



*Always Innovative. Always Reliable.*

*Experience, Trust, Service*

## 286 Airline Filter

Operator's Manual #1090045 - February 14, 2011



**▲ WARNING**

Before using this equipment, read, understand and follow all instructions in the Operator's Manuals provided with this equipment. If the user and/or assistants cannot read or understand the warnings and instructions, the employer of the user and/or assistants must provide adequate and necessary training to ensure proper operation and compliance with all safety procedures pertaining to this equipment. If Operator's Manuals have been lost, contact your distributor or call 563.324.2519 for replacements. Failure to comply with the above warning could result in death or serious injury.

### Vision Statement

To be the world's first choice for Abrasives, Blasting Equipment, Engineered Systems, Painting Equipment, Rental Equipment, Safety Equipment, and Service & Repair.

### Mission Statement

To provide leadership and innovation to the surface preparation industry. We will dedicate our efforts to the continuous improvement of our products, services, processes, people and most importantly the quality of our Customer's experience.

### Quality Statement

Marco is committed to providing superior quality in the design, manufacturing, distribution and service of our products. As an ISO 9001:2008 registered company, Marco's quality systems assure our products will meet or exceed our Customer's expectations. Continuous Improvement in our processes and Supply Chain Integration comprise the core of our Business Strategy for delivering exceptional quality and value in every Marco product and service.

### Management Philosophy

We are a Company dedicated to the success of every Customer and Associate. We will discuss, debate, challenge, measure and test our ideas. We will be boundless and limitless in our passion to improve. Through sound leadership and dedicated associates, we will ensure a long term, profitable future for Marco, our Associates, Customers and Suppliers.

### Table of Contents

- ▶ Definition of Terms ..... 1
- ▶ Hazard Identifications ..... 2-4
- ▶ Media Consumption Chart..... 5
- ▶ Company Profile ..... 6
- ▶ Daily Pre-Operation Checklist ..... 7-8
  
- ▶ 286 Airline Filter..... 9-17
  - Description & Features..... 9
  - Operational Requirements ..... 9
  - Operating Instructions ..... 9-10
  - Maintenance..... 11-12
  - Troubleshooting ..... 13
  - Schematics..... 14-17
  
- ▶ Warranty ..... 18
  - Disclaimer of Warranty..... 18
  - Exclusive Remedies for Warranty Claims ... 18
  - Limitation of Remedies..... 18

## Definition of Terms

#### **DANGER**

THIS IS AN EXAMPLE OF DANGER. THIS INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

#### **CAUTION**

THIS IS AN EXAMPLE OF A CAUTION. THIS INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY. IT CAN ALSO BE USED TO ALERT AGAINST UNSAFE PRACTICES.

#### **WARNING**

THIS IS AN EXAMPLE OF A WARNING. THIS INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.

#### **NOTICE**

THIS IS AN EXAMPLE OF A NOTICE. THIS INDICATES POLICY OR PRACTICE DIRECTLY RELATED TO SAFETY OF PERSONNEL OR PROTECTION OF PROPERTY.

**⚠ WARNING****Failure to comply with ANY WARNING listed below could result in death or serious injury.**

- ▶ Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during blasting operations, post-blast cleaning operations, and/or servicing equipment within the blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from medias or surfaces being blasted can remain suspended in the air for long periods of time after blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone blasting, handling or using the media, and anyone in the area of the dust.
- ▶ Contact NIOSH and OSHA offices to determine the proper respirator for your specific application. The air supplied to the respirator must be at least Grade D quality as described in Compressed Gas Association Commodity Specification G-7.1 and as specified by OSHA Regulation 1910.134. Ensure air filter and respirator system hoses are not connected to non-air sources or in-plant lines that may contain nitrogen, oxygen, acetylene or other non-breathable gases. Before removing respirator, use an air monitoring instrument to determine if the atmosphere is safe to breathe.
- ▶ You must comply with all OSHA, Local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment. Keep unprotected individuals out of the work area.
- ▶ Blast operators must receive thorough training on the use of media resistant attire which includes: supplied-air respirator, blast suit, safety shoes, gloves, ear protection and eye protection. Protect the operator and bystanders by complying with NIOSH and OSHA Safety Standards.
- ▶ Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions.
- ▶ OSHA requires blast-cleaning nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (i.e., a "deadman" control). The valve shall not be modified in any manner that would allow it to remain open without the application of continuous hand pressure by the operator. Failure to comply with the above warning could result in release of high speed media and compressed air resulting in death or serious injury. (OSHA 29 CFR 1910.244(b))
- ▶ Point the blast nozzle only at the surface being blasted. Never point the blast nozzle or media stream at yourself or others.
- ▶ Unless otherwise specified, maximum working pressure of Blast Pots and related components must not exceed 125 PSI. Exceeding maximum working pressure of 125 PSI could cause the Blast Pot and components to burst.
- ▶ Never weld, grind or drill on the Blast Pot (or any pressure vessel). Doing so will void ASME certification and manufacturer's warranty. Welding, grinding or drilling on the Blast Pot (or any pressure vessel) could weaken the vessel causing it to burst. (ASME Pressure Vessel Code, Section VIII, Division 1)
- ▶ This equipment is not intended for use in any area that might be considered a hazardous location, as described in the National Electric Code NFPA 70, Article 500. Use of this equipment in a hazardous location could cause an explosion or electrocution.
- ▶ Never hang objects from the Blast Pot handle. Doing so may cause the Blast Pot to become unstable and tip over.

**⚠ WARNING****Failure to comply with ANY WARNING listed below could result in death or serious injury.**

- ▶ This product is not for use in wet environments. Always use a Ground Fault Interrupter Circuit (GFCI) for all electrical power source connections. Use of this product in wet environments could create a shock hazard.
- ▶ Frozen moisture could cause restrictions and obstructions in pneumatic control lines. Any restriction or obstruction in the pneumatic control lines could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed media and compressed air. In conditions where moisture may freeze in the control lines an antifreeze injection system approved for this application can be installed.
- ▶ Do not cut, obstruct, restrict or pinch pneumatic control lines. Doing so could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed media and compressed air.
- ▶ Never attempt to move a Blast Pot containing media. Never attempt to manually move Blast Pots greater than 1.0 Cubic Foot capacity. Always use at least two capable people to manually move a Blast Pot on flat, smooth surfaces. A mechanical lifting device must be used if a Blast Pot is moved in any other manner.
- ▶ Use of Marco remote control switches with other manufacturer's remote control systems could cause unintended activation of remote control systems resulting in the release of high speed media and compressed air. Only Marco remote control switches should be used with Marco remote control systems.
- ▶ Always be certain to have secure footing when blasting. There is a recoil hazard when blasting starts that may cause user to fall and misdirect the media stream at operator or bystander.
- ▶ Never use a Blast Pot or attachments as a climbing device. The person could slip and fall. The Blast Pot could become unstable and tip over.
- ▶ The use of this product for any purpose other than originally intended or altered from its original design is prohibited.
- ▶ For equipment manufactured by entities other than Marco, you must consult the Original Equipment Manufacturer operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment.
- ▶ Flammable fumes, such as solvent and paint fumes in the work area can present an ignition or explosion hazard if allowed to collect in adequate concentrations. To reduce conditions that could result in a fire or an explosion, provide adequate ventilation, eliminate all ignition or spark sources, keep the work area free of debris, store solvents and solvent contaminated rags in approved containers, follow proper grounding procedures, do not plug/unplug power cord or turn on/off power switches when flammable fumes are present, keep a working fire extinguisher or provide another fire suppression system in the work area. Cease all operations and correct condition if a spark or ignition source is identified during operation.
- ▶ Always depressurize the entire system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.
- ▶ Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.
- ▶ Surfaces of heated supply tanks, drums and/or lines as well as the adjoining plumbing may become hot during normal use. Do not touch these heated surfaces without proper protection. Deactivate and allow sufficient time for all surfaces to cool before attempting any maintenance.

