

# Owner/Operator Manual

## For Masport Componentry: Primary Traps, Scrubbers, Pre-Filters, Oil Separators and Pumper Scent



**Warning!** This Manual includes important product safety information. Misuse of this product may result in severe injury or death. Read this manual carefully before attempting to use this product.



## Record of Purchase

**Serial Number:** \_\_\_\_\_

**Date Purchased:** \_\_\_\_\_

Please carefully read the installation, operation and maintenance instructions for your Masport product. These are provided to assist you and they assume users have a basic level of mechanical competence.

If you have any questions about the correct installation, operation or maintenance procedures, please ask Masport.

## Masport Standard Limited Warranty

### Limited Warranty:

Subject to the Terms set forth herein and in the Masport Incorporated Standard Terms & Conditions of Sale, Masport Incorporated ("Masport") hereby warrants to the Customer and the original end-user of the products (if such end-user is someone other than the Customer), as follows: The Masport products warranted hereunder will, in normal and intended use and service, be free from defects in material and workmanship during the Warranty Period described below.

### Warranty Period/Notice Requirements:

The Masport Standard Limited Warranty set forth above shall apply to covered defects that are discovered by the Customer and/or original end-user within twelve (12) months following the date set forth on the Masport invoice to Customer for the warranted product(s) (the "Warranty Period"). The Customer or original end-user must provide notice of covered defects in writing to Masport: 1) during the Warranty Period; and 2) within thirty (30) calendar days following their discovery (the "Notice Period").

### Warranty Exceptions and Exclusions:

Notwithstanding anything herein to the contrary, the Masport Standard Limited Warranty set forth above does not cover any of the following, each of which are hereby expressly excluded therefrom:

- A. Defects that are not discovered during the Warranty Period;
- B. Defects that are not reported to Masport in writing within the Notice Period;
- C. Usual and customary deterioration or wear resulting from normal use, service, and exposure;
- D. Any products that are transported outside of the United States;
- E. Any shortages or discrepancies, all of which shall be exclusively governed by the Discrepancies, Shortages, Damages section of these Terms set forth above;

- F. Any claims for loss, damage, cost, or expense caused by any delay or damage in shipment or delivery damage, all of which shall be exclusively governed by the terms set forth in the Product Delivery section above;
- G. Shipping or other costs incurred to return the products to Masport for warranty inspection;
- H. Damage to persons or property other than the Masport products themselves, or for any incidental, consequential, or special damages.
- I. Any defect and/or any loss, damage, cost, or expense incurred by Customer, original end-user, or any third party to the extent the same arise out of, relate to or result, in whole or in part, from any one or more of the following:
  - a. Theft, vandalism, accident, war, insurrection, fire or other casualty;
  - b. Defects or damage caused by the Customer, original end-user, or any third party;
  - c. Exposure to corrosive, chemical, ash, smoke, fumes, or the like;
  - d. Any products that have been altered, modified, or repaired by Customer, original end-user, or any third party without Masport's prior written consent;
  - e. Any misuse of the products, including any use of the products not in conformity with product manuals or contrary to product warnings.

### **Resolution of Warranty Claims:**

In the event Masport is notified of a warranty claim in conformity with the notice requirements set forth above, Masport shall, with the full cooperation of Customer and/or original end-user (which shall include, without limitation, return of the product(s) for warranty inspection if requested by Masport), immediately undertake an investigation of such claim. To the extent Masport determines, in its reasonable discretion, that the warranty claim is covered by the foregoing Masport Standard Limited Warranty, Masport will, as Customer and original end-user's sole and exclusive remedy and at Masport's option, either:

- A. Ship replacement products to Customer or original end-user; or
- B. Ship repaired product(s) to Customer or original end-user.

Masport shall not be responsible to Customer or original end-user for the cost of dismantling any defective products or installing replacement products, all of which shall be and for all purposes remain the sole responsibility of Customer and original end-user.

### **Warranty Not Transferable Except to Original End-User:**

The Masport Standard Limited Warranty applies only to the Customer and the original end-user (if such end-user is someone other than the Customer). As such, this Warranty does not cover any Masport products that are sold or otherwise transferred to third parties (other than original end-user) or any subsequent purchasers of the products.

### **Customer's Responsibility to Masport Concerning Original End-Users:**

Customer warrants and represents that if it resells any Masport product or incorporates any Masport product into its own merchandise for the purpose of sale, Customer will:

- A. In all instances causes such purchaser to be bound by, and agree to, the Masport Standard Limited Warranty as set forth herein, including all terms and limitations thereof;
- B. Properly affix all warning labels to all Masport products;
- C. Provide the applicable Masport product manuals to such purchasers.

Customer shall indemnify, defend, and hold Masport harmless from any liabilities, losses, damages, or expenses (including reasonable attorney fees) to the extent the same are incurred by Masport in

connection with any claims, demands, suits, investigations, or other proceedings which are brought or asserted by any third party against Masport and that arise from the actions or inactions of Customer or its employees, agents, or subcontractors, including, without limitation, any failure by Customer to strictly comply with Customer's obligations to Masport concerning original end-users as set forth herein.

**Disclaimer of Implied Warranties:**

Customer has expressly acknowledged and agreed that: (i) the Limited Warranty set forth herein is an integral part of the Agreement pursuant to which the products were purchased; (ii) Customer (for itself and on behalf of the original end-user) has accepted said Limited Warranty as the sole and only warranty given by Masport to Customer and original end-user with respect to the products; and (iii) said Limited Warranty is reflected in the Purchase Price. Masport makes no other representations or warranties of any kind, whether express or implied, by operation of law or otherwise, with respect to any products, goods, or services sold or provided to the customer pursuant to this agreement, including without limitation any representation or warranty of merchantability or fitness for any particular purpose or use, all of which are expressly hereby disclaimed.

**Limitation on Liabilities and Damages:**

Except as is expressly set forth in this agreement or the Masport Standard Limited Warranty, Masport's liability under the agreement and under the standard limited warranty shall in no event exceed the actual cost of the products sold or provided to the customer under the applicable agreement. Further, Masport shall not, under any circumstances, be liable to the customer, the customer's customer, the original end-user, or any third party for any special, indirect, incidental, consequential, liquidated, or punitive damages.

**Governing Law/Jurisdiction:**

This Masport Standard Limited Warranty, shall be governed by, and construed in accordance with, the internal laws of the State of Nebraska, USA. Any legal action or proceeding arising under or with respect to this Masport Standard Limited Warranty, or the Masport products that are the subject matter of this Limited Warranty, shall be brought only in the district courts of Nebraska, or the United States District Court for the District of Nebraska, and, by Customer's placement of the subject product order, original end-user's agreement to and/or acceptance of the Masport Standard Limited Warranty, and acknowledgment of Customer's order by Masport, Customer, original end-user, and Masport each hereby accepts for itself and in respect of its property, generally and unconditionally, the jurisdiction of the aforesaid courts and hereby irrevocably waives any objection thereto, including, without limitation, personal jurisdiction or *forum non conveniens*.



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## Introduction

Congratulations on your purchase of a Masport product. We are delighted you have chosen to join the community of satisfied customers using Masport equipment in daily professional operations.

Our products are backed by over 100 years of engineering excellence and are specifically designed and engineered to meet the needs of hard working pumpers around the world.

Our expert product development, manufacturing and distribution teams work to rigorous quality standards and a strict testing regime. To produce our precision pumps, we only use the finest quality components and materials to ensure the durability of your vacuum pump. Every pump is factory tested before shipping and is backed up with a one year warranty against all manufacturing defects. This system ensures you receive a quality product.

This manual provides all the information you will need to setup and run your vacuum system correctly to ensure a long and efficient service life. If you have any questions, please contact your local Masport representative or Masport directly.

## Our History:

Masport designs, manufactures, and assembles vacuum pumps and associated products. The company was established by Harold Mason and Reuben Porter under the name City Engineering in Auckland, New Zealand, in 1910. Within a couple of years, the Mason and Porter business, or Masport as the company later became known, was manufacturing vacuum pumps and a range of engines to power all types of farm equipment.

Masport first looked to international markets with trial exports of vacuum pumps to the United States in 1956 – and has never looked back since. In 1991 the ownership of Masport's vacuum pump division was transferred to Skellerup Holdings – an iconic New Zealand Company which also celebrated its centenary in 2010.

With Masport on board you have an efficient and reliable pump backed by the best service and support that has made Masport the #1 choice for pumpers worldwide.

## Over 100 Years of Engineering Excellence





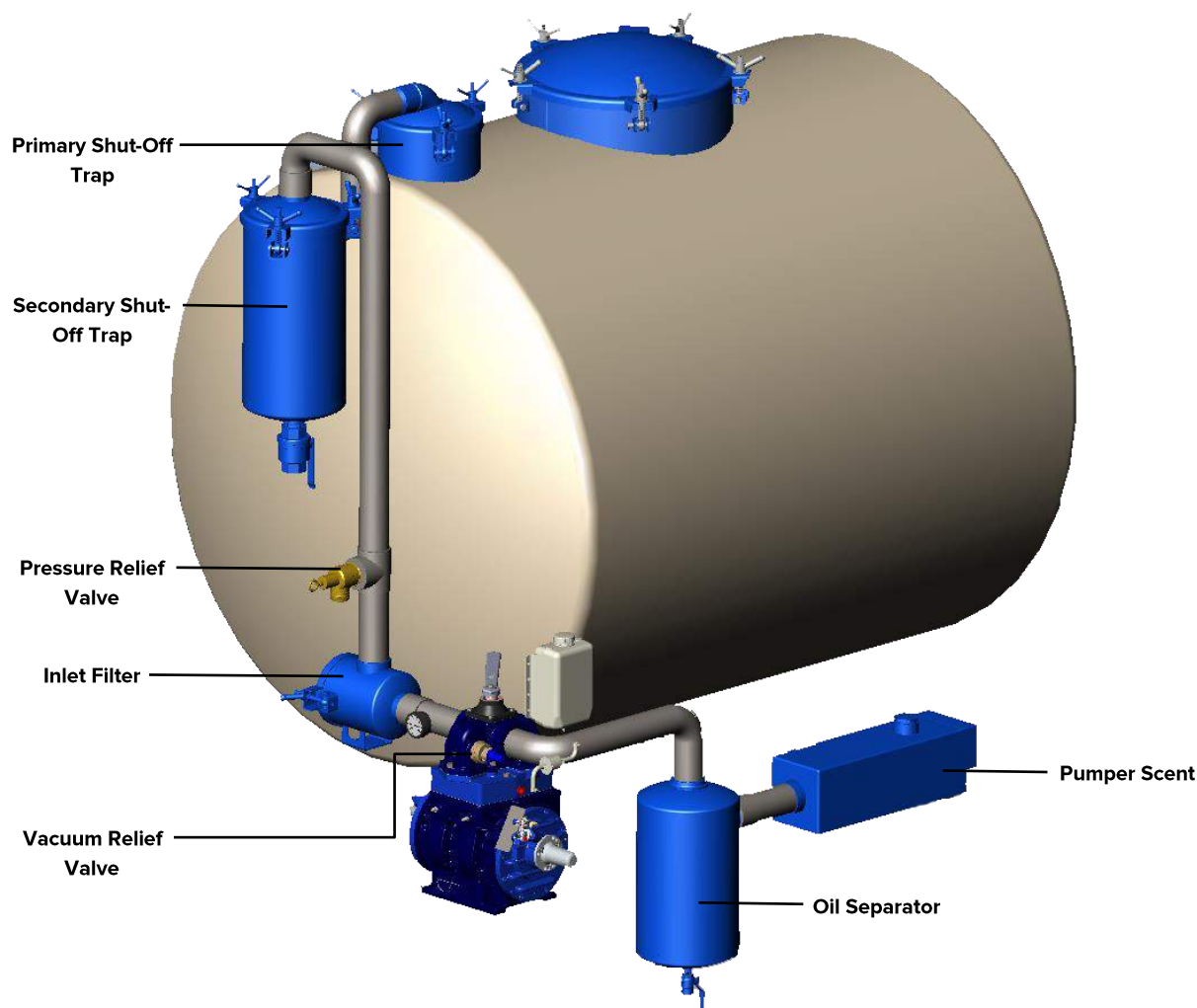
## Vacuum Pump Protection

In order for the Vacuum Pump to perform properly and efficiently it is necessary to correctly set-up the vacuum system with the recommended Masport System Components to protect it at all times from liquid and foreign materials from entering it.



**Warning!** Liquid or foreign material entering the Vacuum Pump will cause damage to the pump which may result in catastrophic failure.

### Recommended System Components:



## Plumbing:

Whatever the configuration of the vacuum system on your truck or trailer, all components and plumbing must be of adequate size or the system will not operate correctly.



**Warning!** Do not use a hose smaller than the porting size of the vacuum pump or the airflow will be restricted and the pump may overheat and be damaged.

The minimum inside diameter of the plumbing to be used on Masport Vacuum Pumps is as follows:

Description	Port Size
HXL2	1 ½"
HXL3	1 ½"
HXL4	1 ½"
HXL75	2 ½"
HXL15	3"
HXL400	3"
Titan	3"
Sidewinder	3"
Hydra	3"

Ensure all pipes, hoses and fittings are thoroughly cleaned before assembly and free of any kind of dirt or debris. Any solid particles ingested by the pump may cause irreparable damage that will result in loss of performance and increased operating noise. Some form of pipe sealant should be used on all thread connections to prevent leaks.

## Hoses:

Any hose used in the system is to be rated for at least 28"Hg vacuum and 25 PSI pressure, and withstand air/oil temperatures up to 300 F. Hot-tar and asphalt hose is designed for use in this sort of environment.



