Alpha® Filter/Regulator Manifold System Instruction Manual
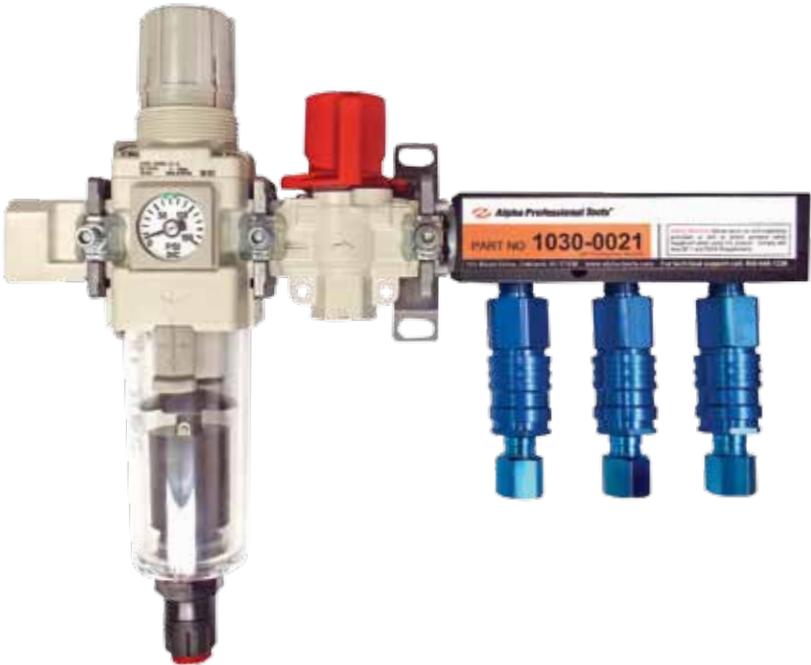
Part No: 1030-0021
Part No: 1030-0022
Part No: 1030-0023
Part No: 1030-0024

Version 2

Alpha Professional Tools®

TABLE OF CONTENTS

INTRODUCTION

Thank you for purchasing the Alpha® Filter/Regulator Manifold System, a system that helps eliminate potential issues caused by rust or contamination in the pipes or connectors feeding pneumatic tools. To ensure correct use, read this Instruction Manual and the Instruction Manual for the pneumatic tool and follow the operating instructions. Keep this manual in a place where operators can access it easily whenever necessary!

► ABOUT THE SYMBOLS

According to the hazard level, all safety notes in this manual are classified into "DANGER", "WARNING", and "CAUTION".

⚠ DANGER!   Death or serious personal injury is imminent when handling this manifold incorrectly.

⚠ WARNING!   There is a possibility of death or serious personal injury when handling this manifold incorrectly.

⚠ CAUTION!   There is a possibility of personal injury or property damage when handling this manifold incorrectly.

Note: In some situations, failing to observe WARNING notes could result in death or serious personal injury. Be sure to read and observe the safety notes to ensure safety and correct use of the tool.

INSTALLATION AND MAINTENANCE FOR THE FILTER/ REGULATOR MANIFOLD ASSEMBLY

The F/R manifold system comes in two sizes with two choices of threads and is designed for installation at point of use. The system consists of a connection adapter block, a Filter/Regulator with auto dump valve for condensation, a 3-port pressure relief valve, an anodized aluminum manifold with quick disconnect couplers and plugs.

The Filter/Regulator will allow you to set the pressure to the tools at 85 to 90 PSI, while the main system can run at 125 to 145 PSI, this helps reduce pressure drops when using a large volume of air. The F/R unit will also remove any condensation from your air supply while filtering the air of contamination down to five microns. By only using brass and/or aluminum after the F/R unit you can eliminate any rust and contamination from getting into your air tools. The F/R manifold configurations are as follows:

PART NO	SIZE	DESCRIPTION	COUPLERS	ADAPTER	PLUGS INCLUDED
1030-0021	53 CFM	3/8" Filter/Regulator Manifold	3	3/8" NPT	(3) 1/4" Female NPT
1030-0022	53 CFM	3/8" Filter/Regulator Manifold	3	1/2" NPT	(3) 1/4" Female NPT
1030-0023	106 CFM	1/2" Filter/Regulator Manifold	4	1/2" NPT	(3) 1/4" Female NPT + (1) 3/8" Female NPT
1030-0024	106 CFM	1/2" Filter/Regulator Manifold	4	3/4" NPT	(3) 1/4" Female NPT + (1) 3/8" Female NPT
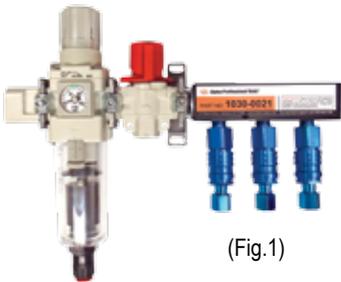
(Fig.1)

