

ALWAYS GIVE MODEL AND SERIAL NUMBER WHEN ORDERING SERVICE PARTS

## 2 x 24

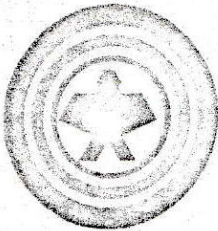
REF.	PART NO.	DESCRIPTION	QTY
1	1312-202*	"O" RING	1
2	3403-005*	PISTON SEAL	1
3	1401-392*	"O" RING	1
4	0080-224	PISTON	1
5	3403-013	LOCK NUT	1
6	1312-231	CYLINDER TUBE WELDMENT	1
7	1312-269	SHAFT WELDMENT	1
8	1312-267	TRU-ARC RETAINER RING	1
9	3403-010*	ROD WIPER	1
10	3403-009*	ROD SEAL	1
11	1312-257	PACKING HEAD	1
12	1310-127*	BACK-UP RING	1
13	1312-233*	"O" RING	1

\* IF A COMPLETE SEAL KIT IS DESIRED, ORDER PART NO. 1310-134, ITEMS MARKED ARE INCLUDED.

## 2 1/2 x 8

REF.	PART NO.	DESCRIPTION	QTY.
1	1312-202*	"O" RING	1
2	3403-002*	PISTON SEAL	1
3	1401-395*	"O" RING	1
4	0080-221	PISTON	1
5	0912-200	LOCK NUT	1
6	1312-249	CYLINDER TUBE WELDMENT	1
7	1312-247	SHAFT WELDMENT	1
8	1312-254	TRU-ARC RETAINER RING	1
9	3403-010*	ROD WIPER	1
10	3403-009*	ROD SEAL	1
11	1312-245	PACKING HEAD	1
12	1310-120*	BACK-UP RING	1
13	1312-205*	"O" RING	1

\* IF A COMPLETE SEAL IS DESIRED, ORDER PART NO. 1310-135, ITEMS MARKED ARE INCLUDED.



Hydra-Mac, Inc.

Telephone 218/ 681-7130  
Box N  
Thief River Falls, MN. 56701

SUBJECT: Hydraulic Cylinder

Until further notice there will be cylinder seal kits available for all cylinders sold or previously sold on Hydra Mac products. There will be repair parts, such as shaft, pistons, glands, and tubes, available for all cylinders identifiable as new D&E (present usage).

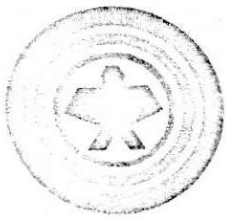
There will be no parts available for Aureleus, Cross, Green and Old D&E, due to the fact that the parts are not obtainable from the manufacturer.

#### GENERAL REPAIR PROCEDURE

Remove all oil from ram before starting disassembly. Pull shaft gland and piston assembly out of tube. The piston and gland may be removed from shaft by removing lock-nut at end of shaft. Note the way the piston is positioned to insure it is reinstalled the same way. At this point ok complete cylinder for possible faults keeping in mind what your original problem was.

#### TUBE:

Hone tube with proper deglazing tool. Any scratches that do not come out will necessitate discarding tube. Wash tube out with solvent and generously lubricate interior of tube with hydraulic oil.



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#### SHAFT:

Inspect shaft for any nicks and scratches which will pass over a seal. If some are found attempt to remove them with fine grit crocus or emery cloth. The shaft will have to be discarded if the scratch cannot be removed to the point where it will not damage or let oil leak past the seal.

#### PISTON:

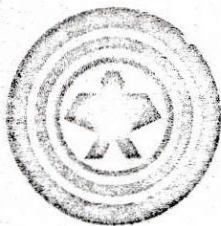
Check piston to make sure no nicks are present. Remove old seals and clean piston thoroughly. Install new seals and lubricate with a light coating of grease.

#### GLAND:

Inspect gland and all sealing areas to make sure no burrs are present. Remove all burrs and rough spots with a file or emery cloth.