## Primary Shut-Off Trap

### Function and Operation:

The Masport Primary Shut-Off Trap is designed as a float-ball shut-off that prevents liquid in the tank from overflowing into the system and entering the Vacuum Pump. Liquid entering the Vacuum Pump can damage or destroy it.

When the vacuum tank becomes filled, the Primary Shut-Off Trap float ball will rise and seat against the float seat closing off the line between the Primary and Secondary Trap. In the event that the Primary Shut-Off Trap fails or the tank fills so rapidly that there is a lag time between tank filling and primary float ball sealing, the overflow will collect in the Secondary Moisture Trap and shut off its float mechanism before liquid enters the pump.

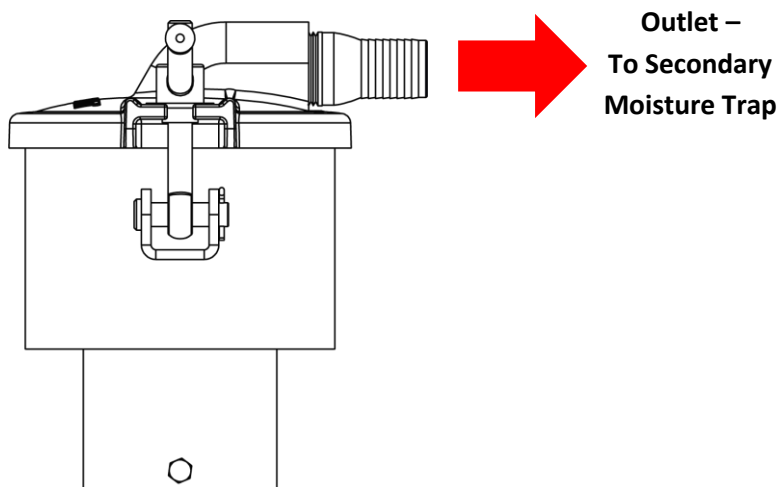
To ensure effective pump protection from contaminate overflow it is recommended that a Primary Shut-Off Trap is installed with a Secondary Moisture Trap (Scrubber).

### Positioning:

The Masport Primary Shut-Off should be positioned at the highest point of the vacuum tank. When determining the final location of the Primary Shut-Off, consideration should be given to the location of the Secondary Moisture Trap (Scrubber), and the location of the Secondary Moisture Trap in relation to the Vacuum Pump. By carefully considering the placement of these components before installation, a reduction in plumbing, maintenance and operation costs can be achieved.

### Plumbing:

As shown in the Recommend System Component Diagram, the Primary Shut-Off should be plumbed to the inlet of the Secondary Moisture Trap. The inlet of the Secondary Moisture Trap is located on the side of the Secondary Moisture Trap body.



Whatever the configuration of the vacuum system on your truck or trailer, all components and plumbing must be of adequate size or the system will not operate correctly.



**Warning!** Do not use a hose smaller than the porting size of the vacuum pump or the airflow will be restricted and the pump may overheat and be damaged.

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If not included with the pump, a Vacuum Relief Valve should be installed between the Secondary Moisture Trap and the Vacuum Pump. This valve will serve to protect the pump from damage due to overheating in the event that the float-balls in either the Primary or Secondary Trap are activated by the tank being filled at a time when the operator is not immediately available to stop the system.

### **Service:**

A periodic check on the float seat, float balls and ball cage assembly is recommended. The frequency of inspection is dependent on variables such as type of material moved and the overall duty cycle of the system.

It is recommended to initially check every two to three months in order to establish an inspection program based on wear characteristics specific to your individual application.



**Warning!** Do not attempt to remove the lid with pressure or vacuum on the system. Failure to do so could lead to equipment damage or catastrophic failure resulting in severe injury.

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### **Lid Installation:**

When replacing the lid, follow the below procedure:

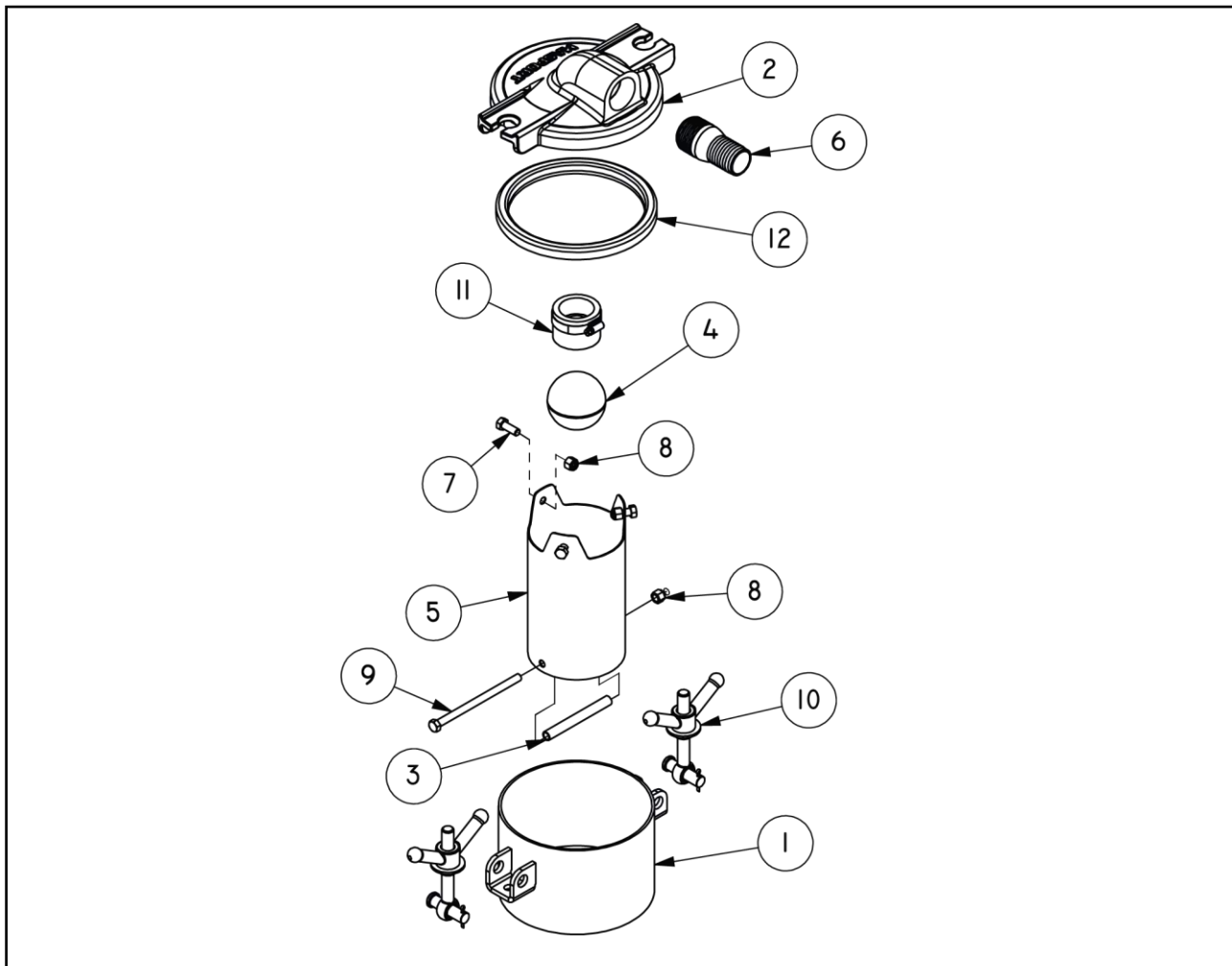
- ▶ Seat the lid onto the gasket and tighten the wingnuts.
- ▶ Start the vacuum pump and draw a vacuum on the tank
- ▶ As the vacuum increases in the tank external pressure will force the lid down. The wingnuts can then be tightened further as the lid has been pulled down into place by the vacuum.

This procedure will ensure a consistent pressure on the gasket.

### **Replacement Parts:**

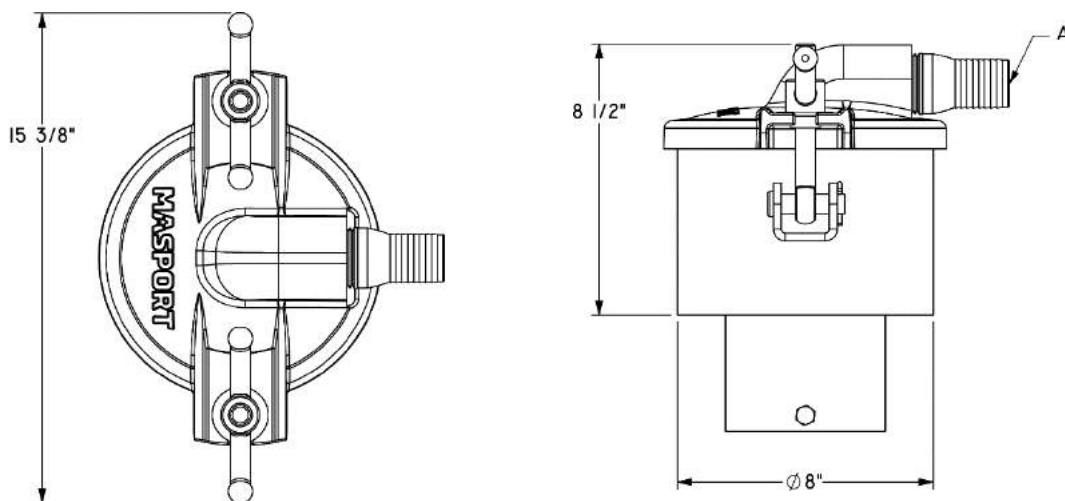
All replacement parts are readily available. Please contact an authorized Masport distributor or Masport directly.

## Exploded View – 1 ½” & 2”:



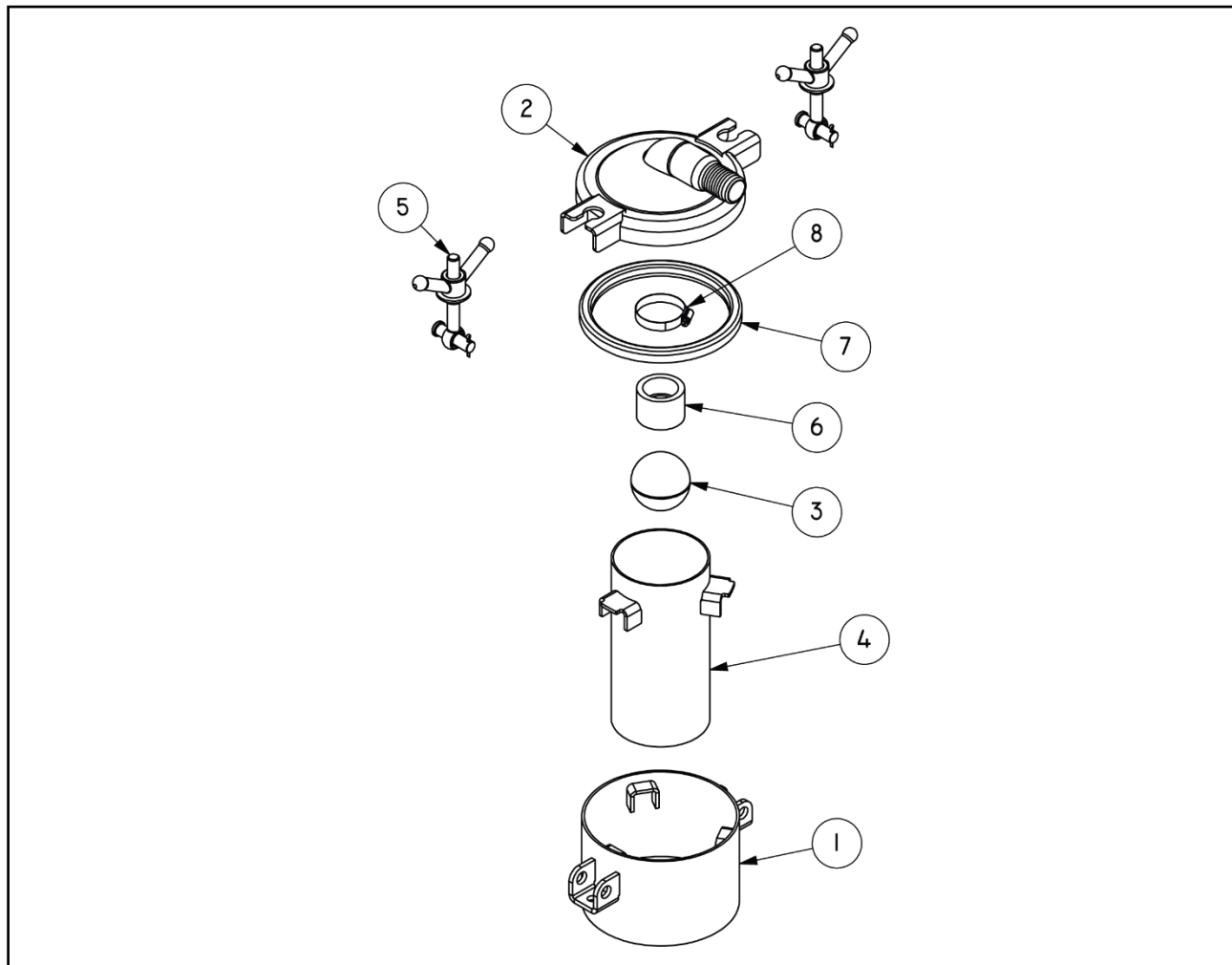
Ref	Description	1 ½" Hose Barb 16326	1 ½" BSP 16336	2" Hose Barb 16329
1	Primary Collar	18366	18366	18366
2	Primary Lid	18577	18577	18577
3	Tubing	24291	24291	24291
4	Float Ball	28005	28005	28005
5	Primary Cage	28213	28213	28213
6	Hose Barb	30154		30172
7	3/8" x 1" Bolt	32265	32265	32265
8	3/8" Nut	32287	32287	32287
9	3/8" x 6" Bolt	32328	32328	32328
10	Wing Nut Assembly	32608	32608	32608
11	Float Seat	36113	36113	36113
12	Gasket	36516	36516	36516