(Fig.2)

The smaller assembly (Fig. 1) has a 3/8" air passageway and is capable of 53 CFM. These F/R assemblies come with three 1/4" NPT couplers and three 1/4" NPT female plugs.
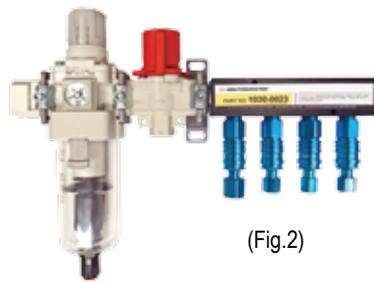
The larger assembly (Fig. 2) has a 1/2" air passageway and is capable of 106 CFM. These F/R assemblies come with four 3/8" NPT couplers, one 3/8" NPT female plug and three 1/4" NPT female plugs.

The assemblies come completely assembled using three modular clamps. The two outer modular T-clamps are designed for mounting the unit to the wall, so the weight of the unit is not supported by the connection pipe and adapter.

Note: Although the units ship with the layout direction of left to right, if the environment warrants it, the Filter/Regulator assembly can be setup to use in the opposite direction (from right to left). See Page 8 for detailed instructions on disassembly and re-assembly.

▶ TOOLS NEEDED

1. 4mm Allen key for 3/8" manifold assembly or 5mm Allen key for ½" manifold assembly
2. Pipe wrenches
3. 12" adjustable wrench
4. 2-1/4" concrete mounting screws or wall anchors
5. Drill and drill bit needed for mounting assembly to wall

Ball Valve

▶ PRE-INSTALLATION

1. Before you start, verify the supply pipe is the same size as your adapter block. It is also important that you have a drop leg in the supply line, (a drop leg is short pipe and end cap below the tee (black circle)) (See Fig. 3). Also recommended is to have a ball valve added to allow the air supply to be shut off to the F/R manifold assembly for cleaning and maintenance.

(Fig.3)

Drop Leg
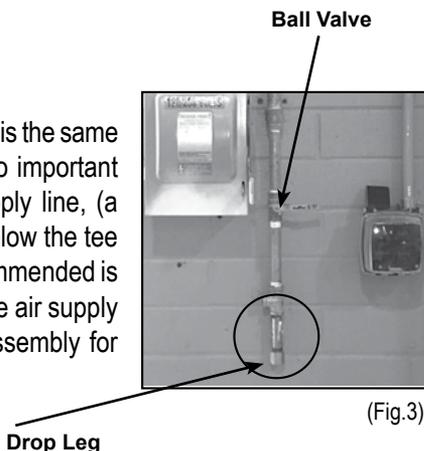
⚠ CAUTION!

Turn off your air supply, so there is no pressure in the system.

⚠ CAUTION!

The weight of the unit should not be supported by the supply piping.

If your piping is mounted flat against the wall, and you cannot connect directly to the supply line, use one of the following options to install the Alpha® F/R Manifold Assembly.

▶ **OPTION 1: ALPHA® ADAPTER AIR HOSE ASSEMBLY**

The Adapter Hose Assembly can be used to make the F/R Manifold Assembly easier to install. (See Fig. 4)

Air Supply Line

(Fig.4)

Adapter Hose Assembly
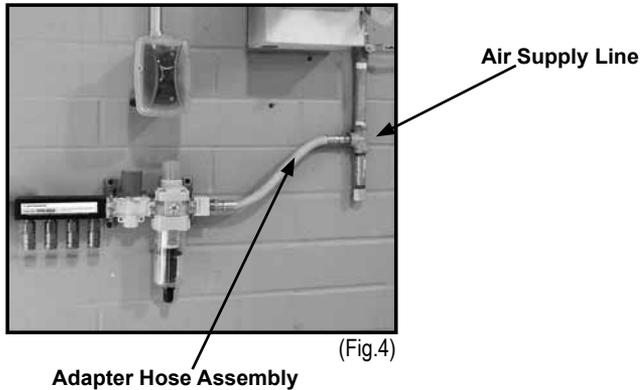
NOTE: Adapter Hose Assembly is only available for Part No. 1030-0022 (53CFM) and 1030-0023 (106CFM) F/R Manifolds.

The Adapter Hose Assemblies are made of ½" Flexzilla hose with ½" NPT male swivel fittings on both ends and come in 1ft, 2ft, and 3ft lengths.

