



HydraFLOW

25 gpm max.

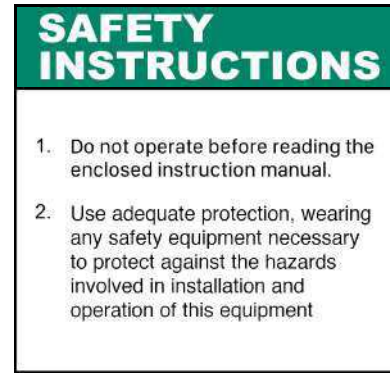
3000 psi max



WARNING
DO NOT OPERATE
MACHINERY BEFORE
READING MANUAL FULLY

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

Warnings



NOTICE

! **WARNING:** Warning Instructions listed on this page must be reviewed by **ALL** operators.

Safety instruction tags were attached to your unit prior to shipment. **DO NOT** remove, paint over or obscure in any manner. Failure to heed these warnings could result in serious bodily injury to the personnel operating and maintaining this equipment.

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Introduction

CONGRATULATIONS on your purchase of a new HydraFlow. Please examine the unit for shipping damage, and **if any damage is found, report it immediately to the carrier.** If unit is to be installed at a later date make sure it is stored in a clean, dry location.



Warning: Serious injury can result from operating or repairing the unit without reading the service manual and taking adequate safety precautions.

Safety Precautions

For equipment covered specifically or indirectly in this instruction book, it is important that all personnel observe safety precautions to minimize the chances of injury. Among many considerations, the following should be particularly noted:

- Rotating shafts can be dangerous. You can snag clothes, skin, hair, hands, etc. This can cause serious injury or death.
- Do not work under the vehicle when the engine is running.
- Do not work on the hydraulic system with the engine running or power take-off engaged.
- Do not engage or disengage driven equipment by hand from under the vehicle when the engine is running.
- PTO and driveshaft should have either a safety loop or guard installed.
- Install a support strap when servicing a drive shaft to prevent personal injury.
- Always use hose rated for hydraulic duty and at the correct pressure.
- A serious or fatal injury can occur...
 - If you fail to follow warning instructions.
 - If you lack proper training.
 - If you fail to follow proper installation and operating procedures.
 - If you do not use proper tools and safety equipment.
 - If you assemble hydraulic system components improperly.
 - If you use incompatible driveline components.
 - If you use worn out or damaged driveline components.
 - If you use driveline components in a non-approved application.
- This manual contains safety instructions. Read, understand, and follow this manual.
 - Get proper training.
 - Learn and follow safe operating procedures.
 - Use proper tools and safety equipment.
 - Use proper components in good condition.
 - Ensure connections exposed to the weather are sealing properly.

Installation



CAUTION: It is the installer’s responsibility to ensure that the HydraFLOW is mounted in a location providing proper clearance from any heat source(s). Paragon recommends 12” from any exhaust opening, 6” from any other heat source(s).

Power Take-Off and Hydraulic Pump

- A. Mount the PTO as recommended by PTO manufacturer.
- B. If the system contains a direct mounted hydraulic pump, ensure the hydraulic pump is mounted to the PTO as recommended by PTO, hydraulic pump, and transmission manufacturers.
- C. Ensure ALL safety labels are installed per manufacturer guidelines.

Note: The standard filter supplied in the HydraFLOW is a 10 micron nominal. Contact Paragon Tank Truck Equipment for other filtration media options.

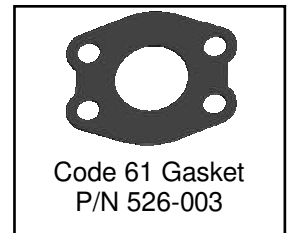
Please refer to your hydraulic pump installation manual for correct filtration and suction specifications.

Contact the engine manufacturer for the proper engine speed range that will reduce torsional vibration to a minimum and prevent premature hydraulic pump and PTO wear.

Mounting the HydraFLOW

- Drill 21/32” diameter holes in the appropriate location for mounting the unit as shown on page 7.
- Use the fasteners in the hardware packet supplied by Paragon to mount the HydraFLOW.
- Use Code 61 Gasket (**Fig 1**). For NPT units, use hydraulic sealant (Loctite number 545 or similar).
- If the HydraFLOW needs to be spaced out from the frame rail, see Fig. __ for the recommended bracket.