## Dimensional Data – 1 ½" & 2":



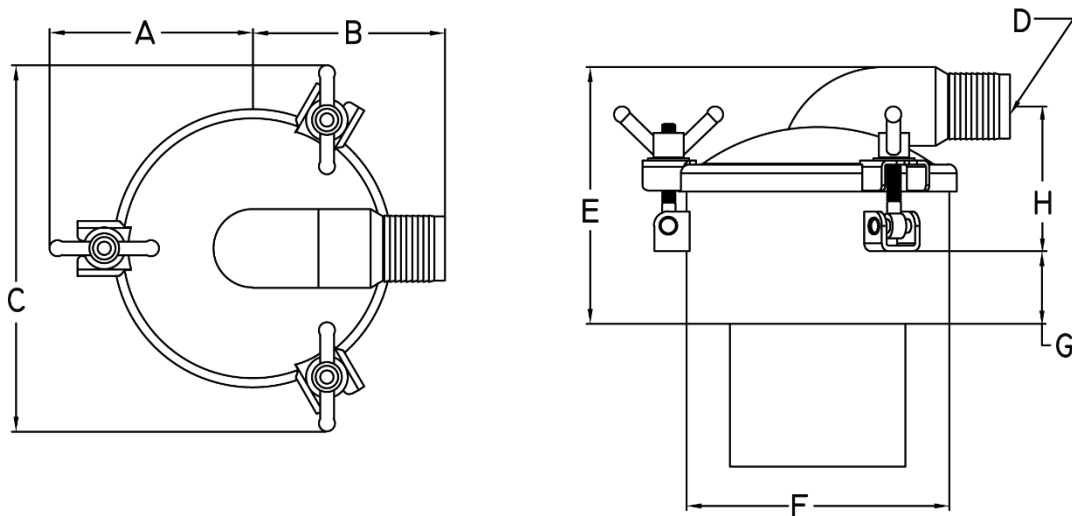
Ref	1 ½" Hose Barb 16326	1 ½" NPT/BSP 16315	2" Hose Barb 16331
A	1 1/2" Hose Barb	1 ½" Female NPT/BSP	2" Hose Barb

## Exploded View – 3”:



Ref	Description	3" Hose Barb 16331	3" BSP 16335
1	Primary Collar	18368	18368
2	Primary Lid	18572	18575
3	Float Ball	28003	28003
4	Primary Cage	28211	28211
5	Wingnut Assembly	32608	32608
6	Float Seat	36107	36107
7	Gasket	36518	36518
8	Hose Clamp	24320	24320

## Dimensional Data – 3”:



Ref	3" Hose Barb 16331	3" BSP 16335
A	9 9/32"	9 9/32"
B	8 3/4"	8 3/4"
C	16 23/32"	16 23/32"
D	3" Hose Barb	3" Male BSP
E	11 1/2"	11 1/2"
F	12"	12"
G	3 5/16"	3 5/16"
H	6 3/8"	6 3/8"



## Secondary Moisture Trap

### Function and Operation:

The Masport Secondary Moisture Trap (Scrubber) is designed as a dual-function moisture trap (scrubber) and a secondary shut-off trap that removes liquids still in the air stream after passing through the Primary Shut-Off Trap and prevents it from entering the Vacuum Pump. Liquid entering the Vacuum Pump can damage or destroy it.

When the vacuum tank becomes filled, the primary trap float ball will rise and seat against the float seat closing off the line between the Primary and Secondary Trap. In the event that the Primary Shut-Off Trap fails or the tank fills so rapidly that there is a lag time between tank filling and primary float ball sealing, the overflow will collect in the Secondary Trap and shut off its float mechanism before liquid enters the pump. The Secondary Moisture Trap will also prevent liquid from entering the Vacuum Pump in the event that Primary Shut-Off Trap leaks due to movement of the tank contents during transportation.

After operating the Vacuum Pump, neutralize the pressure on the system and drain the Secondary Moisture Trap by opening the ball valve on the bottom of its body.



**Warning!** Do not open the ball valve when the tank is under vacuum or pressure. Doing so will allow contaminants into the pumping system that could cause damage to the Vacuum Pump or expel liquid waste onto the ground and operator.

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To ensure effective pump protection from contaminate overflow it is recommended that a Primary Shut-Off Trap is installed with a Secondary Moisture Trap (Scrubber).

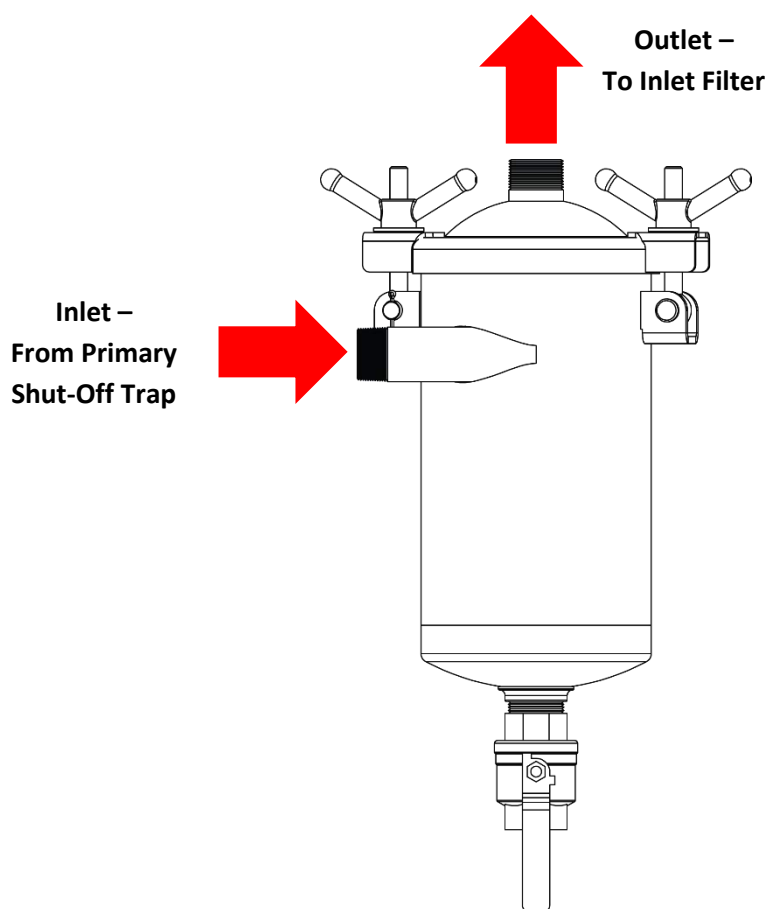
### Positioning:

The Masport Secondary Moisture Trap should be positioned on the truck in such a way as to have the outlet port in a vertical position. It should also be mounted near enough to the operator to allow it to be drained at the end of each pumping operation.

When determining the final location of the Secondary Moisture Trap, consideration should be given to the location of the Primary Shut-Off Trap, and the location of the Vacuum Pump. By carefully considering the placement of these components before installation, a reduction in plumbing, maintenance and operation costs can be achieved.

### Plumbing:

As shown in the Recommend System Component Diagram, the Secondary Moisture Trap has an inlet and an outlet. The inlet is on the side of the Secondary Moisture Trap body and is to be plumbed to the Primary Shut-Off Trap. The outlet is on the lid of the Secondary Moisture Trap and is to be connected to the line going to the Vacuum Pump.



Whatever the configuration of the vacuum system on your truck or trailer, all components and plumbing must be of adequate size or the system will not operate correctly.



**Warning!** Do not use a hose smaller than the porting size of the vacuum pump or the airflow will be restricted and the pump may overheat and be damaged.

If not included with the pump, a Vacuum Relief Valve should be installed between the Secondary Moisture Trap and the Vacuum Pump. This valve will serve to protect the pump from damage due to overheating in the event that the float-balls in either the Primary or Secondary Trap are activated by the tank being filled at a time when the operator is not immediately available to stop the system.

### **Service:**

A periodic check on the float seat, float balls and ball cage assembly is recommended. The frequency of inspection is dependent on variables such as type of material moved and the overall duty cycle of the system.

It is recommended to initially check every two to three months in order to establish an inspection program based on wear characteristics specific to your individual application.



**Warning!** Do not attempt to remove the lid with pressure or vacuum on the system. Failure to do so could lead to equipment damage or catastrophic failure resulting in severe injury.

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## **Lid Installation:**

When replacing the lid, follow the below procedure:

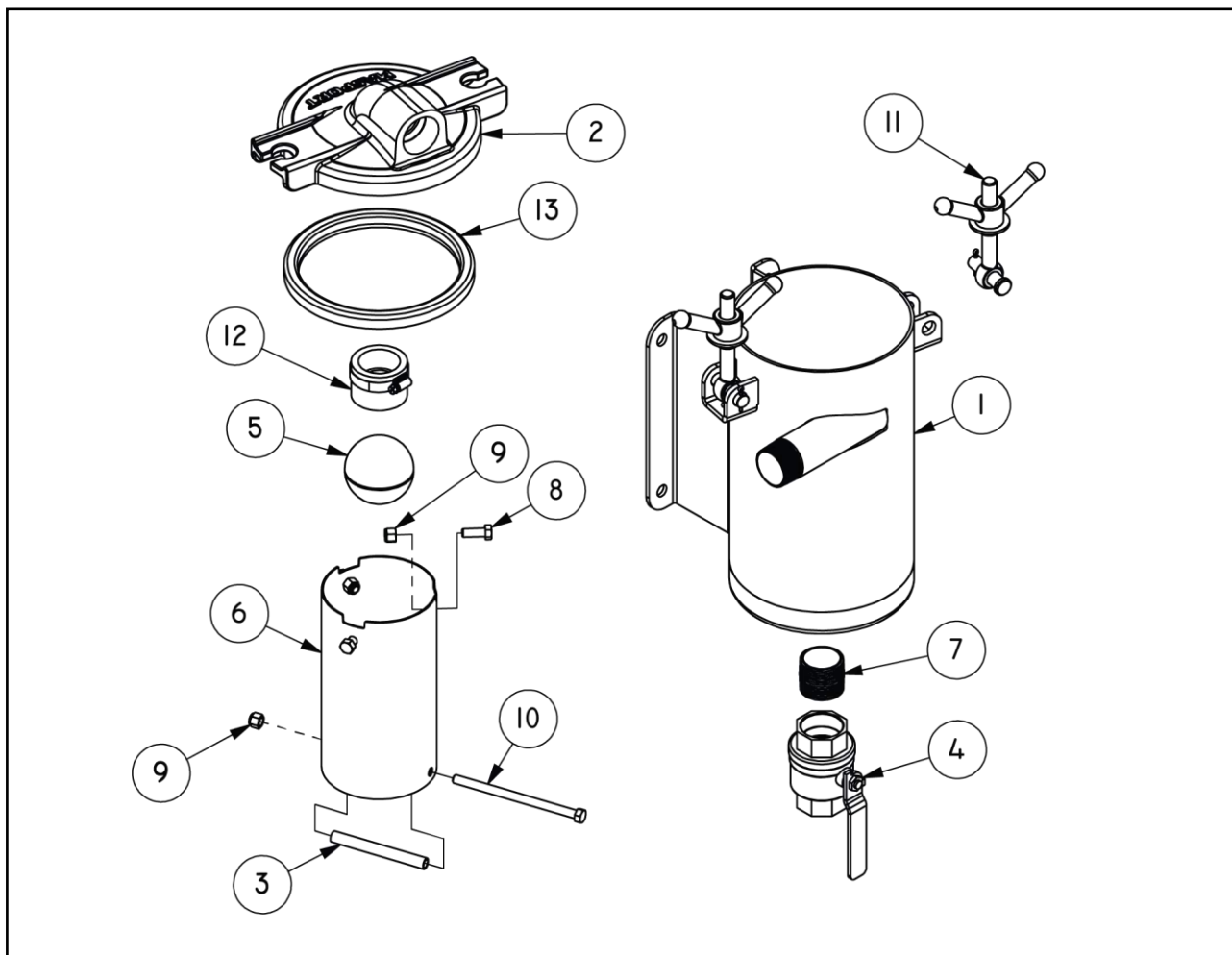
- ▶ Seat the lid onto the gasket and tighten the wingnuts.
- ▶ Start the vacuum pump and draw a vacuum on the tank
- ▶ As the vacuum increases in the tank external pressure will force the lid down. The wingnuts can then be tightened further as the lid has been pulled down into place by the vacuum.

This procedure will ensure a consistent pressure on the gasket.

