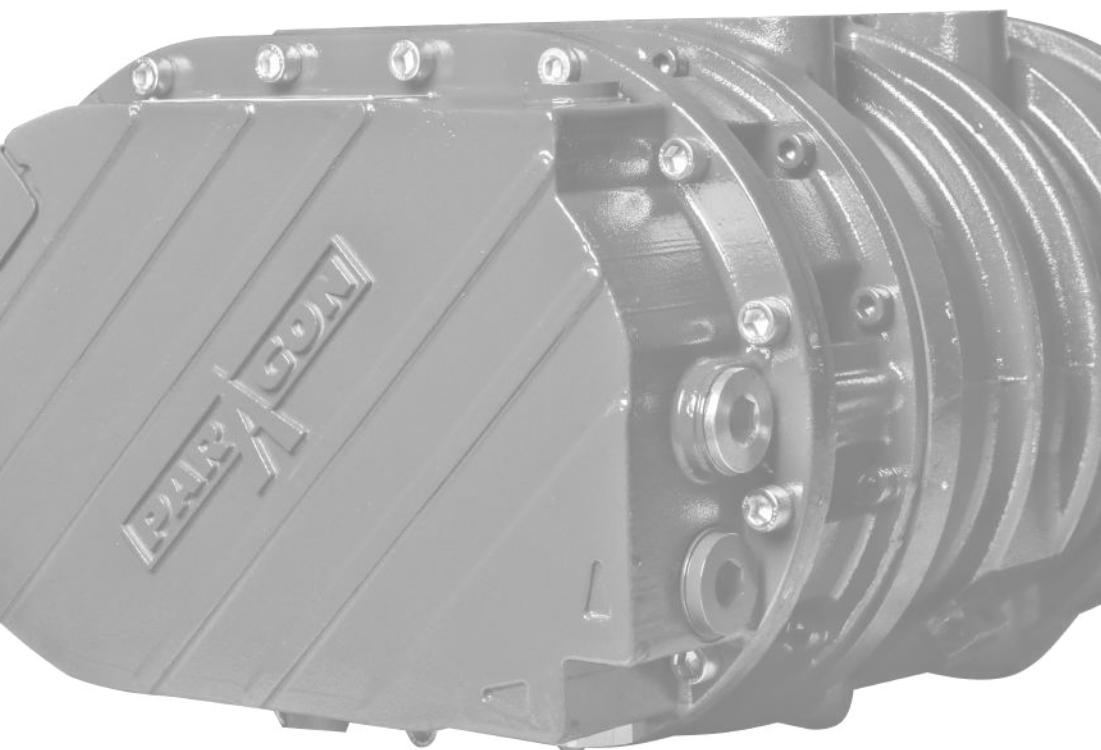


Installation and Operation Manual



Truck Blower



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Safety Notice



Safety Precautions

- Rotating shafts can be dangerous. You can snag clothes, skin, hair, and hands. This can cause serious injury or death.
- Do not work under the vehicle when the engine is running.
- Do not work on a shaft (with or without guard) when the engine is running.
- If the power take off and/or shaft are still exposed after installation, install a guard.
- Install a support strap when servicing a drive shaft to prevent personal injury.
- A serious or fatal injury can occur....
 - If you lack proper training.
 - if you fail to follow proper procedures.
 - if you do not use proper tools and safety equipment.
 - if you assemble driveline 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.

Safety Check List

Complete prior to blower operation

Truck # _____

Transmission # _____

PTO # _____

PTO Ratio _____

Blower model # _____

Blower serial # _____

Date _____

Inspected by _____

- Is PTO ratio, torque and rotation correct?
- Mount PTO as per manufacturer's recommendations and refill transmission.
- Ensure oil level is at the center of the sight glasses.
- Driveline installed correctly and blower can be rotated by hand.
- Air inlet filter is connected and mounted away from tractor exhaust.
- Remove camlock dust cap, discharge pipework open to atmosphere.
- Tractor engine at idle. Slowly engage PTO Check for correct rotation and airflow.
- Slowly take blower up to operating speed.
- Check for vibration, mechanical noise, oil leaks and mounting integrity.
- Stop blower. Connect blower discharge hose to trailer and run blower at operating pressure of trailer (15 psi) for 15 minutes at normal speed.
- Does relief valve allow 15 psi tank pressure?
- Does engine maintain correct rpm throughout the test?
- Turn off truck engine, wait for blower to stop turning. Check fusible plugs, relief valve, filter, pipework and oil sumps for integrity.
- Is correct engine speed label visible in cab?
- Install driveline warning labels to both sides of the frame.

Melt Plug Information

The fast acting melt plug is designed to reduce the blower operating pressure and temperature when the machine is operated beyond its limits.*

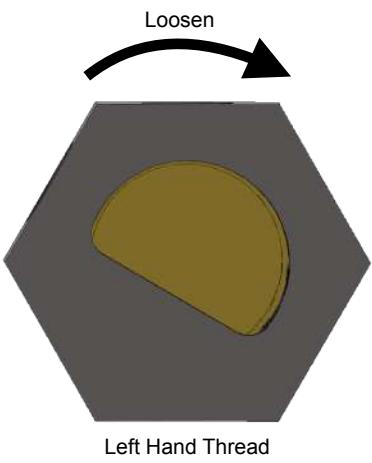
***Vacuum applications require a vacuum valve for blower protection.**

There are two plugs located near the blower flanges. When the blower is operated beyond its operating range, the following will happen:

- The temperature increases.
- The solder (*Figure 1, Reference # 1*) melts.
- The thin disc (*Figure 1, Reference # 2*) is released.
- Pressure drops 4-6 psi at 1800 RPM.
- Audible sound from the plug alerts the driver of a problem.
- Operator should shut down blower and try to locate the problem.
- When the problem is corrected, operator can fit a new plug (left hand thread) or use the plug from the suction side of the machine.

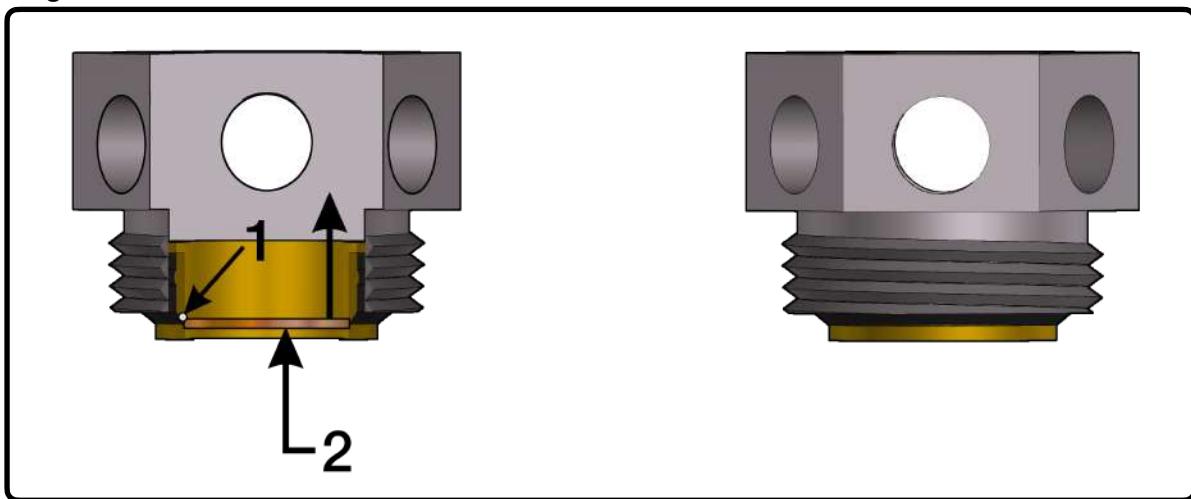
Note: Replace blown melt plugs immediately to prevent further damage to the blower. Do not re-install blown melt plugs.

Caution: Do NOT operate blower after a melt plug has blown.



