



HydraFLOW™

30 gpm max.

3000 psi max



Part Number HF 300 Series



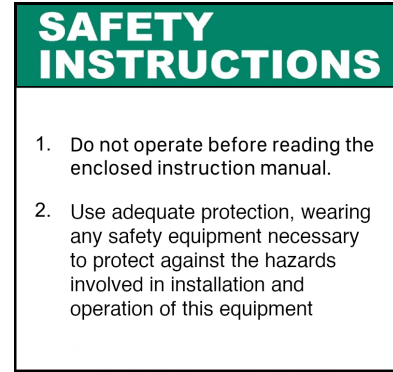
Part Number 86000 Series

WARNING

DO NOT OPERATE BEFORE
READING MANUAL

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 the 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

- Mount the PTO as recommended by PTO manufacturer.
- 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.
- 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.

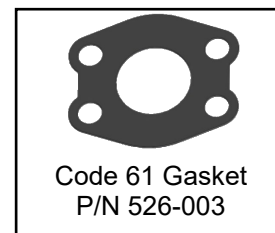
Please refer to your hydraulic pump installation manual for correct filtration and suction specifications.

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 7/16" diameter holes in the appropriate location for mounting the unit as shown on page 8.
- Use the fasteners in the hardware packet supplied by Paragon to mount the HydraFLOW.
- Use Code 61 Gasket (**Fig 1**) in combination with suction connection fitting and hardware.
 - Do not use power tools to tighten suction fitting.
 - Do not exceed 55 ft-lbs of torque.
 - Ensure to torque evenly.
- For NPT units, use hydraulic sealant (Loctite number 545 or similar).

Fig. 1



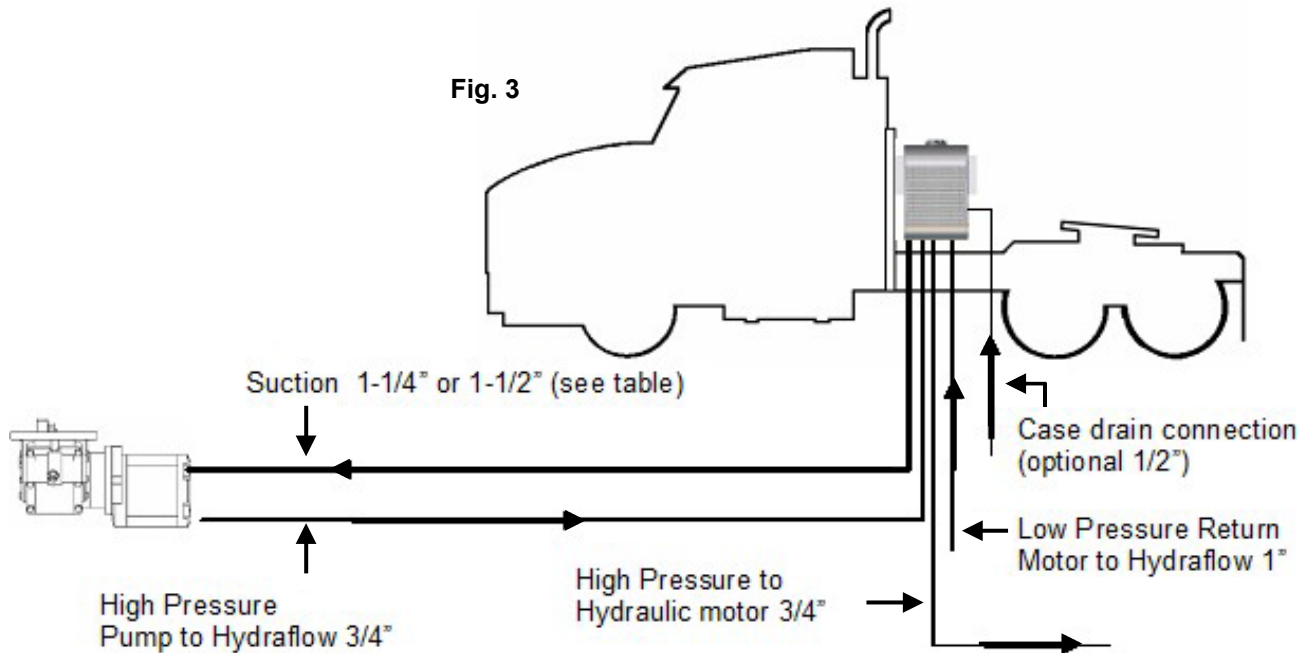
Hydraulic Hoses & Fittings

- 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 flanges before installing the suction connection.