PART NO	DESCRIPTION	CONNECTOR
1030-0025	1' Adapter Hose Assembly	1/2" NPT Swivel
1030-0026	2' Adapter Hose Assembly	1/2" NPT Swivel
1030-0027	3' Adapter Hose Assembly	1/2" NPT Swivel

▶ **OPTION 2: ALPHA® MOBILE AIR HOSE ASSEMBLY**

The F/R Manifold assembly can be mounted directly onto your stone layout frames and/or closer to the point of use with an Alpha® Mobile Air Hose Assembly (See Fig. 5).
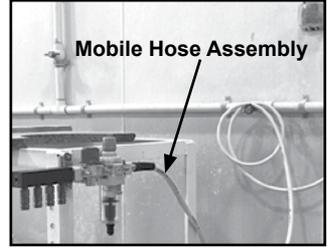
NOTE: Mobile Hose Assembly is only available for Part No. 1030-0022 (53CFM) and 1030-0023 (106CFM) F/R Manifolds.

Mobile Hose Assembly

(Fig.5)

The Mobile Hose Assemblies are made of ½" Flexzilla hose with ½" NPT male swivel fittings on both ends and come in 15ft to 40ft lengths.

PART NO	DESCRIPTION	CONNECTOR
1030-0050	15' Mobile Air Hose Assembly	1/2" NPT Swivel with Hose Protector
1030-0052	20' Mobile Air Hose Assembly	1/2" NPT Swivel with Hose Protector
1030-0054	25' Mobile Air Hose Assembly	1/2" NPT Swivel with Hose Protector
1030-0056	30' Mobile Air Hose Assembly	1/2" NPT Swivel with Hose Protector
1030-0058	35' Mobile Air Hose Assembly	1/2" NPT Swivel with Hose Protector
1030-0060	40' Mobile Air Hose Assembly	1/2" NPT Swivel with Hose Protector

▶**OPTION 3: HARD PIPED**

(Unit can be hard piped for offset from the wall using two medium pressure brass 45° elbows and one hex or close nipple).

1. Align unit to connect to the wall pipe.

2. Loosen the clamp connecting adapter block to the Filter/Regulator using an Allen key.

3. Connect the adapter block to the supply line so it exits to the drop line and is parallel to the ground (See Fig. 6).
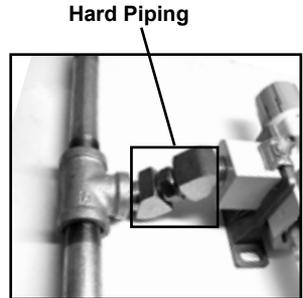
    NOTE: The Adapter block should screw onto the pipe until it is tight and the bevel is on the top side.

4. Mark holes for the T-clamp screws. Disconnect System.

5. Drill holes per the enclosed template (template is located on the back cover of this manual) for your specific unit. (See Fig. 7)

Hard Piping

(Fig.6)
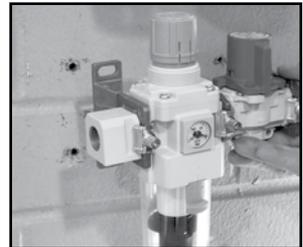
(Fig.7)

6. Place the Modular T-clamp onto the adapter block and align so it sits flat against the wall.

7. Level the Modular T-clamp and install a screw to support.

8. Check and make sure the rubber sealing ring is flush against the outsides.

9. Check and make sure the rest of the manifold assembly and clamps are flush to the wall.

10. Install the remaining screws to secure the modular T-clamps.

11. Connect to the air line.

NOTE: If using the Alpha® Adapter Hose Assembly, screw into the supply line and adapter block securely and rotate adapter block so the bevel is on the top side.

(Fig.8)
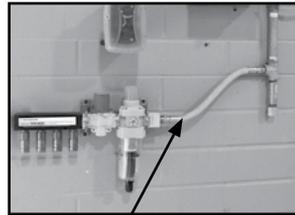
(Fig.9)

**Adapter
Hose Assembly**

DISASSEMBLY & RE-ASSEMBLY

All F/R Manifolds are assembled and shipped in the LEFT to RIGHT configuration (see photo) to be mounded on the right side of the air drop line. F/R Manifolds which will be mounted to the left side of the drop line needs to be converted over to a RIGHT to LEFT configuration.