Left Hand Thread

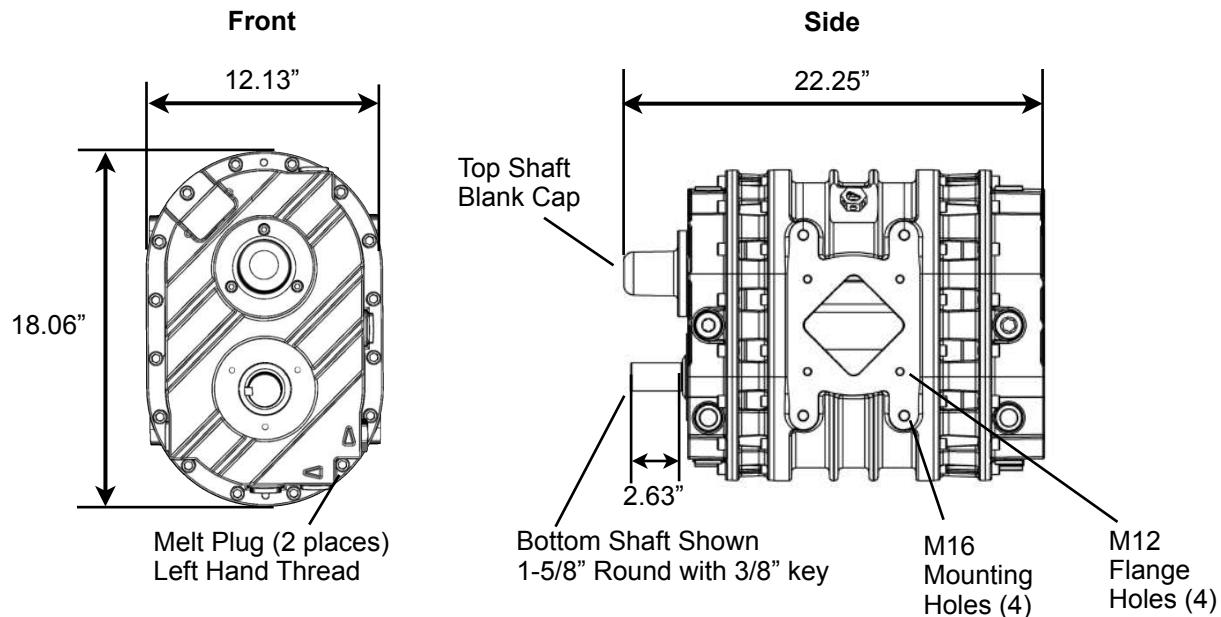
Fig. 1



Caution: If problem cannot be corrected, do not increase blower speed as this can cause further damage to the blower. This overheating condition should be reported to the maintenance department immediately.

P858 Blower Specifications

	Airflow CFM	Max. Pressure	Max. Vacuum	Speed Range	Weight
P858	390-1000 at 2 PSI	20 PSI (See Note 1)	17" of Hg	1800-3000 RPM (See Note 2)	366 lbs



Performance Chart for Power Take-Off Operation

Blower Speed RPM	Pressure Performance and Horsepower								Vacuum Performance and Horsepower							
	12 PSIG		16 PSIG		18 PSIG		20 PSIG		12" of Hg.		16" of Hg.		17" of Hg.			
	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
1800	479	33	462	42	447	50	437	55	493	17	464	21	440	23.29		
1900	514	35	497	44	482	52	472	58	528	18	498	22	475	24.59		
2000	549	37	532	46	516	55	507	61	563	18	533	23	510	25.88		
2100	584	39	566	49	551	58	541	64	597	19	568	24	545	27.17		
2200	618	41	601	51	586	61	576	68	632	20	602	25	579	28.47		
2300	653	43	636	53	620	64	611	71	667	21	637	26	614	29.76		
2400	688	45	671	56	655	66	645	74	701	22	672	27	649	31.05		
2500	722	47	705	58	690	69	680	77	736	23	707	29	683	32.35		
2600	757	48	740	60	724	72	715	80	771	24	741	30	718	33.64		
2700	792	50	775	63	759	75	750	83	806	25	776	31	753	34.94		
2800	826	52	809	65	794	78	784	86	840	26	811	32	787	36.23		
2900	861	54	844	67	829	81	819	89	875	27	845	33	822	37.52		
3000	896	56	879	70	863	83	854	92	910	28	880	34	857	38.82		

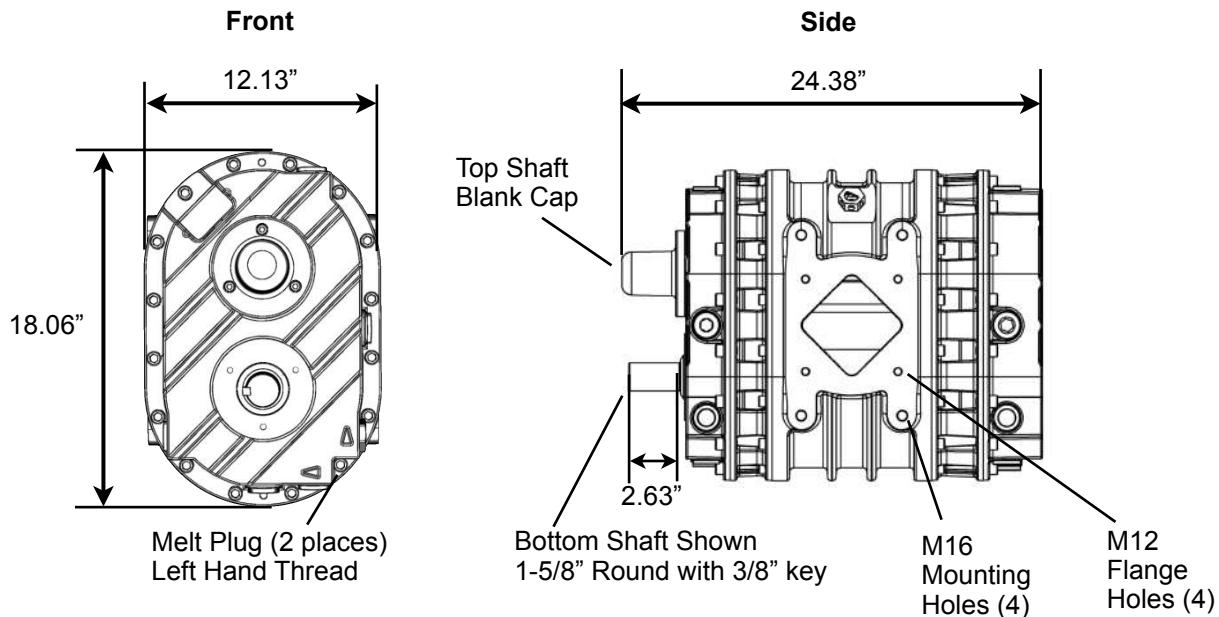
(See
Note
2)

Note:

- 1) Reduce the maximum operating pressure by 1 psi for every 2000 feet of altitude above seal level.
(Example: at an altitude of 4000 feet, the maximum working pressure of the blower will decrease by 2 psi)
- 2) Check PTO manufacturer's max RPM.