#### REASSEMBLY:

Generously oil everything before reassembly. Carefully slide gland back onto shaft and in like manner the piston. Install lock nut back on shaft, (note- if lock nut does not exhibit locking properties, replace with new one.) Slide piston, gland, and shaft into tube being carefull not to damage seals. Install gland and secure it. If cylinder is not to be reinstalled on a machine, plug connections to prevent any foreign particles from entering.



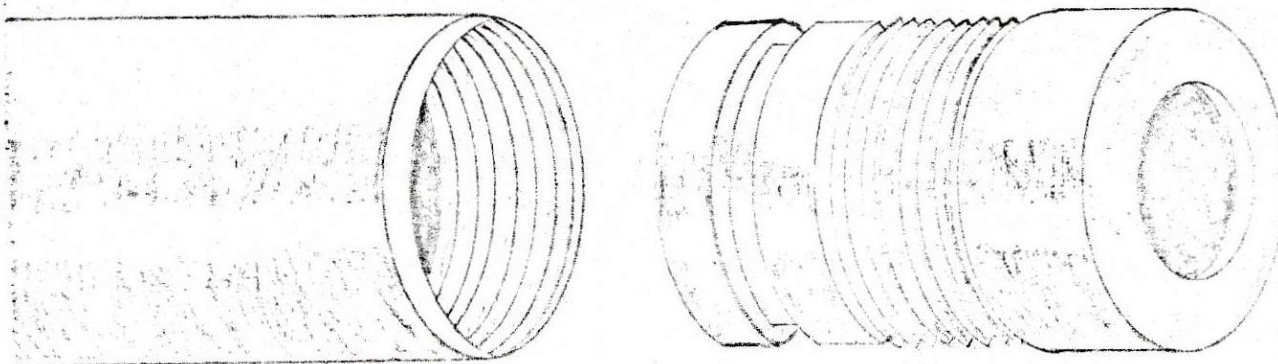
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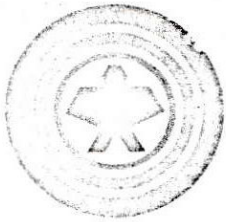
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### AURELIUS CYLINDER

Turn gland out of tube with a channel lock plier or pipe wrench. (Right hand threads!) After gland has been removed, general repair procedure may be followed.

Exception: Remove all old seals except dirt wiper. If this is in good condition leave in place since it is not included in the seal kit. Should you find it necessary to replace the dirt wiper, carefully remove it so as not to damage identifying numbers and obtain one locally.



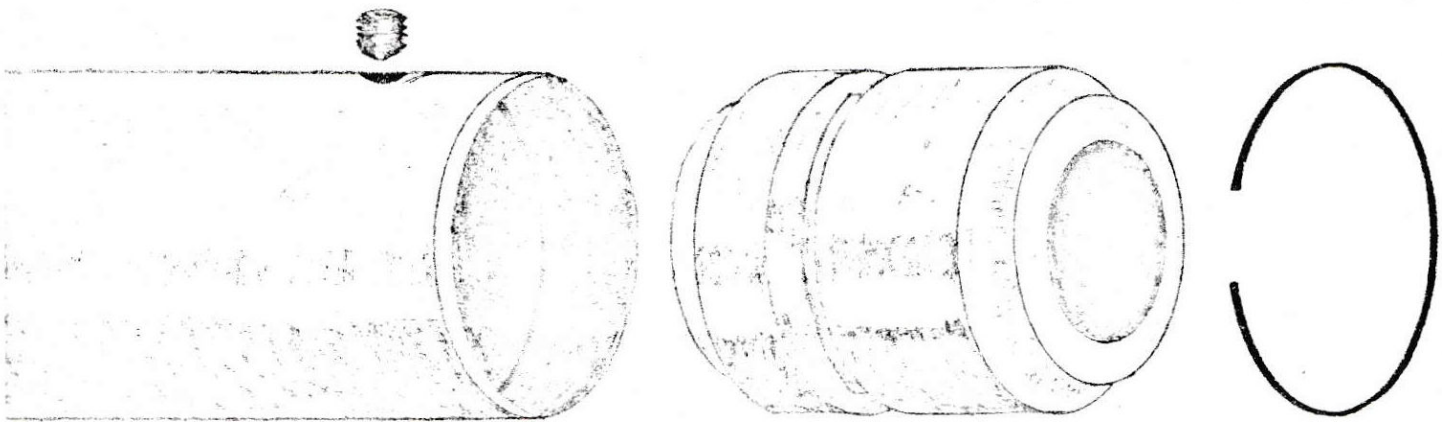


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### CROSS

Remove set screw from tube near the end of gland area, using a  $3/8$  " punch. Tap gland back inside tube until wire snap ring is visible. Remove wire snap ring from its groove. The entire piston gland and shaft assembly may now be pulled from the tube. At this point procede to the general repair procedure.