Air Flow
(Left to Right)

1. In order to mount the F/R Manifold on the LEFT side of the air drop line, you need to disassemble the unit and re-assemble. Using a 4mm or 5mm hex key, loosen up the hex bolts on the Modular Clamps (#2 and #4) which will allow you to remove all the components of the F/R Manifold. (See Fig. 10)
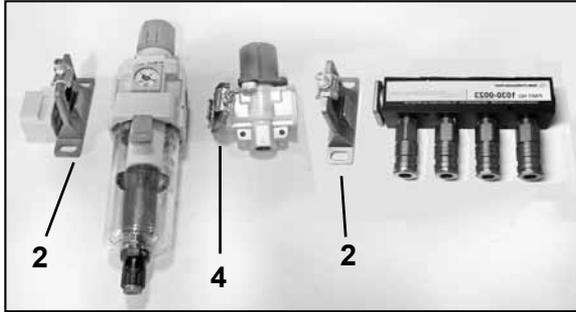
(Fig.10)

NOTE:
1. *4mm hex required for the 3/8" Manifold Assembly*
2. *5mm hex required for the 1/2" Manifold Assembly*

2. After all components are detached, line up all the components in the reverse direction as the original assembly. (See Fig. 11)

(Fig.11)

3. The Filter/Regulator and 3-Port Relief Valve have air direction indication markings, make sure when reassembling for a RIGHT to LEFT configuration that the air direction indication markings on these components matches the new air flow pattern. (See Fig. 12)
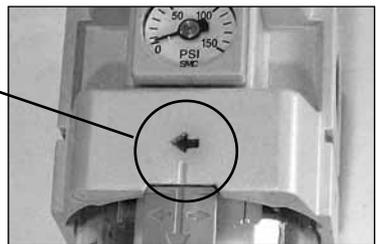
(Fig.12)

NOTE: *The F/R gauge will get turned around to face up once the re-assembly is complete*

CHANGING THE FILTER/REGULATOR TO A RIGHT TO LEFT CONFIGURATION

1. Now that the Filter/Regulator Assembly has been changed to a RIGHT to LEFT configuration, the pressure gauge needs to be removed and re-attached to the backside of the Filter/Regulator.

2. Remove the clear plastic cover by twisting it clockwise, remove the two screws securing the pressure gauge to the Filter/Regulator. (See Fig. 13)

3. Remove the pressure gauge by pulling it out of the Filter/Regulator. (See Fig. 14)

(Fig.13)   (Fig.14)

Pin

4. Turn over the Filter/Regulator and remove the back cover by removing the two screws securing the cover to the Filter/Regulator. (See Fig. 15)

(Fig.15)   (Fig.16)

Release hole

5. Insert the pressure gauge into the Filter/Regulator making sure the pin on the back side of the pressure gauge fits into the pressure release hole within the Filter/Regulator (See Fig. 16). Secure the pressure gauge using the two screws.

6. Re-attach the clear window cover turning counter-clockwise to tighten and re-attach the back cover and secure with the two screws. (See Fig. 17 and Fig. 18)

(Fig.17)   (Fig.18)

7. The Bowl assembly needs to be reversed so the "bowl lock" is located on reverse side. Press down on the bowl lock tab and turn the bowl either to the left or right to loosen and remove. (See Fig. 19 and 20)

(Fig.19)   (Fig.20)

8. Continue connecting all the components together (Filter/Regulator, 3-Port Relief Valve, Modular Piping Adapter, Black Anodized Manifold) using the Modular T-clamps. Go back to make sure each hex screw is fully tightened. The arrows on the F/R Manifold System now points in the direction Right to Left.

PROTECTING THE F/R MANIFOLD SYSTEM
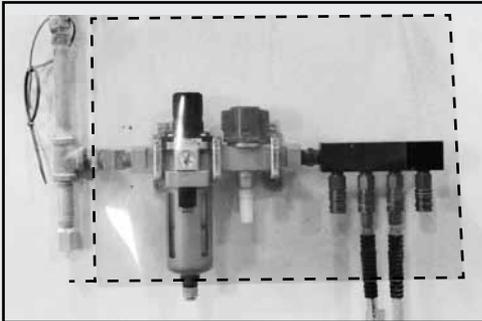
(Fig.21)

NOTE: If the unit is mounted in an area where water and stone slurry can contact the unit, it should be covered with plastic (See Fig. 21). The plastic film below can be purchase from Alpha® Part # 1030-1140, size: 16"x16".

SETTING THE SYSTEM PRESSURE

1. To setup and use the F/R unit after installation you need to turn on your air supply.

2. Open up the recommended ball valve in the supply line and check the manifold system for leaks. Make sure the modular clamps are tight.

3. To adjust and set the pressure, lift the gray knob on the top of the Filter/Regulator unit, so the orange ring is showing. (See Fig. 22)

    Orange Ring

4. Turn the knob clockwise to increase (+) the pressure, and counter clockwise to decrease (-). When running an Alpha® Air Polisher the regulator should be set to 90 PSI, with the line drop through the filter with the outgoing pressure to the air polisher to be 85 PSI.

