

# Installation and Maintenance Manual

## **MAXIMATOR “MPLV” SERIES AIR AMPLIFIERS**

Model #  
Serial #  
Order #  
Mfg. Date

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

### **INTRODUCTION**

The Maximator Air Amplifier described in this manual is a pneumatically operated, gate valve controlled piston type, similar in style to a double-acting pneumatic cylinder.

The Amplifier model number indicates the ratio of areas between the pneumatic piston and the high pressure plunger. For example, the MPLV4-1 Amplifier has an area ratio of 4:1 between the pneumatic piston and high pressure plunger.

This relates to a maximum air output pressure that is 4 times greater than the pneumatic drive pressure. e.g. With 100 psi air, the outlet would be 400 psi.

### **INSTALLATION**

The Amplifier can, in principle, be installed in any position but maximum service life of the seals is achieved in a vertical installation.

Mounting brackets are provided at the top and bottom of the air cylinder, which uses 5/16" bolts.

## **COMPRESSED AIR SUPPLY**

Do not use an air lubricator because the Amplifier was lubricated with a silicon free grease when built. (Kluber Lube)

A compressed air filter is required and if the air is not dry, a water separator must be used.

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

The air pressure connection is a 1/4" FNPT and is located at the spool valve housing.

## **HIGH PRESSURE PNEUMATIC SECTION**

**Attention!** Never loosen the cap nut in the high pressure seal area of the Amplifier to orient the pump for installation. This nut must always be tight to assure proper operation of the high pressure seals.

The suction and discharge piping must be at least the same size or larger, as the Amplifier connections and properly rated for the Amplifier being used.

A suction filter with a maximum of 100 mesh should be installed in the suction line.

The discharge connection is located at the side and the suction is in the bottom face of the Amplifier head.

## **INITIAL SET-UP**

The outlet air pressure can be precisely selected by adjusting the drive air pressure according to the pressure ratio of the Amplifier being used.

The Amplifier will stop and maintain pressure for an indefinite period of time, at about 100% to 110% of the ratio, assuming no leaks.

For example, an MPLV4-1 Amplifier with an air drive pressure of 100psi, will operate at a pressure of 400 psi and completely stop at about 440psi.

## **MAINTENANCE**

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

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

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

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

## **DESCRIPTION OF OPERATION**

The automatically operated Amplifier is controlled by a floating slide valve which alternately applies air pressure to the piston and subsequently vents the air again. The control system as such is operated with out springs and arresting fixtures as pressure is alternately supplied to and vented from the front surfaces of the pneumatically operated floating slide valve.

The main parts in the high pressure section are the Amplifier body, plunger, seals with thrust rings and inlet and outlet check valves. The check valves are rated for full flow with dynamic sealing.

## **TROUBLESHOOTING - PNEUMATIC DRIVE SECTION**

*Symptom:* Amplifier cannot be operated at low air pressure.

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

*Remedy:* Relubricate or replace the O-rings

*Symptom:* Amplifier can only be actuated at high air pressure.

*Cause:* Air escapes through the piston guide in the top air cap.

*Remedy:* Replace O-ring on the piston extension.

*Symptom:* Amplifier runs slowly or not at all.

*Cause:* Exhaust or spool valve is "icy."

*Remedy:* Stop Amplifier for a short while and clear air line and supply of moisture.

*Symptom:* Amplifier will not run and air escapes through the exhaust muffler.

*Cause:* Pilot valve tappet is not sealing in top cap.

*Remedy:* Clean and grease tappet, check for wear and replace if necessary.

*Symptom:* Amplifier will not run and air escapes through small holes in the spool valve housing.  
*Cause:* Spool valve fails.  
*Remedy:* Clean spool valve and sleeve, check O-rings and sleeve, lubricate and/or replace.

*Symptom:* Amplifier will not run and escapes through the small holes in the bottom cap.  
*Cause:* Pilot valve tappet is not sealing in the bottom cap.  
*Remedy:* Clean and grease tappet, check for wear and replace if necessary.

*Symptom:* Amplifier 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 does not have flow, operates irregularly or does not maintain pressure.

*Cause:*

1. Air supply pipe size too small.
2. Failure of one of the check valves.
3. Suction filter is blocked.
4. High pressure seal is worn excessively.

*Remedy:*

1. Increase suction pipe size.
2. Check both valve assemblies and clean or replace if necessary.
3. Clean suction filter
4. Replace seal.

*Symptom:* High pressure air escapes through the drive air exhaust.

*Cause:* Worn high pressure seal.  
*Remedy:* Lubricate and replace seal.

## **SERVICE**

For factory authorized service, contact your local Distributor.