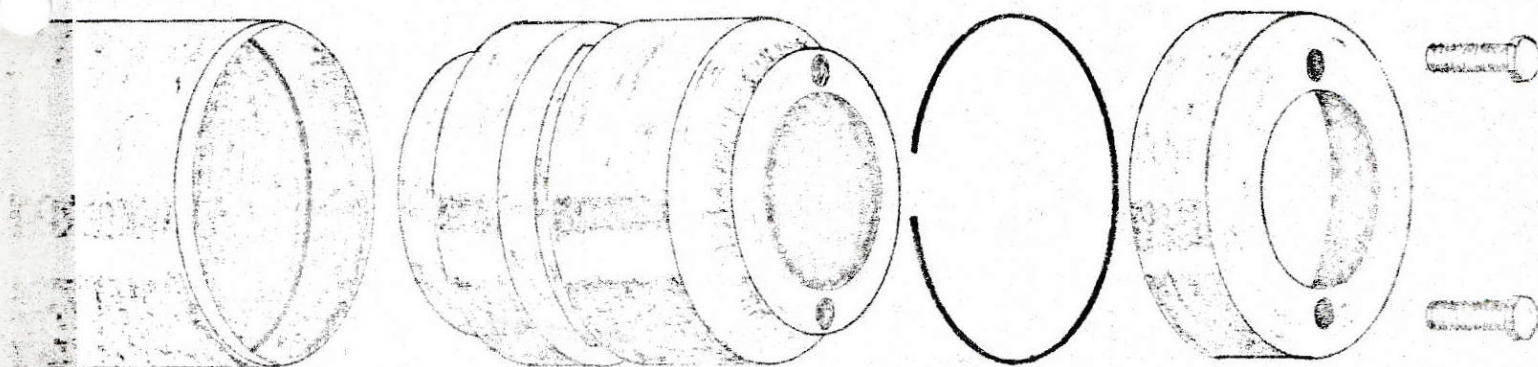


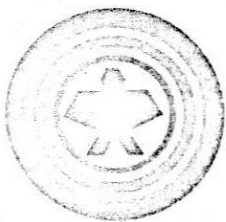
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### CAPPED GREEN

Remove two  $\frac{1}{4}$  inch capscrews holding the endcap on the tube. Slide the endcap off the tube. Use a wide flat end punch, and carefully tap the gland back until the wire snap ring is visible. Use a small screw driver to remove the snap ring. The gland piston and rod can now be removed. You may now follow general repair procedure.