Fig. 1



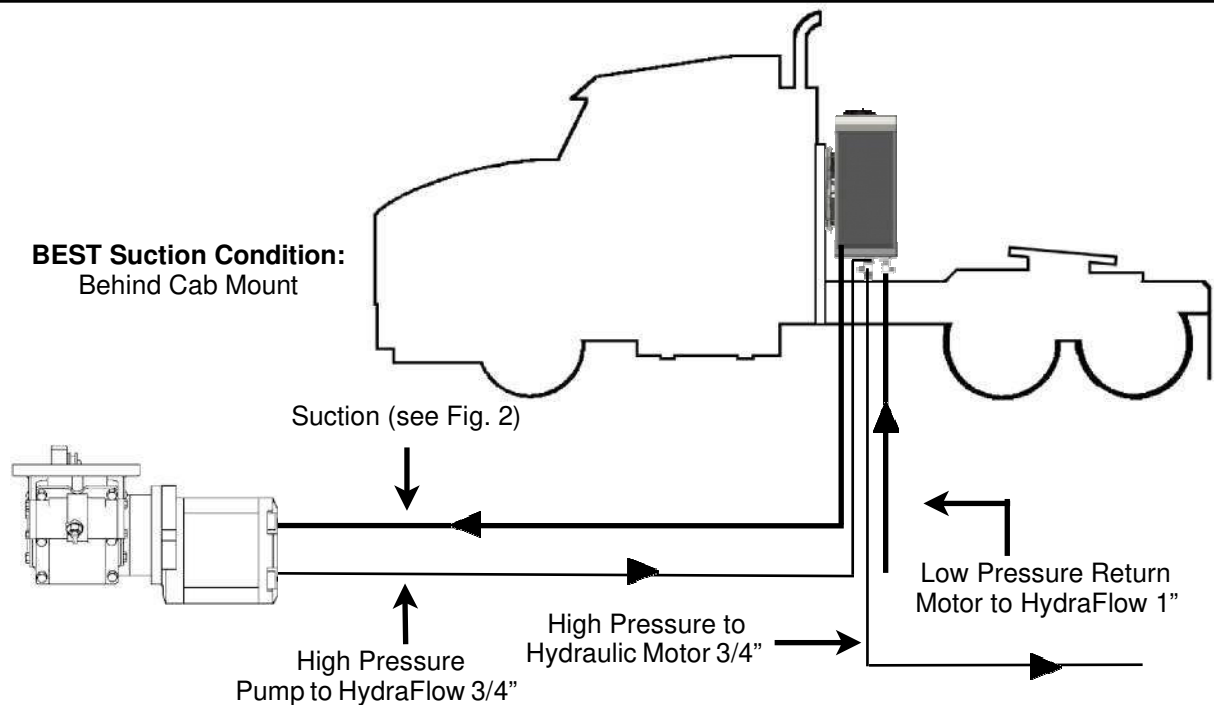
Hydraulic Hoses & Fittings

- **DO NOT** use thread tape or pipe dope on threaded connections, this will contaminate the hydraulic system.
- Hoses are customer supplied, fit according to the system drawings.
- High pressure hoses must have a pressure rating equal to or higher than the hydraulic system relief valve setting.
- The suction hose must be capable of operating in 28” Hg vacuum service.
- Attach the gasket to four bolt flange before installing the suction connection.

Fig. 2

Suction Hose Chart	
GPM Flow	Hose Size
0-20	1-1/4”
20-25	1-1/2”

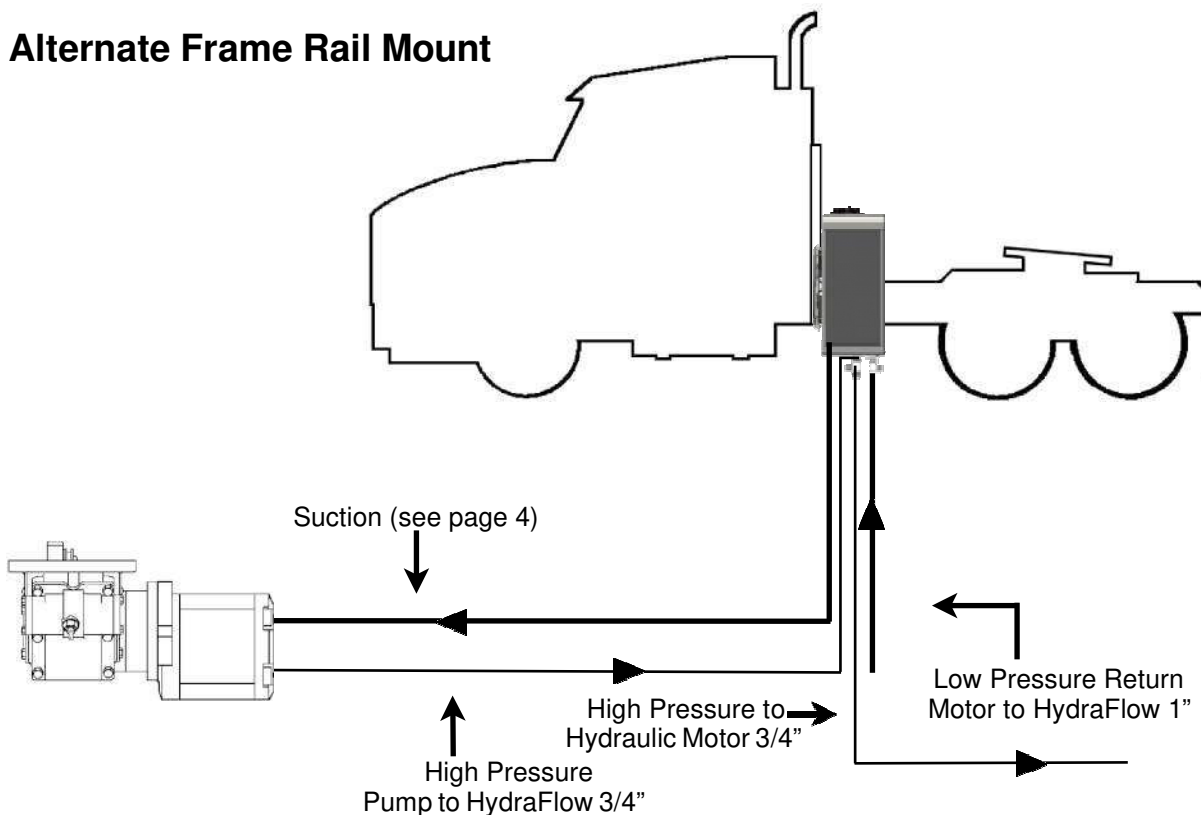
Preferred behind the cab mount (optimum suction conditions)



Note:

- Review Hose Chart (Fig. 2) to ensure the correct suction hose sizing.
- For off road applications do not mount HydraFLOW directly to the frame rail. Behind the cab mount is recommended.
- See system circuit drawing for complete hydraulic plumbing.
- If the HydraFLOW is to be spaced off of the frame rail, refer to Fig. 5 for the recommended bracket.

