ATTENTION

PLEASE REVIEW THE FOLLOWING TO MAINTAIN YOUR TOOL PROPERLY AND KEEP FROM VOIDING YOUR WARRANTY

Pneumatic Tool Preventative Maintenance & Solutions

1. Running the tool in excess of the recommended 90 PSI operating pressure.

The Alpha® AIR-Polishers are designed to run at or below 90 PSI. This operating pressure is derived from the optimum speed and torque needed for most polishing applications, while staying below the maximum speed rating of the rotor bearings. By raising and lowering the air pressure, you change the speed at which the tool will run. The power or torque comes from the CFM or volume of air. If your compressor's CFMs are under-sized, your pressure will drop once the reserve in your tank is depleted.

Raising the pressure to 100 PSI and higher will raise the RPM of the tool. At this point, you are reaching or exceeding the maximum speed rating of the 516-18 bearing of 28,000 RPM, causing it to heat up and wear out prematurely.

Sudden changes in speed will also cause premature wear on the bearing, so you should turn the air on and off slower to allow the bearing time to accelerate and decelerate.

Figure 1



WORN BEARINGS

2. Contamination and water getting inside the tool.

One of the big differences between the Alpha® AIR-Polishers and others, is that our polishers are all steel inside. This is why it comes with a bottle of oil, so you can treat the steel inside the tool and prevent it from rusting when not in use. If water and contamination is allow to enter the tool, it will shorten the life of the vanes and bearings inside the rotor assembly.

Contamination in the air will get into the vane slots on the rotor and cause the vanes to stick and stop floating.

3. Excessive oiling or using the wrong type of oil.

The Alpha® AIR-008 oil is designed to coat the inside of the tool and prevent it from rusting when the tool is not in use. For this tool to work effectively, we recommend adding the oil at the end of the day. The oil is not needed to run the tool, it is only added to prevent the tool from rusting. Adding the wrong oil or excessive oiling of the tool can cause a tar-like build-up inside the tool, causing the vanes to also stick in the rotor assembly.

* Air line lubricators are not recommended due to the excessive amount of oil.

4. Excessive downward pressure applied during polishing.

The AIR-Polisher has four vanes in the rotor assembly which are used to trap the air and convert air flow into the torque needed to run the tool. In a no-load condition, the rotor will turn between 20,000 to 22,000 RPM, which allows the spindle shaft to turn at 4,000 RPM to 4,400 RPM. Under light downward pressure the rotor will slow down to 18,000 to 19,000 RPM, and the spindle will turn at 3,600 RPM to 3,800 RPM. As the rotor and vanes turn inside the tool, it goes through a power and vent cycle. During the power cycle, the vanes extend out from the rotor and the air pushing on the front side, cause the rotor to turn. About a quarter of the way through the rotation, that same vane transitions into the vent cycle and the air is exhausted from the tool. Therefore, one to two vanes are always loaded under pressure and creating the torque needed to turn the rotor. When excessive downward pressure is applied to the tool, the vanes will rub against the rotor on the backside causing a groove to form as the vane is pushed back into the rotor under pressure.



Figure 2

1. New vane
2. Used vane with no grooves
3. Used vane with grooves
4. Used vane cracked along the groove

Over time, half of the vane will become worn away in the grooved area causing the vane to become brittle and crack, or splinter along the groove line.When the vane splinters, as shown in vane 4 in Figure 2, it is the pieces of the vane that break off that get trapped between the rotor and the cylinder causing the tool to lock up. Excessive downward pressure will also cause premature wear on the gears.

Alpha Professional Tools®

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5. Hammering of the tool into the stone.

During the process of polishing and/or core drilling, you should slowly apply the polisher to the stone. Hammering or quickly impacting the polisher into the stone will cause the spindle to go from 4,000 RPM to 2,000 RPM or lower. This sudden impact will cause the gears to wear out and/or chip. This impacting is also evident by the play and indentation found on the woodruff key for the spindle gear.

Please note: while core drilling, the gears can start to wear out or chip and the tool can continue to run for a week or two before locking up.



