



Price® Pump Co.

INSTALLATION, OPERATING AND MAINTENANCE MANUAL

AIR OPERATED
DIAPHRAGM PUMPS
MODEL AOD3-Y
NON-METALLIC
ALL ELASTOMERS

PLEASE FILL IN DATA
FROM YOUR PUMP
NAMEPLATE

Pump Model _____

Spec. No. _____

Serial No. _____

Seal No. _____

RETAIN MANUAL
FOR REFERENCE

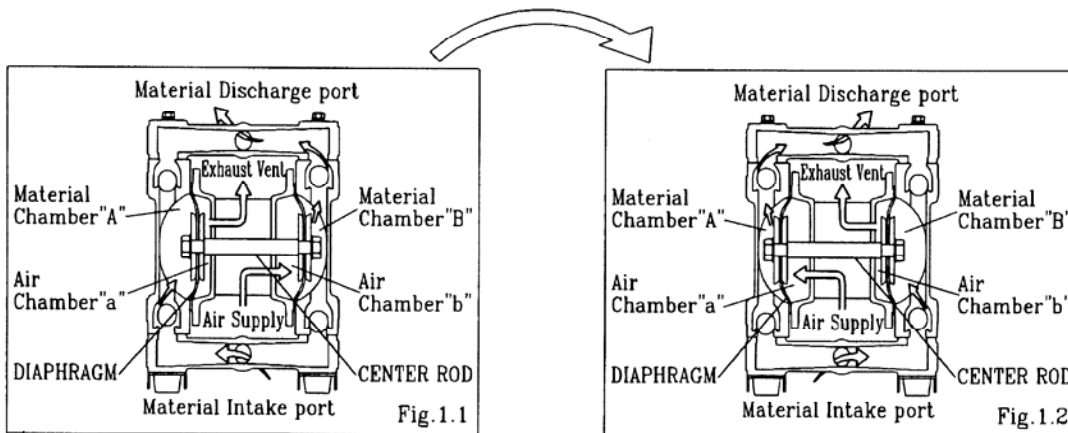
Price® Pump Company
Sonoma, CA 95476
Tel: 707-938-8441
Fax: 707-938-0764
www.pricepump.com

Table of Contents

Title Page	1
-Table of Contents	2
Principle of operation	3
2. Tools, etc.	
2.1 General tools	3
2.2 Special Tools	3
2.3 Misc	3
Ordering Replacement Parts	3
4. Ball and Valve Seats	
4.1 Removal	
BA_, BS_, BF_ types	4
AOD3-Y	5
4.2 Inspection	6
4.3 Installation	6
5. Diaphragm and Center rod	
5.1 Removal	
BA_, BS_, BF_ types	7
AOD3-Y_, BV_ types	7
5.2 Inspection	8
5.3 Installation	
B_C, B_N, B_E, B_V, B_H, B_S types	8
B_T type	9
6. Throat bearing and Pilot valve	
6.1 Removal	10
6.2 Inspection	10
6.3 Installation	10
7. C-Spool valve assembly	
7.1 Removal	11
7.2 Inspection	12
7.3 Installation	12
8. Exploded View and Parts List	
8.5 NDP-80BA_	13
NDP-80BA_ Parts List	14
8.6 NDP-80BS_, BF_	15
NDP-80BS_,BF_, Parts List	16
8.7 AOD3-Y_	17
AOD3-Y Parts List	18
8.8 COMMON PARTS	19
8.9 BODY ASSEMBLY	22
8.10 VALVE BODY ASSEMBLY	23
TERMS and CONDITIONS	24

1. Principles of operation

There are two diaphragms fixed to the center rod, one at each end. When compressed air is supplied to air chamber b (right side, see Fig. 1.1), the center rod moves to the right, the material in material chamber B is pushed out, and at the same time material is sucked into material chamber A. When the center rod is moved full-stroke to the right, the air switch valve is switched, compressed air is sent to air chamber a (left side, see Fig.1.2), and the center rod moves to the left. The material in material chamber A is pushed out, and at the same time material is sucked into material chamber B. Through repetition of this operation, material is repeatedly taken in and discharged out.



2. Tools, etc.

2.1 General tools

- Socket wrenches 13mm, 17mm, 19mm, 24mm, (BA_, BS_, BF_)
- Hexagonal box wrenches 5mm, 6mm
- Small crowbars 2 (B_C, B_N, B_E, B_V)
- Open-end wrenches 19mm (BA_, BS_, BF_) 24mm (BA_, BS_, BF_)
- Plastic Hammer

2.2 Special tools

PP wrench (sold separately)
Purpose: Removing the center disk of AOD3-Y_ and BV_ types

Sleeve remover (sold separately)
Purpose: For removing sleeves

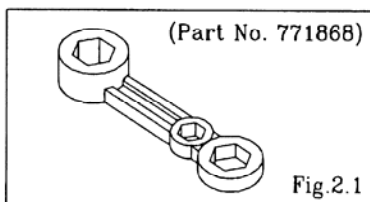


Fig.2.1

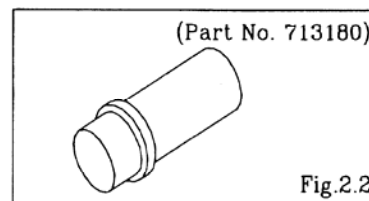


Fig.2.2

2.3 Misc.

- Lubricating oil Turbine oil none addition class 1 (equivalent ISO VG32 grade)
- Nuts M16X1.5
- Thread locker

