



**Cylinder Division (U.S.A.)**  
 500 South Wolf Road  
 Des Plaines, Il. 60016  
 (847) 298-2400

**Cylinder Division**  
 1000 6th Street East  
 Owen Sound, Ontario,  
 Canada N4K5P1  
 (519) 376-2691

Service Bulletin 0995-M14

**Piston Seal Kits**

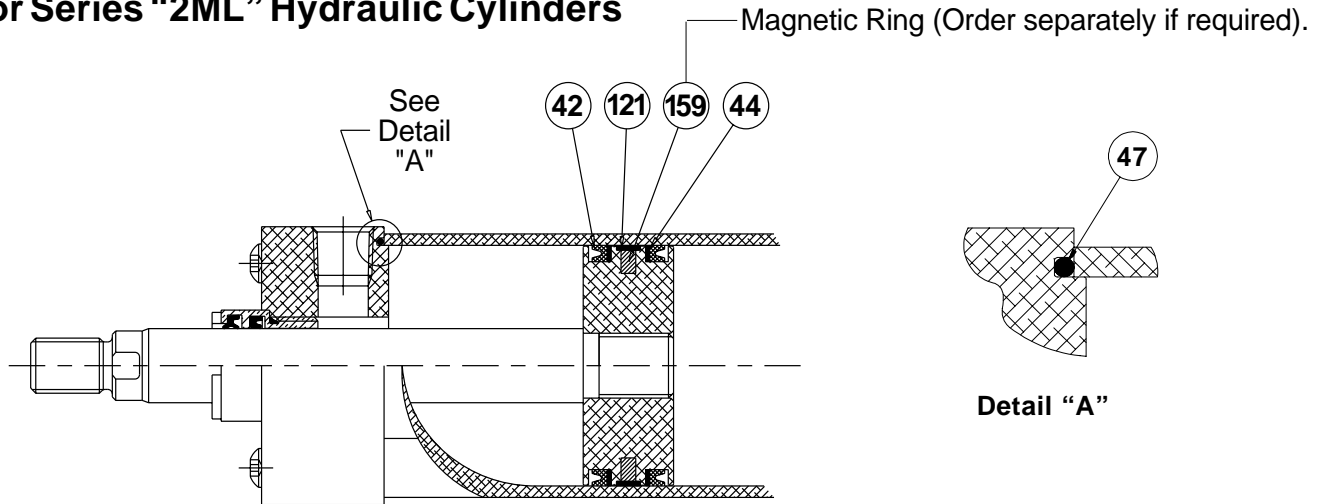
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# Piston Seal Kits

## (Piston & Cylinder Body Seals)

### For Series "2ML" Hydraulic Cylinders



**PISTON SEAL KIT**

- (PK)** Kit contains 2 each of the following:
- symbol #42, Lipseal, piston.
  - symbol #44, Back-Up Washer.
  - symbol #47, O-Ring, cylinder body to head & cap,
- 1 each - symbol #121, Wear Strip  
**(See "Servicing the Piston Seals" on opposite side)**

**CYLINDER BODY END SEAL KIT**

- (CB)** Kit contains 2 each of the following:
- symbol #47, O-Ring, cylinder body to head & cap.

Service kits of expendable parts for fluid power cylinders are stocked in principal industrial locations across the U.S.A. and other countries. For prompt delivery and complete information, contact your nearest Parker distributor or office.

**Standard Seals - Class 1 Service** are standard, and contain Nitrile seals for standard fluid service. These seals are suitable for use when air is the operating medium. The recommended operating temperature range for Class 1 seals is: -10° F. (-23° C.) to +165° F. (+74° C.)

**Warning** - The piston rod to piston threaded connections are secured with an anaerobic adhesive which is temperature sensitive. Cylinders specified with Standard Class 1 seal compounds are assembled with an anaerobic adhesive having a maximum operating temperature of +165° F. (+74° C.). These temperature limitations are necessary to prevent the possible loosening of the threaded

connections. Cylinders originally manufactured with Class 1 seals that will be exposed to ambient temperatures above +165° F. (+74° C.) must be modified for higher temperature service. Contact the factory immediately and arrange for the piston to rod connection to be properly reassembled to withstand the higher temperature service.

**⚠ WARNING**

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

This document and other information from Parker Hannifin, its subsidiaries and authorized distributors provide product and / or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of failure and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing are subject to change by Parker Hannifin and its subsidiaries at any time without notice.

