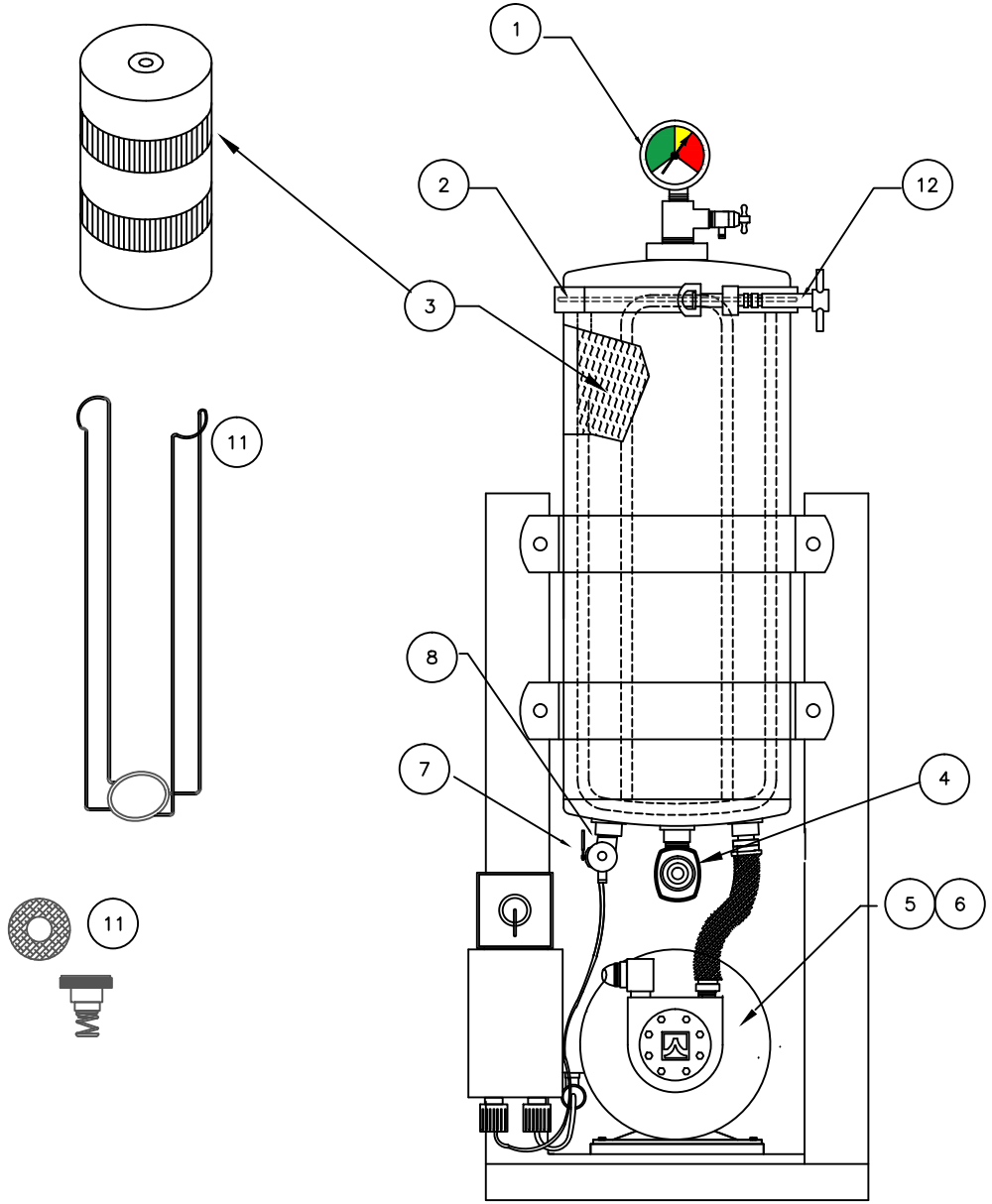
CUSTOMER

TROUBLESHOOTING GUIDE

HTI FILTRATION MODEL 810-001

When using this guide please remember that all pressure readings are to be taken with the system at normal operating temperatures.