P1057 Blower Specifications

	Airflow CFM	Max. Pressure	Max. Vacuum	Speed Range	Weight
P1057	535-1340 at 2 PSI	19 PSI (See Note 1)	17" of Hg	1700-3000 RPM (See Note 2)	419 lbs



Performance Chart for Power Take-Off Operation

Blower Speed RPM	Pressure Performance and Horsepower								Vacuum Performance and Horsepower					
	12 PSIG		16 PSIG		18 PSIG		19 PSIG		12" of Hg.		16" of Hg.		17" of Hg.	
	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
1700	587	42	556	55	543	62	536	66	605	22	565	27	534	31
1800	633	44	602	59	589	66	582	69	651	22	611	27	580	31
1900	679	47	648	62	635	70	628	73	697	23	657	29	626	32
2000	725	49	694	65	681	73	674	77	743	24	703	30	572	35
2100	771	52	740	69	727	77	720	81	789	25	749	32	718	36
2200	817	54	786	72	773	81	766	85	835	27	795	33	764	38
2300	863	57	832	75	819	84	812	89	881	28	841	35	810	39
2400	909	59	878	79	865	88	858	93	927	29	887	36	856	41
2500	955	61	924	82	911	92	904	97	973	30	933	38	902	43
2600	1001	65	970	85	957	96	950	101	1019	32	979	39	948	44
2700	1047	67	1016	89	1003	100	996	105	1065	33	1025	41	994	46
2800	1093	70	1062	92	1049	103	1042	109	1111	34	1071	42	1040	48
2900	1139	72	1108	96	1095	107	1088	113	1157	35	1117	44	1086	50
3000	1185	75	1154	99	1141	111	1134	117	1203	36	1163	45	1132	51

(See
Note
2)

Note:

- 1) Reduce the maximum operating pressure by 1 psi for every 2000 feet of altitude above sea level.
(Example: at an altitude of 4000 feet, the maximum working pressure of the blower will decrease by 2 psi)
- 2) Check PTO manufacturer's max RPM.

Mounting the P858 & P1057 Blower

Caution:

Incorrect equipment will cause blower failure. If you are not using a Paragon kit, the following accessories should be installed:

Power Take Off For Transmission

- Horsepower and torque rating must be adequate for blower RPM and pressure.
- Select ratio for required engine speed and correct blower shaft speed.

Constant Engine Speed

- The selected engine speed must remain constant throughout the blower discharge cycle. This requires ECM programming or a trouble control system.
- Program ECM for max 100 RPM "ramp rate" per second.

Relief Valve

- Sized for correct CFM and blower pressure rating.
- Installed on delivery side before check valve.
- Use pipe compound on male pipe thread of relief valve.
- **DO NOT** use thread tape.

Air Filter

- Sized for correct CFM to suit application.

Caution: An undersized filter will cause immediate overheating of blower. The filter should not exceed 17" water restriction. Do not mount air inlet of the filter close to truck exhaust. This will increase the blower operating temperatures above the maximum limits.

Suction Delivery and Pipework

- Should be free of weld beads and foreign metal.
- During vacuum applications, **NEVER** use rubber elbows without internal support. Rubber elbows will collapse under vacuum, restricting the airflow to the P858/P1057, and causing the P858/P1057 to overheat.

Mounting Bracket

- Strong enough to support blower weight and torque
- Allow a minimum of 1/2" clearance between the blower and frame rail (or other non-moveable object) to prevent damage to the blower.

Check Valve

- Sized for maximum CFM with minimal restriction.
- Should have at least (1) check valve mounted on the trailer at the hot air hose connection.
- Must be inspected periodically for damage.

Mufflers

- Sized for maximum CFM with minimal restriction.
- Mounted downstream of the relief valve.
- Stainless steel is required for sensitive product applications

Vacuum Relief Valve (Tractor Mounted)

- Sized for correct CFM (Not to exceed 15" of Hg).
- This valve needs to be installed between the P858/P1057 Blower filter and the P858/P1057 inlet.
- Must be fitted with a separate filter element to prevent Blower damage when it opens.

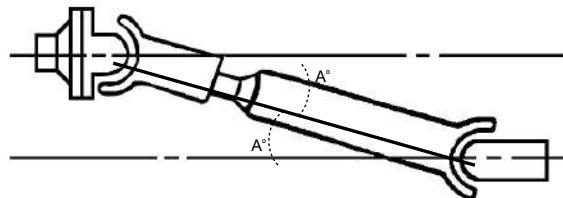
Note: When vacuum loading it is important that a vacuum relief valve is installed within the system.

PTO Drive Shaft Single Piece

- Blower shaft must be parallel with the PTO shaft axis within +/- 1 degree to minimize vibration.
- Use tubular, balanced drive shaft.
- Do not force end yokes into Blower or PTO shaft.
- Blower shaft is 1-5/8" dia. with 3/8" key.
- Maximum driveline working angle - see table below:

Maximum Driveline Working Angle

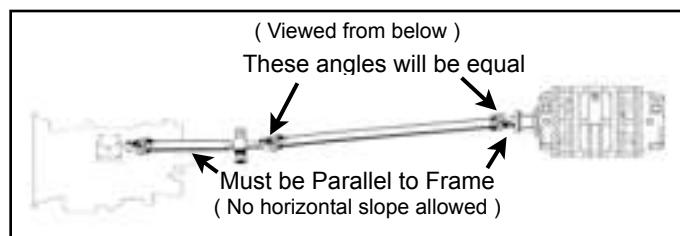
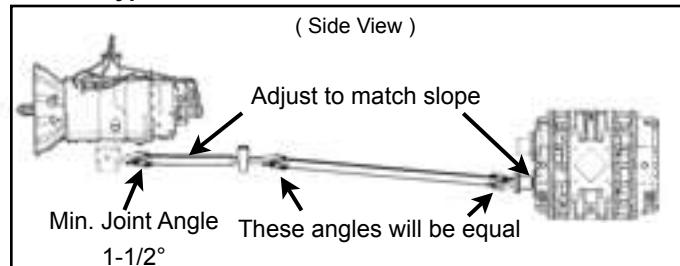
Speed	Angle "A"
3000 RPM	5 degrees
2500 RPM	7 degrees
2000 RPM	8 degrees
1800 RPM	9.5 degrees



PTO Drive Shaft Two Piece

- Consult local driveline specialist prior to operation

Typical P858/P1057 Horizontal Installation



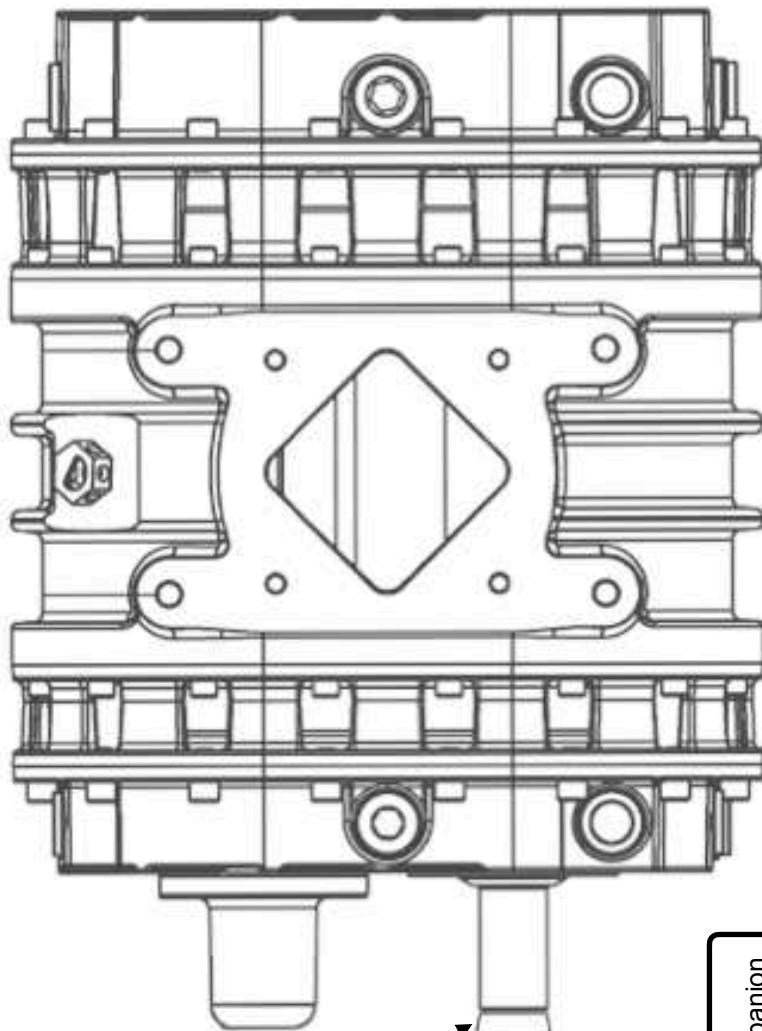
- Blower shaft to be parallel with first shaft to within 1 degree.