Fig. 2

Suction Hose Chart	
GPM Flow	Hose Size
0-20	1-1/4"
20-25	1-1/2"
26-30	2"

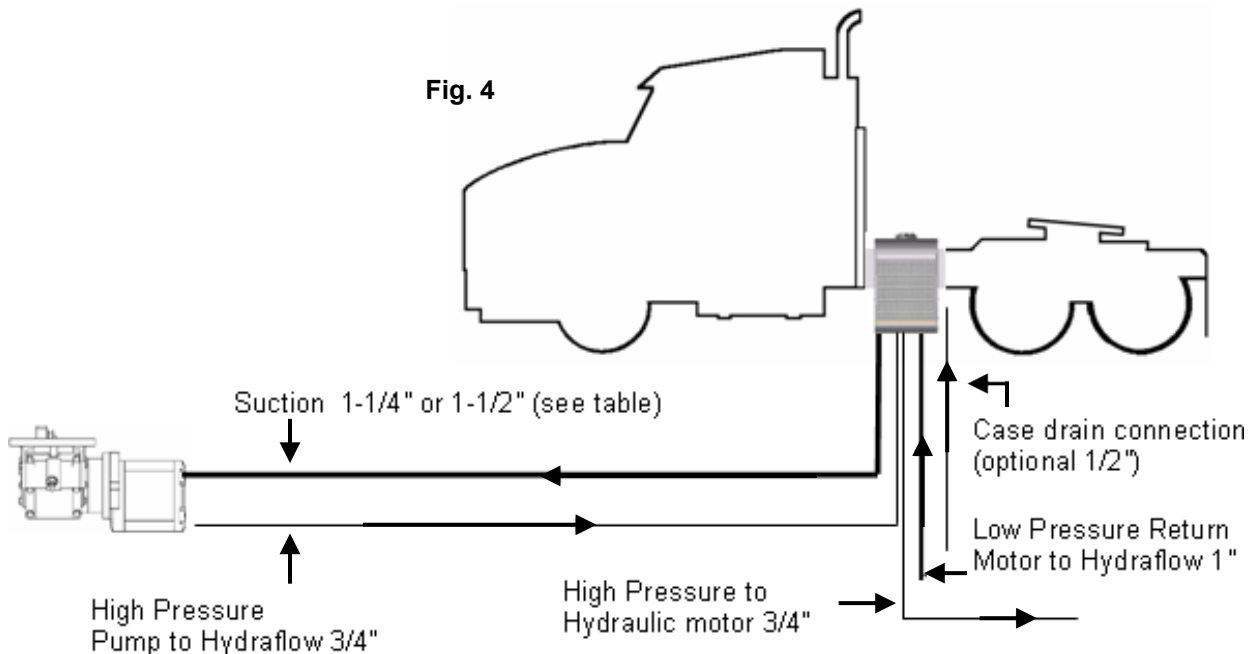
Preferred behind the cab mount (optimum suction conditions)



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 **1/2 full** with hydraulic fluid.

NOTE: Paragon recommends an (ISO) 32 non-foaming hydraulic oil. (Example: Shell Tellus S2 V 32 Non-Foaming Oil)
Use a paint filter as a strainer while filling to prevent foreign contaminants from entering the system.

3. Replace the fill 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 fill cap and fill to the bottom of the sight glass.
9. Start the engine and slowly release the clutch.
10. While the engine is running, engage the PTO and pump according to manufacturer recommendations.
11. Check for leaks, disengage the PTO according to manufacturer recommendations and stop the engine.
12. Re-check the oil level.

Operation of System

1. Check oil level in the HydraFLOW.
Correct oil level is at the bottom of the sight glass 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, follow steps 5 thru 3 in reverse.