**⚠ WARNING****Failure to comply with ANY WARNING listed below could result in death or serious injury.**

- ▶ High-pressure fluid from gun, hose leaks, or ruptured components can pierce skin and can cause a serious injury that may result in amputation. Do not point gun or spray tip at anyone or at any part of the body. Keep clear of any leaks or ruptures. Depressurize the entire system before attempting cleaning, inspecting, or servicing equipment.
- ▶ Exposure to toxic fluids or fumes may occur during the normal operation of this system. Before attempting to fill, use, or service this system, read MSDS's to know the specific hazards of the fluids you are using. Always use proper Personal Protective Equipment when attempting to fill, use, or service this system.

**⚠ CAUTION****Failure to comply with ANY CAUTION listed below may result in minor or moderate injury.**

- ▶ Static electricity can be generated by media moving through the blast hose causing a shock hazard. Prior to use, ground the Blast Pot and blast nozzle to dissipate static electricity.
- ▶ High decibel noise levels are generated during the blasting process which may cause loss of hearing. Ensure appropriate Personal Protective Equipment and Hearing Protection is in use.
- ▶ See Media Consumption Chart for consumption rates and required air flow (cubic feet per minute). The system must meet these minimum requirements to ensure proper function and performance.

**NOTICE****Failure to comply with ANY NOTICE listed below could pose a hazard to personnel or property.**

- ▶ Always use media that is dry and properly screened. This will reduce the potential for obstructions to enter the remote control system, metering valve and blast nozzle.
- ▶ Moisture build-up occurs when air is compressed. Any moisture within the blast system will cause medias to clump, clogging metering valves, hoses and nozzles. Install an appropriately sized moisture separator at the inlet of the Blast Pot. Leave the moisture separator petcock slightly open to allow for constant release of water. If insufficient volume of air exists and petcock is unable to be left open (at all times) petcock should be opened frequently to release water.
- ▶ To reduce media intrusion in the air supply hose, depressurize the Blast Pot before shutting off air supply from compressor.
- ▶ Inspect nozzle before placing in service. Damage to nozzle liner or jacket may occur during shipping. If you receive a damaged nozzle, contact your distributor immediately for replacement. Nozzles placed into service may not be returned. Nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a damaged blast nozzle.
- ▶ Blasting at optimal pressure for the media used is critical to productivity. Example: for a media with an optimal blasting pressure of 100 PSI at the nozzle, one pound per square inch of pressure loss will reduce blast efficiency by 1.5%. A 10 PSI reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your media supplier for the requirements of your media.
- ▶ Replace Blast Nozzle if liner or jacket is cracked or damaged. Replace nozzle if original orifice size has worn 1/16" or more. Determine nozzle wear by inserting a drill bit 1/16" larger than original size of nozzle orifice. If drill bit passes through nozzle, replacement is needed.



**NOTICE**

Failure to comply with ANY NOTICE listed below could pose a hazard to personnel or property.

- ▶ See Media Consumption Chart for consumption rates and required air flow (cubic feet per minute). The system must meet these minimum requirements to ensure proper function and performance.
- ▶ When it comes to media & air mixtures, more is not necessarily better. Optimum blasting efficiency takes place when a lean media & air mixture is used. To correctly set the metering valve, begin with the valve fully closed and slowly increase the amount of media entering the airstream. As you increase the media flow, watch for a "blue flame" (Figure 1) at the exit of the nozzle. Faster cutting, reduced media consumption and lower clean-up costs, are benefits of the "blue flame".
- ▶ Blasting at optimal pressure for the media used is critical to productivity. Example: for a media with an optimal blasting pressure of 100 PSI at the nozzle, one pound per square inch of pressure loss will reduce blast efficiency by 1.5%. A 10 PSI reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your media supplier for the requirements of your media.

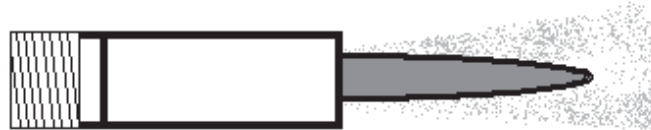


Figure 1

Media Consumption Chart\*

**NOTICE**

Inspect nozzle before placing in service. Damage to nozzle liner or jacket may occur during shipping. If you receive a damaged nozzle, contact your distributor immediately for replacement. Nozzles placed in to service may not be returned. Nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a damaged blast nozzle.

Nozzle Orifice	Pressure at the Nozzle (PSI)								Air (in cfm), Media & Compressor Requirements
	50	60	70	80	90	100	125	140	
No. 2 (1/8")	11	13	15	17	18	20	25	28	Air (cfm)
	67	77	88	101	112	123	152	170	Media (lbs/hr)
	2.5	3	3.5	4	4.5	5	5.5	6.2	Compressor Horsepower
No. 3 (3/16")	26	30	33	38	41	45	55	62	Air (cfm)
	150	171	196	216	238	264	319	357	Media (lbs/hr)
	6	7	8	9	10	10	12	13	Compressor Horsepower
No. 4 (1/4")	47	54	61	68	74	81	98	110	Air (cfm)
	268	312	354	408	448	494	608	681	Media (lbs/hr)
	11	12	14	16	17	18	22	25	Compressor Horsepower
No. 5 (5/16")	77	89	101	113	126	137	168	188	Air (cfm)
	468	534	604	672	740	812	982	1100	Media (lbs/hr)
	18	20	23	26	28	31	37	41	Compressor Horsepower
No. 6 (3/8")	108	126	143	161	173	196	237	265	Air (cfm)
	668	764	864	960	1052	1152	1393	1560	Media (lbs/hr)
	24	28	32	36	39	44	52	58	Compressor Horsepower
No. 7 (7/16")	147	170	194	217	240	254	314	352	Air (cfm)
	896	1032	1176	1312	1448	1584	1931	2163	Media (lbs/hr)
	33	38	44	49	54	57	69	77	Compressor Horsepower
No. 8 (1/2")	195	224	252	280	309	338	409	458	Air (cfm)
	1160	1336	1512	1680	1856	2024	2459	2754	Media (lbs/hr)
	44	50	56	63	69	75	90	101	Compressor Horsepower
No. 10 (5/8")	308	356	404	452	504	548	663	742	Air (cfm)
	1875	2140	2422	2690	2973	3250	3932	4405	Media (lbs/hr)
	68.5	79.5	90	100.5	112	122	146	165	Compressor Horsepower
No. 12 (3/4")	432	504	572	644	692	784	948	1062	Air (cfm)
	2672	3056	3456	3840	4208	4608	5570	6238	Media (lbs/hr)
	96	112	127	143	154	174.5	209	236	Compressor Horsepower

\*Media consumption is based on media with a bulk density of 100 lbs per Cu. Ft.