Mounting Plane

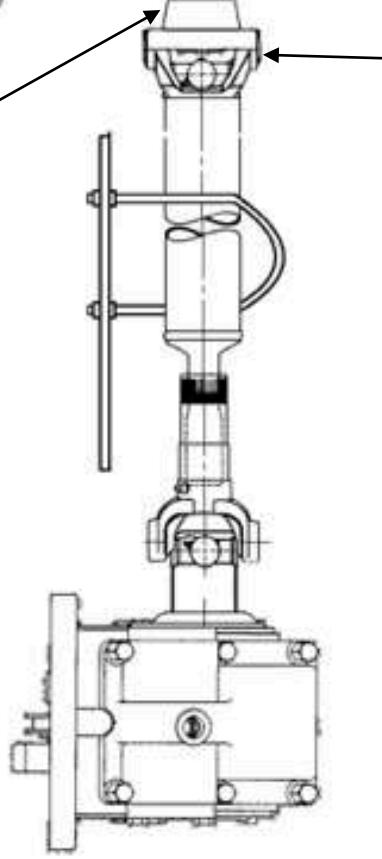
- Blower can mount in two planes for horizontal and vertical airflow.

Note:

1. **Pre-cleaners are not recommended.**
2. **Use only packing-free stainless steel mufflers for contamination sensitive products.**

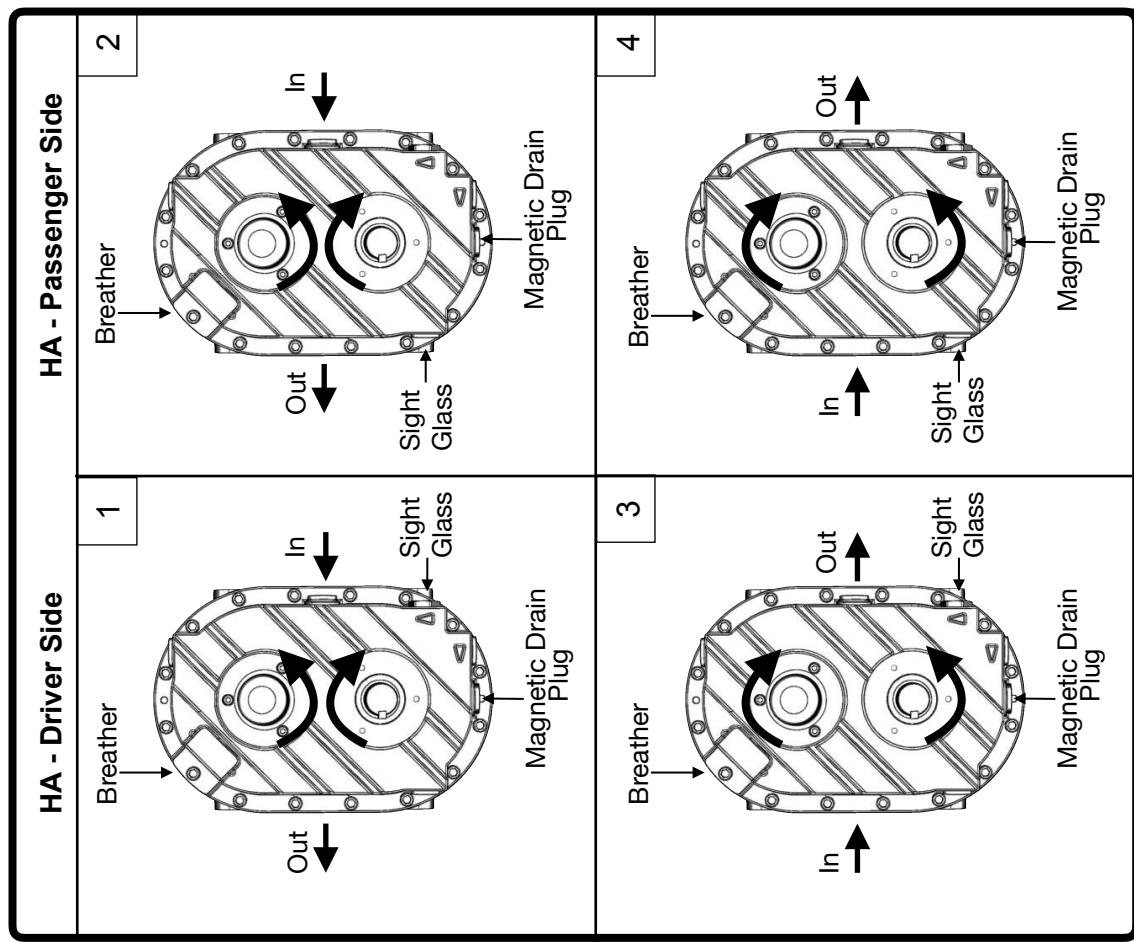


1310 Drive Flange - 1-5/8" w 3/8" key
Part Number: 560-044.

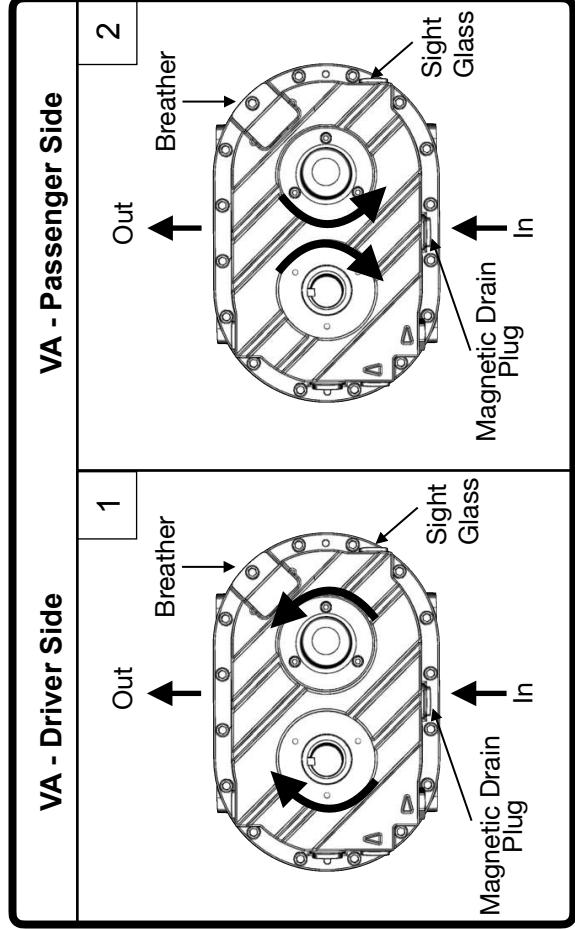


Drive Shaft to be field supplied. Companion
yoke - reference industry part number
2-2-329
(not provided by Paragon).