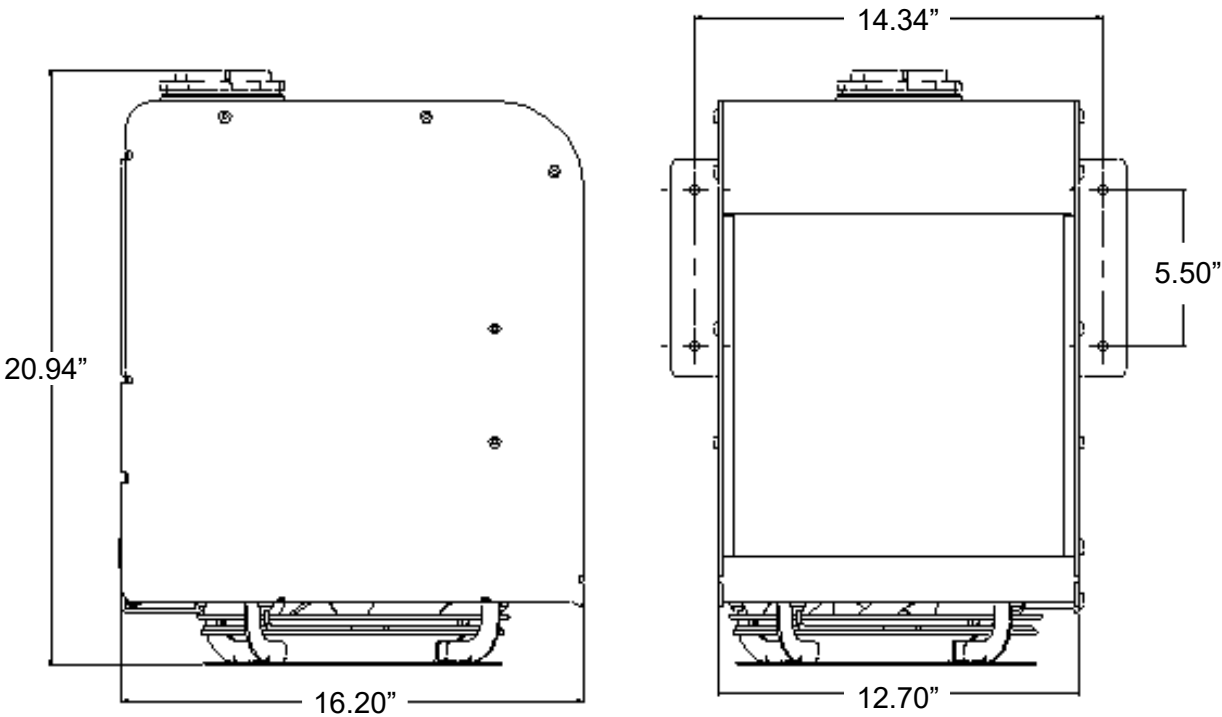
Maintenance

Daily	Check oil level before operating (the system must be off). Correct oil level is at the bottom of the sight glass when the unit is <u>not</u> operating.
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.

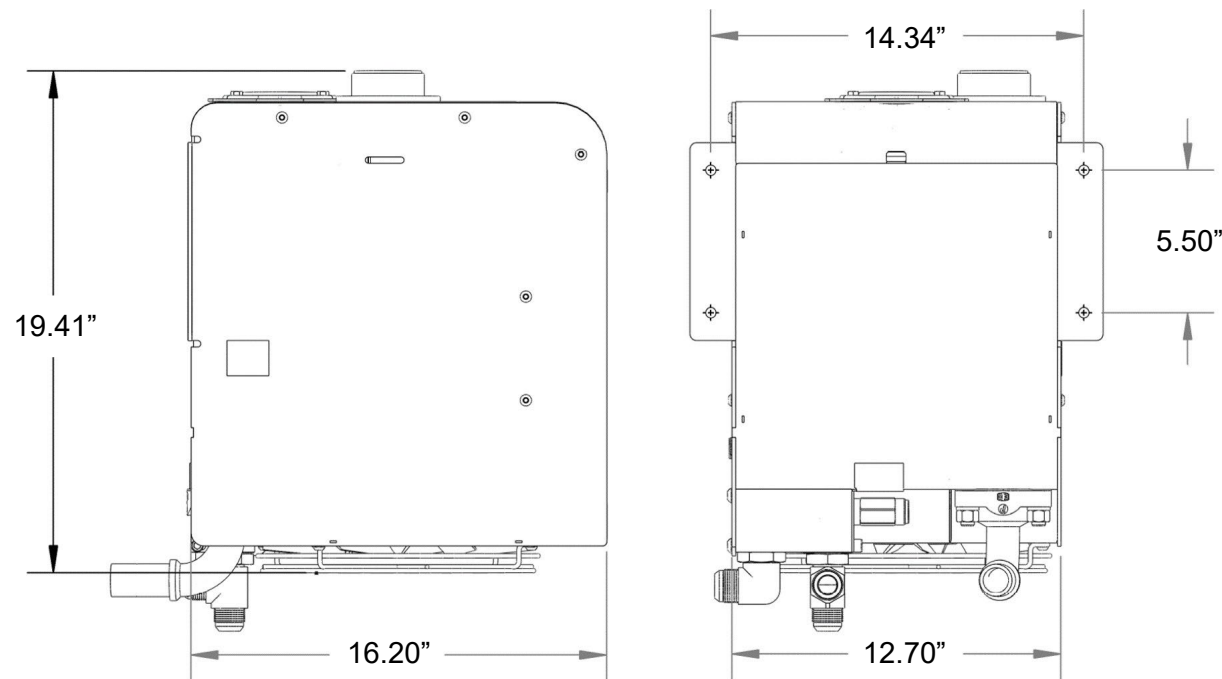
Note: If the unit has a high duty cycle, an oil analysis program is recommended.