**NOTICE**

Replace Blast Nozzle if liner or jacket is cracked or damaged. Replace nozzle if original orifice size has worn 1/16" or more. Determine nozzle wear by inserting a drill bit 1/16" larger than original size of nozzle orifice. If drill bit passes through nozzle, replacement is needed.

## Company Profile

Since 1944, Marco has developed a strong tradition of providing innovative and reliable products and services to the surface preparation industry. We are committed to being the world's first choice for Abrasives, Blasting Equipment, Engineered Systems, Painting Equipment, Rental Equipment, Safety Equipment, and Service & Repair.

Our customers expect, and deserve to leverage our experience, unsurpassed customer service, and leadership in the surface preparation industry. We continually respond to this challenge through continuous improvement of our products, services, processes, and people in order to maximize the quality of our customer's experience.

We are fully staffed to serve the North American and global export markets. Our people and warehouses are strategically located to provide optimal performance and the most expeditious service to you and your customer. We also understand the demands of today's intense working environment which is why we are available via the web on a 24/7 basis.

To ensure the highest level of quality in the design, manufacturing, distribution, and service of our products, Marco is an ISO 9001:2008 registered company. Our commitment to quality ensures that our products will meet or exceed our customer's expectations.

## The Marco Difference

### » Technology

We are committed to expanding our level of customer support through the latest advancements in technology. In addition to phone, fax, and Internet support, we have a password protected Extranet called Marco Select; this can be used for quoting, ordering, or reviewing order history.

### » Customer Service

We understand the demands of today's intense working environment; that is why our legendary customer service is a cornerstone of Marco. We pride ourselves on our experienced Customer Service Associates who maximize the quality of our customer's experience.

### » Manufacturing

We are the leading manufacturer of surface preparation products in North America. We are the only manufacturer selling direct to you. Our products are Built Marco Tough; that means Marco has complete control of the entire engineering, manufacturing, and warranty processes.

### » Sales

We are fully staffed to serve North America and global export markets. Our dedicated Account Managers are the best trained in the industry and can assist you with the technical features and benefits of our products as well as pricing & logistics.

### » Inventory

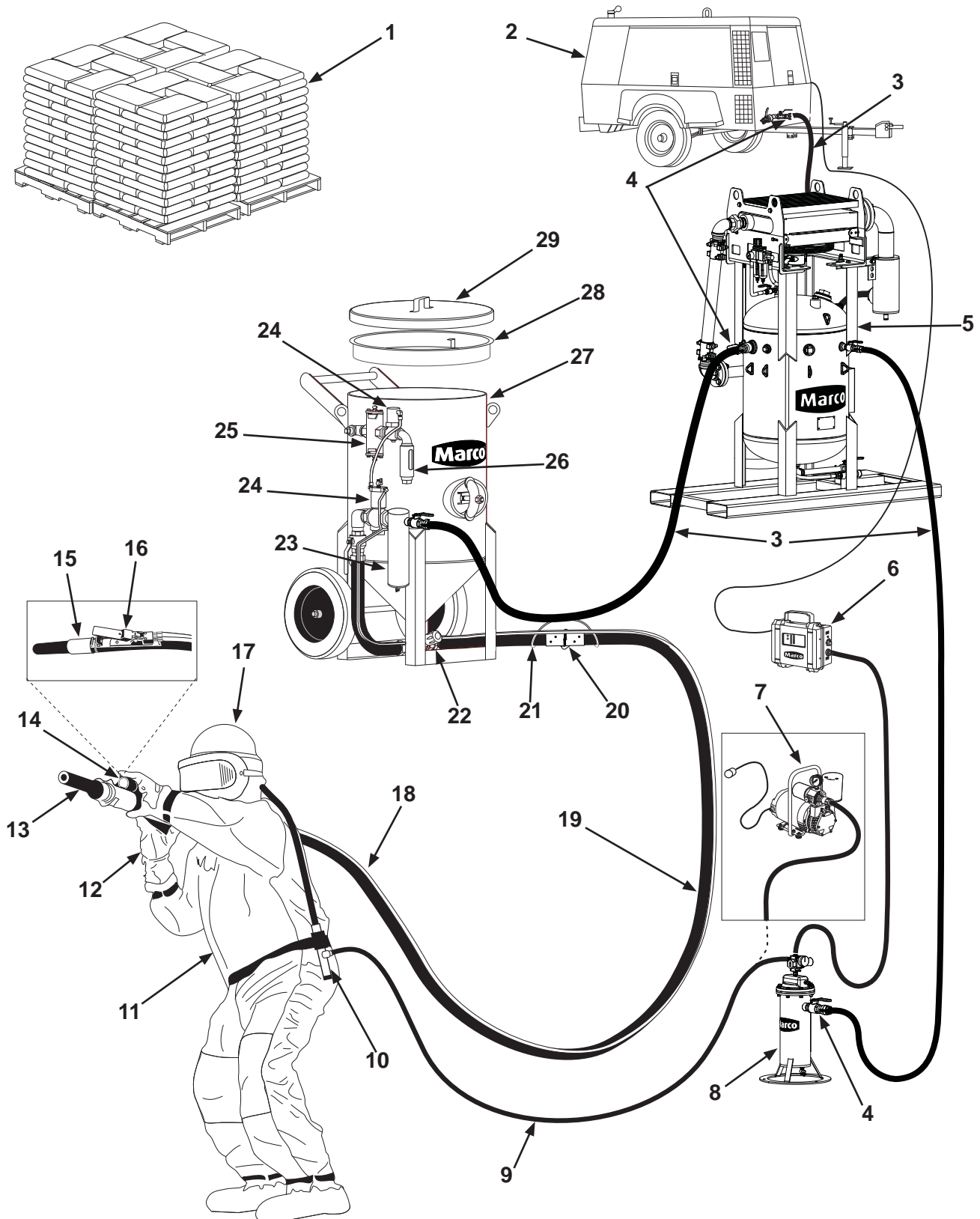
Our product selection and inventory is unmatched. We stock thousands of SKUs in our strategically located distribution centers. Marco ships 99.9% of in-stock products the same day they are ordered.

### » Logistics

We have an in-house logistics team dedicated to moving truckload and LTL shipments throughout the country on time and at the lowest cost to you. We move over 14,000 truckloads of abrasives per year.