Horizontal Airflow - HA



Vertical Airflow - VA



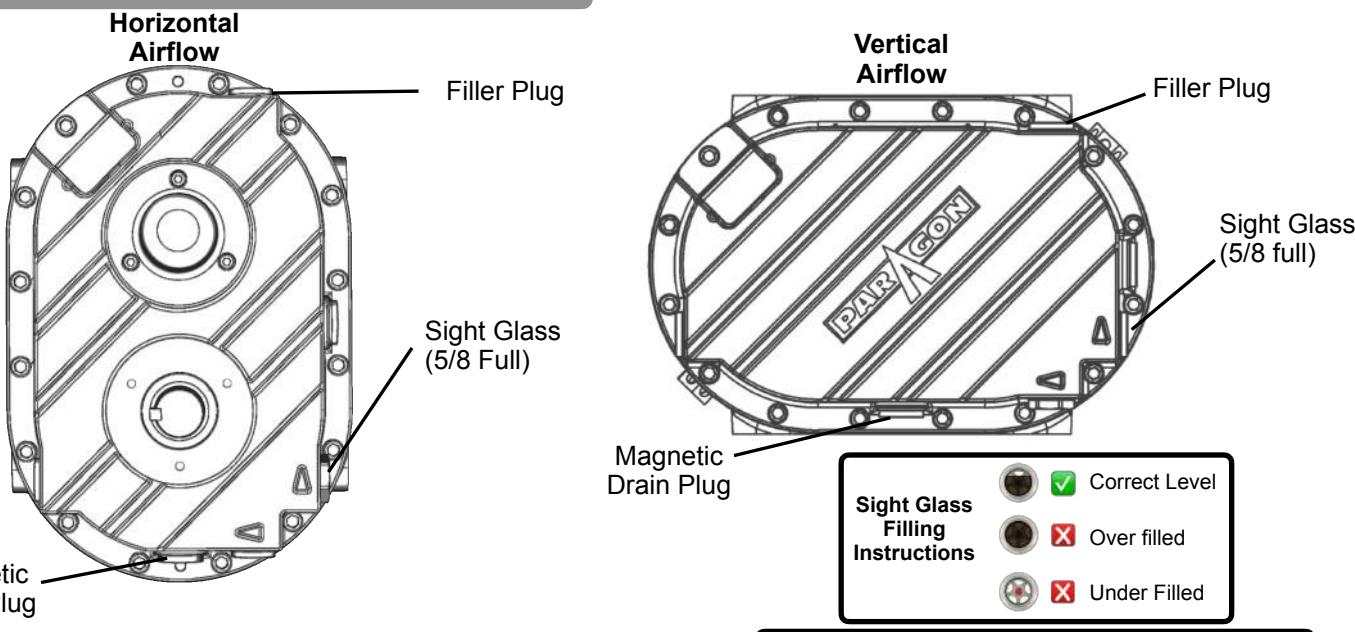
NOTE: Sight glasses and magnetic drain plugs will need to be re-positioned prior to installation and/or filling with oil.
All models are shipped in the "2" Orientation.

Preventative Maintenance

A good maintenance program will keep your P858/P1057 blower in top running condition. A newly installed P858/P1057 blower should be checked frequently during the first month of operation, especially lubrication. Check oil levels and add as needed. Complete oil changes are recommended **every 500 operating hours**, or more frequently (An oil analysis program is recommended). Below is Paragon's recommended minimum maintenance program.

Daily	Weekly	Monthly	Semi-Annually
1.Check and maintain oil level, add oil as necessary. 1.Check Air Filter element.	1.Clean Air Filter. Clogged air filters can seriously affect the efficiency of the blower. 2.Check Relief Valve to assure it is operating properly.	1.Inspect the entire system for leaks. 2.Inspect condition of oil and change if necessary.	1.Inspect the driveline components. 2.Change oil (even if 500 operating hours has not been reached).

Lubrication Instructions



Standard Oil: P858/P1057 oil (Paragon part number: 409-002)

Caution: Mixing or incorrect oil can result in gear and bearing failure.

Oil Capacity	Horizontal Airflow (Standard Mount)	Vertical Airflow
Drive End Non-Drive End	28.32 oz. 38.57 oz.	35.18 oz. 46.73 oz.

Blower Operation

- Inspect blower mounting, driveline, PTO and air filter for integrity.
- Verify melt plugs are intact - replace as needed prior to operation.
- Remove camlock dust cap and connect the hot air hose.
- Follow trailer manufacturers recommendation regarding product hose connection and valve operation.
- Slowly engage PTO with engine at idle.
- Bring up to operating speed and lock engine at recommended speed (shown in cab).
- Unload trailer as per trailer manufacturer's recommendation and **do not exceed** maximum tank pressure.
- While discharging, visually check blower for vibration, mechanical noise or excessive heat.
- If relief valve is operating adjust proportioning valve to reduce tank pressure.
- Reduce pressure to zero as per trailer manufacturers instructions.
- Disengage PTO (No cool down period required).
- Disconnect blower hose and replace camlock dust cap.

Caution:

- The blower and accessories will become hot enough to cause serious skin burns on contact.
- Rotating machinery is dangerous.
- Always wear ear protection when in close proximity to blower.