Figure 3

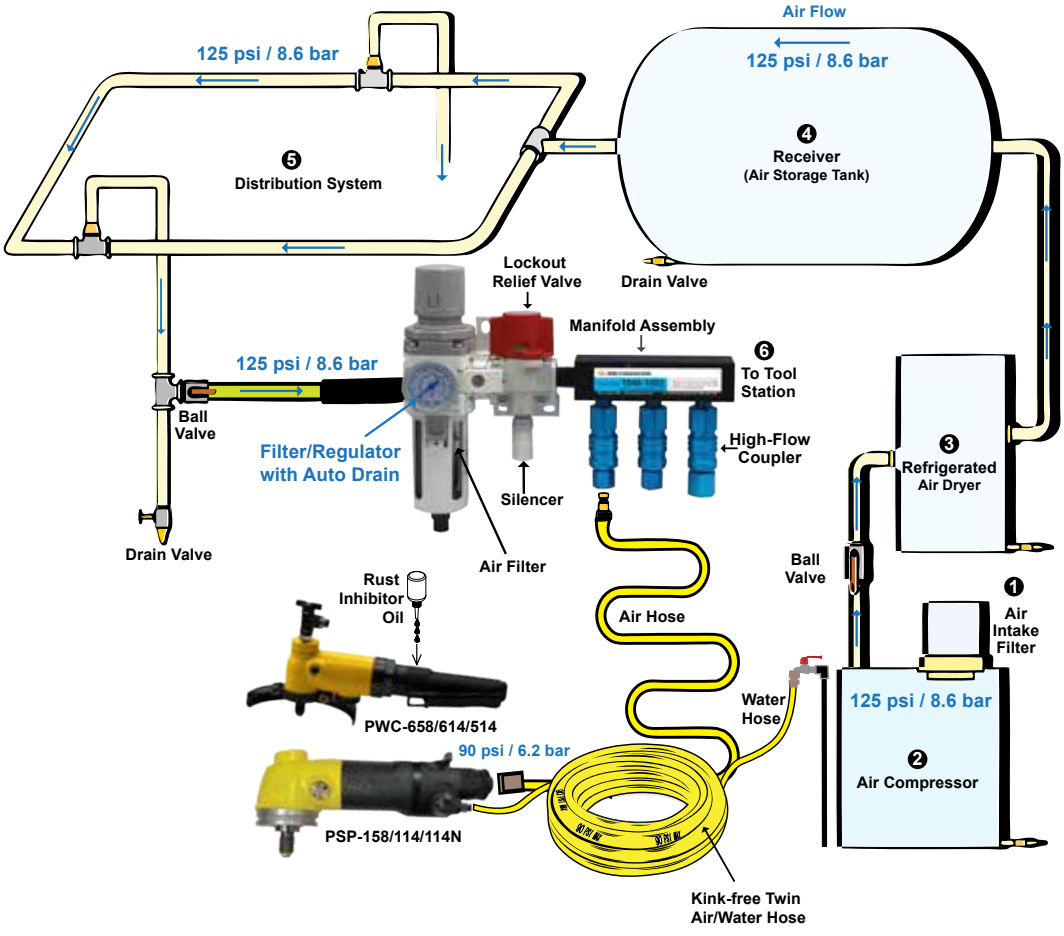
Oiling Made Easy

With the new Alpha® AIR Tools, oiling the tool is easier than ever with the "Oil Port". This convenient port, with a phillips screw, allows oil to be added without having to disconnect the air line.



Figure 4

SOLUTION
FILTER/REGULATOR MANIFOLD SYSTEM



To avoid some of the previously described potential issues, Alpha® has created the Filter/Regulator (F/R) manifold systems. These F/R manifold systems consist of a Filter/Regulator with a shut off/dump valve, and a aluminum manifold with three or more aluminum quick disconnects. The filter/regulator will allow you to set the pressure at 90 PSI, remove and dump any water from your air, and remove contamination down to five microns.

These new manifold systems and parts are available through our distributor network, and via our website.

Contact the Alpha® Tool Dept. Help Desk to learn more about a solution today!

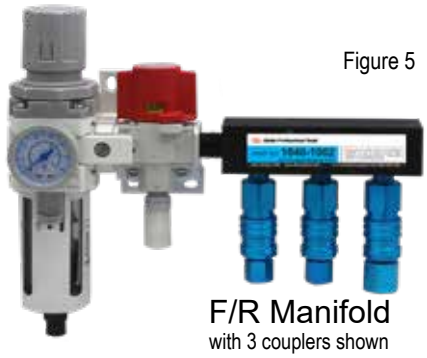


Figure 5

F/R Manifold
with 3 couplers shown

PART NO	DESCRIPTION	ADAPTER BLOCK	CFM	PORT	PLUGS INCLUDED
1040-1000	3/8" Filter/Regulator Manifold	3/8" NPT	53	3 Couplers	(2) 1/4" Female NPT + (1) 3/8" Female NPT
1040-1001	1/2" Filter/Regulator Manifold	1/2" NPT	106	4 Couplers	(3) 1/4" Female NPT + (1) 3/8" Female NPT
1040-1002	3/8" Filter/Regulator Manifold	3/8" G	53	3 Couplers	(2) 1/4" Female NPT + (1) 3/8" Female NPT
1040-1003	1/2" Filter/Regulator Manifold	1/2" G	106	4 Couplers	(3) 1/4" Female NPT + (1) 3/8" Female NPT

* ADDITIONAL PLUGS AND COUPLERS AVAILABLE

For assistance with a Manifold System, contact us at: 800-648-7229