## "The Big Picture"





## Daily Pre-operation Checklist

### Daily Pre-operation Checklist

- 1. Abrasive Media
- 2. Compressor
- 3. Air Hose
- 4. Air Hose Couplings & Gaskets
- 5. Aftercooler\*
- 6. CO Monitor
- 7. Ambient Air Pump\*
- 8. Breathing Air Filter
- 9. Breathing Line
- 10. Climate Control Device
- 11. Media Resistant Blast Suit
- 12. Blasting Gloves
- 13. Blast Nozzle
- 14. Blast Light\*
- 15. Blast Nozzle Holder
- 16. "Deadman" Switch
- 17. Blast Helmet
- 18. Control Line
- 19. Blast Hose
- 20. Blast Hose Couplings & Gaskets
- 21. Whip Check Cable
- 22. Metering Valve
- 23. Moisture Separator
- 24. Remote Control System
- 25. Abrasive Trap
- 26. Exhaust Muffler
- 27. Blast Pot
- 28. Blast Pot Screen
- 29. Blast Pot Lid

\* *Optional or alternative device.  
Ask your Marco Representative  
for more details.*

**Abrasive Media** (1) - Select the correct abrasive media (1) for the application. Review the MSDS (*Material Safety Data Sheet*) to assure the correct PPE (*Personal Protective Equipment*) and Environmental Controls have been selected and in place.

**Compressor** (2) - Select an air compressor (2) of adequate size to support all of your requirements. Refer to "Media Consumption Chart" for nozzle air requirements. Run a "Blotter Test" before connecting the Air Hose to confirm clean air is being supplied.

**Air Hoses, Couplings and Gaskets** (3,4) - Select air hoses (3) of sufficient size to support all subsequent volumetric requirements and with a sufficient PSI (*pound per square inch*) rating. Inspect all couplings and gaskets (4) for wear or damage.

**Aftercooler with Coalescing Tank and Moisture Separator** (5, 23) - Assure Aftercooler (5) is positioned on stable ground. Keep petcock on Moisture Separator (23) cracked slightly open during use. Drain both devices after each use.

**CO Monitor** (6) - Follow ALL manufacturer's instructions regarding installation, operation, inspection, and calibration of your CO (*carbon monoxide*) monitor (6).

**Ambient Air Pump** (7) - If an Ambient Air Pump (7) is used to supply breathing air, follow ALL manufacturer's instructions regarding installation, operation, inspection, and maintenance of the device.

**Breathing Air Filter** (8) - Follow ALL manufacturer's instructions regarding installation, operation, inspection, and maintenance for your Breathing Air Filter (8).

**Blast Suit and Gloves** (11, 12) - Select a Blast Suit (11) that is slightly oversized to allow ease of movement and allows air to flow around your body. Select an abrasive resistant Blast Gloves (12) with a tight fit and a long cuff that overlaps the sleeve of the Blast Suit (11).

**Blast Helmet, Climate Control Device, and Breathing Line** (9, 10, 17) - Inspect all components before each use. Repair or replace and damaged or worn components. You MUST consult the Operator's Manual supplied with your Respirator System for ALL applicable Instructions and Warnings.

**Blast Light** (14) - Assure the Blast Light (14) is connected to a proper power supply before use.

**Deadman Switch, Control Line, Blast Hose, Nozzle Holder, Couplings and Gaskets** (15, 16, 18, 19, 20) - Select a blast hose that has an I.D. 3 to 4 time larger than your blast Nozzle. Inspect each component before use.

**Whip Check Cables** (21) - Install a Whip Check Cable (21) at every connection point.

**Metering Valve, Remote Control System, and Blast Pot** (22, 24, 27) - Confirm Blast Pot (27) is positioned on stable ground. Confirm all fitting connected to the Remote Control System (24) are tight. Adjust Metering Valve (22) to supply the correct flow of abrasive.

**Abrasive Trap and Exhaust Muffler** (25, 26) - Inspect and empty Abrasive Trap (25) frequently. Inspect Exhaust Muffler (26) at start and end of daily use. Replace Muffler Element frequently.

**Blast Pot Screen and Lid** (28, 29) - Always use a Blast Pot Screen (28) when filling Blast Pot (27) to reduce the chance of contamination of the Abrasive (1). Remove Lid (29) before operating the Blast Pot (27). Replace Lid (29) after use to protect Blast Pot's (27) interior.

**⚠ WARNING**

Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions. Failure to comply with the above warning could result in death or serious injury.

**⚠ WARNING**

The use of this product for any purpose other than originally intended or altered from its original design is prohibited. Failure to comply with the above warning could result in death or serious injury.

**⚠ WARNING**

Air supplied to the airline filter should not exceed 140° Fahrenheit. Degradation of filter components may reduce the supplied air quality below Grade D. Failure to comply with the above warning could result in death or serious injury.

**NOTICE**

Leave the airline filter petcock slightly open to allow for constant release of water from filter body.

## Description

Always Innovative. Always Reliable. That's Marco's Promise to you, our Customer. Clean, dry compressed air is an important element for production and safety considerations. The 286 Airline Filter is a critical element in the preparation of compressed air for use as a source for breathing air or powering pneumatic tools. A seven stage filtration process removes moisture, oil mist, odor and particulates efficiently.

Built with a rugged stabilizing ring base, and three stout legs, the 286 Airline Filter resist tipping on most surfaces. The 286 Airline Filter offers application versatility with three configurations to best fit your specific applications, which includes a 2 or 6 outlet design with regulator, and a single 1" full port, non-regulated outlet design.

Eight bolts secure the lid against the sealing flange of the filter cartridge eliminating the need for gaskets or O-rings. The anti-tip ring has three bolt holes allowing for mounting to a solid surface. The 286 Airline Filter is constructed of heavy gauge steel with a long-lasting powder coat for superior durability.

### Features:

- Anti-tip ring base for improved stability
- Offset petcock placement for easy access
- Available in 1, 2, or 6 outlet configurations
- Capable of filtering up to 100 CFM at 100 PSI efficiently
- Bolt holes in base ring allows for easy mounting
- Accepts filter cartridges with an 8 bolt pattern
- Powder coat finish to resist the elements

## Operational Requirements

**The 286 Airline Filter is effective and durable under intended use conditions.**

**The following may cause safety hazards or reduced performance:**

- Improper installation and/or maintenance of components.
- Incorrect disassembly and/or incorrect reassembly.
- Attaching Airline Filter to an improper supply source.
- Failure to replace Filter Cartridge when necessary.
- Not ensuring Airline Filter is upright and situated on flat, stable ground.
- Improper air supply pressure (125 PSI maximum).
- Excessive temperature of air supplying unit (140° F maximum).

## Operating Instructions

### Fig. 2

#### Before using:

- Inspect components for damage. Replace any damaged components before use.
- Ensure Airline Filter Cartridge is installed correctly and all Lid Bolts are tight.
- Ensure all fittings are secure.
- Ensure Airline Filter is positioned upright on a solid, level surface.
- If equipped, adjust Pressure Regulator down to 0 PSI.
- Connect Airline Filter to compressed air supply. Ensure Airline Filter is NOT connected to an improper air supply, such as in-plant lines, which may contain nitrogen, oxygen, acetylene or other non-breathable gases.
- Turn on air supply.

**⚠ WARNING**

Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during blasting operations, post-blast cleaning operations, and/or servicing equipment within the blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from abrasives or surfaces being blasted can remain suspended in the air for long periods of time after blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone blasting, handling or using the abrasive, and anyone in the area of the dust. Failure to comply with the above warning could result in death or serious injury.