Bore Size	PK	SYMBOL # 159	CB	Fastener Bolt / Tie Rod Torque Units	
	Piston Seal Kit		Cylinder Body End Seal Kit		
	NOTE: Order - Magnetic Ring symbol #159 - separately if required		Consisting of: 2 each symbol # 47		
	NITRILE Seals	(NITRILE ONLY)	NITRILE Seals		
	Part No.	Part No.	Part No.	U.S.A.	Metric
1 1/2"	PK1502ML01	0865130151	CB1502MA01	32 + 4 in. lbs.	3.6 + 0.5 nm
2"	PK2002ML01	0865130200	CB2002MA01	72 + 10 in. lbs.	8 + 1 nm
2 1/2"	PK2502ML01	0865130250	CB2502MA01	72 + 10 in. lbs.	8 + 1 nm
3 1/4"	PK3202ML01	0865130325	CB3202MA01	216 + 12 in. lbs.	24 + 1.3 nm
4"	PK4002ML01	0865130400	CB4002MA01	216 + 12 in. lbs.	24 + 1.3 nm
5"	PK5002ML01	0865130500	CB5002MA01	30 + 1 ft. lbs.	41 + 1 nm
6"	PK6002ML01	0865130600	CB6002MA01	35 + 1 ft. lbs.	48 + 1 nm
8"	PK8002ML01	0865130800	CB8002MA01	80 + 1 ft. lbs.	109 + 6 nm

### Servicing the Piston Seals

Disassemble the cylinder completely, remove the old seals and clean all the parts. The cylinder bore and piston should then be examined for evidence of scoring. (The light scratch marks usually present on both cylinder bore and piston will generally have no detrimental effects on the performance of the cylinder.)

Apply clean light oil to O.D. of piston and all grooves. Install one piston Lipseal (sym. # 42) & one Back-Up Washer (sym. #44) in the groove nearest the rod. The two "lips" of the Lipseal (sym. #42) should face toward the rod end of the piston and the Back-Up Washer (sym. #44) should be installed in the same piston groove as shown. If required, install the magnetic ring (sym. # 159) in the bottom of the middle groove. (See detail "1" below) Next, install the wear strip (sym. # 121) in the top of the middle groove - (See detail "2" below).

Coat the inside of the cylinder body with clean light oil and insert the piston - cap end first - into the cylinder body as shown in detail "3" below.

Next, turn the cylinder body on its side and push the piston and rod assembly through the barrel just far enough to expose the piston groove for the second Lipseal. (See detail "4" below.) Be careful not to move the piston too far so as to expose the wear strip (sym. # 121). If the piston should move too far, push the piston and rod assembly completely through the cylinder body and again start the piston from the original end. Now install the second Lipseal (sym. # 42) & Back-Up Washer (sym. #44) in the exposed groove with the two "lips" of the Lipseal (sym. #42) facing away from the rod and the Back-Up Washer (sym. #44) positioned as shown. Then pull the piston into the cylinder body.

The piston and rod are securely locked together with anaerobic adhesive. This threaded connection should only be disassembled or reassembled by factory trained personnel.

**NOTE:** An extreme pressure lubricant (such as molybdenum disulphate) should be used on the tie rod threads and bearing faces to reduce friction and tie rod twist.

Assemble both cap and head, complete with cylinder body O-Rings (sym. # 47), to each end of the cylinder body. Install end cap fasteners and tighten to appropriate torque, using opposite corner to corner torquing sequence. (See table on side 1). After screws are torqued, firmly torque the rod gland against the head using a gland and spanner wrench. (See Service Bulletin # 0995-M13)

In case of a "DD" - center trunnion - mounted cylinder, care must be taken to prevent binding the cylinder body when repositioning the trunnion collar. The proper method of assembling this type of cylinder is as follows:

After all the piston seals have been installed on the piston and the piston is in the cylinder body, fit the cap with its O-ring (sym. # 47) in position onto the cylinder body. Then "stud" into the trunnion collar the four tie rods that connect the cap to the trunnion collar. Hand tighten the four tie rod nuts at the cap. Distances from the inner face of the cap to the finished face of the trunnion collar should be made equal at all four tie rods when all four tie rod nuts are in contact with the cap.

When the assembly is ready for final torquing, it may be necessary to adjust the tie rods at the cap when torquing the tie rods at the head in order to position the trunnion collar in its final position.

As a check, to be certain the trunnion mount will not interfere with cylinder operation, move the piston and rod assembly by hand to determine whether there is any tendency for the piston to bind at the spot where the trunnion collar is located. If any binding is noticeable, readjust the tie rods.