## **Replacement Parts:**

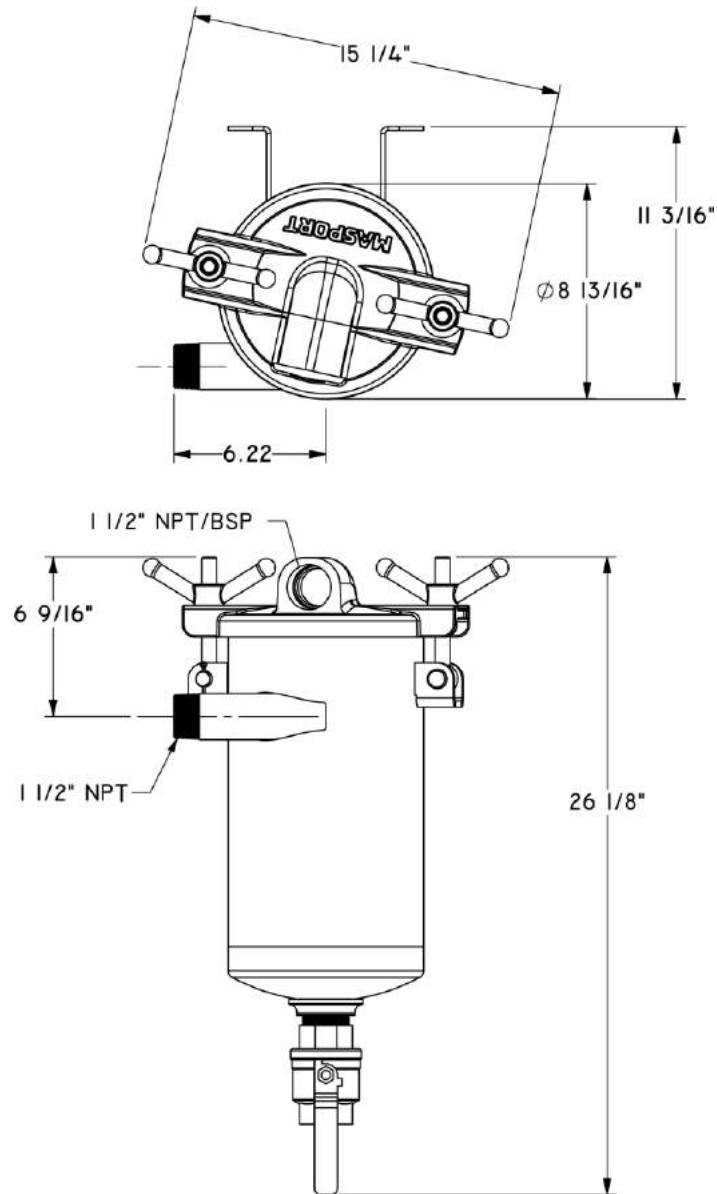
All replacement parts are readily available. Please contact an authorized Masport distributor or Masport directly.

## Exploded View – 1 1/2" NPT & BSP Top Opening:



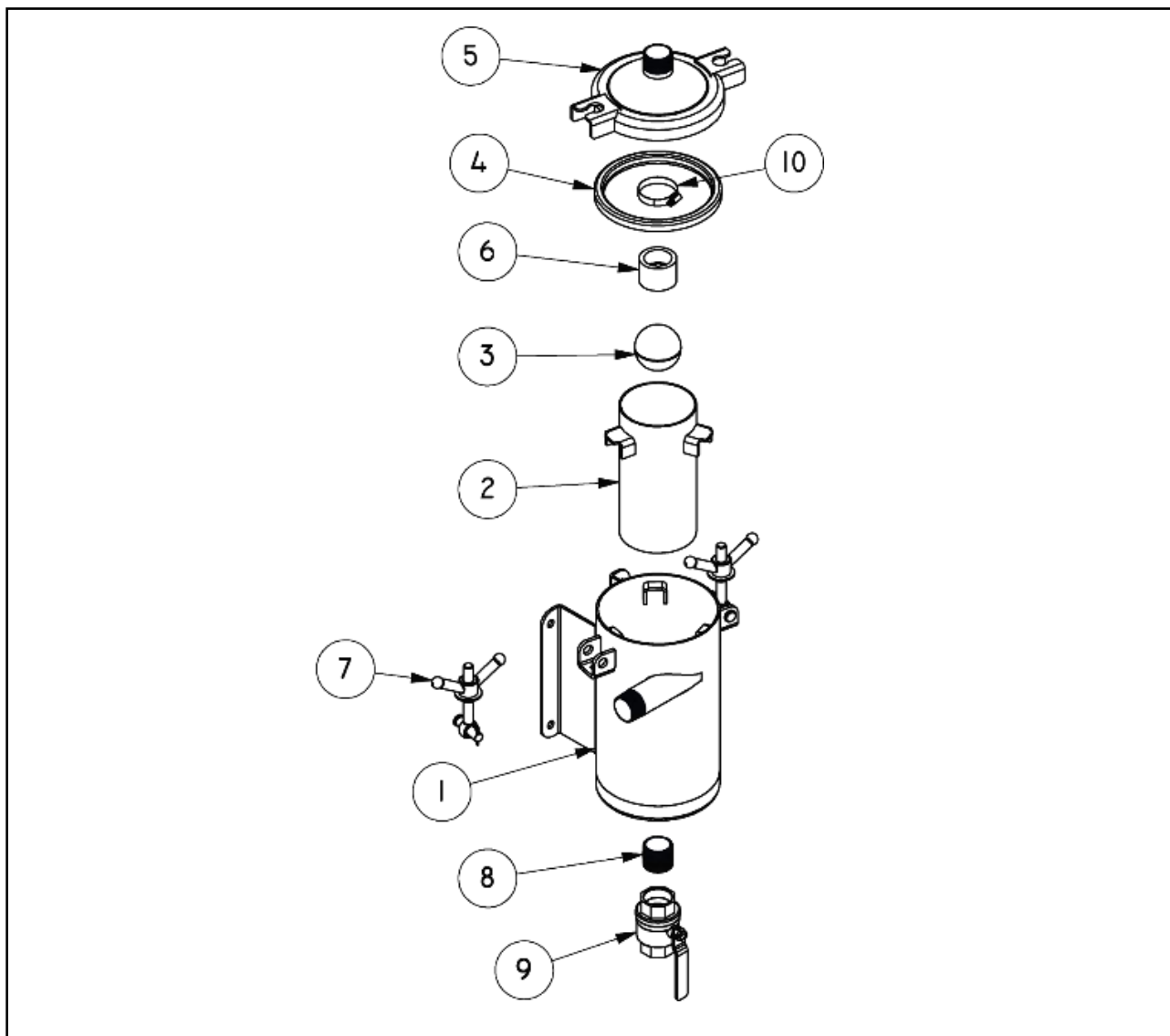
Ref	Description	1 1/2" NPT Painted 16422	1 1/2" NPT OEM 16423
1	Secondary Body	18411	18411
2	Secondary Lid	18577	18577
3	Tubing	24291	24291
4	Ball Valve	25155	25155
5	Float Ball	28005	28005
6	Secondary Cage	28213	28213
7	Close Nipple	30033	30033
8	3/8" x 1" Bolt	32265	32265
9	3/8" Nut	32287	32287
10	3/8" x 6" Bolt	32328	32328
11	Wingnut Assembly	32608	32608
12	Float Seat	36113	36113
13	Gasket	36516	36516

## Dimensional Data – 1 1/2" NPT & BSP Top Opening:



\* OEM Versions Supplied Less Mounting Brackets

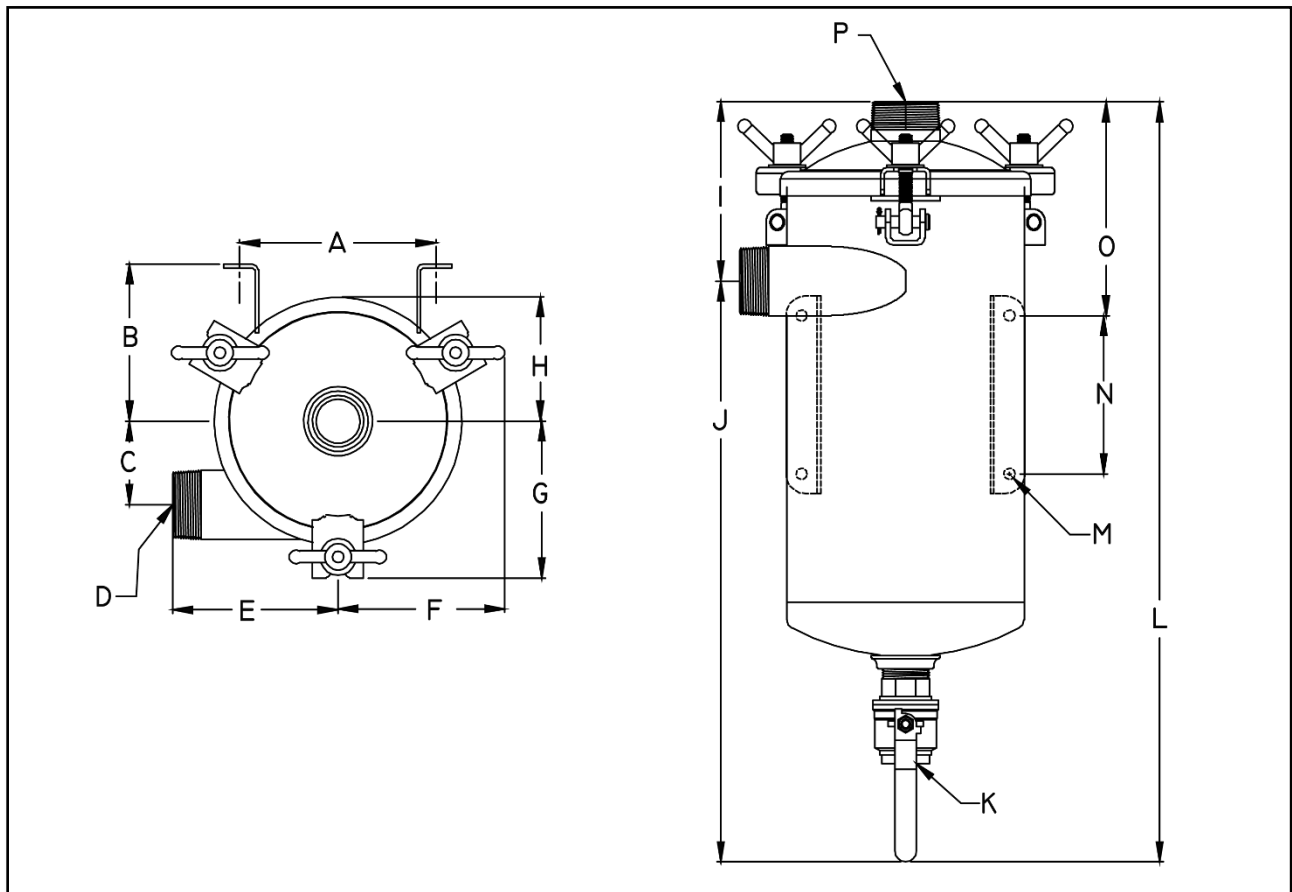
## Exploded View – 3" NPT Top Opening:



Ref	Description	2 ½" NPT		3" NPT	
		Painted 16420	OEM 16421	Painted 16430	OEM 16431
1	Secondary Body	18389	18395	18390	18396
2	Secondary Cage	28204	28204	28205	28205
3	Float Ball	28000	28000	28003	28003
4	Gasket	36517	36517	36518	36518
5	Secondary Lid	18392	18398	18393	18399
6	Float Seat	36104	36104	36107	36107
7	Wingnut Assembly	32608	32608	32608	32608
8	Close Nipple	30033	30033	30033	30033
9	Ball Valve	25155	25155	25155	25155
10	Hose Clamp	24321	24321	24320	24320



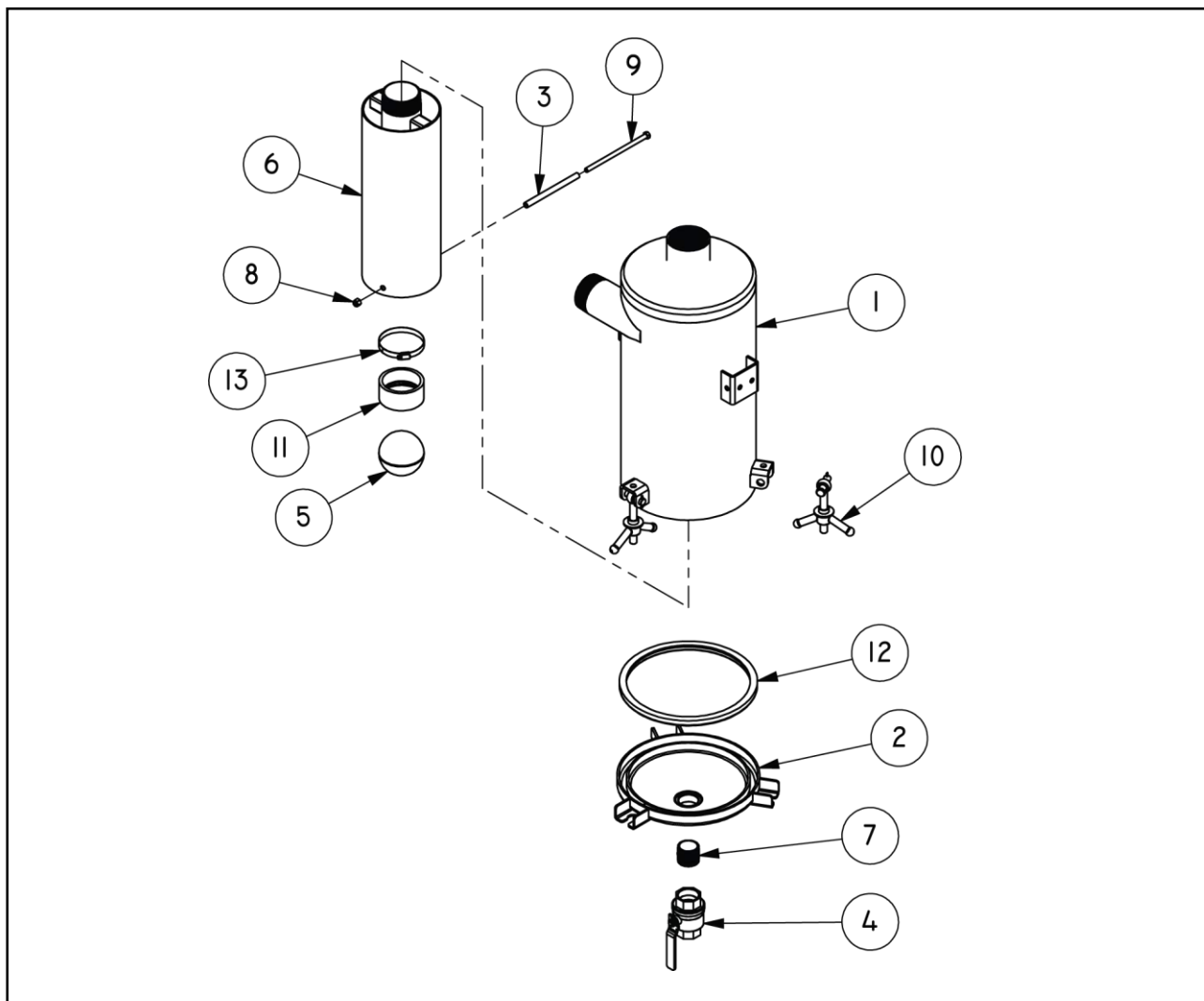
## Dimensional Data – 3" NPT Top Opening:



Ref	2 1/2" NPT		3" NPT	
	Painted 16420	OEM 16421	Painted 16430	OEM 16431
A	8 7/16"		10"	
B	7 1/4"		7 15/16"	
C	3 9/16"	3 9/16"	4 1/4"	4 1/4"
D	2 1/2" NPT	2 1/2" NPT	3" NPT	3" NPT
E	8 3/8"	8 3/8"	8 3/8"	8 3/8"
F	7 9/16"	7 9/16"	8 7/16"	8 7/16"
G	6 15/16"	6 15/16"	7 15/16"	7 15/16"
H	5 1/4"	5 1/4"	6 15/16"	6 15/16"
I	9 3/16"	9 3/16"	9 1/16"	9 1/16"
J	24 3/4"	24 3/4"	27 5/8"	27 5/8"
K	1 1/2" NPT	1 1/2" NPT	1 1/2" NPT	1 1/2" NPT
L	35 11/16"	35 11/16"	38 7/16"	38 7/16"
M	9/16"		9/16"	
N	8"		8"	
O	11 13/16"		10 13/16"	
P	2 1/2" NPT	2 1/2" NPT	3" NPT	3" NPT

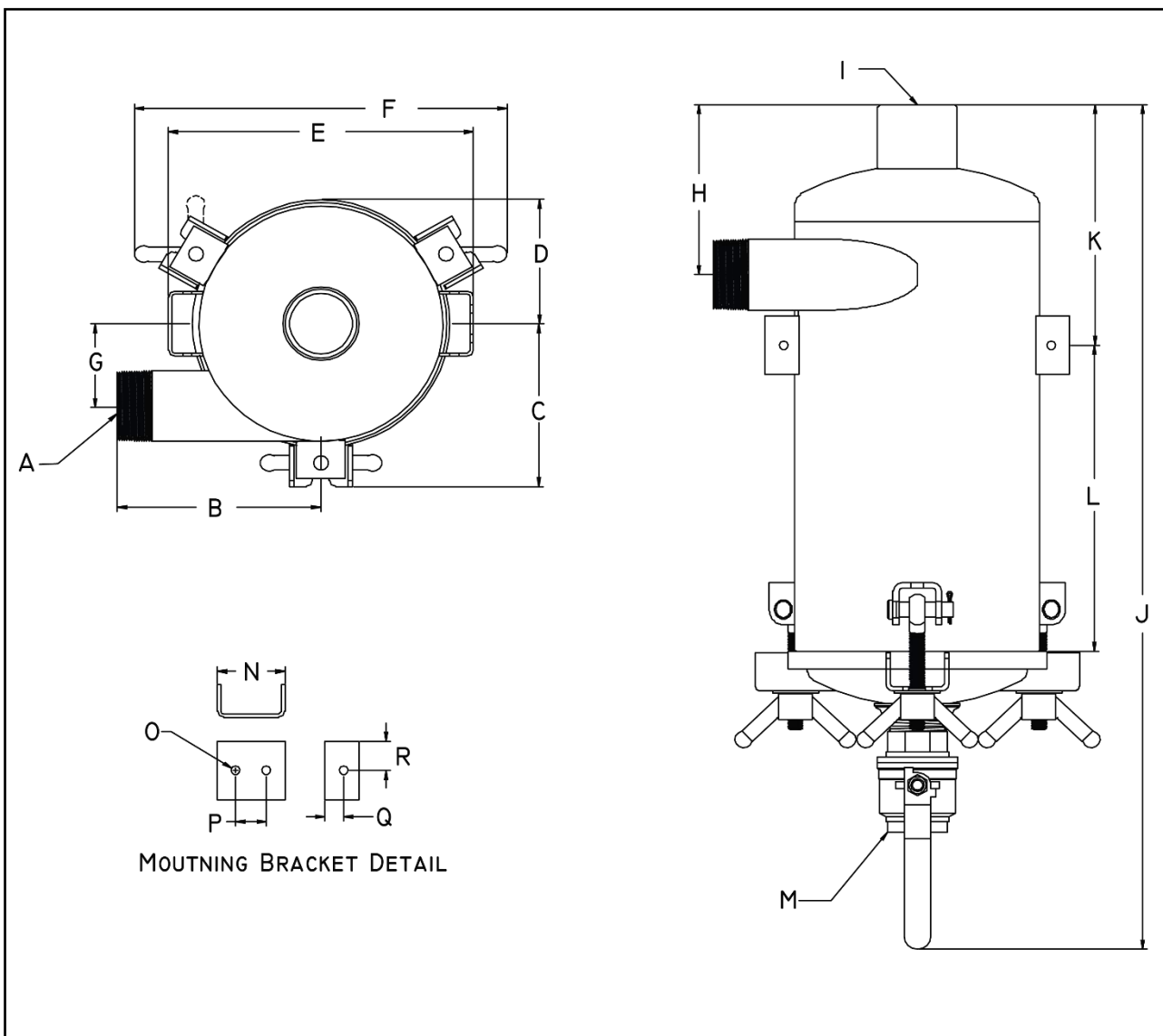
\* OEM Versions Supplied Less Mounting Brackets

## Exploded View – BSP Bottom Opening:



Ref	Description	3" BSP 16434
1	Secondary Body	18559
2	Secondary Lid	18561
3	Poly Tubing	24291
4	Ball Valve	25155
5	Float Ball	28001
6	Secondary Cage	28271
7	Close Nipple	30033
8	Nut 3/8"	32005
9	Bolt	32259
10	Wingnut Assembly	32608
11	Float Seat	36107
12	Gasket	36518
13	Hose Clamp	24320

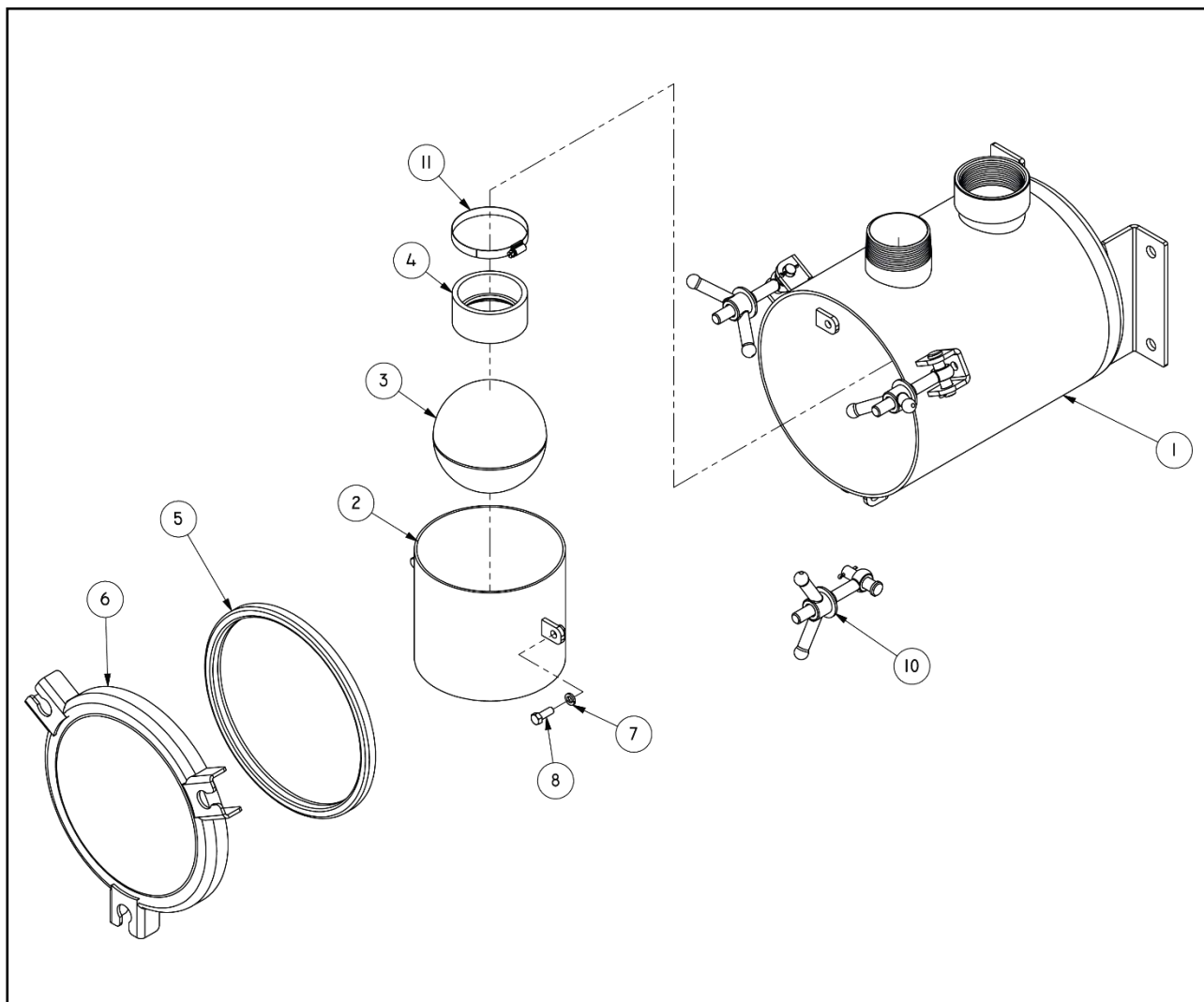
## Dimensional Data – BSP Bottom Opening:



Ref	3" BSP 16434
A	3" Male BSP
B	214mm
C	202mm
D	160mm
E	368mm
F	429mm
G	108mm
H	243mm
I	3" Female BSP

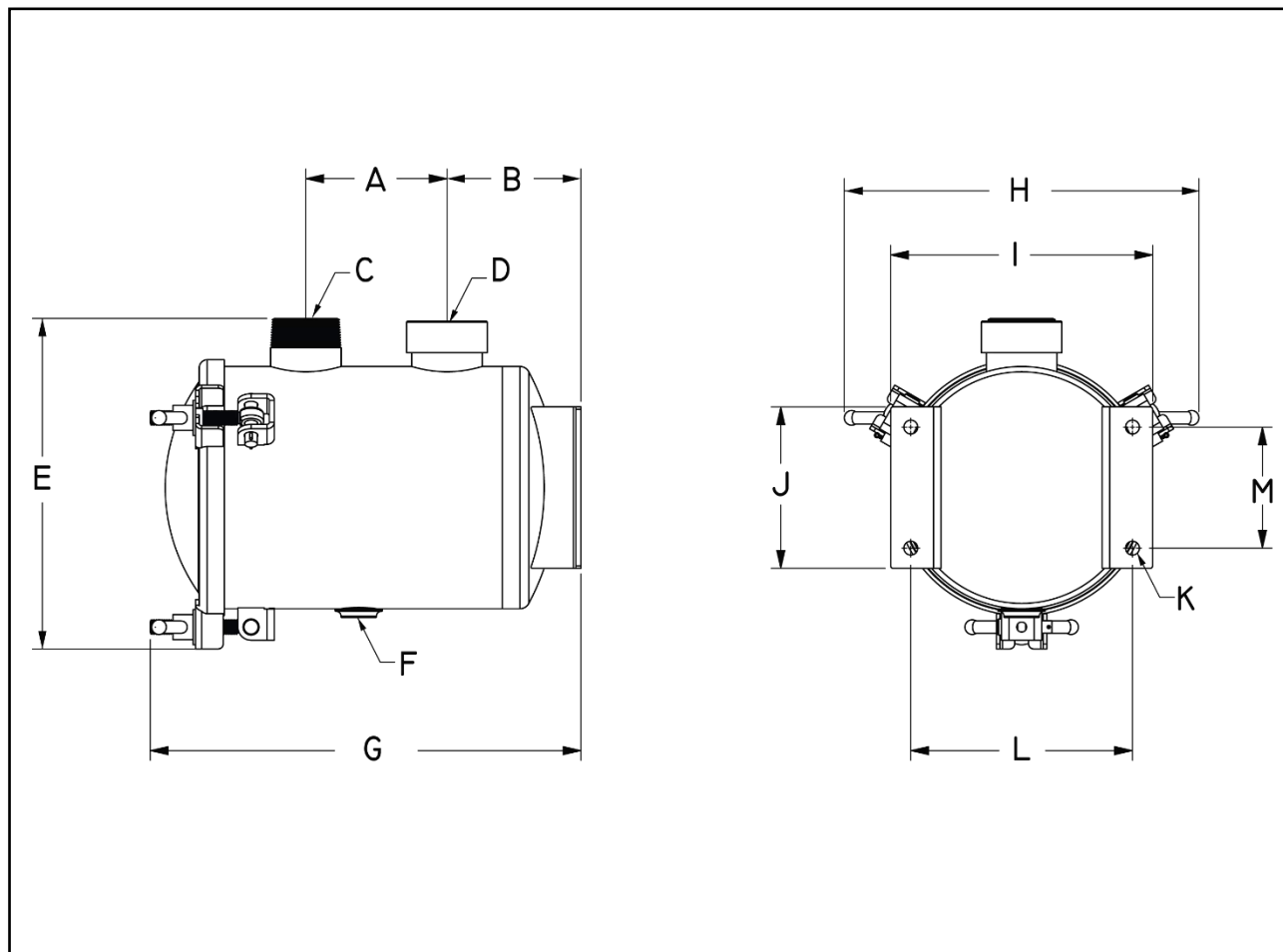
Ref	3" BSP 16434
J	981mm
K	310mm
L	345mm
M	1 1/2"
N	85mm
O	11mm
P	39mm
Q	18mm
R	38mm

