

3MA Series NFPA Air Cylinders

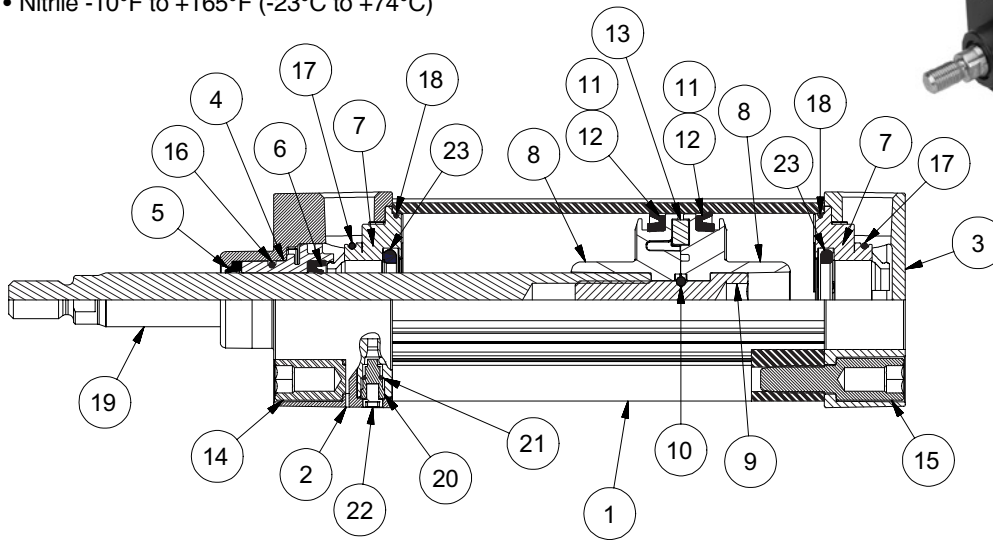
Parts Identification, Maintenance Instructions & Seal Kits

1½" - 5" Bore 3MA Piston Seal Kits (Piston and cylinder body seals)

Pneumatic service only

Temperatures:

- Nitrile -10°F to +165°F (-23°C to +74°C)



Composite piston assembly shown above.
 Aluminum piston options available.
 The same piston lipseals fit both piston types.

Servicing the piston seals – see next page

Every standard piston seal kit (PK) contains 2 of the following:

Symbol	Description
11	Piston seal (lipseal)
18	O-ring - cylinder body to head & cap

Every bumper piston seal kit (BK) contains 2 of the following:

Symbol	Description
12	Piston seal (Bumper seal option)
18	O-ring - cylinder body to head & cap

Warning – The piston rod (or fastener) to piston threaded connection is secured with an anaerobic adhesive that is temperature sensitive. Cylinders are assembled with an anaerobic adhesive having a maximum operating temperature rating of +165°F (+74°C). This temperature limitation is necessary to prevent possible loosening of the threaded connections.

Note: the maximum temperature rating for the 1½"-5" bore 3MA is +165°F (+74°C).

1 tube of Lube-A-Cyl is also included with each PK or BK kit.

Bore Size	PK - Piston Seal Kit, Standard Lipseals	BK - Piston Seal Kit, Bumper Seals	Magnetic Ring (not replaceable for composite piston, only for aluminum piston)	Endcap Fastener or Tie Rod Torque Units	
	Includes 2 each of symbol 11 & 18 Includes wear band (#27) for aluminum pistons and 4" and 5" composite pistons			USA	Metric
	Nitrile Seals Kit Number	Nitrile Seals Kit Number		inch-lbs	N-m
1-1/2	PK1503MA01	BK01503MA1	0865130151	32 - 36	3.6 - 4.1
2	PK2003MA01	BK02003MA1	0865130200	72 - 82	8 - 9
2-1/2	PK2503MA01	BK02503MA1	0865130250	72 - 82	8 - 9
3-1/4	PK3253MA01	BK03253MA1	0865130325	216 - 228	24 - 25.3
4	PK4003MA01	BK04003MA1	0865130400	216 - 228	24 - 25.3
5	PK5003MA01	BK05003MA1	0865130500	360 - 372	41 - 42

Parker Lube-A-Cyl...

Is recommended for use in air cylinders during normal operation, and particularly when servicing and reassembling cylinders. It is a multi-purpose lubricant in grease form that provides lubrication without deteriorating effects on synthetic seals. It produces a thin film which will not blow out with exhaust air. It provides piston, rod and seal lubrication, and has excellent resistance to water and mechanical breakdown with temperature range of -10°F (-23°C) to +350°F (+177°C). Lube-A-Cyl is packaged in 1.5 oz. tubes, a sufficient quantity for average size air cylinder. One application should last for a period of 6 to 18 months depending upon service. Order by part number 0761630000.

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 Parker "Lube-A-Cyl" to O.D. of piston and all grooves. Install one piston Lipseal (sym. # 11 or 12) in the groove nearest the rod. The two "lips" of this seal should face toward the rod end of the piston. **Aluminum and 4" & 5" composite pistons only** – If required, install magnetic ring (sym. #13) in the bottom of the middle groove and then install wear band (sym. #27) in the top of the middle groove.

Coat the inside of the cylinder body with Parker "Lube-A-Cyl" and insert the piston – cap end first – into the cylinder body as shown in detail "2" 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 groove for the second Lipseal. (See detail "3" below.) For aluminum pistons, be careful not to move the piston too far so as to expose the wear strip (sym. #27). 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. # 11 or 12) in the exposed groove with the two "lips" facing away from the rod and 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.

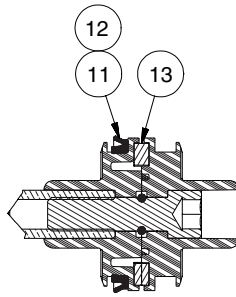
Assemble both cap and head, complete with cylinder body O-Rings (sym. # 18), to each end of the cylinder body. Install end cap fasteners and tighten to appropriate torque, using opposite corner to corner torquing sequence.

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:

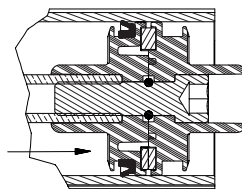
After all the piston seals have been installed on the piston and the piston is in the cylinder body, fit the cap with its O-ring (sym. # 18) in position onto the cylinder body. Then "stud" into the trunnion collar the four tie rods that connect the cap to the trunnion collar. Hand tighten the four tie 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.

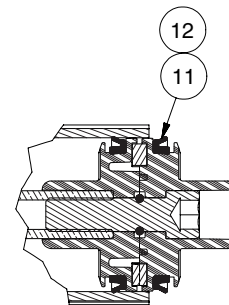
As a check, to be certain the trunnion mount will not interfere with cylinder operation, move the piston and rod assembly by hand to determine whether there is any tendency for the piston to bind at the spot where the trunnion collar is located. If any binding is noticeable, readjust the tie rods.



Detail "1"



Detail "2"



Detail "3"

⚠ WARNING

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