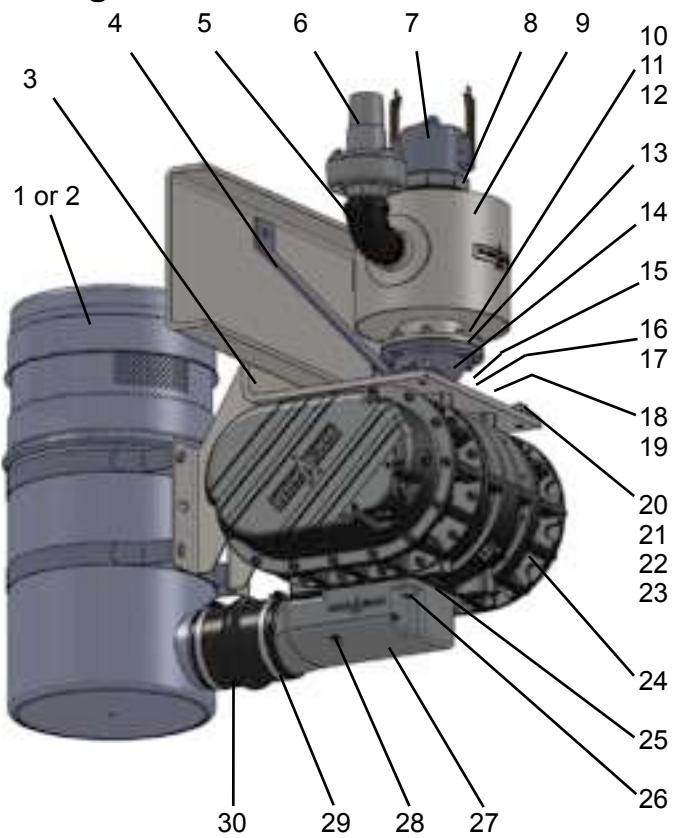


P858



P1057

Vertical Airflow (VA) Diagram



Vertical Airflow Pressure/Vacuum Filter Connection

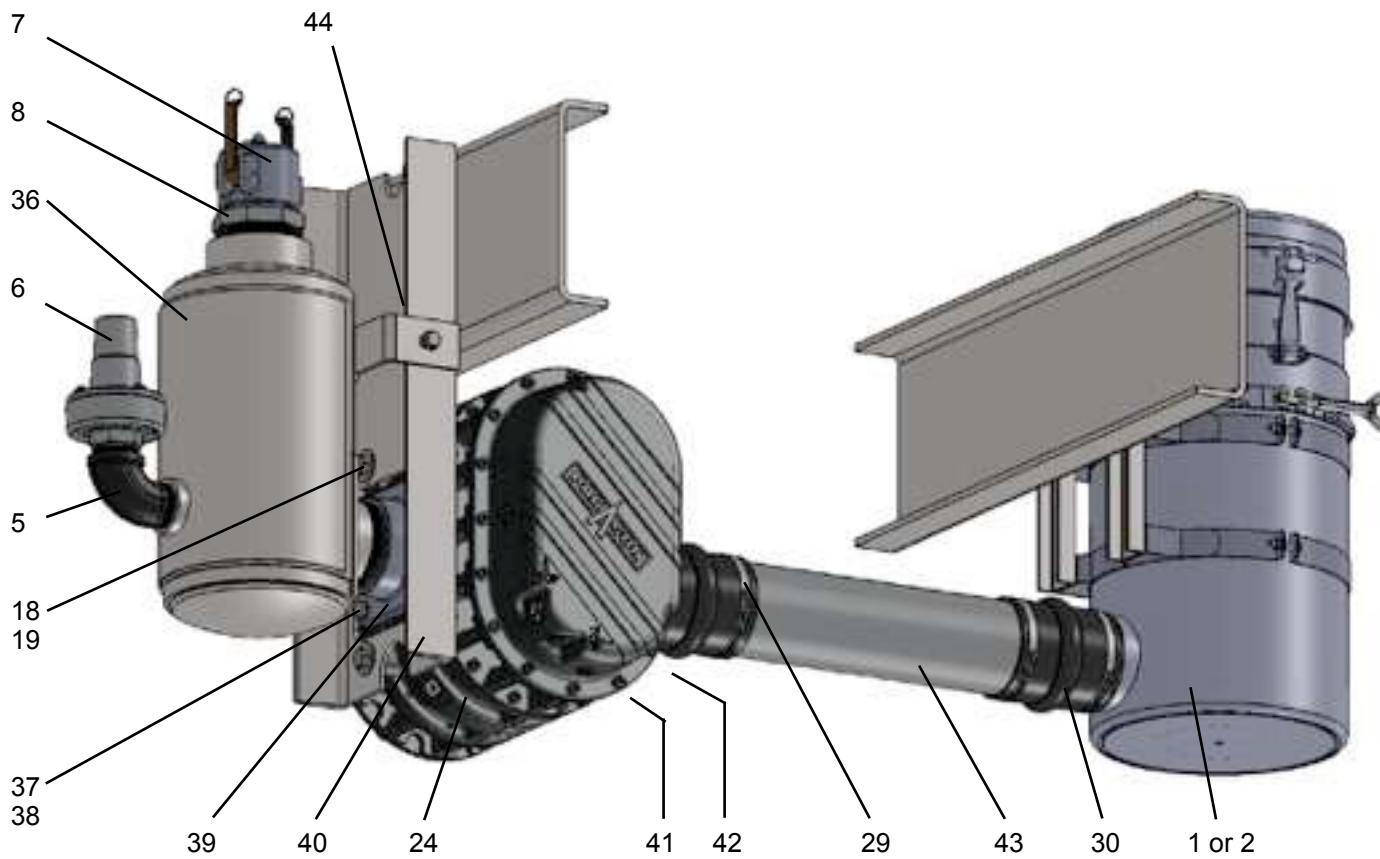
Note: Bottom Outlet Filter is always recommended for Vertical Airflow.



#	P/N	Description	QTY
1	625-006	Filter, Assy S/S Side Outlet P858/P1057 psi only	1
2	625-002	Filter, Assy S/S Side Outlet P858/P1057, psi/vac	1
3	508-029	Bracket- Mounting no holes- P1057 VA	1
4	508-021	Angle Strap	2
5	533-005	2" Street Elbow	1
6	610-012	Relief Valve 16 psi	1
6	610-013	Relief Valve 18 psi	1
7	565-001	Dustcap 3"	1
7	565-002	Dustcap 4"	1
8	567-002	Camlock 3" male x 4" NPTM	1
8	533-045	Camlock 4" male x 4" NPTM	1
9	563-002	Muffler, 4" TTMA x 4" FNPT - steel	1
10	228-105	3/8" Bolt 1-1/2" long	2
11	294-009	3/8" Washer	2
12	284-008	3/8" Nut GR5 plated	2
10	228-066	7/16" Bolt TTMA Flange	6
11	296-011	1/2" Washer Plain Flat (for TTMA Flange)	6
12	284-007	7/16" Nut TTMA Flange	6
13	526-011	TTMA Gasket	1
14	509-010	Discharge Flange	1
15	526-002	Flange Gasket	1
16	128-025	M12 x 30 Bolt- Discharge Flange	4
17	196-008	M12 Washer- Discharge Flange	4
18	128-037	Cap Screw M16 x 35mm	4
19	194-007	M16 Lock Washer	4
20	228-095	5/8" Cap Screw Angle Strap	2
21	294-011	5/8" Lock Washer Angle Strap	2
22	296-014	5/8" Flat Washer Angle Strap	2
23	284-015	5/8" Nut Angle Strap	2
24	601-017	P858 Blower	1
24	601-016	P1057 Blower	1
25	526-002	Flange Gasket	1
26	124-020	Cap Screw M12 x 25mm	2
27	509-005	Suction Flange	1
28	124-023	Cap Screw M12 x 85mm	2
29	291-012	4"-6" Hose Clamp	2
30	587-002	Hump hose- 5"	1
31	625-003	Filter Assy S/S Bottom Outlet P858/P1057, PSI/VAC	1
32	587-000	Hump Hose Reducer- 4" x 5"	1
33	588-003	Tube, Aluminum 5" x 5" long	1
34	587-005	Hose, 3-1/2" long x 5" ID-EPDM	1
29b	291-012	4"-6" Hose Clamp	4



Horizontal Airflow (HA) Diagram

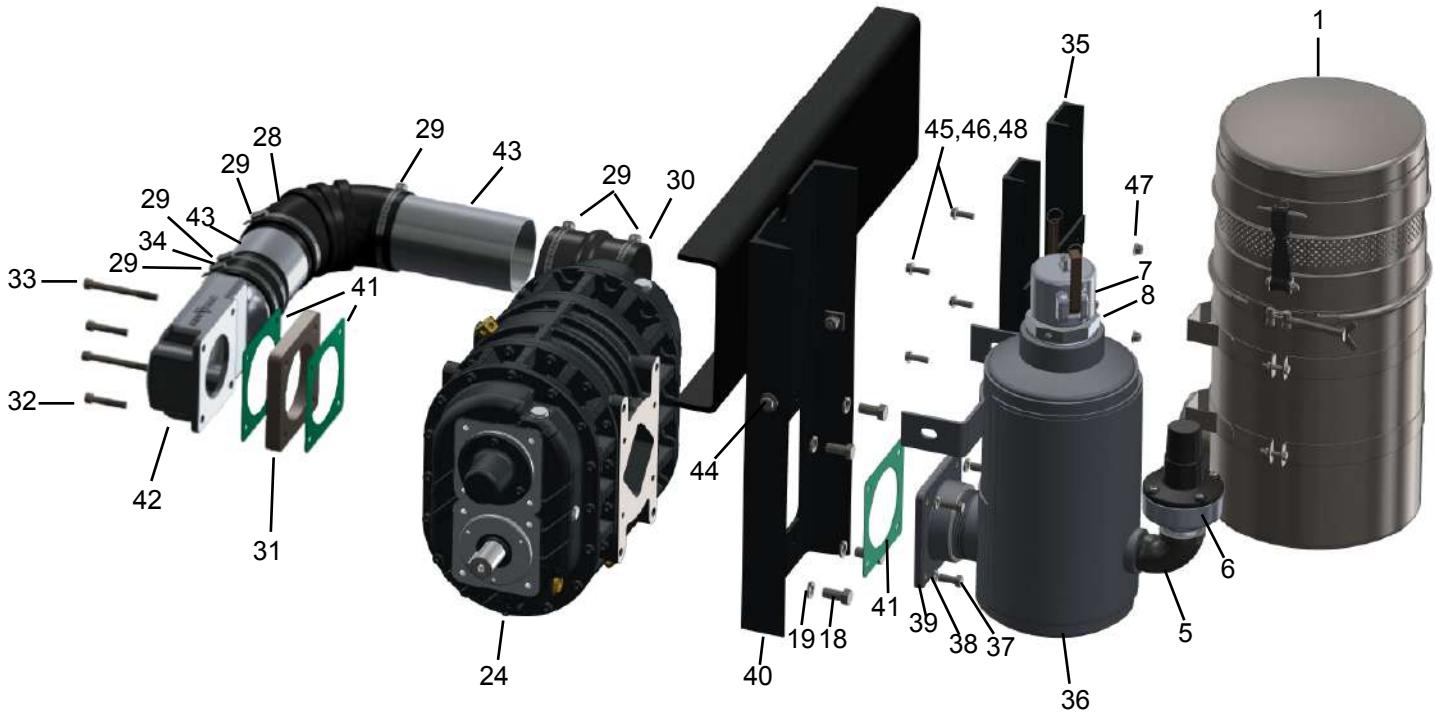


#	P/N	Description	QTY
1	625-006	Filter, Assy S/S P858 / P1057 psi only	1
2	625-002	Filter, Assy S/S P858 / P1057, psi/vac	1
5	533-005	2" Street Elbow	1
6	610-012	Relief Valve 16 psi	1
6	610-013	Relief Valve 18 psi	1
7	565-001	Dustcap 3"	1
7	565-002	Dustcap 4"	1
8	567-002	Camlock 3" male x 4" NPTM	1
8	533-045	Camlock 4" male x 4" NPTM	1
18	128-037	Cap Screw M16 x 35mm	4
19	194-007	M16 Lock Washer	4
24	601-017	P858 Blower	1
24	601-016	P1057 Blower	1
29	291-012	4"-6" Hose Clamp	4