3. Ordering Replacement parts

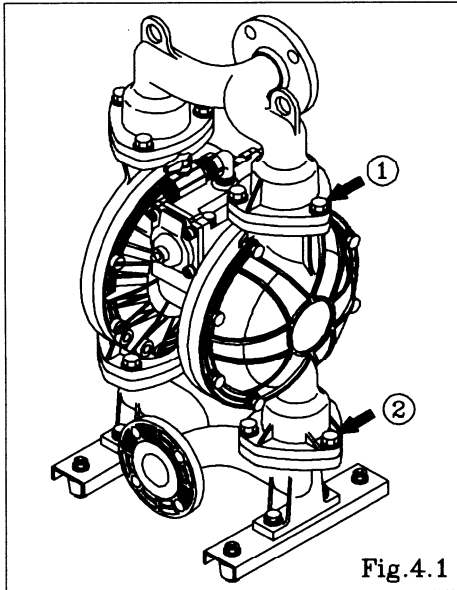
For accurate and speedy shipment of parts, be sure to order the right parts for your model to your distributor. Indicate the part numbers, descriptions and quantities.

4. Balls and Valve Seats

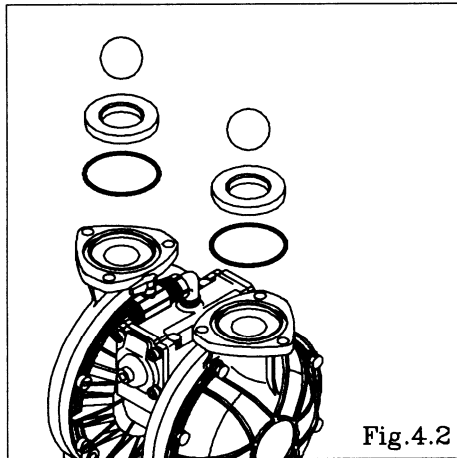
4.1 Removal

BA_, BS_, BF_, TYPES

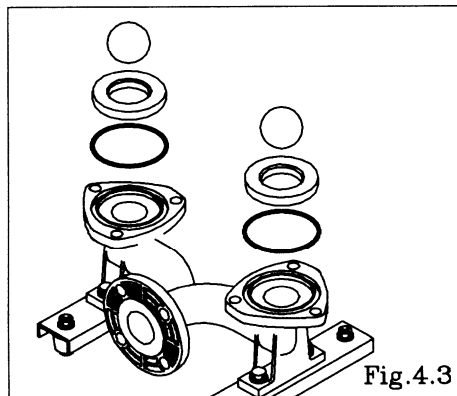
(See Exploded View at end of document) (fig. 4.1, 4.2 and 4.3 show the NDP-50BS_ for Reference)



□□□ Remove the 6 (8 on the NDP-80) retainer bolts from the out manifold, and remove the out manifold. [fig.4.1]



□□□ Remove the ball, Valve seat and o'ring [fig. 4.2]

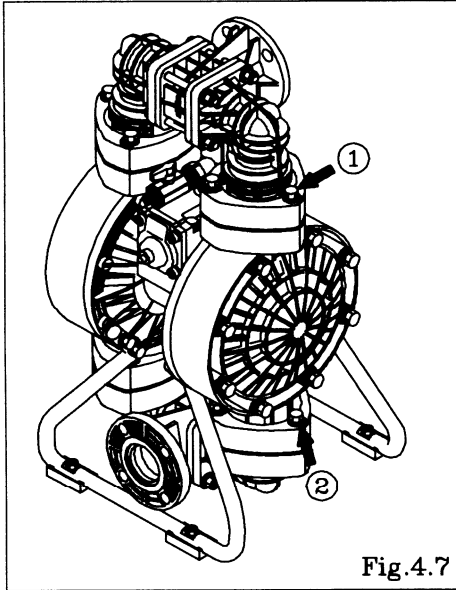


□□□ Remove the 6 (8 on the NDP-80) retainer bolts (2) from the in manifold, and remove the in manifold. [fig.4.1]

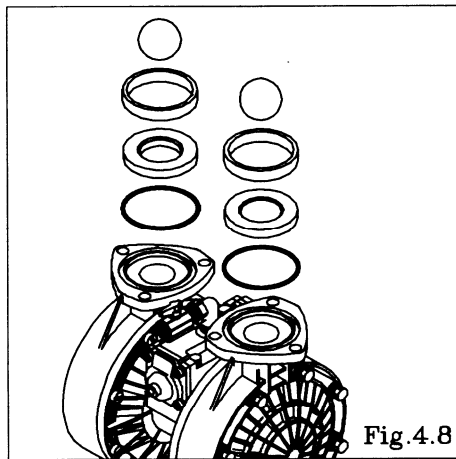
□□□ Remove the ball, valve seat and o'ring. [Fig. 4.3]