Alternate Frame Rail Mount

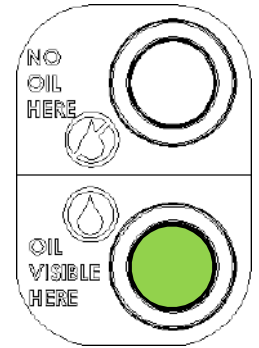


Initial Start Up (Two People Required)

1. Remove the red filler cap.
2. Fill the HydraFLOW to the top of the lower sight glass with hydraulic lubricant.

NOTE: Paragon recommends an (ISO) 32 non-foaming hydraulic oil. (Example: Mobil SHC 630 Hydraulic Oil) Use a paint filter as a strainer while filling to prevent foreign contaminants from entering the system.

3. Replace the red filler cap.
4. Check all hoses and connections for no leaks.
5. Start the engine and engage the PTO and pump according to manufacturer recommendations.
6. Run for 3-5 seconds to eliminate air from the system.
7. Disengage the PTO and stop the engine.
8. Remove the red filler cap and fill to the bottom of the sight glass (no oil should be in the top sight glass).
9. Replace the red filler cap.
10. Start the engine and slowly release the clutch.
11. While the engine is running, engage the PTO and pump according to manufacturer recommendations.
12. Check for leaks, disengage the PTO according to manufacturer recommendations and stop the engine.
13. Re-check the oil level.



Operation of System

1. Check oil level in the HydraFLOW.
Correct oil level is the bottom sight glass completely full and the top sight glass completely empty when the unit is not operating.
2. Check fan and radiator for air flow. Clean or clear any obstructions as needed.
3. Ensure the parking brake is applied, control valves are in the neutral position.
4. Engage the PTO according to manufacturer recommendations.

NOTE: Oil level may drop if air is trapped in the system. Shut down the system and fill oil tank to the bottom of the sight glass.
5. Operate valves slowly.
6. To shut down the system, put the valve in neutral (if available), disengage the PTO per manufacturer recommendations.

Maintenance

Daily	Check oil level before operating (the system must be off). <i>Correct oil level is the bottom sight glass completely full and the top sight glass completely empty when the unit is <u>not</u> operating.</i>
Weekly	Visually inspect the system each week. Check hoses, fittings, and mounting.
Every 3 Months	Change filter every 3 months.
Every 6 Months	Change oil and filter every 6 months.
	Grease PTO / Pump spline every 6 months.

Note: If the unit has a high duty cycle, an oil analysis program is recommended.

Model Number Construction

SL 300 T 9 X -

HydraFlow HF

SL Slim Line (25 GPM)

Pressure

250 - 2500 psi

300 - 3000 psi

Style

T - Tank

Special

(Leave blank if none)