Overall Dimensions

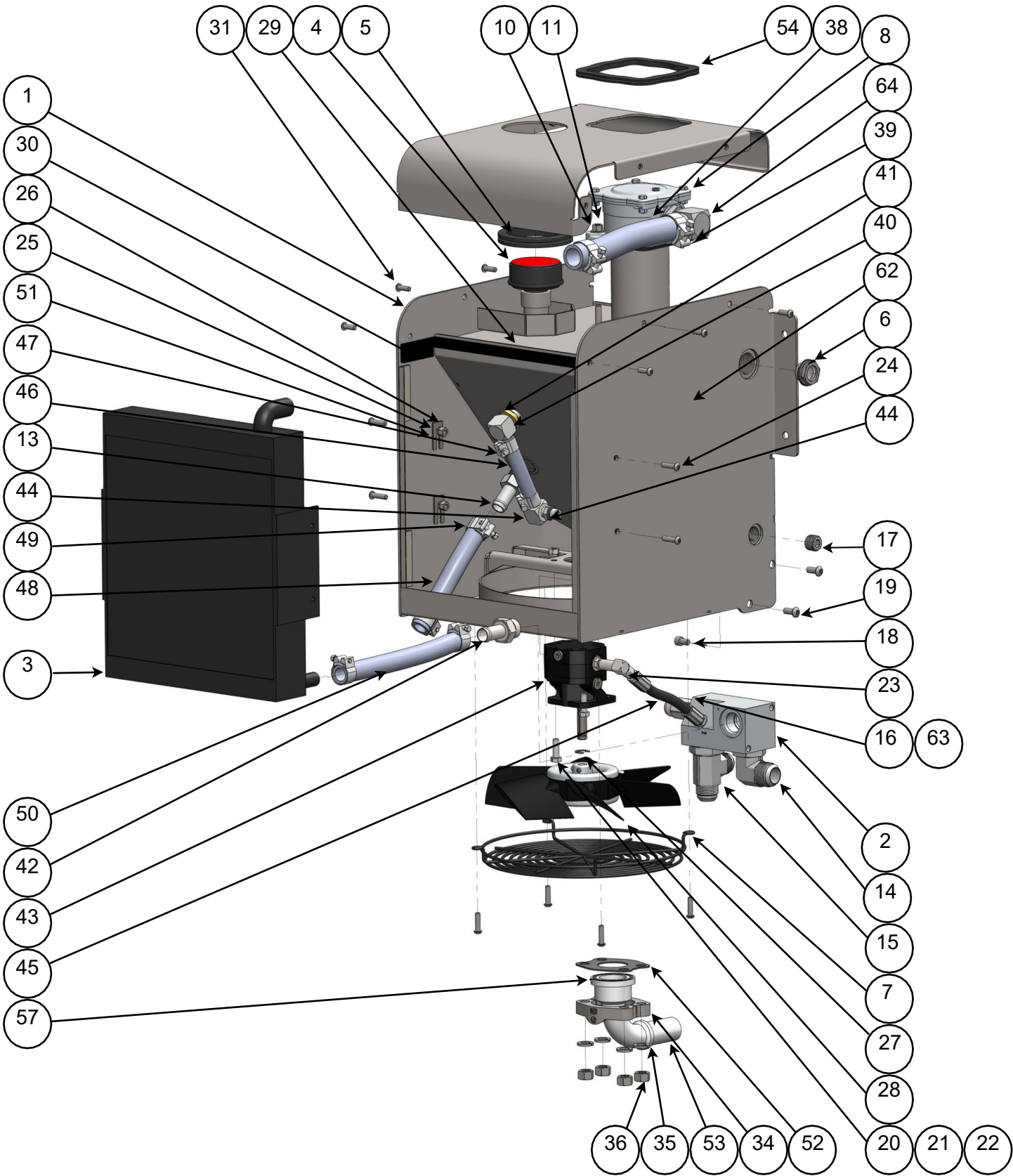
86000 Series



HF 300 Series



Parts List



HF 300 and 86000 Series Parts List

ITEM	PART NUMBER	DESCRIPTION	86000	HF300
1	500-012	Body Mainframe HF - CD61		1
1	500-013	Body Mainframe HF - 2" NPT		1
1	500-016	Body Mainframe - 1-1/2" CD61	1	
1	500-017	Body Mainframe - 2" NPS	1	
2	85209-1	Hyd. Control Block	1	1
3	85202	Hyd. Heat Exchanger (3 port)	1	1
3	370-001	Hyd. Heat Exchanger (4 port)	1	
4	359-002	Hyd. Breather 1" NPT - Red Cap	1	1
4	359-000	Hyd. Breather 3/4" NPT	1	
5	521-803	Grommet, Filler	1	1
6	355-004	Hyd. Sight Glass, 1" NPTM with Ball	1	1
6	93334-075	Hyd. Sight Glass, 3/4" NPT	1	
7	85302	Guard Fan Assy HF/H250/300	1	1
8^+	352-003	Filter Assembly - Square Head		1
8^+	352-008	Filter Assembly - Square Head w/ Lip		1
8	85266	Filter Assembly - w/ Breather	1	
8	352-000	Filter Assembly - No Breather	1	
9*	335-000	Hyd. Check Valve 3/4" NPT - Radiator Bypass	1	1
9*	85211	Hyd. Check Valve 1/2" NPT - Radiator Bypass	1	
10	296-004	5/16" Flat Washer	4	4
10	90191-031	Lock Washer 5/16"	4	4
11	284-026	Nut 5/16" Nylock	4	4
64	328-002	Hyd. Hose Barb 90 Degree Elbow -16 x 16 SAE	1	1
13	85227	Hose Barb -12 x -12 NPTM	1	1
14	322-021	Hyd. Elbow -16 ORBM x -16 JICM	1	1
15	85222	Hyd. Tee 12 SAE x 12 JICM x 12 JICM	1	1
16	85304	Relief Valve - 3000 PSI	1	1
63	85257	Relief Valve - 2500 PSI	1	1
17	90094-050	Plug Pipe 1/2 Soc Stl	1	1
18	85224	Capscrew Skt hd 5/16-18 x 1/2 S/S	1	1
19	214-012	Capscrew Btn Hd 5/16-18 x 3/4" S/S	2	2
20	228-010	Capscrew Hex Hd GR5 5/16-18 x 1"	4	4
21	294-008	5/16" Lock Washer	4	5
22	85234	5/16" Zinc Plated Nut	4	4
23	85305-2	Fan Flow Control	1	1
24	214-006	Capscrew Skt Hd 14-20 x 1"	4	8
25	294-003	Washer, Lock 1/4 SST	4	4
26	284-024	Nut 1/4" Nylock	4	4

HF 300 and 86000 Series Parts List (cont.)