**Operating Instructions****Fig. 2****During use:**

- Adjust Petcock to slightly open to allow the continuous release of condensate.
- Attach respirator(s) or pneumatic device(s).
- If equipped, adjust Pressure Regulator to the air requirements as per instructions for respirator or pneumatic device.

**After use:**

- Slowly open Petcock to drain any residual condensate.
- Turn off air supply.
- Close Petcock once air and condensate stop flowing.
- Disconnect device and supply hoses.
- Cover or move Airline Filter inside for storage.

**Figure 2****6-Outlet 286 Airline Filter****2-Outlet 286 Airline Filter****1-Outlet 286 Airline Filter**

## Maintenance

### **WARNING**

Always depressurize the entire blasting system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

### **WARNING**

Change filter cartridge periodically to ensure maximum efficiency. Maintain an accurate cartridge replacement record which lists the dates the filter cartridge has been changed. The frequency of filter cartridge replacement depends upon work and environment conditions. The cartridge should be replaced immediately if operator sees, tastes, smells or feels contaminants inside the air-respirator. Failure to comply with the above warning could result in death or serious injury. OSHA REGULATION 1910.134

### **NOTICE**

Apply pipe thread sealant to all pipe threads to ensure an airtight seal.

Maintenance of the 286 Airline Filter is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Filter Element replacement (all three models):

#### **Fig. 3, 4, 5**

##### **Disassembly:**

- 1) Unthread Nut (3) then remove Nut (3) and Washers (2) from Bolt (1). Repeat for the seven remaining bolts.
- 2) Remove Lid (4) from Filter Housing (6).
- 3) Remove Filter Cartridge (5) from Filter Housing (6).

##### **Assembly:**

- 1) Insert Filter Cartridge (5) into Filter Housing (6), taking care to align bolt holes of Filter Cartridge (5) with those of the Filter Housing (6).
- 2) Place Lid (4) in place on top of Filter Housing (6), taking care to align bolt holes of Lid (4) with those of the Filter Housing (6).
- 3) Insert Bolt (1) through Washer (2), bolt holes in Lid (4), Filter Cartridge (5) and Filter Housing (6).
- 4) Install Washer (2) and Nut (3), on Bolt (1), threading only finger tight.
- 5) Repeat step 3 and 4 for remaining seven bolts.
- 6) Tighten all eight bolts, in a staggered pattern, to 20 foot pounds.

Regulator replacement (2-Outlet model):

#### **Fig. 4**

##### **Disassembly:**

- 1) Unthread Regulator Assembly (7) from Lid (4).
- 2) Unthread 3/8" Hex Nipple (8) from Regulator (9).
- 3) Unthread 1/4" NPT X 5/8" Flare Adapter (10) from Regulator (9).
- 4) Unthread 3/8" Pipe Plug (11) from Regulator (9).
- 5) Unthread 1/4" NPT Pressure Gauge (12) from Regulator (9).

##### **Assembly:**

- 1) Install 1/4" NPT Pressure Gauge (12) in to Regulator (9).
- 2) Install 3/8" Pipe Plug (11) in to Regulator (9).
- 3) Install 1/4" NPT X 5/8" Flare Adapter (10) in to Regulator (9).
- 4) Install 3/8" Hex Nipple (8) in to Regulator (9).
- 5) Install Regulator Assembly (7) on to Lid (4).

Regulator replacement (6-Outlet model):

#### **Fig. 5**

##### **Disassembly:**

- 1) Unthread Regulator Assembly (13) from Filter Housing (6).
- 2) Unthread 3/4" X 1" Bushing (14) from 3/4" Close Nipple (15).
- 3) Unthread 3/4" Close Nipple (15) from Regulator (16).

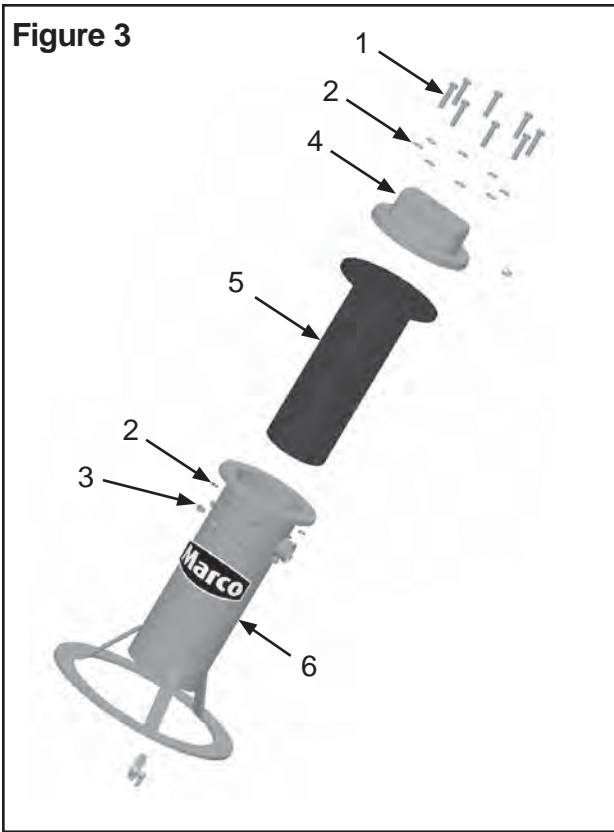
##### **Assembly:**

- 1) Install 3/4" Close Nipple (15) in to Regulator (16).
- 2) Install 3/4" X 1" Bushing (14) on to 3/4" Close Nipple (15).
- 3) Install Regulator Assembly (13) on to Filter Housing (6).