001 - 16 Elbow HP, -16 Elbow LP

002 - 16 Tee HP, -16 Elbow LP

004 - 16 Elbow HP, -20 Tee LP

Features

X - No Guard

Suction

N - 1-1/2" Code 61 flange, no elbow

2 - 2" NPT

4 - 1-1/2" Code 61 flange, 1-1/4" 45

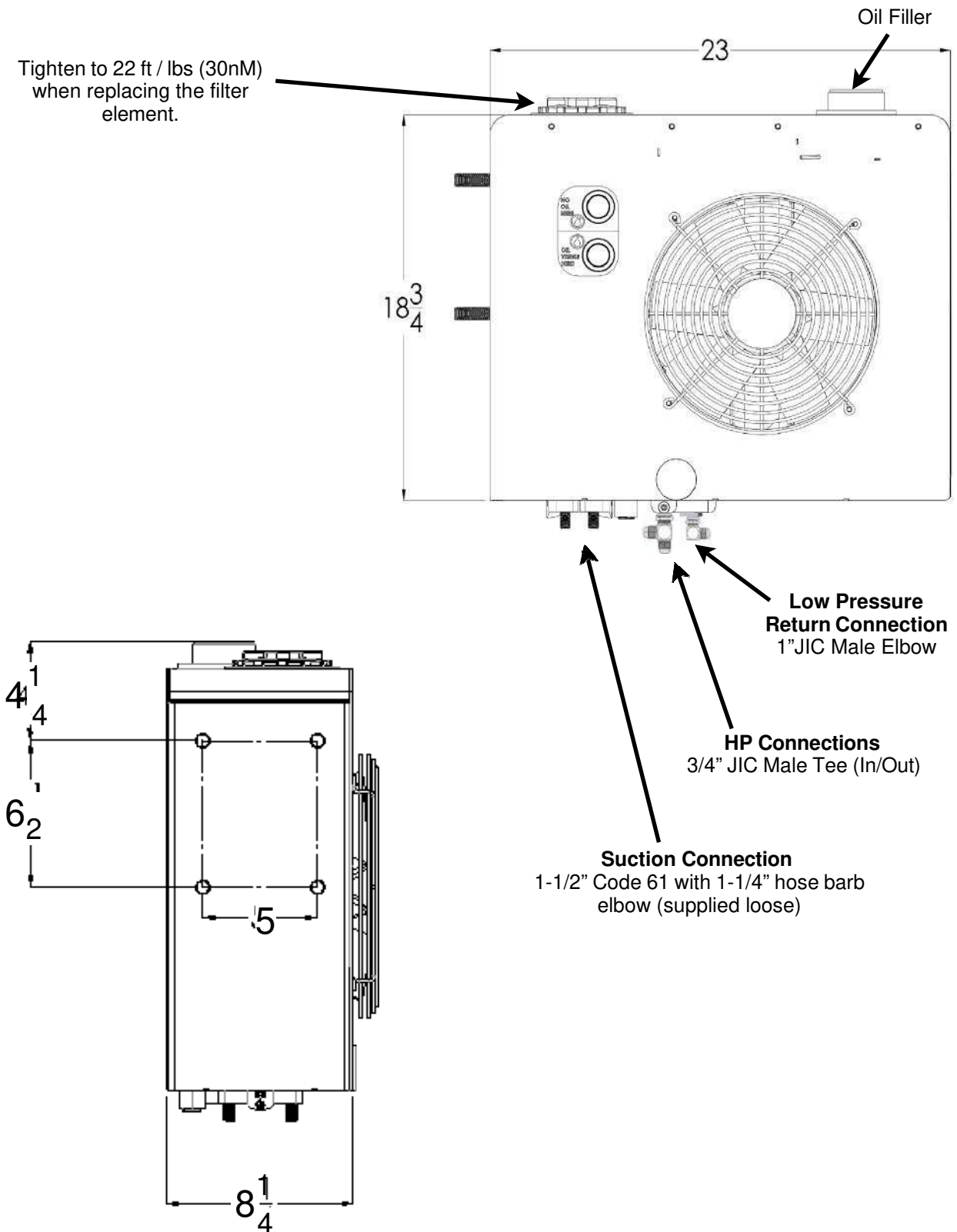
8 - 1-1/2" Code 61 flange, 1-1/2" 90

9 - 1-1/2" Code 61 flange, 1-1/4" 90

Suction Fittings:

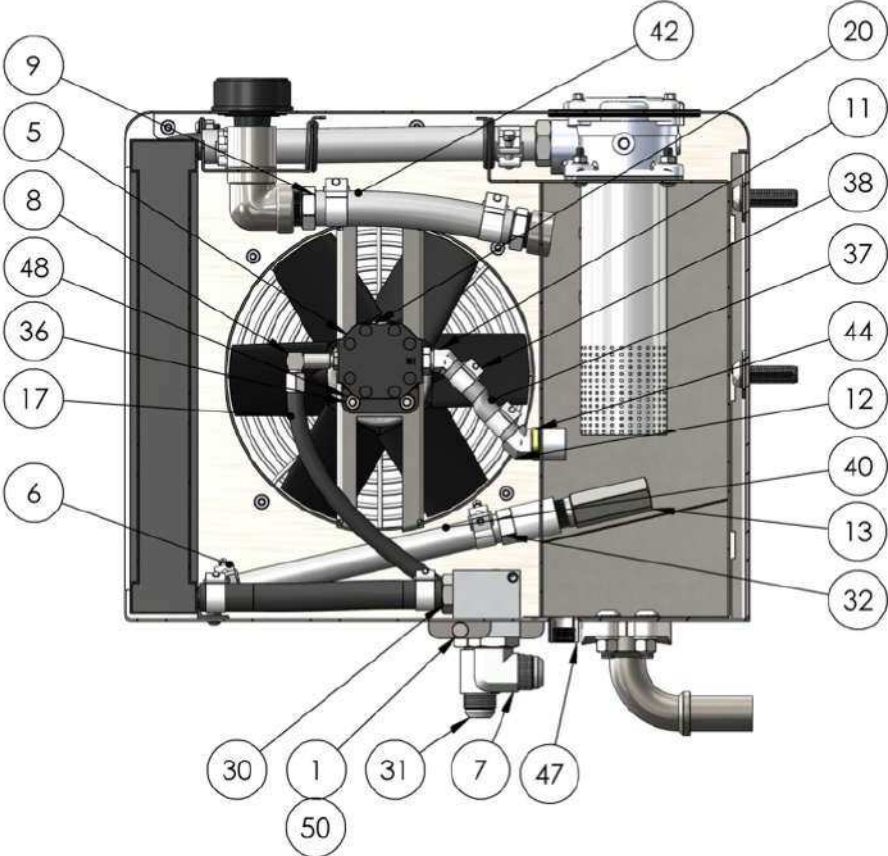
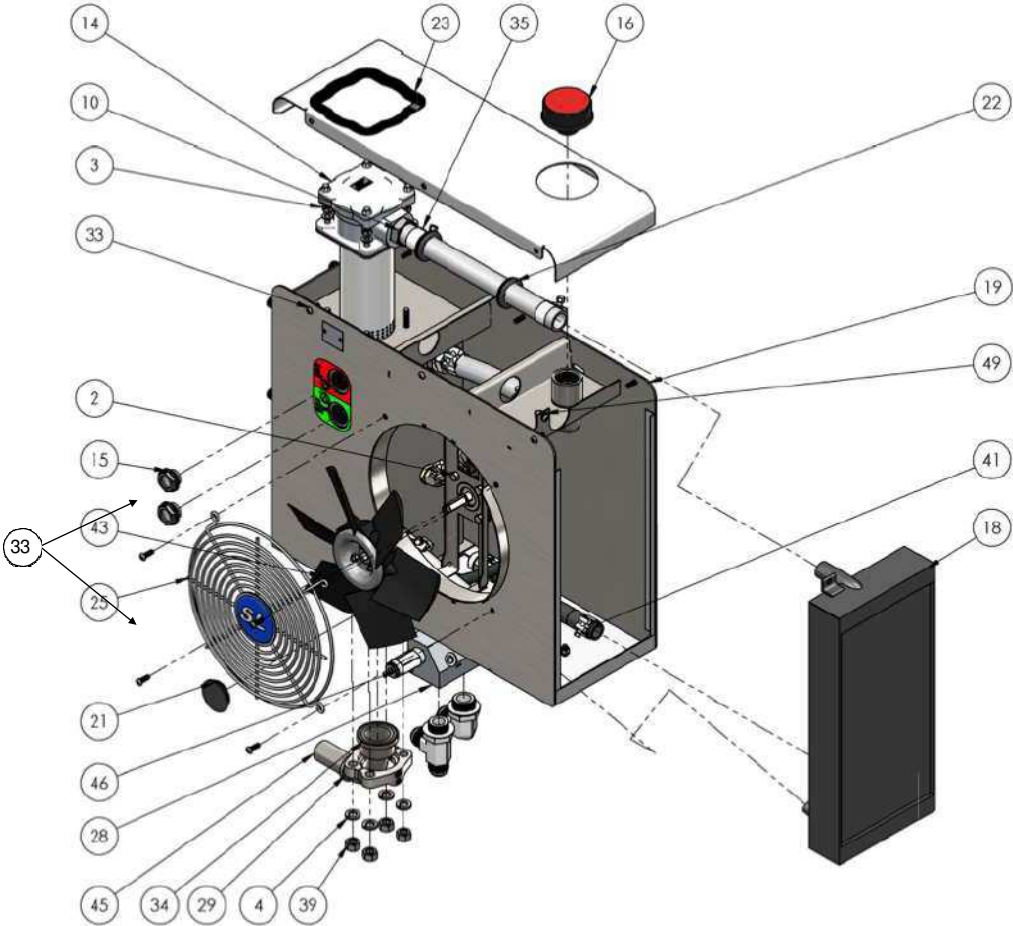
85261	90° 1-1/4" Barb Elbow x -24 Cd 61
329-000	45° 1-1/4" Hose Barb Elbow x -24 Cd 61
328-008	90° 1-1/2" Hose Barb Elbow x -24 Cd 61
329-005	45° 1-1/2" Hose Barb Elbow x -24 Cd 61