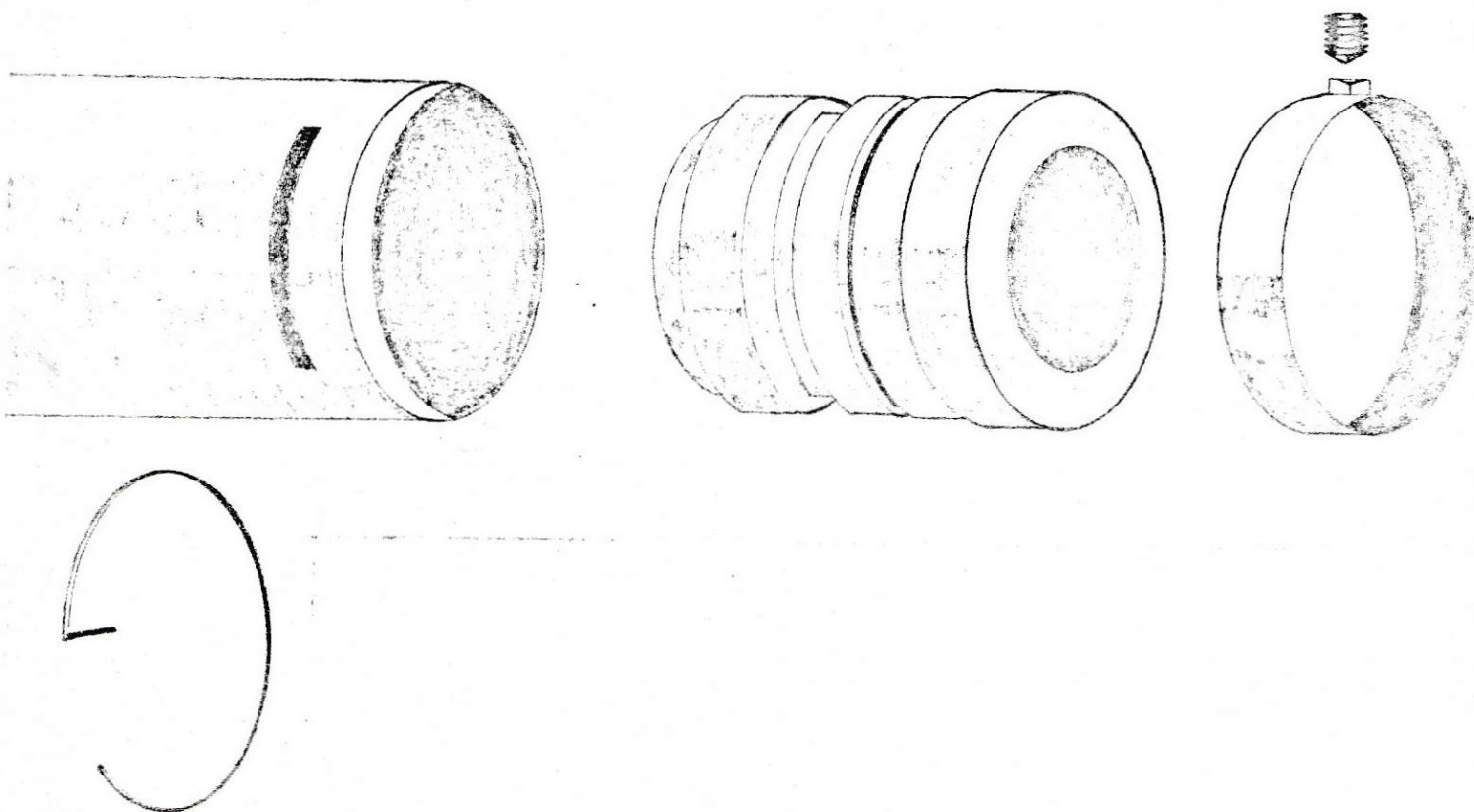


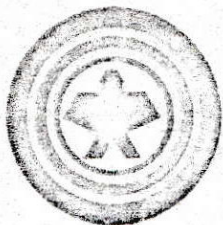
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### GREEN

Loosen set screw, slide short sleeve off the end of the cylinder. Notice slot that is uncovered when the sleeve is moved. Turn the gland so that the straight end of the wire snap ring comes out of the slot. Should the hooked end appear, stop and turn gland in opposite direction. When the entire wire snapping is out you may procede with the general repair procedure.