    (Fig.22)

5. Push the knob back down to lock the pressure at that point.

    (Fig.23)
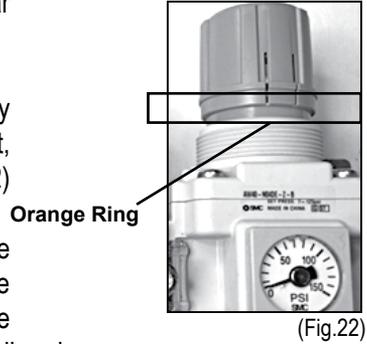
⚠ CAUTION!

NOTE: *Alpha® recommends that you supply each AIR-680 polisher with 15 CFM, and the PSC-150 with 32 CFM for them to run with the correct torque.*

If your system is sized correctly you will still see a 5 to 8 PSI drop in pressure for each AIR-680 polisher, and a 10 to 15 PSI drop in pressure when running the PSC-150 stone cutter, this is due to the pressure drop through a clean 5 micron filter element.

If upon initial use you see a larger pressure drop than stated above, your air compressor is undersized and not able to supply the volume (CFM) of air needed.

Over time you will see an additional 5-10 PSI drop in pressure when running 1-3 tools. as the filter element becomes dirty and needs to be replaced.

► AUTO DRAIN OPERATION

This Filter/Regulator is equipped with an auto drain. This auto drain is normally open, therefore when you start your compressor in the morning and your pressure starts to rise, a small amount of air will come out of the drain and remove any condensation from the bowl.

Once the system pressure rises above 15 PSI, the auto drain will close. When the system is at operating pressure and the bowl fills up with water, the float will rise and open the drain, this will release the standing water, and the drain will close again. At the end of the day when your compressor is turned off and the system pressure drops below 15 PSI, the auto drain will open again and allow any condensation in the bowl to drain out.

► 3-PORT RELIEF VALVE

A 3-Port Relief Valve has been added to the system to allow you to quickly turn off the air and depressurize the manifold block and connected lines. When your tools are not being used they should be disconnected from the system or the system should be depressurized.

1. Turn the red knob on the top of the 3-Port Relief Valve to SUP (SUP = Supply), in the direction as indicated on top of the red knob. SUP should show up in the window on the front of the relief valve. Your system is now pressurized. (See Fig 24)

(Fig.24)

2. Turn the red knob on the top of the 3-port relief valve to EXH (EXH = Exhaust), in the direction as indicated on top of the red knob. EXH should show up in the window on the side of the relief valve. Your system is now depressurized. (See Fig. 25)
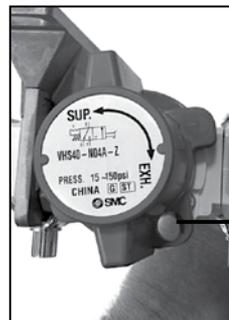
A lock can be added to 3-port relief valve during serving of downstream equipment to prevent accidental pressurization.

(Fig.25)

NOTE: An optional silencer can be added to port 3 to silence the exhaust during depressurization (silencer for the 3/8" assembly is part # 1030-1185, the silencer for the ½" assembly is part # 1030-1186).

► INSTALLATION AND ADJUSTMENT

Warning: Note arrow on the front of the 3-Port Relief Valve, only clean and filtered air should be supplied to Port 1. Port symbols are cast into the housing (See triangle in Fig. 24)

WARNING Port symbol	PIPING TYPE
1	Inlet
2	Outlet
3	Exhaust

⚠ CAUTION!

The valve must be switched to each position instantly and securely. Stopping the knob between the extreme positions may cause a malfunction.

SYSTEM MAINTENANCE

► FILTER REPLACEMENT

Warning: Over time, your filter will get clogged and need to be replaced. Replace the element every two years or when you see an additional 10 PSI drop in pressure when you are running a tool. A dirty filter can also be indicated by the filter turning red or yellow from contamination. Please note: normal operating pressure drop for one tool can be 5 to 10 PSI, so when the pressure is dropping 15 to 20 PSI, the filter should be replaced. Replacement filters should be ordered and kept on hand. The unit should never be used without a filter.

To replace the filter, turn off the recommend ball valve installed in the supply line before the unit. If a ball valve was not installed, you will need to shut down your air system and empty the line pressure. When the pressure gauge reads zero, pull down on the bowl lock (circled on Fig. 28) and rotate Bowl left or right while pulling down. The Bowl will separate from the housing in the position shown. (See Fig. 26)

Turn the filter lock (black part at bottom of filter (Fig. 27)) ½ turn counter-clockwise to unlock. Remove and replace filter, reinstall filter lock, line up the pins in the slot and ½ turn clockwise. Filter should be tight in the housing.

Reinstall bowl and make sure bowl lock is recessed in the groove.