ITEM	PART NUMBER	DESCRIPTION	86000	HF300
27	85258	Retaining Ring 1/2" - Fan Motor	2	2
28	85201	Fan - Hydraflow Std	1	1
31	214-004	Capscrew Skt Hd 1/4-20 x 3/4" S/S	10	6
34	85213	Flange Split Half 24CD61	2	2
35	294-010	Washer Lock GR5 1/2" Zinc Plated	4	4
36	85239	Nut Hex GR5 1/2" Zinc Plated	4	4
38	85244	Hose - Radiator Out to Filter 1"	1	1
39	313-021	Hyd. "T" Hose Clamp Heavy Duty -16 Hose	2	2
40	85219	Elbow 90 Degre -8 NPTM -8 Barb	2	1
41	85259	Seal Nut - 1/2" Fan Motor to Tank	1	1
42	85221	Hyd. Adaptor -12 SAEM x -12 Barb	1	1
43	85200	Fan Motor	1	1
43	300-008	Fan Motor (new style)	1	1
44	85218	Elbow 90 Degree -6 SAEM x -8 Barb	1	1
45	361-003	Hyd. Hose - Fan Motor Feed	1	1
45	361-004	Hyd. Hose - Fan Motor Feed	0	1
46	85236	Hose - Fan Motor Return	1	1
47	313-017	Hyd. "T" Hose Clamp Heavy Duty -8 Hose	2	2
48	85242-1	Hose - Radiator Bypass 3/4"	1	1
49	313-018	Hyd. "T" Hose Clamp Heavy Duty -12 Hose	6	4
50	85243-1	Hose - Control Block to Radiator	1	1
51	571-005	Shim - Radiator (Clip Type)		
52	526-003	Gasket -24 CD61 Flange Gasket	1	1
53	85261	Hyd. Hose Barb 90 Degree -20 x -24 CD61	1	1
53	329-000	Hyd. Hose Barb 45 Degree 1-1/4" x Cd 61	1	1
54	521-804	Grommet, Square Filter		1
54	521-802	Grommet, Filter	1	
56*	85303	Radiator Guard	1	(1)
57	85232	O-Ring -24 CD61 Suction Port Flange	1	1
58*	350-001	Filter Element HF 300 Series		1
58*	85253-1	Filter Element 86000 Series	1	
59*	522-001	Filter Lid - Aluminum Square Cap (bolt on)		(1)
59*	85250	Filter Cap	1	
60*	580-001	Filter Element Spring		(1)
61*	335-001	Hyd. Check Valve - Cold Oil Bypass	1	
62*	298-006	Key - HydraFLOW Fan Motor	1	1
	508-042	Bracket Extension - HF HydraFLOW	1	1