#	P/N	Description	QTY
30	587-002	Hump hose- 5"	2
36	563-000	Muffler, 4" MNPT x 4" FNPT - steel	1
36	563-001	Muffler, 4" MNPT x 4" FNPT - S/S	1
37	128-025	Capscrew 8.8 M12 x 30mm	4
38	196-008	Flat Washer, M12	4
39	509-001	Flange, Delivery Cl, H/A	1
40	508-061	Mounting Bracket - Passenger Side	1
40	508-025	Mounting Bracket - Driver Side	1
41	526-002	Gasket- Flange	1
42	509-002	Flange-Suction Al	1
43	588-002	Suction Pipe Al. 20"	1
44	90525-2	Bevel Washer 1/2"	2



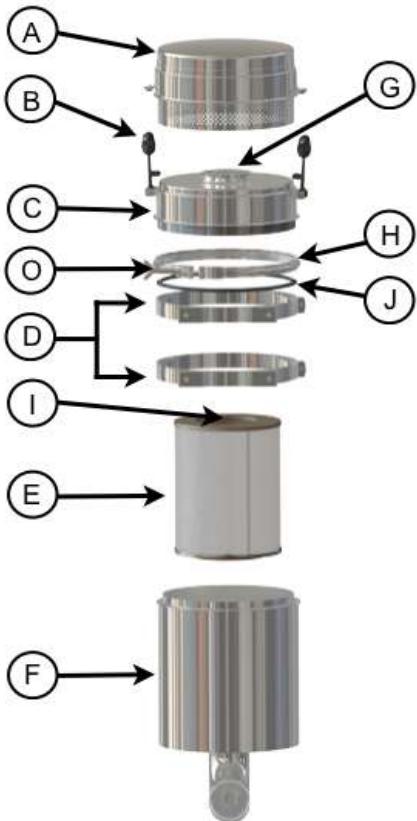
Horizontal Adjacent Airflow (HAA) Diagram



#	P/N	Description	QTY
1	625-006	Filter, Assy S/S Side Outlet P858/P1057 psi only	1
1	625-002	Filter, Assy S/S Side Outlet P858/P1057, psi/vac	1
5	533-005	2" Street Elbow	1
6	610-012	Relief Valve 16 psi	1
6	610-013	Relief Valve 18 psi	1
7	565-001	Dustcap 3"	1
7	565-002	Dustcap 4"	1
8	567-002	Camlock 3" Male x 4" NPTM	1
8	533-045	Camlock 4" Male x 4" NPTM	1
18	128-037	Cap Screw M16 x 35mm	4
19	194-007	M16 Lock Washer	4
24	601-017	P858 Blower	1
24	601-016	P1057 Blower	1
28	587-013	Elbow , Reinforced Rubber - 5"	1
29	291-012	4"-6" Hose Clamp	6
30	587-002	Hump Hose- 5"	2
31	571-019	Spacer, 1" thick - P1057 Port VA Flange	1
32	124-021	Capscrew Skt Hd M12 X 55mm	2
33	124-025	Capscrew Skt Hd M12 X 110mm	2

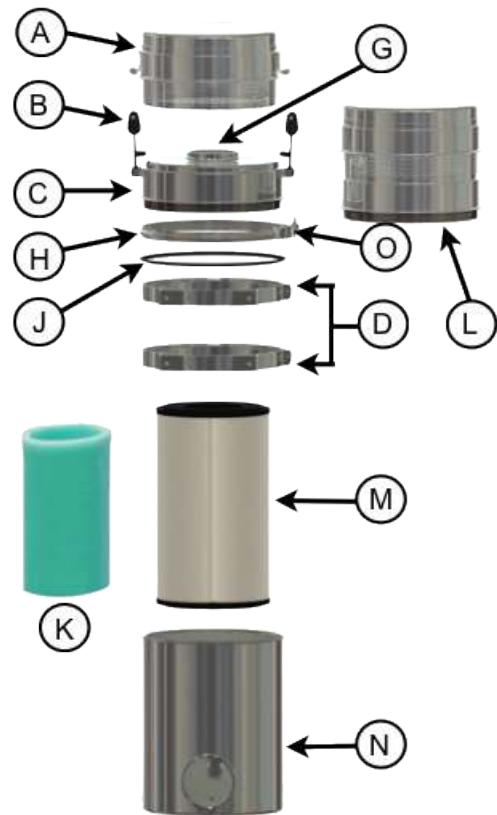
#	P/N	Description	QTY
34	587-005	Hose, 3-1/2" long x 5" ID - EPDM	1
35	508-058	Bracket - Mounting Paragon Air Filters	1
36	563-000	Muffler, 4" MNPT x 4" FNPT - Steel	1
36	563-001	Muffler, 4" MNPT x 4" FNPT - S/S	1
37	228-065	1/2" Bolt - Discharge Flange	4
38	294-010	1/2" Washer - Discharge Flange	4
39	509-001	Flange, Delivery CI, H/A	1
40	508-061	Mounting Bracket - Passenger Side	1
40	508-025	Mounting Bracket - Driver Side	1
40	508-061	Mounting Bracket -Passenger Side	1
41	526-002	Gasket- Flange	3
42	509-005	Flange-Suction Al - Elbow	1
43	588-002	Suction Pipe Al. 20" (Cut to length)	1
44	90525-2	Bevel Washer 1/2"	2
45	228-052	Capscrew Hex Hd Gr5 3/8"-16 X 1-1/4 PI	4
46	196-008	Washer, Flat M12 Plated	4
47	284-009	Nut Hex Gr5 3/8-16 Nyloc PI	4
48	85249	Washer Lock GR5 3/8" Zinc Plated	4