(Fig 26)
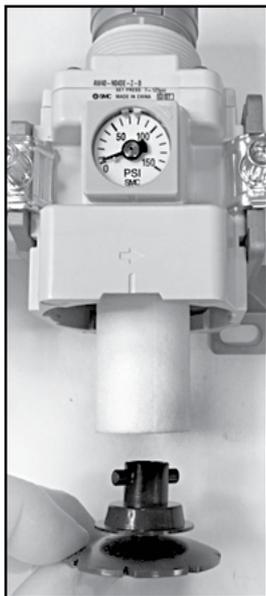
(Fig 27)

(Fig.28)

⚠ CAUTION!

When the bowl is installed on the F/R, it should be so that the lock button lines up in the recessed groove on the front of the body to avoid the bowl being dropped or damaged when pressure is applied.

► **BOWL AND AUTO DRAIN CLEANING**

The F/R unit is equipped with a NO (normally open) auto drain. When pressure is turned off to the unit, the drain will open and water will drain out the bottom.

When you turn on your compressor and the pressure starts to rise air will vent any condensation out of the drain until the system pressure rises above 15 PSI.

If you do not hear this venting when starting, your auto drain should be checked and cleaned.

► **MANUAL DRAIN**

If the auto drain is not working correctly, you can manually open the drain cock and release any condensation from the bowl.

Turn the knob on the bottom half of the drain cock clockwise two to three turns to open. This will manually open the drain, but if the drain ports inside the bowl are clogged the water and condensation may not be released. (See Fig. 29)

(Fig.29)

► **CLEANING THE BOWL**

If the water in the bowl is rising above the float your drain is clogged and needs to be cleaned. Turn the air off to the assembly and depressurize the system.

When the pressure gauge reads zero, remove the bowl and rinse with soap and water to remove the sediment at the bottom of the bowl.

Because the auto drain is normally open water should flow through the drain. If water is still not draining try blowing air into the bottom drain port to clear out the clogs and sediment.

If the auto drain is still not working correctly after cleaning, the bowl assembly should be replaced. Alpha® only sells the complete bowl assembly with auto drain, you cannot purchase the auto drain or parts separately.
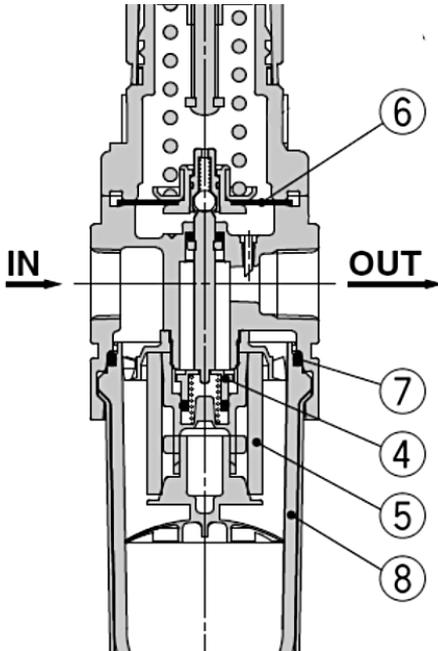
REPLACEMENT PARTS FOR 3/8" FILTER/REGULATOR

ITEM #	PART #	DESCRIPTION
4	1030-1169	Valve Assembly
5	1030-1174	Filter Element 5 microns
6	1030-1176	Diaphragm Assembly
7	1030-1178	Bowl Seal O-ring
8	1030-1172	Bowl Assembly with auto drain

REPLACEMENT PART FOR 1/2" FILTER/REGULATOR

ITEM #	PART #	DESCRIPTION
4	1030-1170	Valve Assembly
5	1030-1175	Filter Element 5 microns
6	1030-1177	Diaphragm Assembly
7	1030-1179	Bowl Seal O-ring
8	1030-1173	Bowl Assembly with auto drain

REPLACEMENT AND OPTIONAL PARTS FOR F/R ASSEMBLY

PART NO	DESCRIPTION
1030-1167	Seal ring for clamp 3/8"
1030-1168	Seal ring for clamp 1/2"
1030-1171	Replacement square gauge for 3/8" & 1/2"
1030-1185	Silencer 1/4" NPT 3/8"
1030-1186	Silencer 3/8" NPT 1/2"
1030-0025	12" Adapter hose
1030-0026	24" Adapter hose
1030-0027	36" Adapter hose
1030-0050	15' Mobile air hose assembly
1030-0052	20' Mobile air hose assembly
1030-0054	25' Mobile air hose assembly
1030-0056	30' Mobile air hose assembly
1030-0058	35' Mobile air hose assembly
1030-0060	40' Mobile air hose assembly