SYMPTOM	CAUSE	CORRECTIVE ACTION
ERRATIC FLOW RATE, BUBBLES IN OIL STREAM	AIR LEAK IN INLET FITTING	CHECK FITTINGS FOR TIGHTNESS AND INTEGRITY
	CUT OR PINCHED FEED HOSE	VISUALLY CHECK INLET HOSE FOR DEFECTS
	LOW FLUID LEVEL	CHECK FLUID LEVEL IN RESERVOIR
EXCESSIVE VACUUM (ABOVE 20")	INLET PIPING RESTRICTION	CHECK INLET HOSE FOR RESTRICTION OR BLOCKAGE
	OIL TOO THICK (OVER 900 SUS @100°F)	CHECK OIL VISCOSITY (MAX: 900 SUS @100°F)
	OIL RUNS TOO COLD-OIL DOESNT' GET OVER 80' F.	CHANGE TO LIGHTER GRADE OIL
LOW FLOW RATE WITH LOW PRESSURE	OIL LEAKING OUT OF SYSTEM	CHECK FOR LEAKS IN PLUMBING
	INSUFFICIENT MOTOR POWER	CHECK FOR PROPER PUMP VOLTAGE AND ROTATION
	OIL BYPASSING THROUGH RELIEF VALVE	TURN SYSTEM OFF TO RESEAT RELIEF VALVE
LOW FLOW RATE WITH HIGH PRESSURE	LOADED FILTER	REPLACE FILTER ELEMENT
	RESTRICTED OUTLET LINES	CHECK AND CLEAR RETURN LINES
EXCESSIVE PRESSURE	RELIEF VALVE NOT OPENING	REPLACE VALVE
SHORT FILTER LIFE	EXCESSIVE WATER IN OIL	BLEED OFF WATER IN RESERVOIR, FIX LEAK
	EXCESSIVE SLUDGE IN OIL	CLEAN OUT RESERVOIR
LEAK AT LID CLAMP	CUT OR ERODED SEAL	REPLACE AS NEEDED
	LID NOT TIGHT	TIGHTEN CLAMP BOLT
WARNING LIGHT COMES ON BELOW 60 PSI OR ABOVE 65 PSI	PRESSURE SWITCH SET WRONG	RESET PRESSURE SWITCH



BILL OF MATERIAL

	NO. REQD.	ITEM NO.	DESCRIPTION	PART NO
B	–	1	PRESSURE GAUGE	610–024
	–	2	LID SEAL	450–002
	–	3	HYDRAULIC OIL ELEMENT	800–024
	–	4	FLOW METER	630–006
	–	5	MOTOR 1/2 HP WASHDOWN DUTY	780–013
	–	6	PUMP	770–025
B	–	7	PRESSURE SWITCH W/LED	620–004
		8	PRESSURE RELIEF VALVE	430–073
		9	METRIC MOTOR PUMP ADAPTER	790–009
		10	PUMP SEAL REPAIR KIT	460–057
		11	ELEMENT LIFTER	530–008
B		12	V–BAND LID CLAMP	540–010

DWG. TITLE
810–001

PROJECT DESCRIPTION
HYDRA SUPREME
HYDRAULIC FILTER

JOB NO.	DRAWING NO.	REVISION	CUST. CONTR. NO.
–	810–001 B	B	–

HTI
FILTRATION

7716 GARY WATSON PT
COLORADO SPRINGS
CO 80915

810–001

REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION
B	01–23–23	SP	SP	UPDATE COMPONENTS

CUSTOMER
–

HTI FILTRATION INC.

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STANDARD WARRANTY

This filter system was inspected before shipment from our plant. To the original purchaser of this system, HTI Filtration warrants its products free from defects in material and workmanship for a period of one (1) year from date of purchase.

HTI Filtration makes no other express warranty and excludes (and buyer waives) any and all implied warranties including, without limitation to, implied warranties in connection with the design, sale, merchantability or fitness of the goods for any particular use or purpose.

In order for any claim under this warranty to be valid, HTI Filtration must receive notice in writing from the buyer within a reasonable time period, not to exceed thirty (30) calendar days after any defect is discovered. The claim must include a detailed report of the conditions of use at the time of discovery of defect. Parts which fail or become defective during the warranty period (except as a result of freezing, melting, improper installation, use or care), shall be replaced or repaired at HTI Filtration's option at no charge within 90 days of the receipt of the defective part, barring unforeseen delays. HTI Filtration shall in no event be responsible for the repairs made by others without the express written permission and consent of HTI Filtration.

To obtain warranty replacement or repairs, defective components or parts should be returned, freight prepaid, to place of purchase or nearest authorized service center. HTI Filtration shall not be responsible for cartage, removal and/or reinstallation labor or any other such costs incurred in obtaining warranty replacements. In no event shall HTI Filtration be responsible for any incidental or consequential damage, whether foreseeable or not and whether or not such damage occurs, or is discovered before or after repair or replacement.

The forgoing warranty does not apply to wear components, seals or filtration elements.

This warranty extends only to the original buyer and HTI Filtration makes no other warranty, expressed or implied, to other persons or entities. If buyer makes any warranty or representation inconsistent with or in addition to the warranty stated hereinabove, the buyer shall, at their own expense, defend and hold HTI Filtration harmless from any claim thereon of any nature whatsoever.