

INSTALLATION and MAINTENANCE DATA

Here are some facts you should know about your Airoyal cylinder.

They have been written about standard cylinders.

CYLINDER RATINGS

Airoyal "A" cylinders are suitable for air service to 150 psi.

Airoyal "H" cylinders are suitable for oil service to 750 psi.

Airoyal "HP" cylinders are suitable for oil service to 2000 psi.

Airoyal "SHP" cylinders are suitable for oil service to 3000 psi.

Airoyal "O" cylinders are suitable for air service to 150 psi.

Airoyal "W" cylinders are suitable for water service to 500 psi.

INSTALLATION OF THIS CYLINDER

The one most important detail in mounting this cylinder is to accurately align the rod with the work so that no side loads are imposed on the rod, for side loads are transmitted to the packing and may cause leakage. This is especially true if the work moves in machined guides or ways. It is suggested that indicator readings be made with the rod extended and retracted to ensure that the work does not force the rod out of alignment. Rod Swivel Eyes are recommended for solidly mounted as well as pivot-mounted cylinders.

The trunnion block is securely located on the cylinder barrel by means of a slight undercut in the barrel. A new groove should be cut in the barrel in the event it becomes necessary to relocate the trunnion in the field. The trunnion pins are designed to stand shear stresses only, not bending action. For this reason, it is important that the pillow blocks be of ample size and rigidity and with minimum clearance for the pins.

If the cylinder has a long stroke the rod must be prevented from buckling due to column action or from sagging due to its own weight. A long stroke cylinder should have an oversize rod. If possible, the rod should be in tension during the work stroke. In severe applications it may be necessary to provide external bearings for the rod.

SEALS AND PACKINGS

Standard packings are fabricated from an all-purpose synthetic rubber compound. It is intended that the hydraulic cylinder be used with a good grade of clean, hydraulic mineral or petroleum base oil.

Synthetic and fire-resistant fluids require special packings.

An air line lubricator should be used with the air service cylinders.

Operating temperatures for the standard packings are from -10 to 200 degrees Fahrenheit.

AIROYAL CYLINDER MAINTENANCE

NEVER put a wrench on the polished portion of the piston rod. If it is necessary that the rod be held or moved, put a rod in the hole located just behind the threads or use the wrench flats provided for the purpose.

TO REMOVE THE ROD PACKING

First push the rod in, as far as possible.

Remove the tru-arc retaining ring (Use tru-arc pliers or sharpened long nose pliers)

Block the port in the rod end cover, then pull out the rod, the packings will come with it.

When putting the new packings on the rod, either cover the thread with cellophane tape, or carefully wind the packings over the threads.

(The same motion as putting on a nut)

Make sure that the leading edges of the packings are properly entered into the gland. This can be done by putting the thumbnail against the edge of the gland and rotating the packing against it.

Never use a knife blade or sharp-edged tool because the lip of the packing will surely be damaged.

Be sure that the tru-arc retaining ring is installed with the sharp edge flat side out.

TO DISASSEMBLE CYLINDER

Put jaw covers on large vise.

Put blind end cover of cylinder in the vise and pull up tight, very tight.

Use wrench on the rod end; be very sure that the wrench is a good fit. Never use a Stilson or pipe wrench.

Never use a wrench of any sort on the cylinder tube and never put the cylinder tube in a vise.

Put thread sealant on the tube then hand-tighten. With a wrench, tighten it at least one more full turn (360 degrees) to line up the ports, but no more than a turn and a half.

It is seldom necessary to remove both ends from the cylinder when making repairs, but if it is, the tube should be held in a split pillow block; if such a thing is not readily available bore a hole equal to the OD of the tube, in a block of wood, then cut the block in half, put the two halves around the cylinder and then put it in the vise.

REASSEMBLING THE CYLINDER

Be sure that everything is as absolutely clean as possible.

Take care that the tube gaskets are properly seated in their grooves.

Measure the depth of the gasket in the end cover (1/2" for units up to 1-1/2" bore and 9/16" for 2" bore) and make a mark on the tube thread so that you know when you are coming to the end and must line up the ports.

Use the same careful procedure for holding the cylinder that you did when disassembling.

Take lots of time and care to assure that none of the packings are damaged and that everything is absolutely clean.

Be sure that the ports are cleaned and then plugged.

ASSEMBLE AND DISASSEMBLE THE ROD

NEVER put anything harder than your hand onto the polished part of the rod.

Put two nuts on the threaded end of the rod. Hold one and pull the other tight against it.

Pull up until the flats are even; put the two nuts in the vise to hold the piston rod while the piston nuts, piston follower, and the piston packings are installed.

Be sure everything is absolutely clean.

It is probable that a new hole will have to be drilled and tapped for the piston set screw.

CYLINDER PORTS

Airoyal cylinder ports are tapped with dry-seal threads. They may be connected to any American standard tapered male pipe connection.

IS THIS CYLINDER SINGLE-ACTING?

The spring within a single-acting cylinder, which returns the piston to its starting position, is designed to return only the weight of the piston and a small additional load. When the cylinder is required to move a heavy load on its return stroke, it is suggested that an additional external spring be used. Please remember that the force required to compress the return spring detracts from the force output of the cylinder.

For single-acting hydraulic cylinders it is of the utmost importance that the back pressure does not exceed 10 psi. A higher back pressure may result in a retarding force equal to the spring compression force, preventing the cylinder from returning to its starting point or permitting it to move back, but slowly.

RESPECT, PLEASE

This cylinder is built with very fine craftsmanship. Some of its surfaces have been finished to 6 micro inches. It is a precision tool and deserves to be treated as such. Please, be careful with that wrench!

GUARANTEE

The Airoyal Mfg. Co. unconditionally guarantees its cylinders against breakage caused by faulty material or workmanship.

Should any Airoyal Cylinder, properly installed, break under normal working conditions, it will be repaired or replaced free of charge, FOB our factory.

Our liability arising out of the use of this equipment shall not in any case extend beyond our repair or replacement of any broken cylinder or part, free of charge FOB our factory. We shall not in any event be liable for indirect or consequential damages.