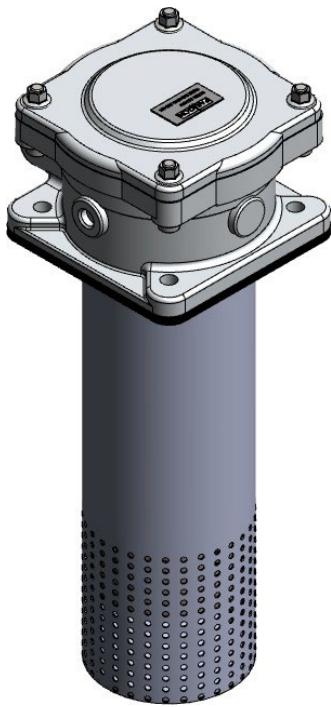
* Not shown in drawing

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

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

+ See Filter Head Options for identification

Filter Breakdown



Diffuser Assy: 352-003 / 352-008

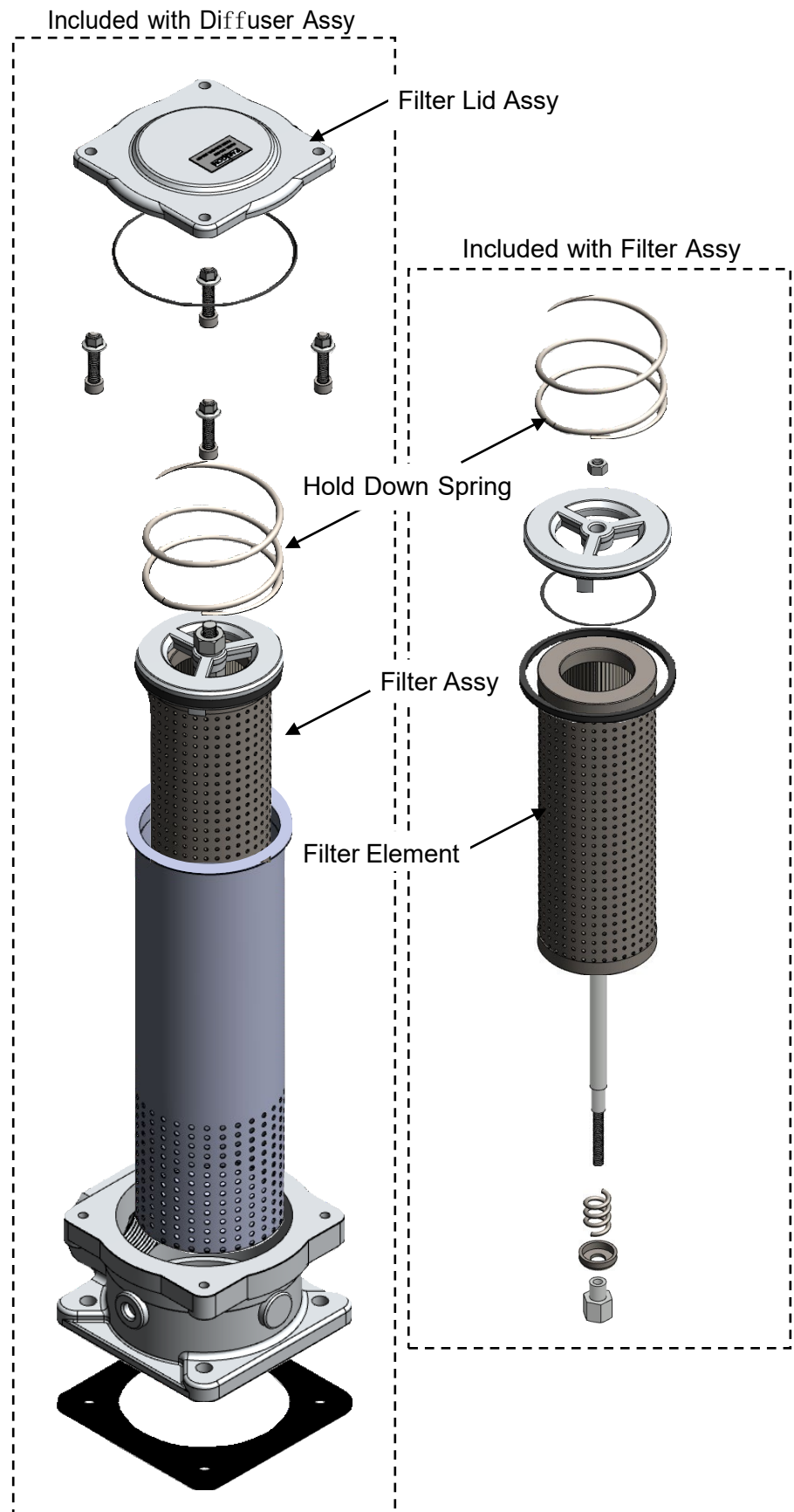
Filter Lid Assy: 351-006

Filter Assy: 351-004

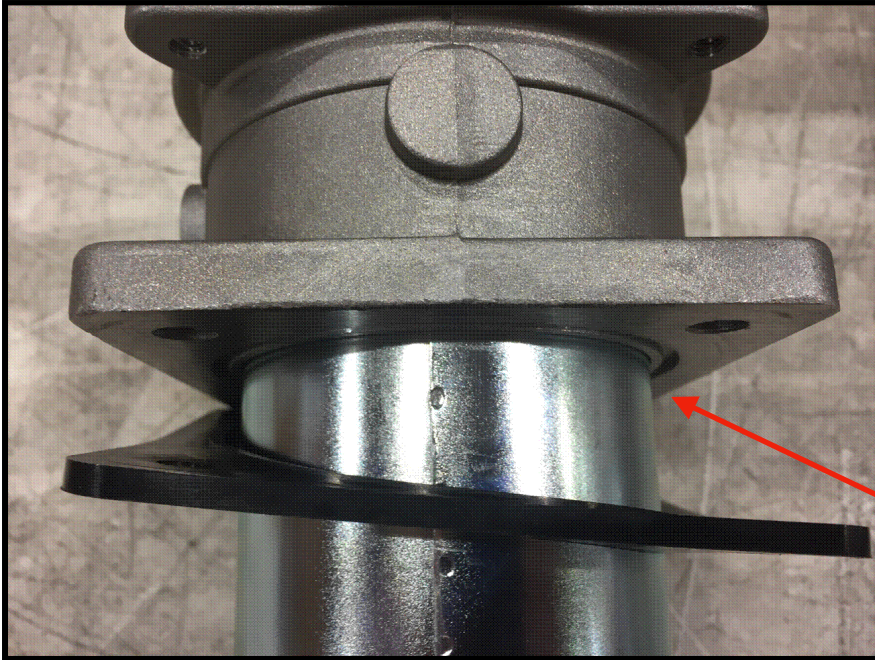
Filter Lid: 522-001

Hold Down Spring: 580-001

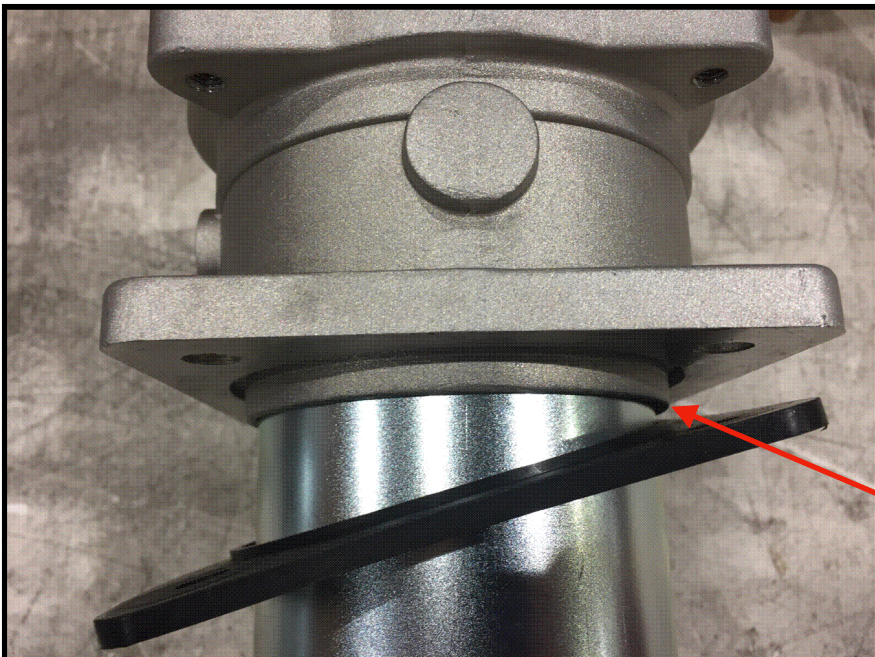
Filter Element: 350-001



Filter Head Options



Filter Head without Lip
Part # 352-003

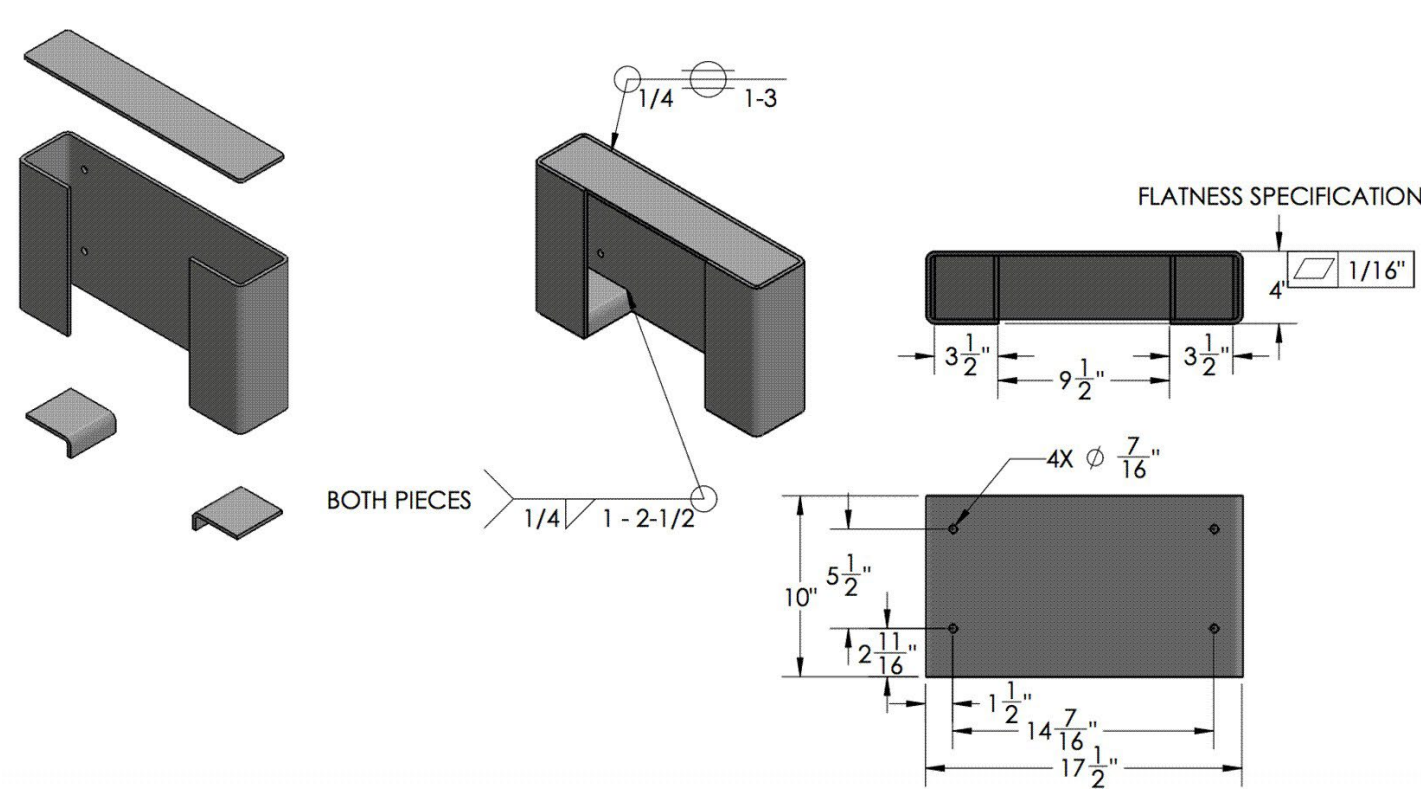


Filter Head with Lip
Part # 352-008

Recommended Bracket for HF 300 Series

Fig. 5

PART NUMBER	DESCRIPTION
508-042	Bracket Extension - HF Hydraflow



Warranty Statement

PGWAR-1-100

Date Issued: 05/01/2025

GENERAL PROVISIONS AND LIMITATIONS

Paragon Tank Truck Equipment LLC (the "Company") warrants to each original retail purchaser ("Purchaser") of its products from the Company or its authorized distributor that such products are, at the time of delivery to the Purchaser, made with good material and workmanship. No warranty is made with respect to:

1. Any product which has been repaired or altered in such a way, in the Company's judgment, as to affect the product adversely.
2. Any product which has, in the Company's judgment, been subject to negligence, accident, improper storage, or improper installation or application.
3. Any product which has not been operated or maintained in accordance with the recommendations of the Company.
4. Components or accessories manufactured, warranted and serviced by others.
5. Any reconditioned or prior owned product.

Claims for items described in (4) above should be submitted directly to the manufacturer.

WARRANTY PERIOD

The Company's obligation under this warranty is limited to repairing or, at its option, replacing, during normal business hours at an authorized service facility of the Company, any part which in its judgment proved not to be as warranted within the applicable Warranty Period as follows.

Product Type	Warranty Duration