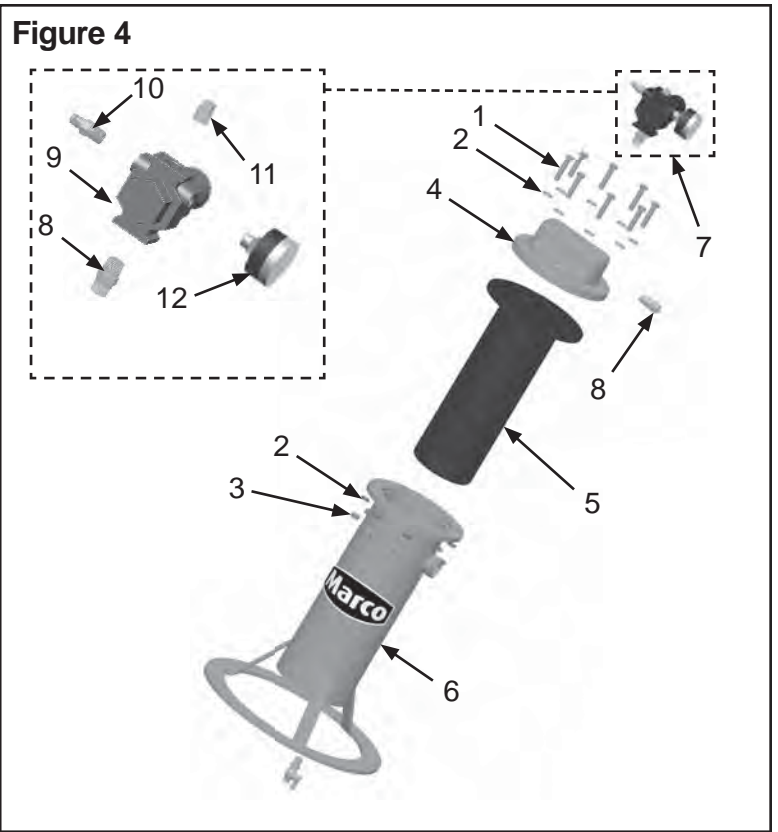


# Maintenance

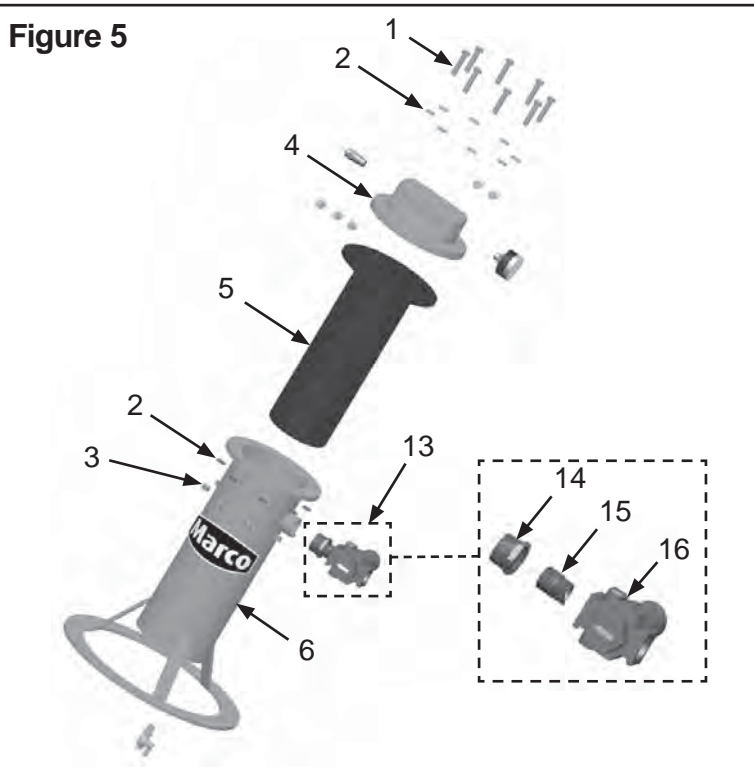
**Figure 3**



**Figure 4**



**Figure 5**





## Troubleshooting

### **⚠ WARNING**

Always depressurize the entire blasting system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

### **⚠ WARNING**

Change filter cartridge periodically to ensure maximum efficiency. Maintain an accurate cartridge replacement record which lists the dates the filter cartridge has been changed. The frequency of filter cartridge replacement depends upon work and environment conditions. The cartridge should be replaced immediately if operator sees, tastes, smells or feels contaminants inside the air-respirator. Failure to comply with the above warning could result in death or serious injury. OSHA REGULATION 1910.134

### **NOTICE**

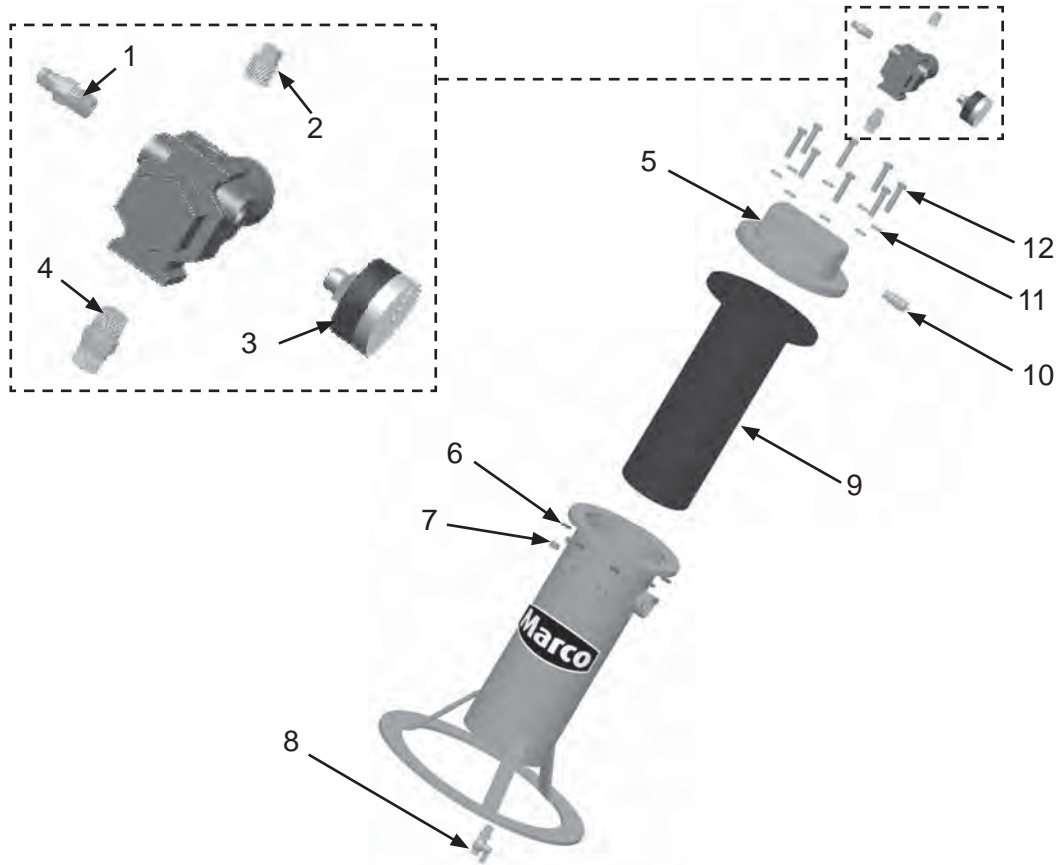
Apply pipe thread sealant to all pipe threads to ensure an airtight seal.

**If the 286 Airline Filter does not function properly, check the following:**

SYMPTOM (Cause)	ACTION
<b>Inadequate airflow</b> <i>(Pressure too low, volume too low)</i>	Inspect air supply to assure adequate PSI and CFM.  Confirm supply hose/pipe is of adequate size.  If equipped, adjust control knob on pressure regulator to increase pressure.  Inspect filter regulator, replace as necessary.  Ensure all fittings and lid are tight and leak-free.  Inspect filter cartridge, replace as necessary.
<b>Objectionable odor or taste present in air supply</b> <i>(water or petroleum contamination, mold or mildew, use expectancy exceeded)</i>	Clean airline filter interior and replace filter cartridge.
<b>Moisture present in air supply</b> <i>(Water, mist or condensate present)</i>	Open petcock to drain water from airline filter. Replace cartridge as soon as possible.