AOD3-Y_

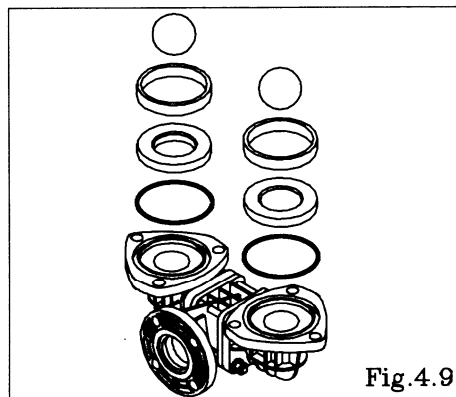
(See Exploded View at end of document) (fig. 4.7 4.8 and 4.9 show the NDP-50BP_ , for Reference View.)



1 □□□ Remove the 8 (on the NDP-80) retainer bolts (1) from the out manifold, and remove the protector out manifold. [fig.4.7]



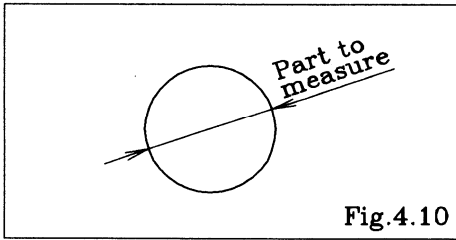
□□□ Remove the ball, valve guide (only NDP-80), valve seat and o'ring [fig. 4.8]



2 □□□ Remove the 8 (on the NDP-80) retainer bolts (2) from the in manifold, and remove the protector and in manifold. [fig.4.7]

□□□ Remove the ball, valve guide, valve seat, and o'ring. [Fig. 4.9]

4.2 Inspection

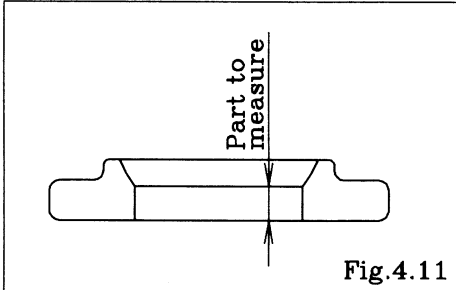


□□□Ball [fig. 4.10]

Measure the outside diameter, and if it is outside the usable range, replace the ball.

Usable range of ball

NDP-80	SØ 3.189 ~ SØ 3.650 in {SØ 81.0 ~ SØ 92.7 mm}
--------	--



□□□Valve seat [fig. 4.11]

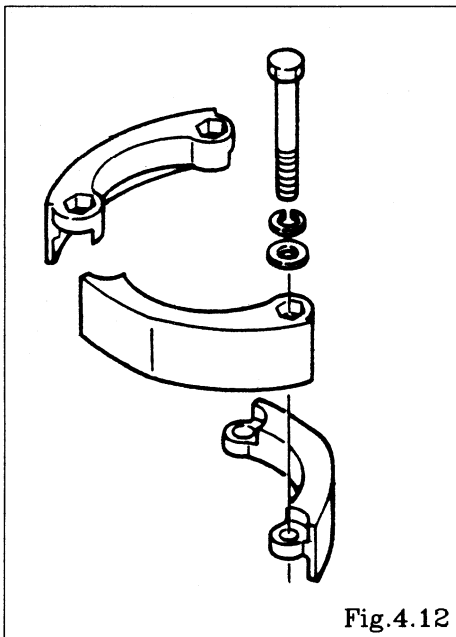
Measure the dimension shown at left, and if it is outside the usable range, replace the valve seat.

Usable Range of Valve Seat

	B_C, B_N, B_E B_V, B_H, B_S	B_T
NDP-80	0.197 ~ 0.492 {5.0 ~ 12.5 mm}	

□□□O'ring (other than PTFE)

If o'rings are worn out or cracked, replace them.



4.3 Installation

For installation, see [8.Exploded View] on after p.14, and install in the reverse order of disassembly.

Tightening torque for manifold retainer bolts

15 lbf-ft {200 kgf-cm}

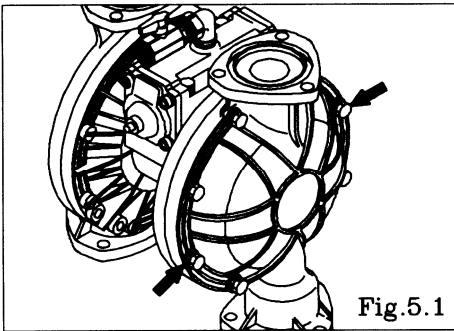
Note:

- Make sure there is no dust on the seal surface and the seal is not damaged.
 - Replace the PTFE o'ring regardless of its condition
 - Match the convex and concave parts of the protector.
- [Fig. 4.12] (AOD3-Y)

5. Diaphragm and Center rod

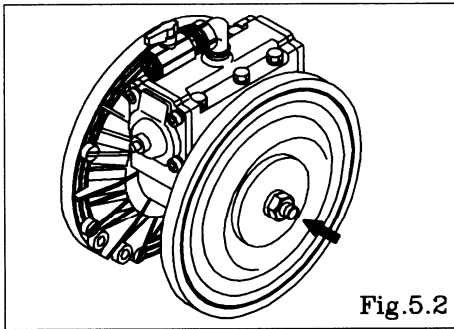
5.1 Removal BA_, BS_, BF_ types

(See Exploded View at end of document) (fig. 5.1 shows the NDP-50BS_, for Reference View.)