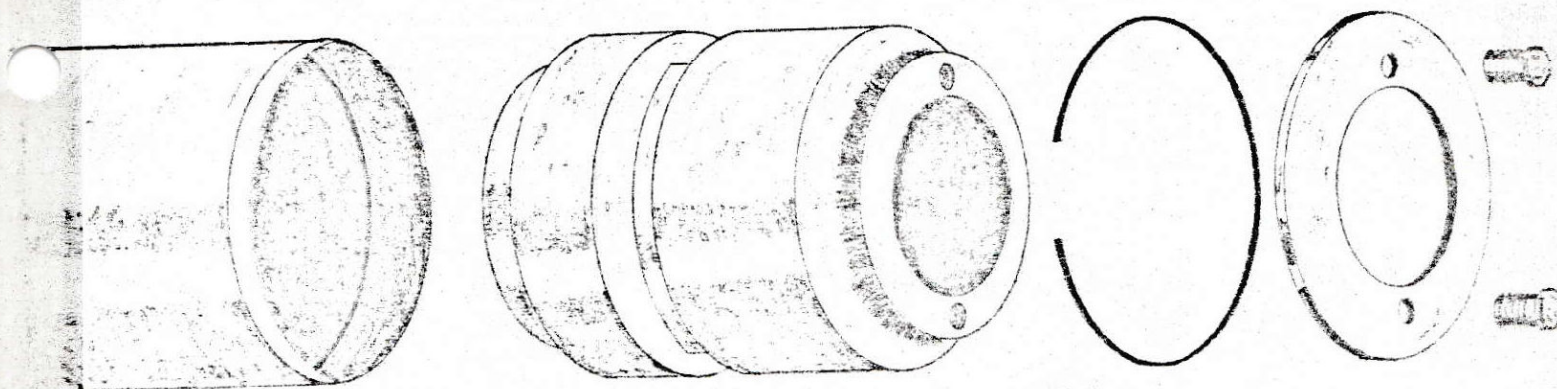


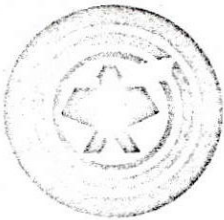
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### EARLY D & E

Extend shaft approximately half way and remove the two cap screws in end plate. Carefully tap aluminum gland back until snap ring is visible. Pry wire snap ring out with a small screw driver. At this point procede to general procedure.



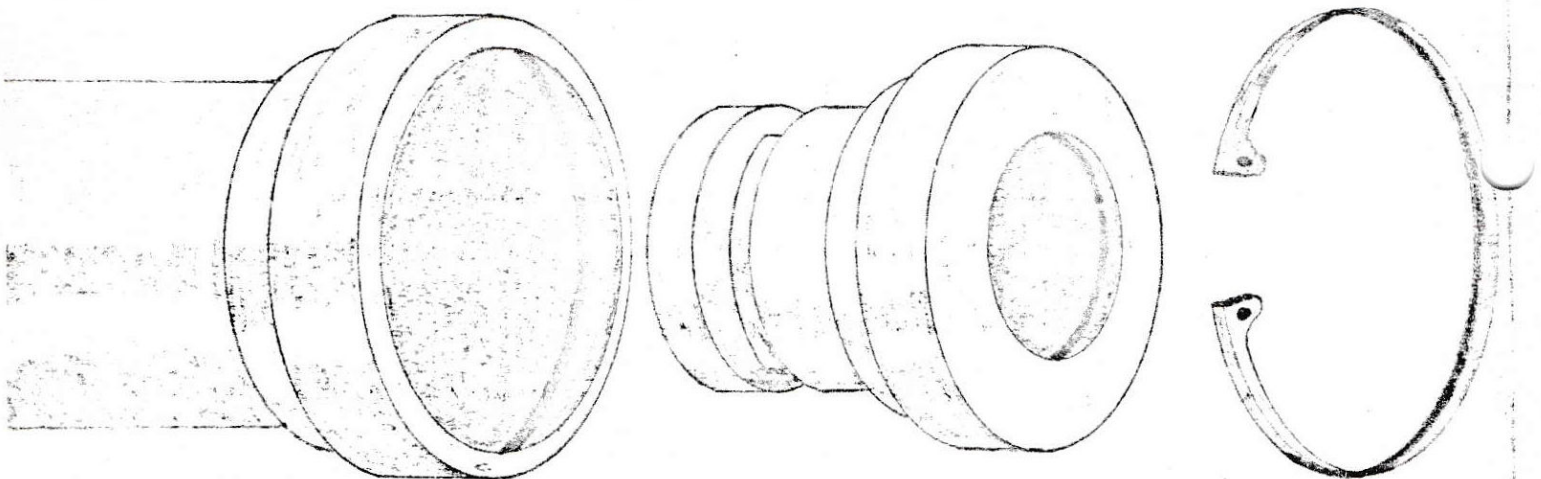


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D & E

Remove snap ring in end of tube with heavy duty internal snap ring plier. At this point procede with general repair procedure.



4-Tape - RF  
3-Wire - RR  
Wire - LR  
plain - LF