## Schematics

Figure 6

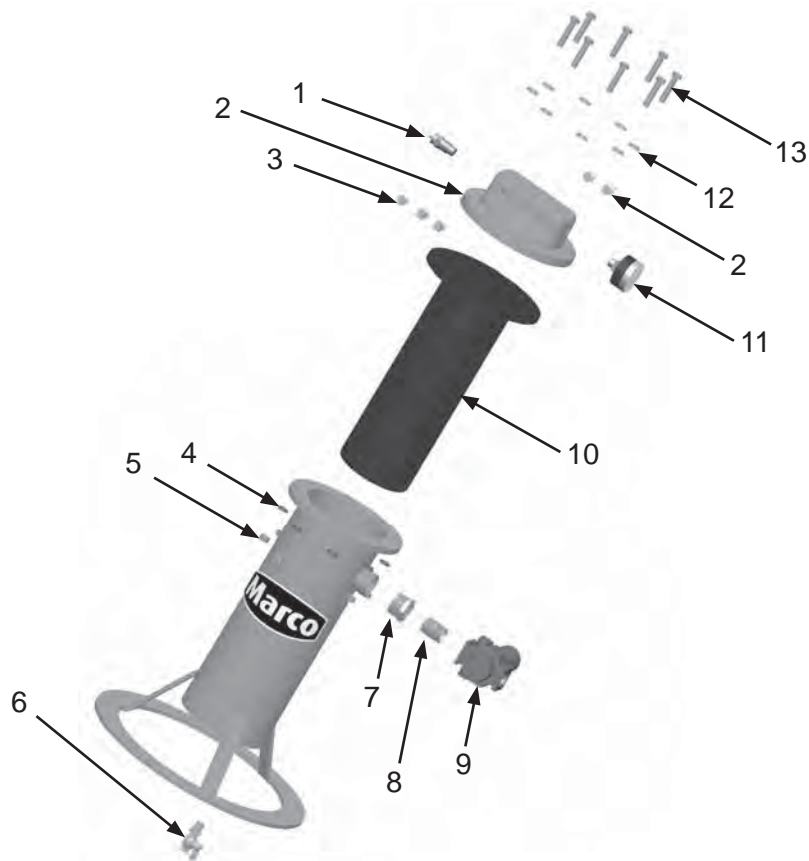


Item #	Part #	Description
<b>Fig. 6</b>		
–	1028600	2-Outlet 286 Airline Filter, Complete
1	1028611	1/4" NPT X 5/8" Flare Adapter
2	1028615	3/8" NPT Pipe Plug
3	1028606	1/4" Pressure Gauge, 160 PSI
4	1028610	3/8" NPT Hex Nipple
5	10101299	Airline Filter Lid, 2-Outlet
6	10101936	3/8" Lock Washer (8 required)
7	1028619	3/8"-16 Nut (8 required)
8	1012101	1/4" Petcock
9	1028501	Filter Cartridge
10	1028607	1/4" NPT Pressure Relief Valve, 125 PSI
11	1014241	3/8" Flat Washer (8 required)
12	1028617	3/8"-16 X 1-3/4" Bolt (8 required)
–	1091044	Airline Filter Warning Label
–	1090045	286 Airline Filter Operator's Manual
–*	10ME2	2-Lug Air Hose Coupling 1" (M) (optional)

\* optional

## Schematics

Figure 7

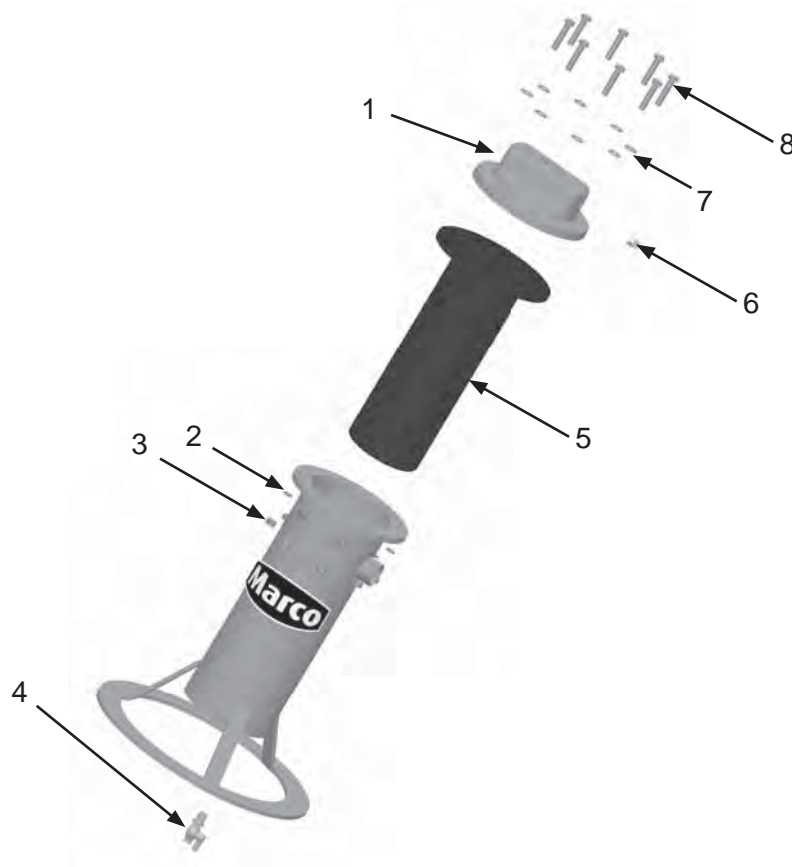


Item #	Part #	Description
Fig. 7		
-	1028601	6-Outlet 286 Airline Filter, Complete
1	1028607	1/4" NPT Pressure Relief Valve, 125 PSI
2	10101243	Airline Filter Lid, 6-Outlet
3	1028615	3/8" NPT Pipe Plug (5 required)
4	10101936	3/8" Lock Washer (8 required)
5	1028619	3/8"-16 Nut (8 required)
6	1012101	1/4" NPT Petcock
7	1011505	3/4" X 1" NPT Bushing
8	1011213	3/4" NPT Close Nipple
9	1028609	3/4" NPT Pressure Regulator, 125 PSI
10	1028501	Filter Cartridge
11	1028606	1/4" Pressure Gauge, 160 PSI
12	1014241	3/8" Flat Washer (8 required)
13	1028617	3/8"-16 X 1-3/4" Bolt (8 required)
-	1091044	Airline Filter Warning Label
-	1090045	286 Airline Filter Operator's Manual
-*	10ME1	2-Lug Air Hose Coupling 3/4" (M) (optional)