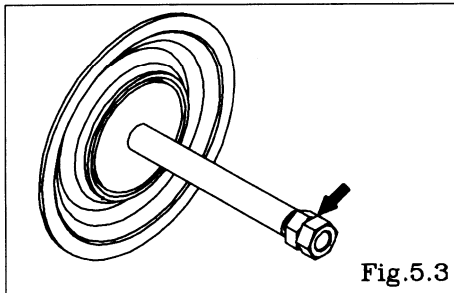
□□□ Remove the ball and valve seat (see [4.1 removal BA_, BS_, BF_ types] on p.4).

□□□ Remove the 20 (on the NDP-80) retainer bolts from the out chamber, and remove the out chamber. [fig. 5.1]



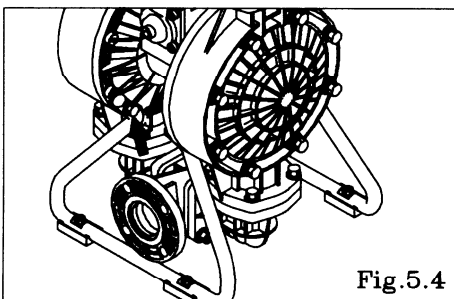
□□□ Remove the nuts on both sides of the center rod. [fig. 5.2]

□□□ After the nuts on one side have been removed, remove the center disk and diaphragm. Remove the Diaphragm, center disk and center rod from the opposite side of the main body.



□□□ Remove the nuts on the opposite side using the double nuts [fig. 5.3].

□□□ Remove the coned disk spring, center disk and Diaphragm.



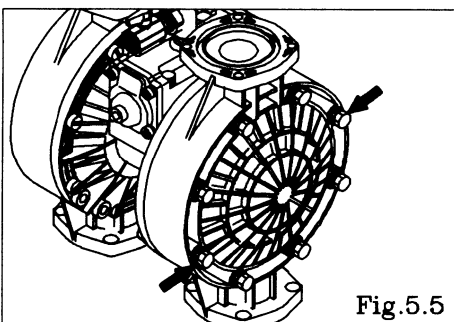
AOD3-Y

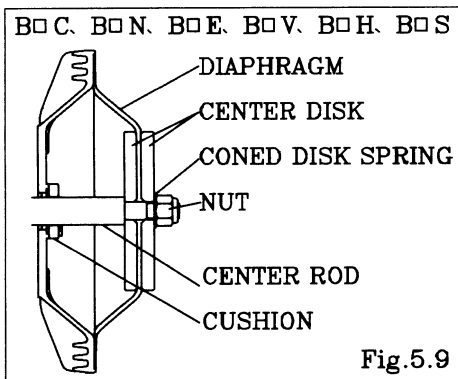
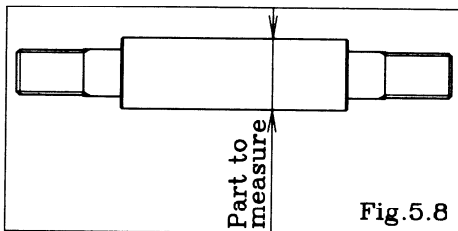
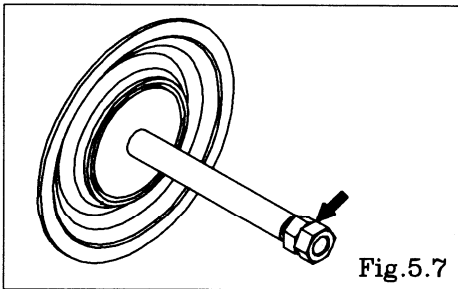
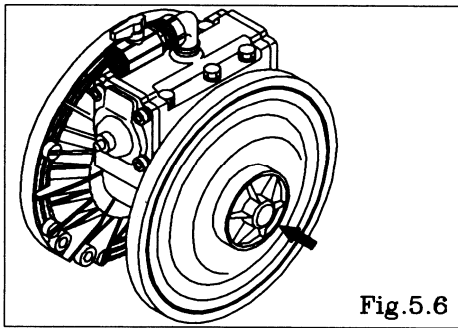
See [8. Exploded View] on after p.14 (fig. 5.4 shows the NDP-40BP_, for Reference View.)

□□□ Remove the ball etc. (see [4.1 removal AOD3-Y_, BV_ types] on p.5-6).

□□□ Remove the 4 (on the NDP-80) retainer bolts from the out chamber, and remove the out chamber. [fig. 5.5]

□□□ Remove the 20 (on the NDP-80) retainer bolts from the out chamber, and remove the out chamber. [Fig. 5.5]





- Remove the center disk from one side using the PP wrench (special tool: part No. 771868) [fig. 5.6]
- After the center disk (outside) has been removed, remove the Diaphragm and the center disk (inside).
- Remove the center disk and center rod from the opposite side of the main body.