New	18 months from date of shipment, or 12 months after initial startup date, whichever occurs first.
Remanufactured	12 months from date of shipment, or 12 months after initial startup date, whichever occurs first.
Repair	12 months from date of shipment, or remaining warranty period, whichever is greater.

All product furnished by seller but manufactured by others bear only that manufacturer's standard warranty. Replacement parts not specifically called out in an above table are warranted for 90 days from shipment. Any disassembly or partial disassembly of any of the package components, or failure to return these "unopened" per Company instructions, will be cause for denial of warranty.

The Company reserves the right to withdraw the Warranty where evidence indicates application outside the stated performance area, or where there is evidence of abuse.

LABOR TRANSPORTATION AND INSPECTION

The Company will provide labor, by Company representative or authorized service personnel, for repair or replacement of any product or part thereof which in the Company's judgment is proved not to be as warranted. Labor shall be limited to the amount specified in the Company's labor rate schedule and would expressly exclude labor for the removal and reinstallation of the Paragon product from the customer's equipment.

Labor costs in excess of the Company rate schedules caused by, but not limited to, location or inaccessibility of equipment, or labor provided by unauthorized service personnel is not provided by this warranty.

All costs of transportation of product, labor or parts claimed not to be as warranted and, of repaired or replacement parts to or from such service facilities shall be borne by the Purchaser. The Company may require the return of any part claimed not to be as warranted to one of its facilities as designated by the Company, transportation prepaid by Purchaser, to establish a claim under this warranty.

If a warrantable complaint occurs within 90 days from shipment:

1. Freight will be reimbursed for both the replacement item and the returned suspect part (if Requested by Paragon). This allowance will cover only transportation via Paragon selected most economical method within the continental United States, Canada and Mexico. Premium transportation and/or handling charges will not be covered or pro-rated.