\* optional

## Schematics

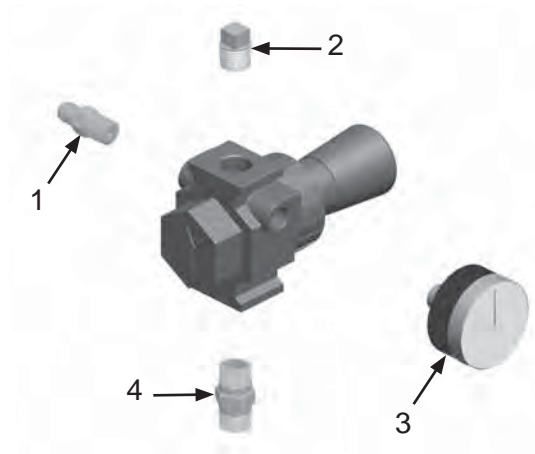
**Figure 8**



Item #	Part #	Description
<b>Fig. 8</b>		
–	1028602	1-Outlet 286 Airline Filter, Complete
1	10101703	Airline Filter Lid, 1-Outlet
2	10101936	3/8" Lock Washer (8 required)
3	1028619	3/8"-16 Nut (8 required)
4	1012101	1/4" NPT Petcock
5	1028501	Filter Cartridge
6	1012052	1/4" NPT Square Head Pipe Plug
7	1014241	3/8" Flat Washer (8 required)
8	1028617	3/8"-16 X 1-3/4" Bolt (8 required)
–	1091044	Airline Filter Warning Label
–	1090045	286 Airline Filter Operator's Manual
–*	10ME2	2-Lug Air Hose Coupling 1" (M) (optional)

\* optional

## Schematics

**Figure 9**

Item #	Part #	Description
--------	--------	-------------

**Fig. 9**

–	1028614	2-Outlet Regulator Assembly <i>(includes regulator and items 1, 2, 3 &amp; 4)</i>
1	1028611	1/4" NPT X 5/8" Flare Adapter
2	1028615	3/8" NPT Pipe Plug
3	1028606	1/4" Pressure Gauge, 160 PSI
4	1028610	3/8" NPT Hex Nipple



## 286 Airline Filter

**ADDITIONAL  
TECHNICAL DATA**

The associations listed below offer information, materials and videos pertaining to media blasting and safe operating practices.

- **American Society for Testing and Materials (ASTM)**  
100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959  
Phone: (610) 832-9585  
FAX: (610) 832-9555  
[www.astm.org](http://www.astm.org)
- **Occupational Safety & Health Administration (OSHA)**  
United States  
Department of Labor  
200 Constitution Avenue  
Washington, DC 20210  
Phone: (800) 321-OSHA  
(800) 321-6742  
[www.osha.gov](http://www.osha.gov)
- **The National Board of Boiler & Pressure Vessel Inspectors**  
1055 Crupper Avenue  
Columbus, Ohio 4322  
Phone: (614) 888-8320  
FAX: (614) 888-0750  
[www.nationalboard.org](http://www.nationalboard.org)
- **National Association of Corrosion Engineers (NACE)**  
1440 South Creek Drive  
Houston, TX 77084-4906  
Phone: (281) 228-6200  
FAX: (281) 228-6300  
[www.nace.org](http://www.nace.org)
- **The Society for Protective Coatings (SSPC)**  
40-24th Street, 6th Floor  
Pittsburgh, PA 15222-4656  
Phone: (412) 281-2331  
FAX: (412) 281-9992  
[www.sspc.org](http://www.sspc.org)

**WARRANTY**

Seller warrants to the original purchaser that the Product covered by this Warranty will remain free from defects in workmanship or material under normal commercial use and service for a period of one year from the date of shipment to the original Purchaser. This Warranty shall not apply to defects arising, in whole or in part, from any accident, negligence, alteration, misuse or abuse of the Product, operation not in accordance with applicable instructions or manuals or under conditions more severe than, or otherwise exceeding, those set forth in the written specifications for the Product, nor shall this Warranty extend to repairs or alterations of the Product by persons other than Seller or Seller's authorized representatives, or to maintenance parts.

**DISCLAIMER OF WARRANTY**

The foregoing Warranty is exclusive and is in lieu of all other warranties of quality, whether oral or written and whether express or implied. All warranties of merchantability or fitness for a particular purpose are hereby excluded and are inapplicable to the Product. Seller makes no warranties or representations concerning respirators, or equipment made by other manufacturers.

**EXCLUSIVE REMEDIES FOR WARRANTY CLAIMS**

THE SOLE AND EXCLUSIVE REMEDIES OF PURCHASER FOR UNDER THE FOREGOING WARRANTY COVERING THIS PRODUCT SHALL BE REPAIR OR REPLACEMENT, FREE OF CHARGE, F.O.B. POINT OF MANUFACTURE, OF ANY DEFECTIVE PART OR PARTS OF THE PRODUCT THAT WERE MANUFACTURED BY SELLER, AND WHICH ARE RETURNED TO SELLER AT SELLER'S PRINCIPAL PLACE OF BUSINESS, POSTAGE PREPAID. THIS SOLE AND EXCLUSIVE REMEDY IS CONDITIONED UPON PURCHASER'S PROMPT WRITTEN NOTICE TO SELLER AT SELLER'S PLACE OF BUSINESS THAT A DEFECT HAS BEEN DISCOVERED, TOGETHER WITH A REASONABLY DETAILED DESCRIPTION OF THE DEFECT IN THE PRODUCT, WITHIN THIRTY (30) DAYS AFTER DISCOVERY OF THE DEFECT, OTHERWISE SUCH CLAIMS SHALL BE DEEMED WAIVED. NO ALLOWANCE WILL BE GRANTED FOR ANY REPAIRS OR ALTERATIONS MADE BY PURCHASER OR OTHERS WITHOUT SELLER'S PRIOR WRITTEN CONSENT. IF SUCH NOTICE IS TIMELY GIVEN, SELLER WILL HAVE THE OPTION TO EITHER MODIFY THE PRODUCT OR COMPONENT PART THEREOF TO CORRECT THE DEFECT, REPLACE THE PRODUCT OR PART WITH COMPLYING PRODUCTS OR PARTS, OR REFUND THE AMOUNT PAID FOR THE DEFECTIVE PRODUCT, ANY ONE OF WHICH WILL CONSTITUTE THE SOLE LIABILITY OF SELLER AND FULL SETTLEMENT OF ALL CLAIMS. PURCHASER SHALL AFFORD SELLER PROMPT AND REASONABLE OPPORTUNITY TO INSPECT THE PRODUCT FOR WHICH CLAIM IS MADE. THE SOLE PURPOSE OF THE FOREGOING STIPULATED EXCLUSIVE REMEDY SHALL BE TO REPAIR OR REPLACE DEFECTIVE PRODUCTS OR COMPONENTS THEREOF, OR TO REFUND PURCHASER THE PURCHASE PRICE THEREOF. THIS STIPULATED EXCLUSIVE REMEDY SHALL NOT BE DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE SO LONG AS SELLER IS WILLING AND ABLE TO REPAIR OR REPLACE THE DEFECTIVE PARTS OR REFUND THE PURCHASE PRICE IN ACCORDANCE WITH THE TERMS HEREOF.

**LIMITATION OF REMEDIES**

The foregoing stipulated exclusive remedies is in lieu of all other remedies for breach of contract, warranty and/or tort. Seller shall not be liable for the Purchaser's expenses for downtime or for making up downtime, damages for which the Purchaser may be liable to other persons and/or entities, damages to property, and injury to or death of any persons and/or any claims for incidental or consequential damages, including but not limited to loss of profits, regardless of whether Seller has been informed of the possibility of such damages. Seller neither assumes nor authorizes any person to assume for it any other liability in connection with the sale or use of any Products covered by the foregoing Warranty and Disclaimers, and there are no oral agreements relating to remedies which are collateral to or which affect this limitation.