Overall Dimensions



Note:
To avoid premature failure, hydraulic hoses must be supported and not allowed to hang or pull on cooler connections.

Parts List



Parts List

Item	Part Number	Description	QTY. STD	QTY. SQ.
1	214-012	Capscrew Button Head 5/16 X 3/4" - S/S	2	2
2	228-010	Capscrew Hex HD Gr5 5/16" X 1" PI	4	4
3	284-026	Nut Hex 5/16-18 Nyloc PI	4	4
4	294-010	Washer Lock Gr5 1/2" PI	4	4
5	300-007	Hyd Mtr Fan - HD/SL Hydraflow (New Style)	X	1
6	313-018	Hyd "T" Clamp Heavy Duty -12 hose	4	4
7	322-021	Hyd Elbow -16 SAE x -16 JICM	1	1
8	322-027	Hyd Fan Flow control - SL Hydraflow	1	1
9	327-001	Hyd Hose Barb Straight -16 x -16 NPTM	2	2
10	327-011	Hyd Hose Barb Straight -16 x -16 SAE	1	1
11	328-000	Hyd Hose Barb Elbow -8 x -6 SAE 45 degree	1	1
12	329-001	Hyd Hose Barb Elbow -8 x -8 MNPT 45 degree	1	1
13	335-000	Hyd Check Valve 3/4" NPT - Radiator	1	1
14^	352-002	Hyd Filter/diffuser, 4 bolt SAE 16 port - SL	1	X
14^+	352-003	Hyd Filter/diffuser, 4 bolt SAE 16 port - HF(Square)	X	1
14^+	352-008	Hyd Filter/diffuser, 4 bolt SAE 16 port - HF(Square) w/Lip	X	1
15	355-004	Hyd Sight Glass 1" NPTM with ball	2	2
16	359-002	Hyd Breather - 1" NPT - Red Cap	1	1
17	361-001	Hyd Hose Fan Motor Feed - Hydraflow SL	1	1
18	370-002	Hyd Heat Exchanger - Hydraflow SL	1	1
19	500-020	Body Mainframe Hydraflow SL	1	X
19	500-010	Body Mainframe Hydraflow SL - Sq filter	X	1
20	507-000	Fan - HD/SL Hydraflow	1	1
21	521-800	Grommet, 1-1/4" Blank - Hydraflow SL	1	1
22	521-801	Grommet, 1-1/4" Open - Hydraflow SL	1	1
23	521-804	Grommet, Square Filter - HF Hydraflow	X	1
23	521-802	Grommet, Filter - H/HD/SL Hydraflow	1	X
24	521-803	Grommet, Filler - HF/SL Hydraflow	1	1
25	524-000	Guard, S/S - Hydraflow Fan HD/SL	1	1
26*	526-003	Gasket, 1-1/2" - Buna 70 Duro 1/16" CD61	1	1
28	85209-1	Hyd Control Block-HF/ SL Series	1	1
29	85213	Flange Split Half 24CD61	2	2
30	85221	Hyd Hose Barb -12 x 12 SAE	1	1
31	85222	Hyd Tee 12 SAE x 12 JICM x 12 JICM	1	1
32	85227	Hose Barb -12 x -12 NPTM	1	1
33	214-004	Screw 1/4-20 x 3/4" Button HD Allen s/	12	12
34	85232	O ring -24 Code 61 225 NBR	1	1
35	85233	Hose Clamp S/S 1.06" TO 1.5" Heavy Duty	5	X

Parts List (cont.)