ADDITIONAL SIZES OF COUPLERS AND PLUGS
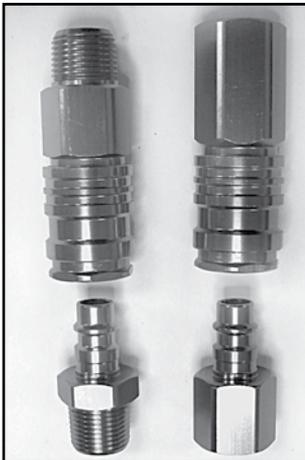
PART #	DESCRIPTION
1030-1085	Hi-Flo Coupler 1/4 Body-1/4 FNPT
1030-1086	Hi-Flo Coupler 1/4 Body-1/4 MNPT
1030-1087	Hi-Flo Plug 1/4 Body X 1/4 FNPT
1030-1088	Hi-Flo Plug 1/4 Body X 1/4 MNPT
1030-1089	Hi-Flo Coupler 1/4 Body-3/8 FNPT
1030-1090	Hi-Flo Coupler 1/4 Body-3/8 MNPT
1030-1091	Hi-Flo Plug 1/4 Body-3/8 FNPT
1030-1092	Hi-Flo Plug 1/4 Body-3/8 MNPT
1030-1093	Hi-Flo Coupler 1/4 Body-1/2 FNPT
1030-1094	Hi-Flo Coupler 1/4 Body-1/2 MNPT
1030-1095	Hi-Flo Plug 1/4 Body-1/2 FNPT
1030-1096	Hi-Flo Plug 1/4 Body-1/2 MNPT

SCHEMATIC AND PARTS LIST FOR THE 3/8" F/R MANIFOLD ASSEMBLY
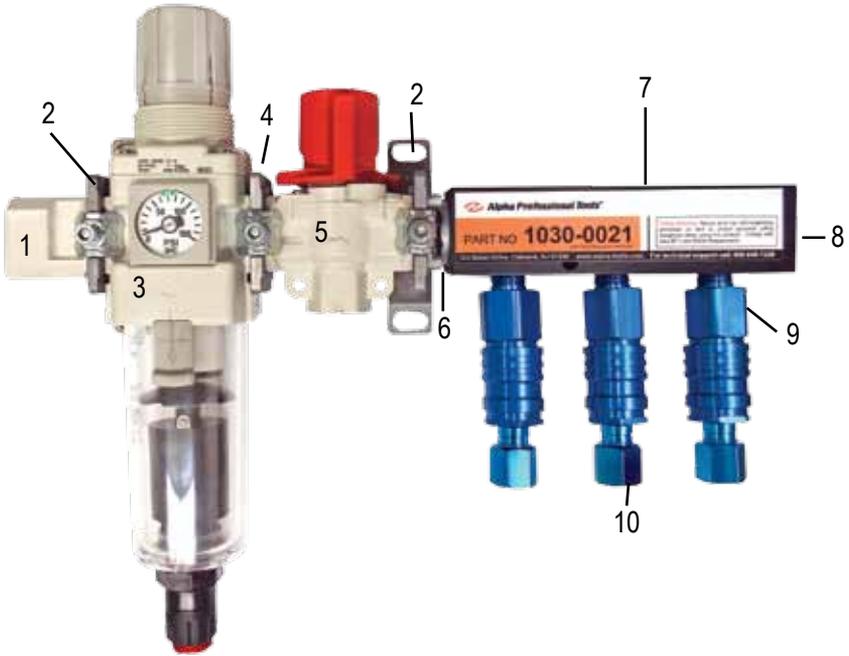
DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY
1A	1030-1156	3/8" Modular piping adapter for 1030-0021	1
1B	1030-1166	1/2" Modular piping adapter for 1030-0022	1
2	1030-1162	Modular T-clamp	2
3	1030-1150	Filter/Regulator	1
4	1030-1160	Modular clamp	1
5	1030-1153	3-Port relief valve	1
6	1030-1187	Modular adapter 3/8"	1
7	1030-1181	Black Anodized manifold	1
8	1030-1192	Black plug	1
9	1030-1086	Coupling 1/4"" MNPT	3
10	1030-1087	Plug 1/4" FNPT	3