2. Concerning distributors in Canada & Mexico, reimbursement for duty and brokerage fees at actual cost that cannot be recovered from Customs Officials, but not to exceed 20% of the distributor net price, will be allowed for warrantable complaints within 90 days.
3. Copies of relative invoices must be provided with the submission of the claim to be considered.

Replacement materials provided under the terms of the warranty are warranted for the remainder of the Warranty Period of the product upon which installed to the same extent as if such parts were original components.

DISCLAIMER

THE FOREGOING WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY AGREED THAT, EXCEPT AS TO TITLE, THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY.

THE REMEDY PROVIDED UNDER THIS WARRANTY SHALL BE THE SOLE, EXCLUSIVE AND ONLY REMEDY AVAILABLE TO THE PURCHASER AND IN NO CASE SHALL THE COMPANY BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES. UNDER NO CIRCUMSTANCES SHALL THE COMPANY BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOSSES OR DELAYS HOWSOEVER CAUSED.

No statement, representation, agreement, or understanding, oral or written, made by any agent, distributor, representative, or employee of the Company which is not contained in this Warranty will be binding upon the Company unless made in writing and executed by an officer of the Company.

This warranty shall not be effective as to any claim which is not presented within 30 days after the date upon which the product is claimed not to have been as warranted. Any action for breach of this warranty must be commenced within one year after the date upon which the cause of the action occurred.

Any adjustment made pursuant to this warranty shall not be construed as an admission by the Company that any product was not as warranted.

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Additional Notes



Paragon Tank Truck Equipment

www.paragondirect.com



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