Item	Part Number	Description	QTY. STD	QTY. SQ.
35	313-021	Hyd "T" Clamp Heavy Duty -16 hose (HF/SL)	X	4
36	85234	Nut 5/16" plated	4	4
37	85236	Hyd Hose Fan Motor Return 1/2"x4 3/4 OAL	1	1
38	85237	Clamp,HSE 1/2" Heavy Duty	2	X
38	313-017	Hyd "T" Clamp Heavy Duty -8 hose	X	2
39	284-000	Nut Hex GR5 1/2" Zinc Plated	4	4
40	85242-1	Hose 3/4" (per foot)	PER FOOT	PER FOOT
41	85243-1	Hose Block /Rad 11"	PER FOOT	PER FOOT
42	85244	Hose FLT/RAD 1" BL x 10" OAL	PER FOOT	PER FOOT
43	85258	Retaining ring 1/2" - Fan Motor	2	2
44	85259	Nut, Seal 1/2" NPT	1	1
45	85261	Hyd Hose Barb 90 degree -20 x - 24 CD 61	()	()
45	329-000	Hyd Hose Barb Elbow -20 x -24 Cd61 45 degree	()	()
46	85304	Relief Valve HF/H/300 Hydraflow - 3000 psi	()	()
46	85257	Relief valve Hydraflow - 2500 psi	()	()
47	90094-050	Plug Pipe 1/2" Soc Stl	1	1
48	294-008	Washer, lock 5/16" Plated	4	4
49	294-003	Washer, Lock 1/4 SST	2	2
50	294-004	Washer, Lock 5/16 SST	8	8
51*	350-001	Hyd Filter Element Bare - HF/SL Hydraflow	1	1
52*	522-001	Cap - Hydraflow HF w/ oring (Square Cap bolt on)	X	1
53*	85250	Filter Cap - Hydraflow Std/HD/SL	1	X
54*	521-002	O-Ring - Filter Cap HF Hydraflow Hex Head	X	1
55*	580-001	Spring - Hydraflow HF (Square Cap)	X	1
56*	508-043	Bracket - Mounting Extension - SL Hydraflow	()	()

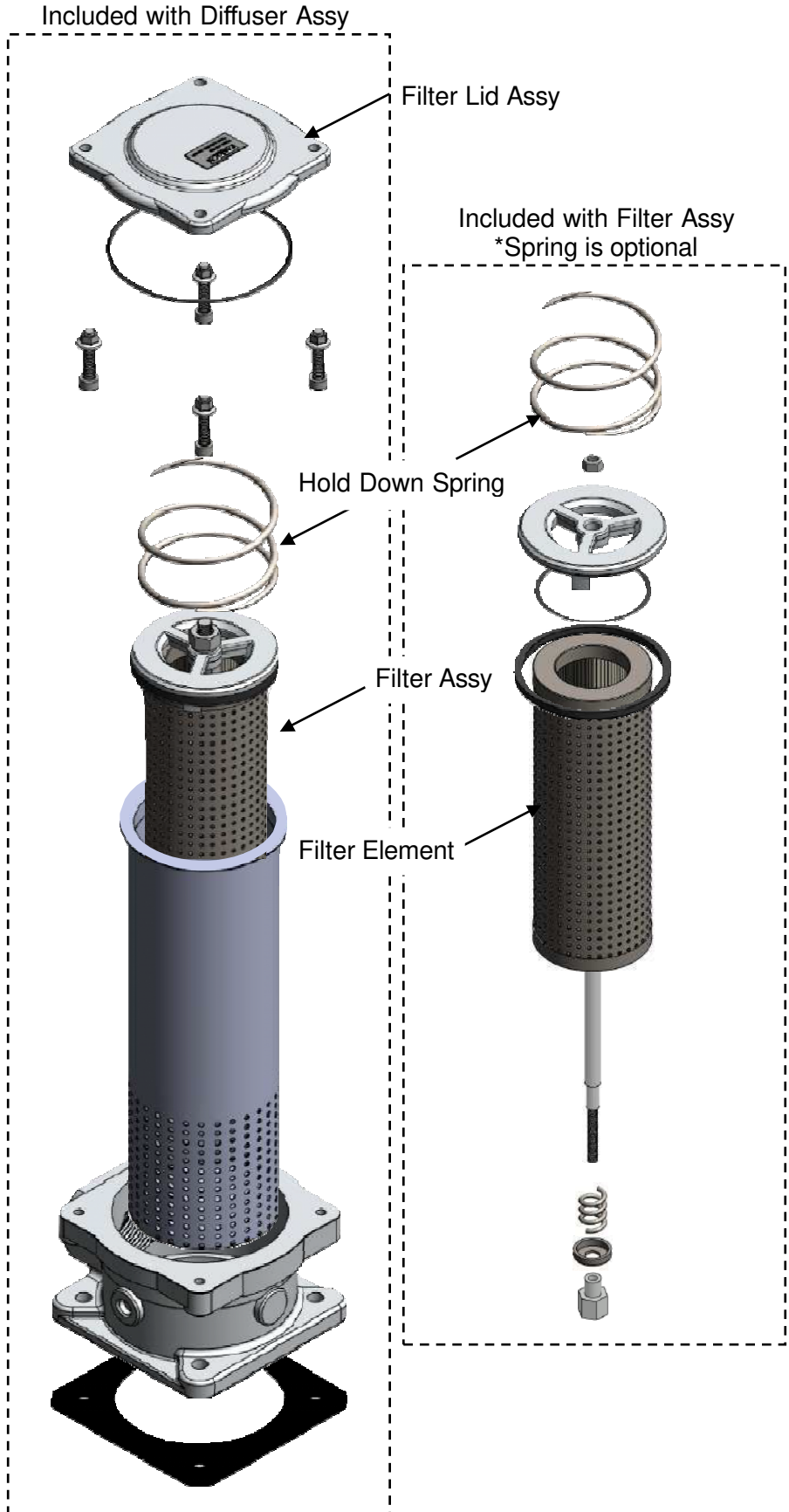
* Not shown in drawing

(QTY) Sub-assembly replacement part, or part not used in every model

^ Note: Filter assembly includes element, bowl, housing and all gaskets.