- Fix a double nut to one end of the center rod and take the Diaphragm and center disk off the opposite end [fig. 5.9].

5.2 Inspection

- Diaphragm
If the diaphragm is worn out or damaged, replace it.

Guideline of diaphragm (estimated) life	
CR, NBR, EPDM	10,000,000 cycle
FPM	2,500,000 cycle
PTFE	3,000,000 cycle
TPEE, TPO	15,000,000 cycle

(When used with clean water at room temperature)

- Center rod [fig. 5.8]
Measure the diameter, and if it is outside the usable range, replace the rod.

Usable range of center rod
Ø0.9815~Ø0.9843in {Ø24.93~Ø25.00mm}

5.3 Installation

B_C, B_N, B_E, B_V, B_H, B_S types

For installation, see [8. Exploded view] on after p. 14 and install in the reverse order of disassembly.

- Apply lubricating oil to the center rod, and insert it into the main body.
- Note: No cushion on the NDP-80. (cf. Fig. 5.9)
- Keep the marking “outside to the liquid end for CR, NBR, EPDM, FPM Diaphragms
- Keep the convex side to the outside for TPEE, TPO Diaphragms
- Tighten the center disk using the PP wrench (special tool: part No.771868) for the AOD3-Y_, BV_ types. Apply proper thread locker to the thread of center disk.
(No coned disk springs and nuts are needed.)

Tightening torque for center rod	
BA_, BS_, BF_	43 lbf- ft. {600 kgf-cm}
AOD3-Y_, BV_	36 lbf- ft. {500 kgf-cm}

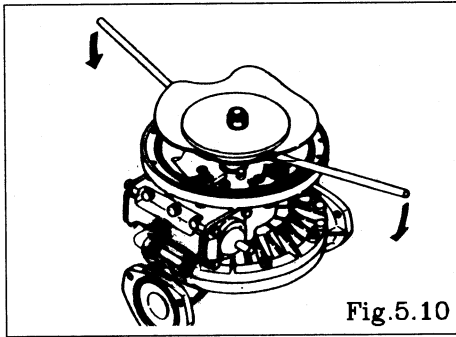


Fig.5.10

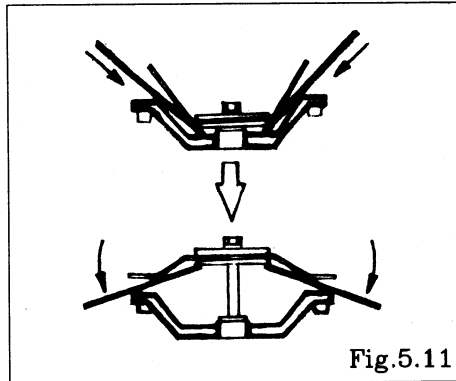


Fig.5.11

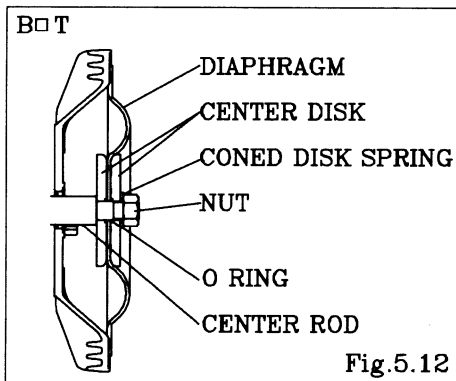


Fig.5.12

□□□ Draw the center disk to one side (exclude B_H, B_S type cf. Fig. 5.9)

□□□ And install the out chamber. Tighten the bolts temporarily
 □□□ Grip the inside center disk using crowbars and draw it to the opposite side, then turn the Diaphragm over. (exclude B_H, B_S type) [Fig. 5.10, 5.11]

□□□ And install the out chamber. Tighten the bolt temporarily.
 □□□ After installation of the out chamber on both sides, place the on a flat surface and stand the pump upright for further assembly.

<NOTE>

BA_,BS_,BF_	CR,NBR, EPDM, FPM TPEE, TPO	25lbf-ft {350kgf-cm} 29lbf-ft {400kgf-cm}
AOD3-Y	CR,NBR, EPDM, FPM TPEE, TPO	22lbf-ft {300kgf-cm} 25lbf-ft {350kgf-cm}

□□□ Make sure there is no dust on the seal surface in order to prevent seal damaged.

□□□ Be careful not to damage the R portion of the air chamber using a crowbar, etc.

□□□ Tighten the bolts that balance should be equal from both sides on diagonal line with even torque.

B_T type

For installation, see [8. Exploded view] on after p.14, and install in the reverse order of disassembly.

□□□ Apply lubricating oil to the center rod, and insert it into the main body.

□□□ Keep the convex side to the outside (cf. Fig. 5.12).

□□□ Put the o'rings to both sides of the Diaphragm. (cf. Fig. 5.12)

□□□ Tighten the center disk using the accessory tool (special tool: part No. 771868) for the AOD3-YT, BVT types. Apply proper thread locker to the thread of center disk.