## Exploded View – Horizontal



Ref	Description	3" NPT 16184
1	Scrubber Body	18344
2	Scrubber Cage	28266
3	Float Ball	28003
4	Float Seat	36107
5	Gasket	36518
6	Scrubber Lid	18326
7	Washer	32267
8	Bolt	32205
9	Wingnut Assembly	32608
10	Hose Clamp	24320

## Dimensional Data – Horizontal:



Ref	3" NPT 16184
A	7"
B	6 21/32"
C	3" Male NPT
D	3" Female NPT
E	16 3/8"
F	1"
G	21 3/8"
H	16 7/8"
I	13"
J	8"
K	9/16"
L	12"
M	6"

## Inlet Filter

### Function and Operation:

The Masport Inlet Filter is designed as the last line of defense for the Vacuum Pump. The filter element of the Inlet Filter prevents small particulate matter and items that float and may have bypassed the Primary and Secondary Trap from entering the Vacuum Pump

Due to the high air flow rates and rapid loading capabilities of the system, an Inlet Filter, in addition to both the Primary and Secondary Trap, is recommended.

To ensure effective pump protection from contaminate overflow it is recommended that filter element should be checked and cleaned, or replaced regularly.

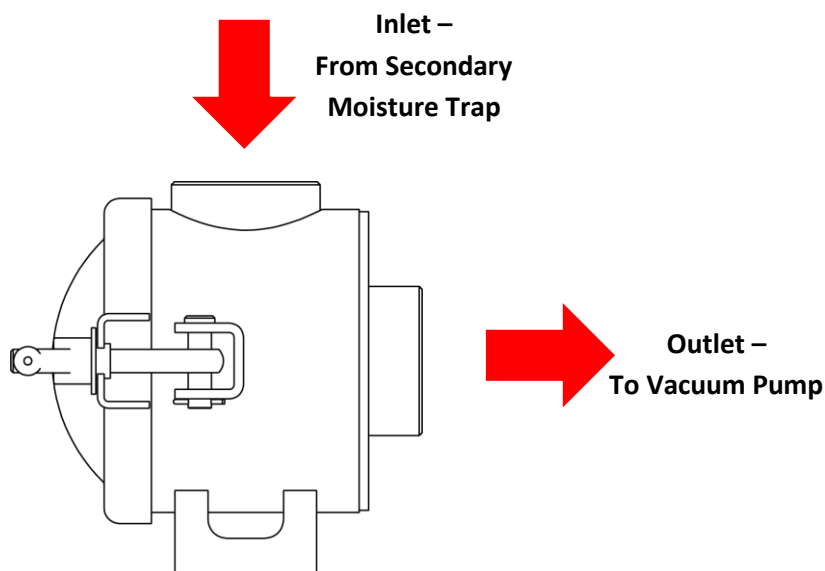
### Positioning:

The Masport Inlet Filter can be mounted vertically or horizontally without losing its effectiveness. Although horizontal mounting is recommended to prevent debris potentially falling into the pump during filter element cleaning. It should also be mounted near enough to the operator to allow easy access for cleaning the filter element.

When determining the final location of the Inlet Filter, consideration should be given to the location of the Secondary Moisture Trap, and the location of the Vacuum Pump. By carefully considering the placement of these components before installation, a reduction in plumbing, maintenance and operation costs can be achieved.

### Plumbing:

As shown in the Recommend System Component Diagram, the Inlet Filter has an inlet and an outlet. The inlet is on the side of the Secondary Moisture Trap and is to be plumbed to the Secondary Moisture Trap. The outlet is on the base of the Inlet Filter and is to be connected to the Vacuum Pump.





Whatever the configuration of the vacuum system on your truck or trailer, all components and plumbing must be of adequate size or the system will not operate correctly.



**Warning!** Do not use a hose smaller than porting size of the vacuum pump or the airflow will be restricted and the pump may overheat and be damaged.

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## Service:

A periodic check on the filter element is recommended. The frequency of inspection is dependent on variables such as type of material moved and the overall duty cycle of the system. As the filter element is a custom-made, pleated, stainless steel filter element with heat and oil resistant silicone seals it can be used repeatedly and does not need replacement until damaged. To clean wash with warm water and soap (do not use high pressure washers), from the inside of the filter element to the outside.

It is recommended to initially check every two to three months in order to establish an inspection program based on the characteristics specific to your individual application.



**Warning!** Do not attempt to remove the lid with pressure or vacuum on the system. Failure to do so could lead to equipment damage or catastrophic failure resulting in severe injury.

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## Lid Installation:

When replacing the lid, follow the below procedure:

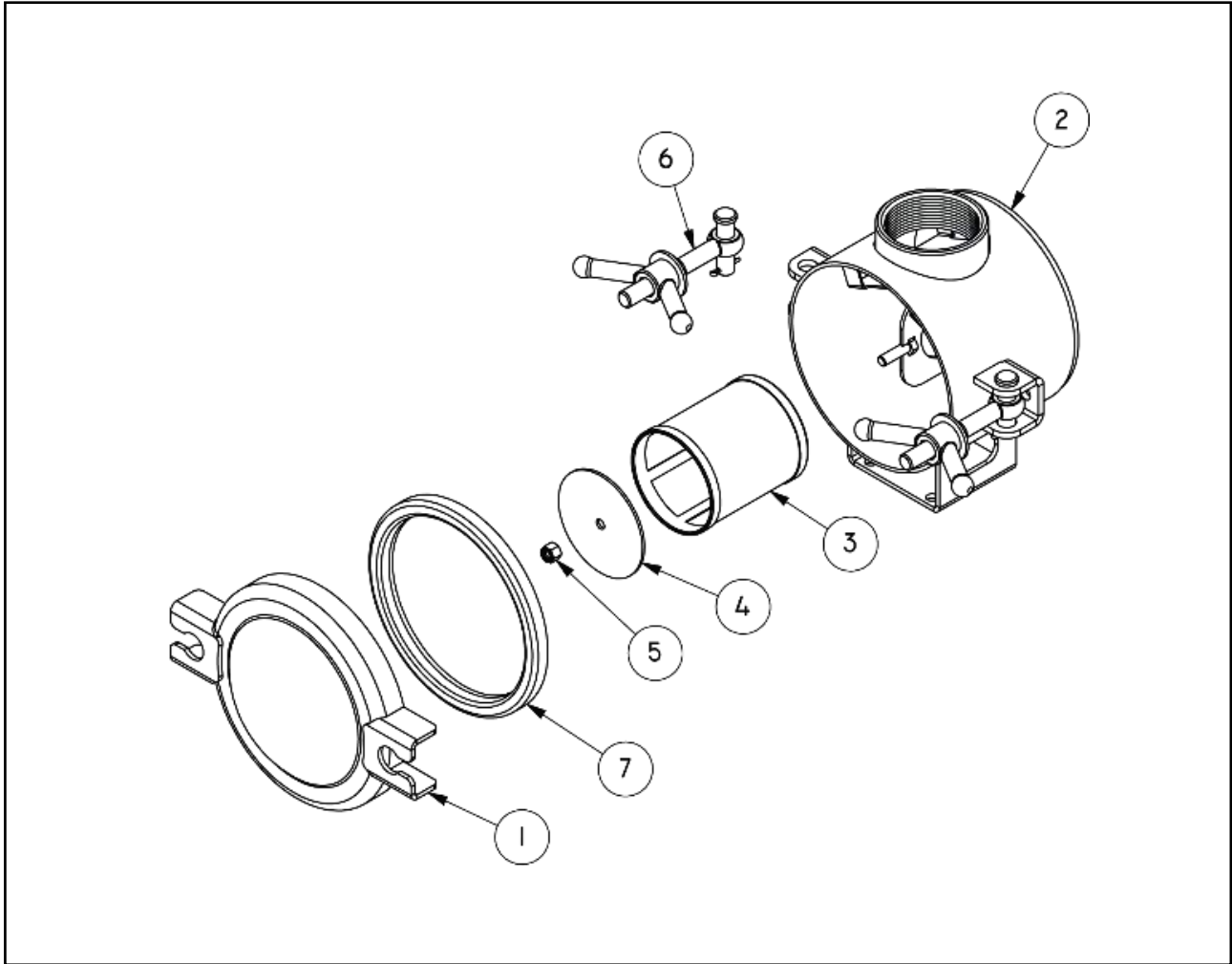
- ▶ Seat the lid onto the gasket and tighten the wingnuts.
- ▶ Start the vacuum pump and draw a vacuum on the tank
- ▶ As the vacuum increases in the tank external pressure will force the lid down. The wingnuts can then be tightened further as the lid has been pulled down into place by the vacuum.

This procedure will ensure a consistent pressure on the gasket.

## Replacement Parts:

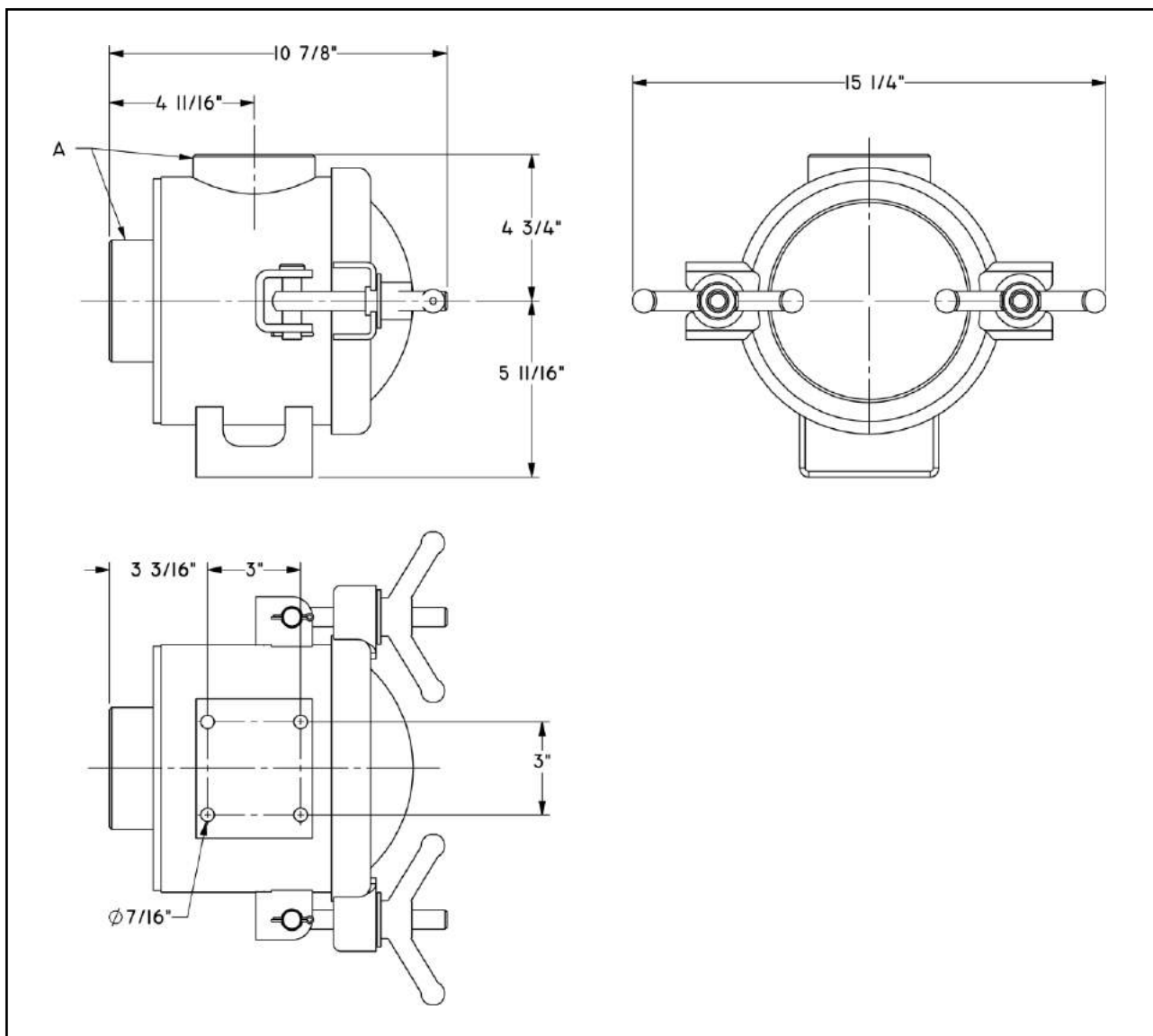
All replacement parts are readily available. Please contact an authorized Masport distributor or Masport directly.