+ See Page 12 for identification

Filter Breakdown



Diffuser Assy: 352-003 / 352-008 (w/ lip)

Filter Lid Assy: 351-006

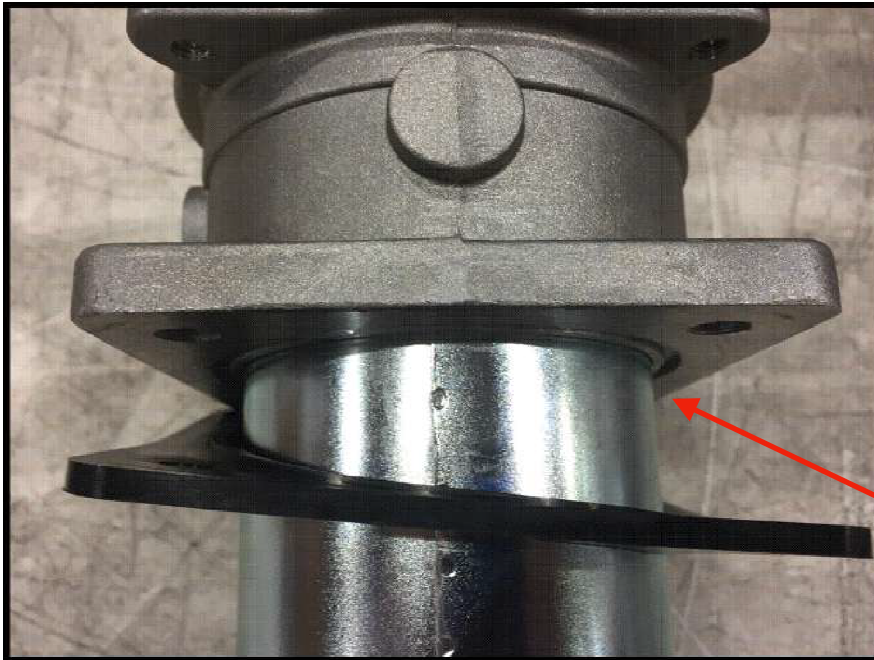
Filter Assy: 351-004

Filter Lid: 522-001

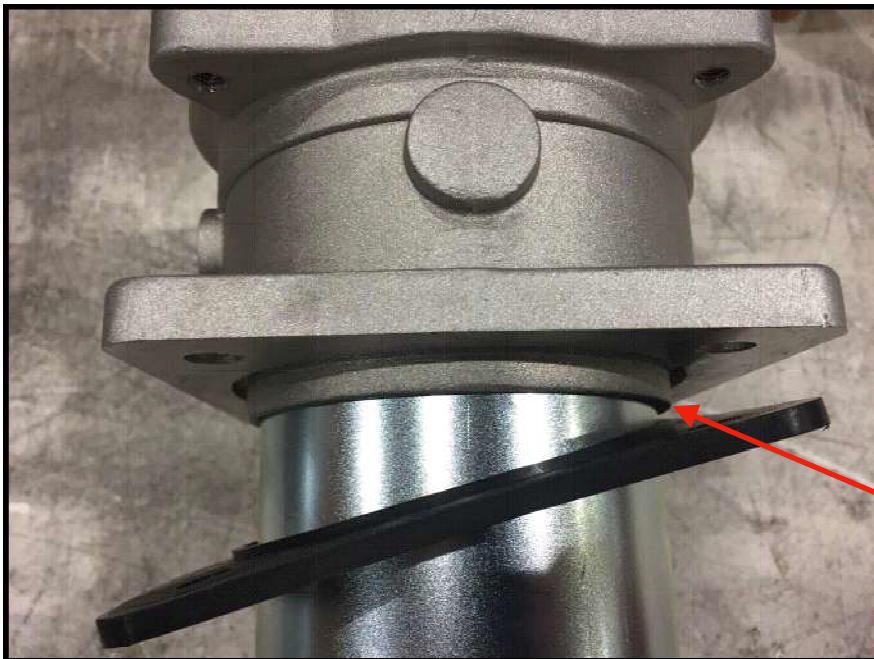
Hold Down Spring: 580-001

Filter Element: 350-001

Filter Head Options



Filter Head without Lip
Part # 352-003

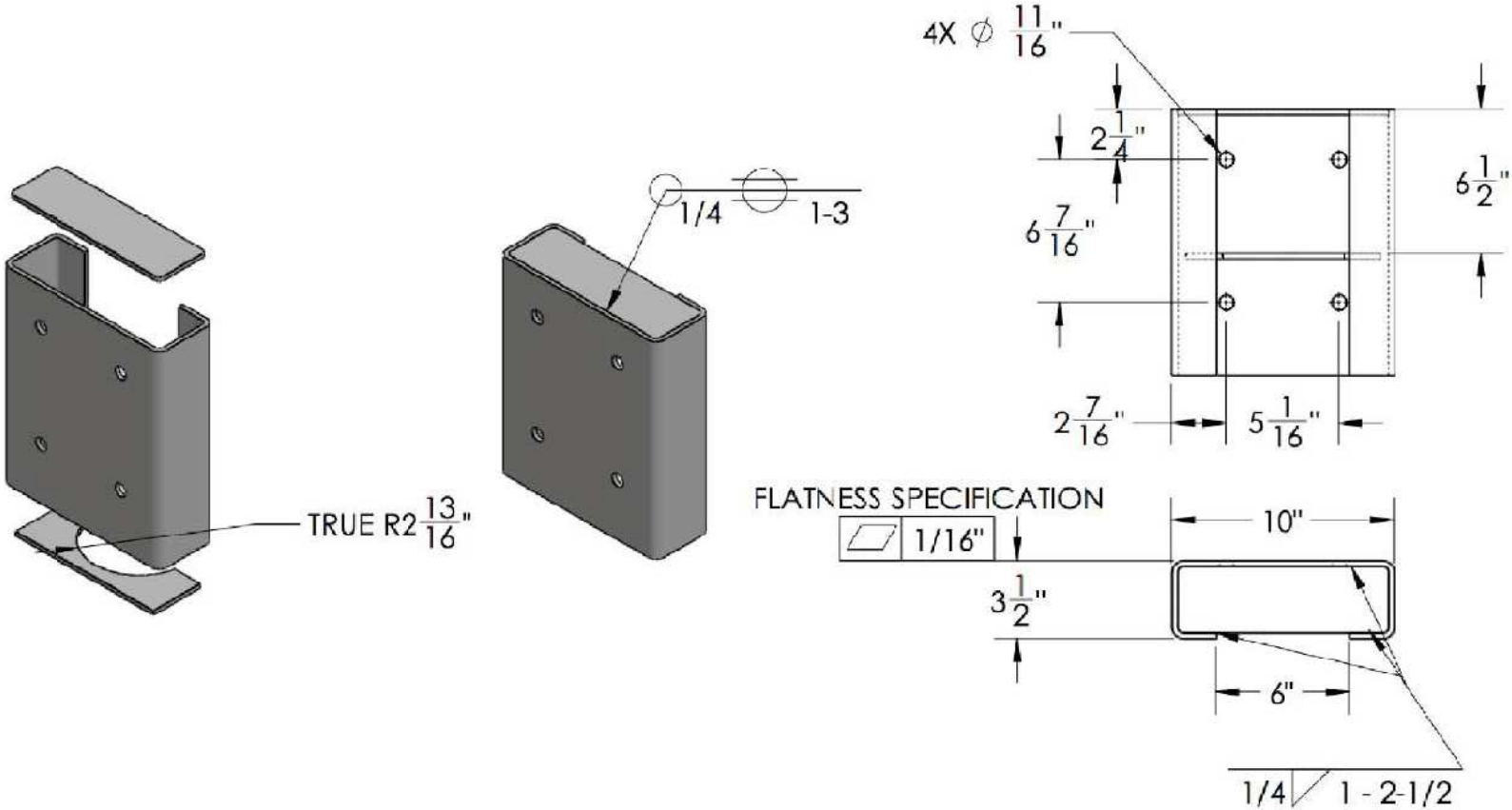


Filter Head with Lip
Part # 352-008

Recommended Frame Rail Bracket for SL Series HydraFlow

Part Number	Description
508-043	Bracket - Mounting Extension - SL

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WARRANTY – HYDRAFLOW

Subject to the terms and conditions hereinafter set forth and set forth in General Terms of Sale, Paragon Tank Truck Equipment LLC (the seller) warrants products and parts of its manufacture, when shipped, will be of good quality and will be free from defects in material and workmanship. This warranty applies only to Seller's equipment, under use and service in accordance with seller's written instructions, recommendations and ratings for installation, operating, maintenance and service of products, for a period as stated in the table below.

THIS WARRANTY EXTENDS ONLY TO BUYER AND/OR ORIGINAL END USER, AND IN NO EVENT SHALL THE SELLER BE LIABLE FOR PROPERTY DAMAGE SUSTAINED BY A PERSON DESIGNATED BY THE LAW OF ANY JURISDICTION AS A THIRD PARTY BENEFICIARY OF THIS WARRANTY OR ANY OTHER WARRANTY HELD TO SURVIVE SELLER'S DISCLAIMER.

Product Type	Warranty Duration
New	18 months from date of shipment, or 12 months after initial startup date, whichever occurs first

All accessories furnished by Seller but manufactured by others bear only that manufacturer's standard warranty.

All claims for defective products, parts, or work under this warranty must be made in writing immediately upon discovery and, in any event within one (1) year from date of shipment of the applicable item and all claims for defective work must be made in writing immediately upon discovery and in any event within one (1) year from date of completion thereof by Seller. Unless done with prior written consent of Seller, any repairs, alterations or disassembly of Seller's equipment shall void warranty. Installation and transportation costs are not included and defective items must be held for Seller's inspection and returned to Seller's Ex-works point upon request.