(no coned disk springs and nuts are needed)

Tightening torque for center rod.

BAT, BST, BFT	43 lbf-ft {600 kgf-cm}
BPT, BVT	36 lbf-ft {500 kgf-cm}

□□□ Tighten the out chamber temporarily at first.

□□□ After installation of the out chambers on both sides, place the pump on a flat surface and stand the pump upright for further assembly.

Tightening torque for out chamber.

BAT, BST, BFT	29 lbf-ft {400 kgf-cm}
BPT, BVT	25 lbf-ft {350 kgf-cm}

<NOTE>

□□□ Make sure there is no dust on the seal surface in order to prevent seal damaged.

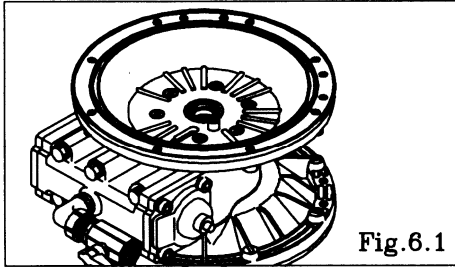
□□□ Replace the PTFE O ring by new one

□□□ Tighten the bolts that balance should be equal from both sides on diagonal line with even torque.

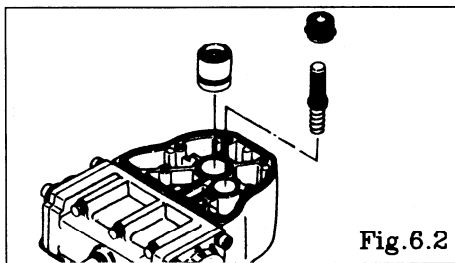
6. Throat bearing and pilot valve assembly

6.1 Removal

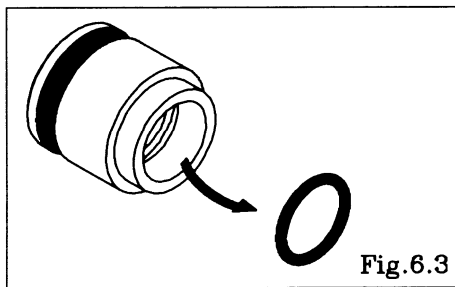
(See Exploded View at end of document)



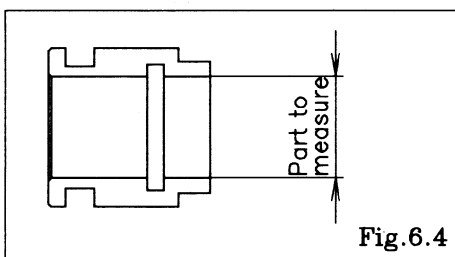
- Remove the Diaphragm and center rod etc. (see [5.1 removal] on p.7-8)
- Remove the 12 retainer bolt from the air chamber, and remove the air chamber and gasket. [Fig. 6.1]



- Draw out the pilot valve assembly. [Fig. 6.2]
- Draw out the throat bearing. [Fig. 6.2]



- Remove the o'ring from the throat bearing. [Fig. 6.3]



6.2 Inspection

- Throat bearing [fig. 6.4]

Measure the inside diameter, and if it is outside the usable range, replace the throat bearing.

Usable range of bushing

Ø0.9859 ~ Ø0.9894 in {Ø25.04 ~ Ø25.13mm}

- O'rings

If O'rings are worn out or cracked, replace them.

- Pilot valve assembly

If the pilot valve is worn or cracker, replace it.

6.3 Installation

For installation, see [8. Exploded View] on after p. 14, and install in the reverse order of disassembly.

Tightening torque for air chamber retainer bolts

151bf-ft {200kgf-cm}

<NOTE>

- Make sure there is no dust on the seal surface and it is

not

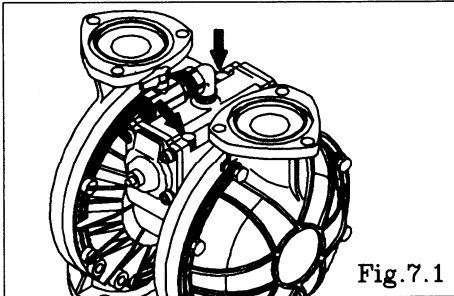
damaged.

7. C spool valve assembly

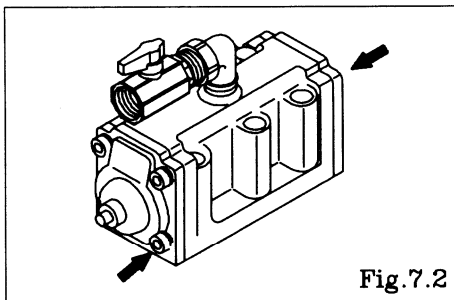
7.1 Removal

(See 8. Exploded View, at end of document)

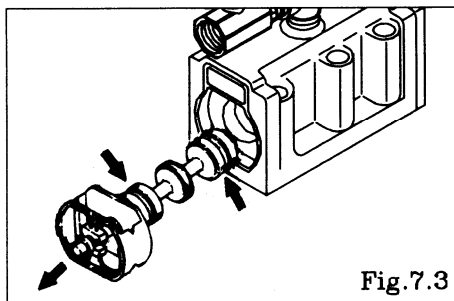
- Remove the out chamber (see 4.1 removal on pp. 4, 5-6).
- Remove the 6 retainer bolts from the valve body, and remove the valve body. [Fig. 7.1]