## Exploded View:



Ref	Description	1 1/2" NPT/BSP		3" NPT		3" BSP
		Painted 15134	OEM 15134-1	Painted 15133	OEM 15133-1	Painted 15135
1	Filter Lid	18117	18117-1	18117	18117-1	18117
2	Filter Body	18170	18170-1	18169	18169-1	18171
3	Filter Element	26130	26130	26130	26130	26130
4	Retainer	29245	29245	29245	29245	29245
5	Nut 1/2"	32005	32005	32005	32005	32005
6	Wingnut Assy	32608	32608	32608	32608	32608
7	Gasket	36516	36516	36516	36516	36516

## Dimensional Data:



Ref	1 1/2" NPT/BSP		3" NPT		3" BSP
	Painted 15134	OEM 15134-1	Painted 15133	OEM 15133-1	Painted 15135
A	1 1/2" Female NPT/BSP	1 1/2" Female NPT/BSP	3" Female NPT	3" Female NPT	3" Female BSP

\* OEM Versions Supplied Less Mounting Brackets

## Oil Separator (Muffler)

### Function and Operation:

The Masport Oil Separator is designed as a dual-function separator to remove the oil from the Vacuum Pumps exhaust and as a muffler to reduce the operating sound level of the vacuum system.

To ensure effective operation oil should be drained from the Oil Separator through the ball valve at least twice daily, or every time switching the Vacuum Pump from vacuum to pressure mode.



**Warning!** Do not open the ball valve when the tank is under vacuum or pressure. Doing so will allow contaminants into the pumping system that could cause damage to the Vacuum Pump or expel liquid waste onto the ground and operator.

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Oil removed from the Oil Separator should be disposed of at an appropriate recycling site.

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**Warning!** Do not reuse the oil drained from the Oil Separator in the pump.

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### Positioning:

The Masport Oil Separator should be positioned on the truck in such a way as to be in a vertical position. It should also be mounted high enough to allow the operator to drain it at the end of each pumping operation and between switching the Vacuum Pump from vacuum to pressure mode.

It is recommended that it should also be mounted on the opposite side of the truck from the Vacuum Pump. This is because the Oil Separator is connected to the exhaust of the Vacuum Pump and it is therefore desirable to have in this location to improve the working conditions for the operator away from potentially foul odors and exhaust fumes.

When determining the final location of the Oil Separator, consideration should be given to the location of the Vacuum Pump. By carefully considering the placement of these components before installation, a reduction in plumbing, maintenance and operation costs can be achieved.

### Plumbing:

As shown in the Recommend System Component Diagram, the Oil Separator has an inlet and an outlet.

Whatever the configuration of the vacuum system on your truck or trailer, all components and plumbing must be of adequate size or the system will not operate correctly.

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**Warning!** Do not use a hose smaller than the porting size of the vacuum pump or the airflow will be restricted and the pump may overheat and be damaged.

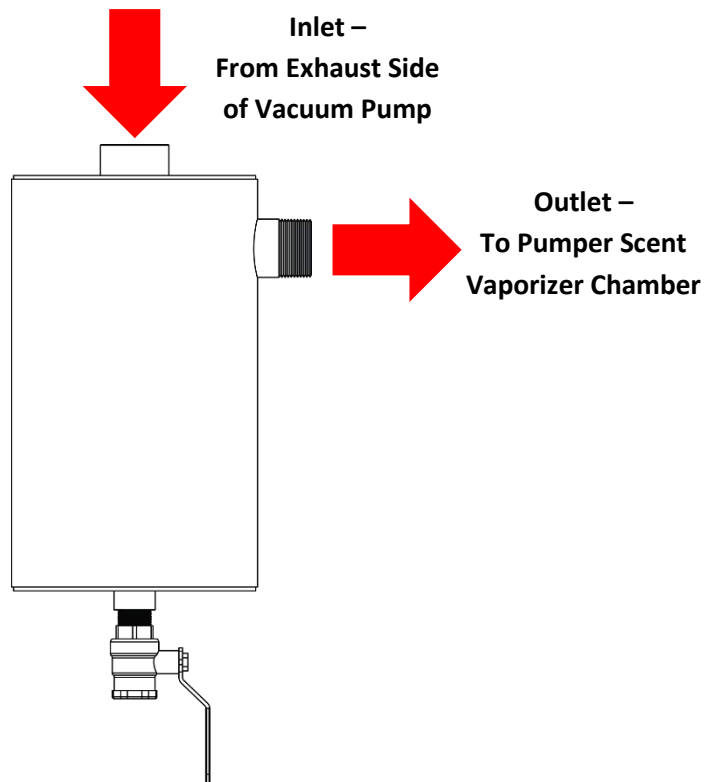
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## Demister Pad Oil Separator:

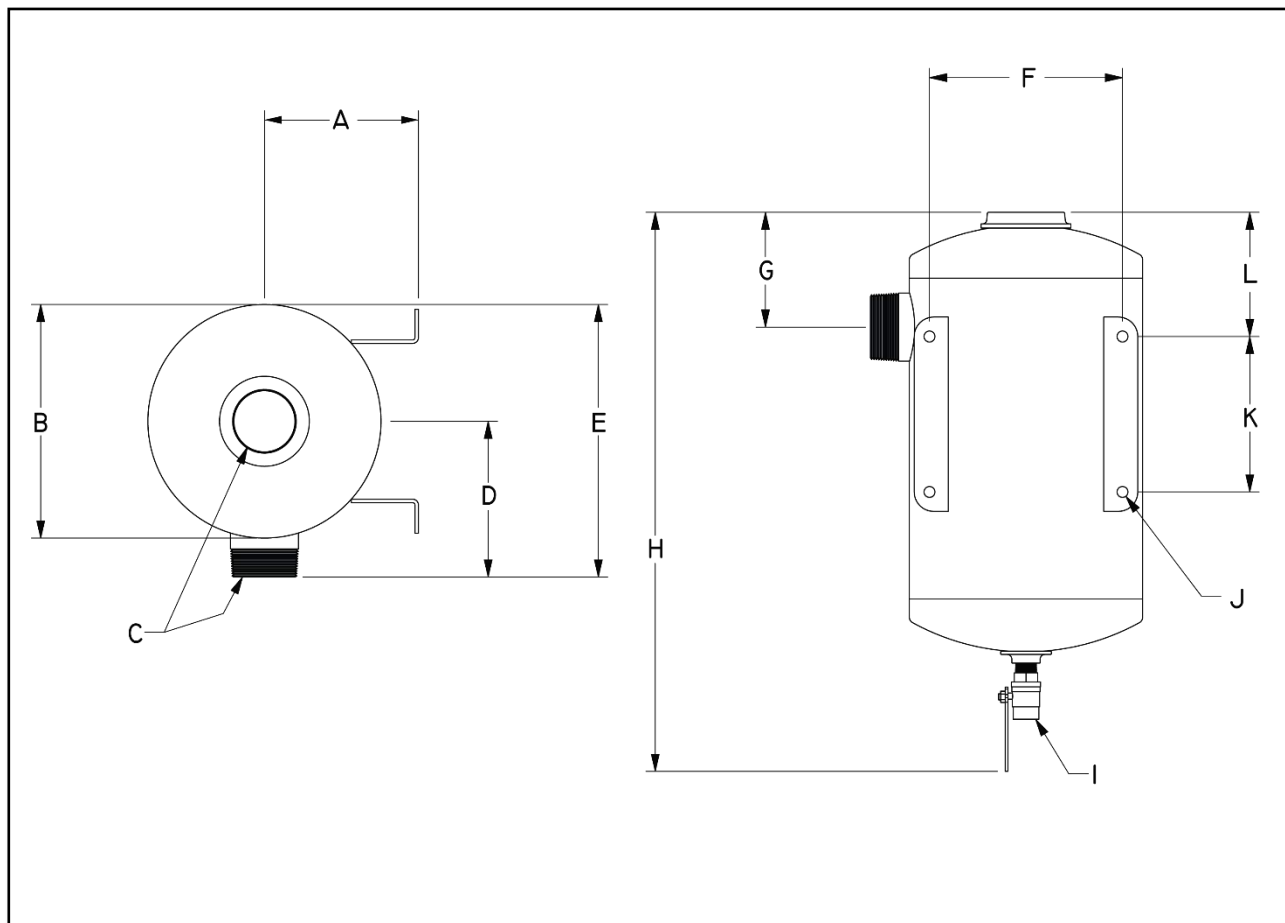
Masport offers two choices of Oil Separators. The first of these, and the recommended choice, is a high efficiency Oil Separator with Demister Pads. For configurations using this Oil Separator the inlet is on top of the Oil Separator and is to be plumbed to the exhaust side of the pump. The outlet is on the side of the body of the Oil Separator and is to be plumbed either to a Pumper Scent Vaporizer Chamber or to a plumbing configuration to direct the exhaust as desired.



**Warning!** When using plumbing off the outlet of the Oil Separator, ensure that a minimum distance of 12" is left between the outlet of the plumbing and the ground. If closer particulate matter can be drawn back into the pump when operating under pressure, and potentially damage the pump.



## Dimensional Data – Vertical Demister Pad:



Ref	1 1/2" NPT/BSP			2" NPT Aluminum 15479	3" NPT		3" BSP Painted 15466-5	4" NPT OEM 15467
	Aluminum 15477	Painted 15472	OEM 15469		Painted 15466	OEM 15466-1		
A		4"			7 15/16"		7 15/16"	
B	8"	8"	8"	8"	12"	12"	12"	12"
C	1 1/2" NPT	1 1/2" NPT	1 1/2" NPT	2" NPT	3" NPT	3" NPT	3" BSP	4" NPT
D	5 3/4"	5 3/4"	5 3/4"	5 3/4"	8"	8"	8"	9 1/2"
E	9 3/4"	9 3/4"	9 3/4"	9 3/4"	14"	14"	14"	14 1/2"
F		6 7/16"			9 15/16"		9 15/16"	
G	3 3/8"	4"	4"	3 3/8"	5 15/16"	5 15/16"	5 15/16"	6"
H	20 7/8"	22 9/16"	22 9/16"	15 3/16"	28 3/4"	28 3/4"	28 3/4"	33 1/2"
I	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
J		9/16"			9/16"		9/16"	
K		8"			8"		8"	
L		3 7/16"			6 3/8"		6 3/8"	

\* OEM and Aluminum Versions Supplied Less Mounting Brackets

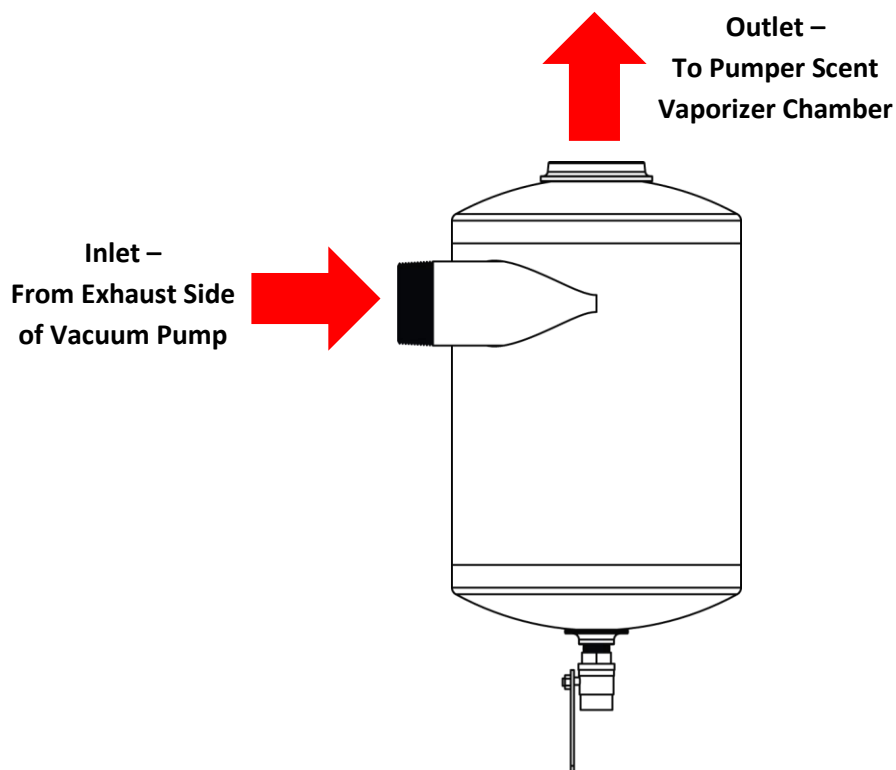


## Baffled Oil Separator:

The second of these is a baffle style Oil Separator. For configurations using this Oil Separator the inlet is tangential to the side of the body of the Oil Separator and it to be plumbed to the exhaust side of the pump. The outlet is on top of the Oil Separator and is to be plumbed either to a Pumper Scent Vaporizer Chamber or to a plumbing configuration to direct the exhaust as desired.



**Warning!** When using plumbing off the outlet of the Oil Separator, ensure that a minimum distance of 12" is left between the outlet of the plumbing and the ground. If closer particulate matter can be drawn back into the pump when operating under pressure, and potentially damage the pump.