THERE ARE NO WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS OF PURPOSE.

After Buyer's submission of a claim as provided above and its approval, Seller shall at its option either repair or replace its product, part, or work at the original Ex-works point of shipment, or refund an equitable portion of the purchase price.

The products and parts sold hereunder are not warranted for operation with erosive or corrosive material or those which may lead to build up of material within the product supplied, nor those which are incompatible with the materials of construction. The Buyer shall have no claim whatsoever and no product or part shall be deemed to be defective by reason of failure to resist erosive or corrosive action nor for problems resulting from build-up of material within the unit nor for problems due to incompatibility with the materials of construction.

Any improper use, operation beyond capacity, substitution of parts not approved by Seller, or any alteration or repair by others in such manner as in Seller's judgment affects the product materially and adversely shall void this warranty.

No employee or representative of Seller other than an Officer of the Company is authorized to change this warranty in any way or grant any other warranty. Any such change by an Officer of the Company must be in writing.

The foregoing is Seller's only obligation and Buyer's only remedy for breach of warranty, and except for gross negligence, willful misconduct and remedies permitted under the General Terms of Sale. In no event shall Buyer be entitled to incidental or consequential damages. Any action for breach of this agreement must commence within one (1) year after the cause of action has occurred.

Paragon Tank Truck Equipment
www.paragondirect.com