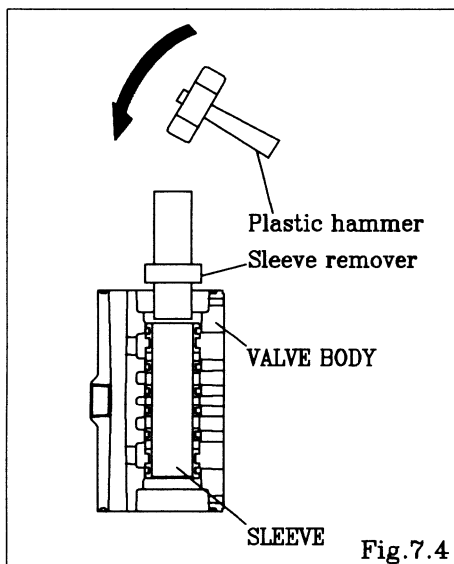
- Remove the 8 cap A and cap B retainer bolts, and remove cap A, cap B,. [Fig. 7.2]



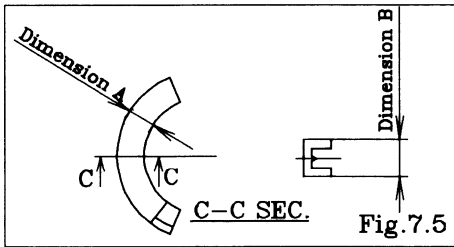
- Draw out the c spool valve assembly, and remove the seal ring from the c spool valve assembly.
- Remove the spring stopper. [Fig. 7.3]



- Remove the sleeve using the sleeve remover (special tool: part No. 713180). [Fig. 7.4]



7.2 Inspection



C Spool Valve Assembly

□□□ Seal ring [Fig. 7.5]

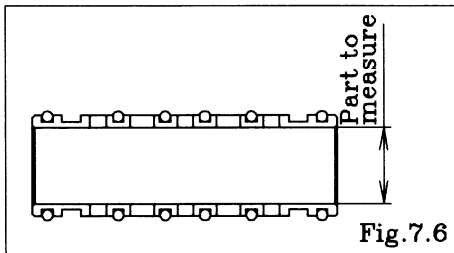
Measure dimensions A and B, and if there is sufficient wear to require replacement, replace the c spool valve assembly.

If the seal ring is worn out or cracked, replace c spool valve assembly.

Usable range of seal ring

Dimension A More than 0.1988 in {5.05mm}

Dimension B More than 0.2874 in {7.30mm}



□□□ Sleeve Assembly [Fig. 7.6]

Measure the inside diameter, and if it is outside the usable range, replace the sleeve assembly.

Usable range of Sleeve

Ø1.305~Ø1.313in {Ø33.15~Ø33.35mm}

□□□ O'ring

If O'rings are worn out or cracked, replace them.

<NOTE>

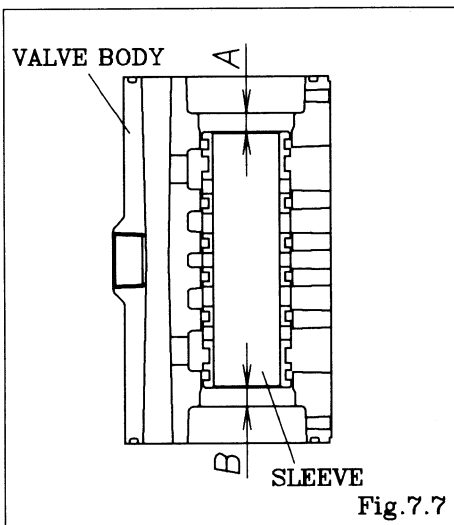
□□□ C spool valve assembly must be replaced in a complete set. Unable to replace individual components.

7.3 Installation

For installation, see [8. Exploded View] on after p. 14, and install in the reverse order of disassembly.

□□□ Install the sleeve using the sleeve remover (special tool: part No. 713180). At this point, apply lubricating oil around the sleeve and o'ring.

□□□ Install the sleeve at the center of the valve body. (A=B)