SCHEMATIC AND PARTS LIST FOR THE 1/2" F/R MANIFOLD ASSEMBLY
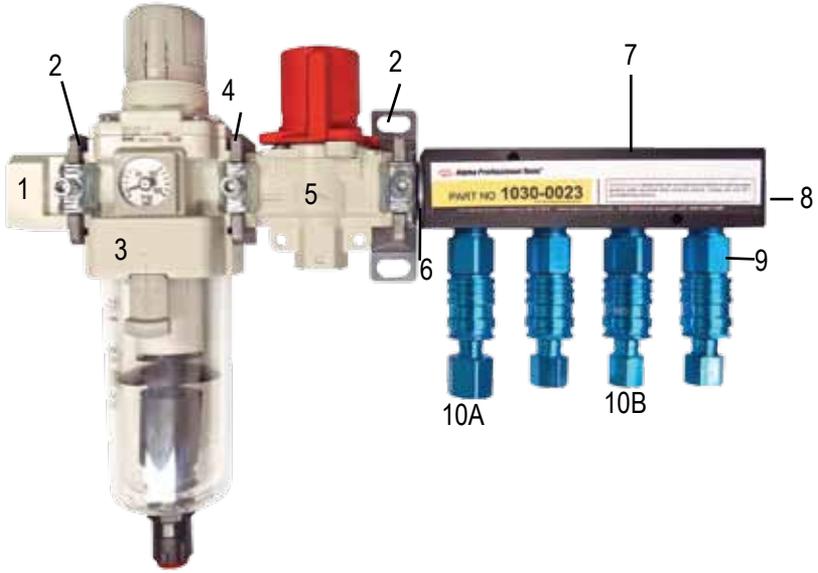
DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY
1A	1030-1158	1/2" Modular piping adapter for 1030-0023	1
1B	1030-1159	3/4" Modular piping adapter for 1030-0024	1
2	1030-1164	Modular T-clamp	2
3	1030-1151	Filter/Regulator	1
4	1030-1161	Modular clamp	1
5	1030-1154	3-Port relief valve	1
6	1030-1188	Modular adapter 1/2"	1
7	1030-1184	Black Anodized manifold	1
8	1030-1193	Black plug	1
9	1030-1090	Coupling 3/8" MNPT	4
10A	1030-1091	Plug 3/8" FNPT	1
10B	1030-1087	Plug 1/4" FNPT	3

TEMPLATE FOR MOUNTING F/R MANIFOLD SYSTEMS

6"

4-1/2"

2-3/4"

3-1/4"

Alpha Professional Tools®
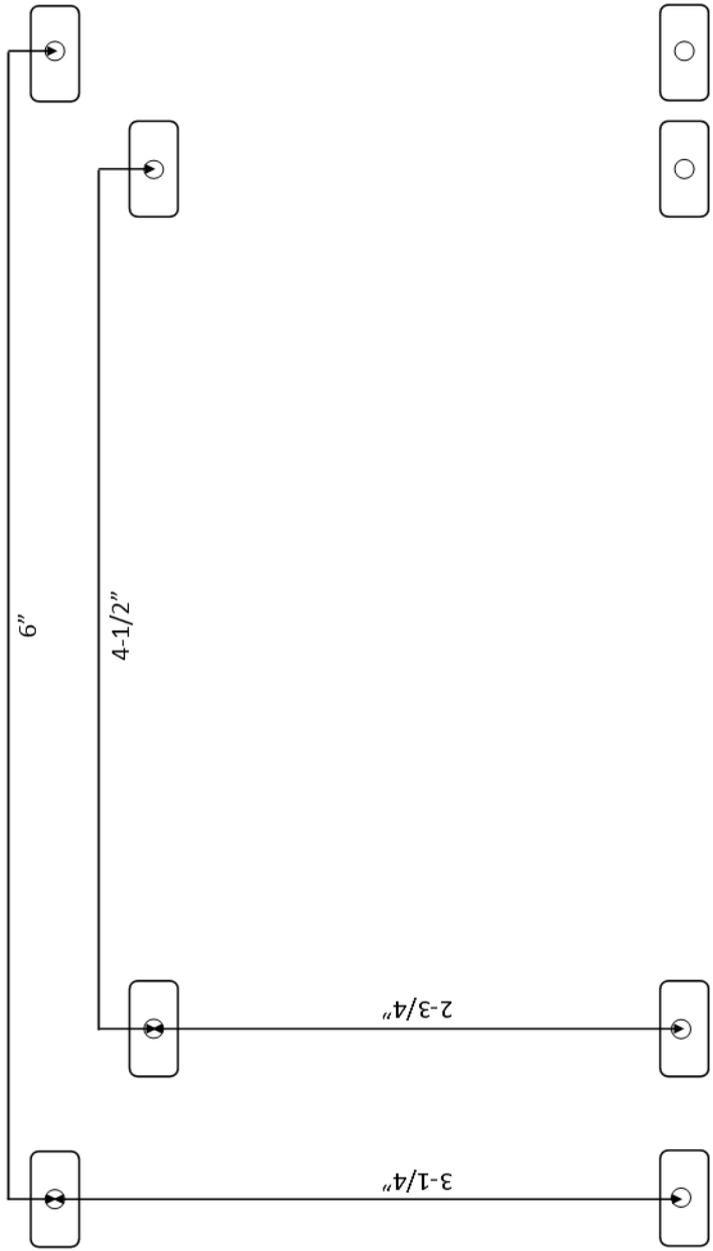
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