

# **MAXPRO TECHNOLOGIES, INC.**

## **Installation and Maintenance Manual**

### **MAXIMATOR “DLA”, “SPLV”, “GPLV” AIR AMPLIFIERS “DLE” GAS BOOSTERS**

Model #  
Serial #  
Order #  
Mfg. Date

**When ordering spare parts please specify model, serial and order numbers.**

## **INTRODUCTION**

The Maximator Air Amplifiers and Gas Boosters are driven by compressed air and controlled by a floating control valve and pilot valves. Styles are single and double acting with single and two stage versions

## **INSTALLATION**

The Amplifier and Gas Booster can be installed in any position.

Mounting brackets are provided at each end of the air cylinder, which uses 3/8" bolts.

## **COMPRESSED AIR SUPPLY**

The recommended quality of the Compressed Air is filtration between 5 $\mu$  and 40 $\mu$  and a dew point between 0°F and 50°F.

For the air quality listed above, Normally a lubricator is NOT recommended, because the Gas Booster or Air Amplifier was lubricated with a special, high temperature grease, when built. (Kluber Lube GA352P).

For air that is dryer than 0°F dew point, you may use a lubricator or ask for our Dry Air Spool option, (DAS).

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A compressed air filter/water separator is required. If this is not enough you may have to add a coalescing filter.

Air control packages including a filter, regulator, gauge and shut-off ball valve are available as an option. (-ACP)

The air drive pressure connection is a 1/2" FNPT on all units, and is located at the spool valve housing.

A second air connection, 1/8" FNPT, is provided and must be plumbed from an unregulated air source. This connection bypasses the pressure regulator and is connected directly to the pilot valve to provide low pressure differential start-up and re-start for better pressure control.

For Air Amplifiers, the supply air connection from plant air source, is 3/8" FNPT on the SPLV2, GPL:V2 and DLA5 units. It is a 1/4" FNPT for the DLA15 series.

## **HIGH PRESSURE AIR/GAS SECTION**

When connecting to or from an Amplifier or Booster, **never** loosen the suction or discharge glands/fittings that are included with the unit.

A suction filter with a maximum of 40 mesh, for Air Amplifiers and maximum of 15 $\mu$  for Gas Boosters, should be installed in the suction line.

## **VENTILATION AND LEAKAGE PORTS**

The two air section end caps each contain two 1/8" FNPT connections, located opposite each other.

One of these is fitted with a filter and ensures that the rear of the high pressure piston is adequately ventilated and the seals are protected on the suction stroke from external particles entering the high pressure section. Any high pressure gas leak would come out of these ports.

When using hazardous gas, these ports **must** be plumbed to a safe vent area in case of a seal leak.

The other 1/8" FNPT connection is for venting the air drive side in case of air seal failure.

## **START UP**

The Suction and Discharge connections are marked with arrows indicating the direction of flow and must be fitted with the proper size and style of tubing.

Unload the air drive pressure regulator and open the manual shut-off valve on the air drive side. Open the air or gas suction line, to the unit, with the appropriate gas supply pressure. The Amplifier or Booster will automatically shut down once the stall pressure has been obtained. With multistage Boosters, the first stage discharge valve is already connected to the second stage suction valve.

## **COOLING**

The exhaust air from the compressed air drive is used in boosters with a relatively high compression ratio for cooling the high pressure cylinders. Under certain extreme operating conditions or with constant operation, it is necessary to reduce the Maximator Amplifier or Booster's stroke rate in order to avoid overheating. If thermal monitoring is required, install a thermocouple with temperature indicator as near as possible to the high pressure connection. Tests have shown that temperatures in excess of 100C measured at this point considerably reduce the service life of the piston seals.

## **MAINTENANCE**

### **USE ONLY ORIGINAL MAXIMATOR SPARE PARTS**

The air drives of all Air Amplifiers and Gas Boosters are factory pre-treated with silicon free grease (Kluber Lube GA352P) and require no further lubrication except during routine maintenance.

Amplifiers/Boosters can be repaired at your local authorized service center or returned directly to Maxpro Technologies for quick turn-around service.

Amplifiers/Boosters returned for repair should be accompanied with the model, serial and order numbers as well as mfg. date and description of the problem / symptom.

## **TROUBLESHOOTING - PNEUMATIC SECTION**

*Symptom:* Amplifier/Booster will not run at low air pressure (7-15)

*Cause:* Excessive friction of O-rings on spool valve

*Remedy:* Re-lubricate or replace the O-rings

*Symptom:* Amplifier/Booster will not run at low air pressure (7-15 psi)

*Cause:* Continuous escape of air from the exhaust

*Remedy:* Replace O-Rings on the spool valve

*Symptom:* Leaking seal between leakage port and air drive section  
*Cause:* O-Rings and slide rings in the bearing bushings are defective.  
*Remedy:* Replace O-Rings and slide rings

*Symptom:* Amplifier/Booster will not start  
*Cause:* Two low air pressure at the unregulated pilot port.  
*Remedy:* Increase pressure

*Symptom:* Stroke rate falls.  
*Cause:* Exhaust pipe is iced up.  
*Remedy:* Stop for short time and remove water from drive air line.

*Symptom:* Amplifier/Booster operates at a high frequency and short strokes.  
*Cause:* Pilot valve defective.  
*Remedy:* Clean, check and lubricate pilot valve parts or replace if necessary.

## **TROUBLESHOOTING - HIGH PRESSURE SECTION**

*Symptom:* Amplifier/Booster will not run  
*Cause:* Too low air pressure  
*Remedy:* Regulate the air drive pressure according to the pressure ratio

*Symptom:* Bad leak at the leakage port with filter  
*Cause:* Worn high pressure seal  
*Remedy:* Replace high pressure seals.

*Symptom:* Amplifier/Booster runs but does not deliver compressed gas.  
*Cause:* a: Too low inlet gas pressure  
b: Outlet check valves not working.  
*Remedy:* a: O-rings may need replacement; regulate the inlet gas pressure.  
b: Clean check valves and if necessary replace O-rings.

*Symptom:* Amplifier/Booster overheats  
*Cause:* a: Defective check valves  
b: Stroke frequency too high.  
*Remedy:* a: Inspect check valves  
b: Throttle down the air feed rate.

## **SERVICE**

For factory authorized service, contact Maxpro Technologies, Inc. or your local Distributor.