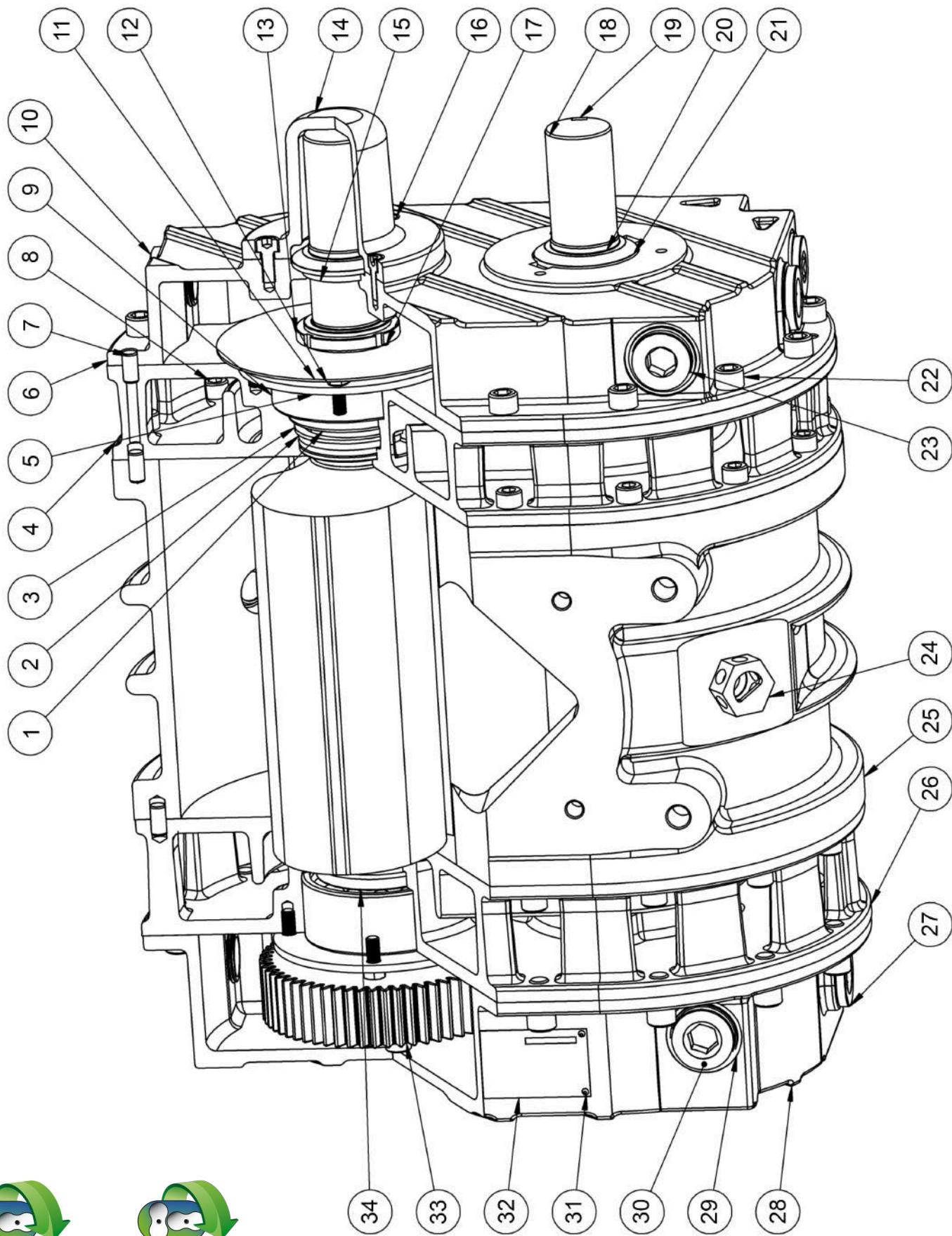
P858/P1057 Air Filter Assembly - Spare



Item	P/N	Description	Qty
A	576-009	Cap Assembly	1
B	576-012	Rubber Flex Latch	2
C	576-010	Head Assembly- P858/P1057/CDL9/CDL12/ Latches	1
D	612-043	Kit, Bracket (set of 2) - S/S Air Filter Mounting	1
E	575-005	Filter Element - P858/P1057/CDL9/CDL12 *For Filter Assembly 625-003	1
F	576-007	Body - P858/P1057/CDL9/CDL12	1
G	533-045	Camlock 4" Male	1
H	576-008	Clamp Assembly $\frac{3}{8}$ " *Includes Wingnut (Item O)	1
I	284-019	Wing Nut, filter element - P858/P1057/CDL9/CDL12 (Not Shown)	1
J	526-000	Gasket	1
O	184-004	SS hex body for Filter Band Clamp	1

Item	P/N	Description	Qty
A	576-009	Cap Assembly (PSI/VAC)	1
B	576-012	Rubber Flex Latch	2
C	576-010	Head Assembly - P858/P1057/Latches	1
D	612-043	Kit, Bracket (set of 2) - S/S Air Filter Mounting	1
G	533-045	Camlock 4" male	1
H	576-008	Clamp Assembly $\frac{3}{8}$ " *Includes Wingnut (Item O)	1
J	526-000	Gasket	1
K	575-007	Filter Sock for 573-003 Element *Installs on the inside of the filter element	1
L	576-013	Cap Assembly (PSI only)	1
M	573-003	Filter Element - P858/P1057 *For Filter Assembly 625-006 & 625-002	1
N	576-006	Body - P858/P1057 Side Outlet	1
	576-018	Body - P858/P1057 Side Outlet w/ Gauge (PSI/VAC only)	1
O	184-004	SS hex body for Filter Band Clamp	1





 **P858**

 **P1057**

P858/P1057 Blower - Spare Parts

Item	Part#	Description	P858	P1057
1	555-009	Oil Tank Lip Seal	4	4
2	556-039	Labyrinth Seal	4	4
3	297-004	Retaining Ring	4	4
4	501-014	Blower Sideplate DE	1	1
5	582-025	Retainer - Bearing	4	4
6	523-043	Oil Tank DE	1	1
7	274-002	Dowel Pin	6	6
8	124-028	Capscrew M10	38	38
9	512-007	Roller Bearing	2	2
10	355-008	Hyd Sight Glass	2	2
11	527-031	Slinger	1	1
12	128-008	Capscrew M8	16	16
13	582-028	Retainer - Bearing Locknut	2	2
14	522-010	Rotor Blanking Cap	1	1
15	555-010	Shaft Lip Seal	2	2
16	124-003	Capscrew M8	3	3
17	174-004	Spring Pin	2	2
18	502-009	P858 Blower Rotor	2	-
18	502-008	P1057 Blower Rotor	-	2
19	298-010	Key 3/8" x 3/8" x 1-5/8"	1	1
20	571-028	Spacer - Wear Sleeve	2	2
21	558-003	Seal - Gamma Rotary	2	2
22	124-022	Capscrew ISO M12	28	28
22	124-030	Capscrew LP M12	4	4
23	323-005	Hyd Plug	4	4
24	543-003	Melt Plug	3	3
25	500-040	P858 Blower Body	1	-
25	500-039	P1057 Blower Body	-	1
26	501-013	Blower Sideplate NDE	1	1
27	141-001	Magnetic Drain Plug	2	2
28	523-044	Oil Tank NDE	1	1
29	526-037	Gasket - Bonded Washer	8	8
30	323-005	Hyd Plug	3	3
31	192-000	Rivet	4	4
32	537-053	Label - Data Tag	1	1
33	529-005	Timing Gear Set	2	2
34	510-008	Double Row Bearing	2	2
*	571-026	Bearing Spacer	3	3
*	582-026	Retainer - Clamping Bushing	2	2
*	582-027	Retainer - Gear Locking Element	4	4
*	523-046	Breather Cover NDE	1	1
*	359-011	Hyd Breather	2	2
*	571-027	Bearing Spacer - Oil Slinger	1	1
*	523-045	Breather Cover DE	1	1
*	124-029	Capscrew M10	6	6

Additional Notes

WARRANTY - TRUCK BLOWERS

Subject to the terms and conditions hereinafter set forth in General Terms of Sale, Paragon Tank Truck Equipment LLC (the Seller) warrants products and parts of its manufacturer, when shipped and its work (including installation and start-up) when performed, 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 of products, for a period as stated in the table below. Due to the varying condition of installation and operation, all performances claims are subject to a plus or minus 5% variation. (Non-standard materials are subject to a plus or minus 10% variation)

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

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 year from the date of the 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 year from date of completion thereof by Seller. Unless done with prior written consent of Seller, any repairs, alterations, or disassembly of Seller's inspection and warranty. Installation and transportation costs are not included and defective items must be held for Seller's inspection and 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 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 claim as provided above and its approval, Seller shall 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 materials or those which may lead to build up of materials 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.

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.

Any improper use, operation beyond capacity, substitute of parts not approved by Seller, or any alteration or repair by others in such manner as in Seller's judgement 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 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 the sections on **CONTRACT PERFORMANCE, INSPECTION AND ACCEPTANCE**, and the **PATENTS CLAUSE** hereof, the forgoing is **BUYER'S ONLY REMEDY HEREUNDER BY WAY OF BREACH OF CONTRACT TORT OR OTHERWISE, WITHOUT REGARD TO WORK WHETHER ANY DEFECT WAS DISCOVERED OR LATENT AT THE TIME OF DELIVERY OF THE PRODUCT OR WORK**. In no event shall Buyer be entitled to incidental or consequential damages. Any action for breach of this agreement must commence within one year after the cause of action has occurred.