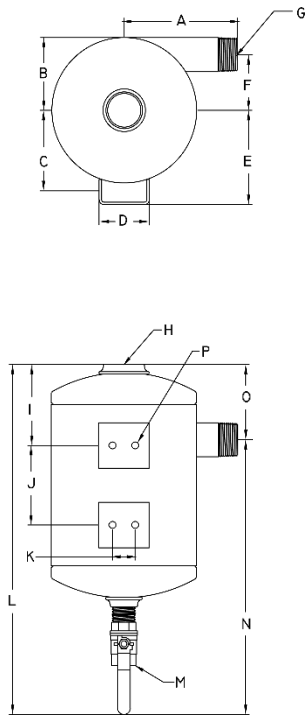


## Service:

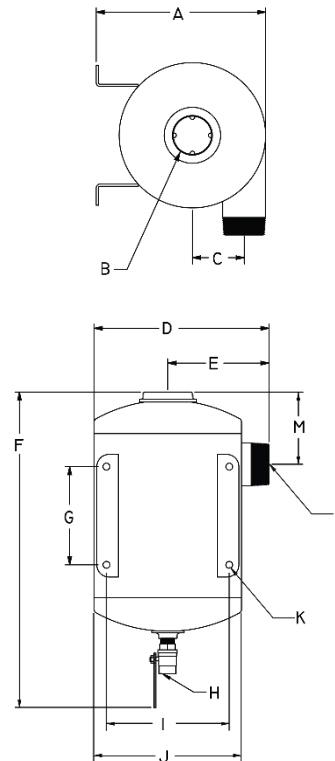
The Oil Separator requires limited servicing and maintenance. If the product you're pumping enters the Oil Separator it is recommended to simply disconnect and wash clean.

## Dimensional Data – Vertical Baffles:

**2 ½" Components**



**3" Components**



Ref	2 1/2" NPT		3" NPT	
	Painted 15463	OEM 16463-1	Painted 15464-3	OEM 15464-4
A	8 3/8"	8 3/8"	13 7/8"	
B	5"	5"	3" NPT	3" NPT
C	5 7/16"		4 1/4"	4 1/4"
D	2 3/4"		14 1/4"	14 1/4"
E	6 1/4"		8 1/4"	8 1/4"
F	3 9/16"	3 9/16"	25 3/4"	25 3/4"
G	2 1/2" NPT	2 1/2" NPT	8"	
H	2 1/2" NPT	2 1/2" NPT	3/4"	3/4"
I	5 1/8"		10"	
J	8 1/2"		12"	12"
K	1 1/4"		3/8"	
L	24 7/8"	24 7/8"	3" NPT	3" NPT
M	3/4"	3/4"	5 7/8"	5 7/8"
N	19 15/16"	19 15/16"		
O	4 15/16"	4 15/16"		
P	3/8"			

\* OEM Versions Supplied Less Fixing Brackets

## Pumper Scent

### Function:

Pumper Scent uses vaporized odor control to deodorize the air exhausted from the Vacuum Pump. When the exhaust air travels through the Vaporizer Chamber, it causes the Pumper Scent Fluid to evaporate. After evaporating, the Pumper Scent molecules attach to the molecules in the air and neutralize the odor.

An Oil Separation device is necessary for any system with a Pumper Scent Chamber because if oil contaminates the Vaporization Chamber the efficiency of the device decreases.

Its use is recommended in environmentally sensitive areas.

### Positioning:

The Pumper Scent Vaporizer Chamber is to be mounted as the last item on the exhaust of your vacuum system.

Whilst versatile as to where it can be positioned, the Vaporizer Chamber needs to be mounted with the fill spout vertical.

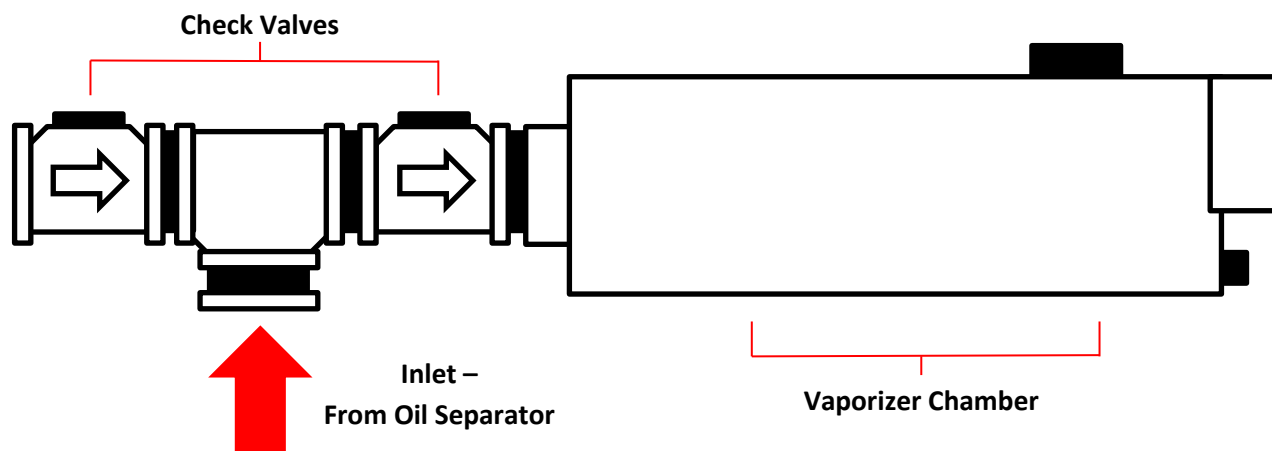
### Plumbing:

As shown in the Recommend System Component Diagram, the Vaporizer Chamber only has an inlet. The inlet is to be plumbed to the Oil Separator.

It is important that two swing check valves are installed in line with the Vaporizer Chamber so that no Pumper Scent Oil is sucked into the pump when in pressure mode.



**Warning!** If Pumper Scent Fluid get into the pump it can cause the vanes to stick in the rotor and the pump may overheat and be damaged.



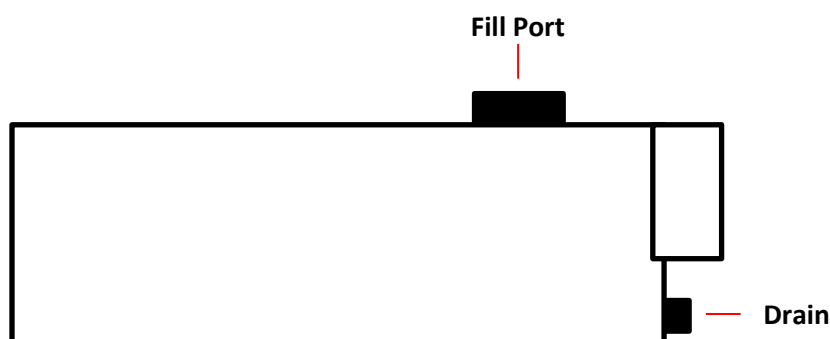
Whatever the configuration of the vacuum system on your truck or trailer, all components and plumbing must be of adequate size or the system will not operate correctly.



**Warning!** Do not use a hose smaller than the porting size of the vacuum pump or the airflow will be restricted and the pump may overheat and be damaged.

## Operation:

Before the first use of any Pumper Scent a specified amount of Pumper Scent Fluid needs to be put into the Vaporizer Chamber. This is referred to as the Initial Charge. Every size chamber has a specific amount necessary. Pour the Pumper Scent Fluid through the 2" fill port located on top of the Vaporizer Chamber.



The below table details the Initial Charge for each size chamber:

Product Number	Plumbing Size	Dimensions	Initial Charge
15613	1 ½"	6" x 6" x 20"	½ Quart
15625	2"	6" x 6" x 20"	1 Quart
15611	3"	8" x 8" x 24"	1 Quart

Refilling or Recharging the Vaporizer chamber with Pumper Scent Fluid is only necessary when the Odor Reappears. The below table details the Recharge for each size chamber:

Product Number	Plumbing Size	Dimensions	Recharge
15613	1 ½"	6" x 6" x 20"	¼ Quart
15625	2"	6" x 6" x 20"	½ Quart
15611	3"	8" x 8" x 24"	½ Quart

## Service:

The Vaporizer Chamber requires limited servicing and maintenance. For best performance it is recommended to annually drain and clean the Vaporizer Chamber.

## Relief Valves



**Warning!** Operating your system without properly installed Vacuum and Pressure Relief Valves in good working order could lead to equipment damage or catastrophic failure resulting in severe injury.

### Vacuum Relief Valve:

The Vacuum Relief Valve governs the operating vacuum level. If not included with the pump, a Vacuum Relief Valve should be installed between the Secondary Moisture Trap and the Vacuum Pump. This valve will serve to protect the pump from damage due to overheating in the event that the float-balls in either the Primary or Secondary Trap are activated by the tank being filled at a time when the operator is not immediately available to stop the system.

For optimum pump life and performance the Vacuum Relief Valve should be set at a maximum continuous working vacuum level for each Masport Vacuum Pump as detailed in the table below:

Pump	Vacuum Relief Valve Setting (at Sea Level)
HXL2	20 "Hg
HXL3	20 "Hg
HXL4	20 "Hg
HXL5	20 "Hg
HXL75	20 "Hg
HXL75W	25 "Hg

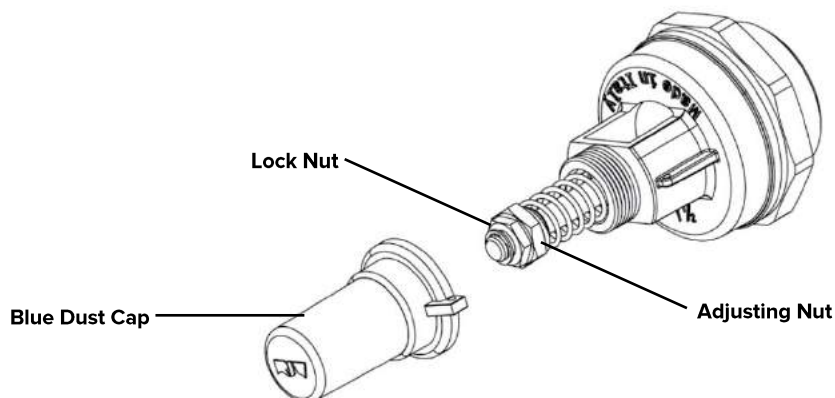
Pump	Vacuum Relief Valve Setting (at Sea Level)
HXL15	20 "Hg
HXL15W	25 "Hg
HXL400W	25 "Hg
Titan	22 "Hg
Sidewinder	22 "Hg
Hydra	25 "Hg

The working vacuum level should be decreased by 1" Hg for every 1,000ft of elevation.

To set the Vacuum Relief Valve:

- ▶ Unscrew and remove the Blue Dust Cap;
- ▶ Loosen the Lock Nut and adjust the vacuum level by increasing or decreasing spring tension with the Adjusting Nut; and
- ▶ When the vacuum level is set retighten the Lock Nut and screw the Blue Dust Cap back on.

The Vacuum Relief Valve setting should be verified by using a quality liquid filled vacuum gauge.



## Pressure Relief Valve:

The Pressure Relief Valve regulates the amount of pressure the system is exposed to. It should be located between the Secondary Moisture Trap and the Vacuum Pump on the clean side of the system.

It is recommended to set the Pressure Relief valve below 15 PSI. This level is adequate in majority of applications.

For pressure settings above 15 PSI the tank manufacturer should be consulted for recommended operating pressures.

To set the Pressure Relief Valve consult the manufacturers setup guide.

## Maintenance and Important Operating Tips

To keep the pump in a workable condition operators should undertake regular maintenance and keep a written log of those checks.

### Before Starting:

- ▶ Ensure a vacuum relief valve and a pressure relief valve are installed in the system and adjusted to recommended settings, taking into account the altitude of the job location.
- ▶ Always bleed the tank to atmospheric pressure before switching the valve from vacuum to pressure or from pressure to vacuum.

### Every Load:

- ▶ Drain the scrubber after each tank load. If nothing drains when the ball valve is opened never assume it is empty, check for a blockage in the valve.
- ▶ Check the oil level in the oil reservoir, and fill as required.
- ▶ Monitor vacuum/pressure and temperature gauges to detect any irregularities or problems.

### Daily:

- ▶ Add oil approximately every 10 hours of operation or when the oil reservoir shows the level is low. Only use approved lubricants.
- ▶ Drain the oil separator twice daily or every time switching the Vacuum Pump from vacuum to pressure mode. A brass ball valve is mounted at the bottom for easy draining.

### Weekly:

- ▶ Flush the pump weekly with Masport Flushing Fluid, or anytime liquids or solids have been allowed to enter the pump.
- ▶ Check and clean the Inlet Filter. Ensure the filter is completely dry before refitting. This checking process must be done anytime contamination may have entered the system.
- ▶ Check to ensure the pump RPM is within the recommended range. Running the pump too fast or too slow may cause damage.

- ▶ Wash any dirt off the pump as it needs to be clean to allow heat to radiate and prevent it from overheating.

## **Annually:**

- ▶ Check bolt mountings, drive coupling alignment and condition, and vane wear.

## **Storage:**

- ▶ If the pump is to be sitting for an extended period of time it needs to be flushed prior to storage. After flushing, pour oil into all bearing lubrication ports to protect the bearing surfaces and oil injection points on the pump to eliminate rust formation on the rotor and cylinder.
- ▶ Rotate by hand monthly to distribute oil.

## **For Safe Operation:**

- ▶ Never use the pump to move flammable or highly caustic material.
- ▶ Do not open any ball valve on any components when the tank is under vacuum, as this will cause foreign material to enter the pump.
- ▶ Do not over speed or under speed the pump as either will cause overheating.
- ▶ Do not engage power take off at high RPM. Only engage at idle.
- ▶ Always disengage the pump when driving to or between job sites.
- ▶ Do not reuse the oil drained from the oil separator. Take it to an appropriate recycling site.
- ▶ Never run the pump without oil.
- ▶ Never spin the pump backwards.
- ▶ Never remove the stub shafts from the rotor. The rotor has been machined as a complete unit for exact balance. Removing the stub shafts will destroy the factory-set clearances and balance.
- ▶ No maintenance should be undertaken, or parts be removed if there is either pressure or vacuum in the tank.



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