Tightening torque for installation cap A, cap B

8 lbf-ft {100kgf-cm}

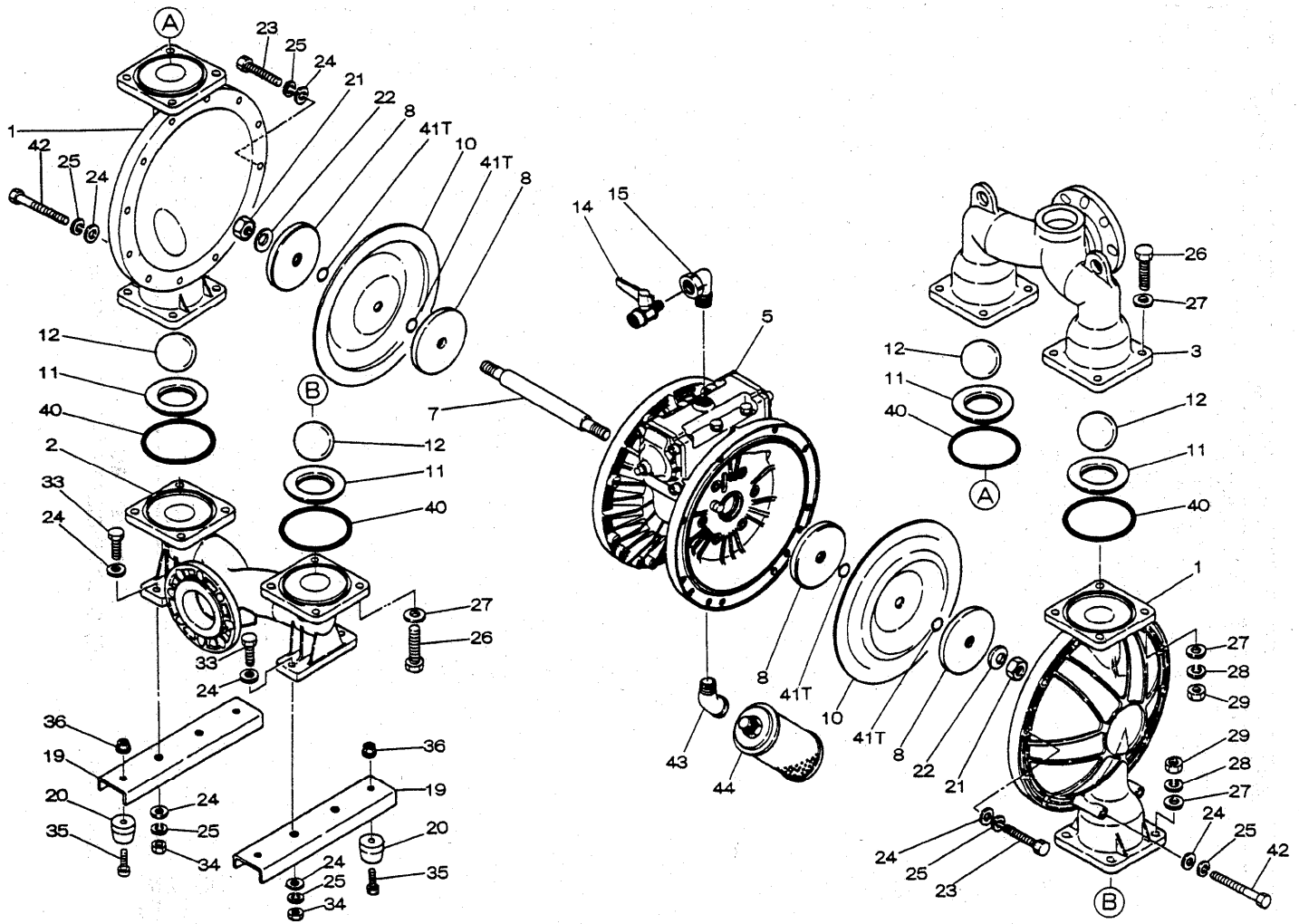
Tightening torque for valve body installation bolts

12 lbf-ft {170kgf-cm}

<NOTE>

□□□ Make sure there is no dust on the seal surface and it is not damaged

8.5 Exploded View NDP-80BA



8.5 Parts List

NDP-80BA_

No.	BA_	Description	QTY	Note
1	580962	OUT CHAMBER	2	
2	714371	IN MANIFOLD	1	581050
3	714365	OUT MANIFOLD	1	581047
5	803113	BODY ASSEMBLY	1	
7	711901	CENTER ROD	1	
7T	711940	CENTER ROD	1	
8	711906	CENTER DISK	4	
8T	711041	CENTER DISK	4	
10	Tab.1	DIAPHRAGM	2	
11	Tab.3	VALVE SEAT	4	
12	Tab.4	BALL	4	
14	684322	BALL VALVE	1	3/4"
15	682523	ELBOW	1	3/4"
19	711912	PUMP BASE	2	
20	771402	CUSHION	4	
21	Tab.6	NUT	2	
22	682740	CONED DISK SPRING	2	M16
23	611186	BOLT	20	M10x1.5x75
24	631014	PLAIN WASHER	32	M10
25	631421	SPRING LOCK WASHER	28	M10
26	611204	BOLT	16	M12x1.75x55
27	631015	PLAIN WASHER	48	M12
28	631422	SPRING LOCK WASHER	24	M12
29	627014	NUT	24	M12x1.75
33	611177	BOLT	4	M10x1.5x35
34	627013	NUT	4	M10x1.5
35	611149	BOLT	4	M8x1.25x25
36	682276	NUT WITH FLANGE	4	M8x1.25
40	Tab.8	O'RING	4	
41T	643015	O'RING	4	P-16 PTFE
42	683546	BOLT	4	M10x1.5x130
43	684300	ELBOW	1	1"
44	682518	SILENCER	1	1"
50	790911	NAME PLATE	1	

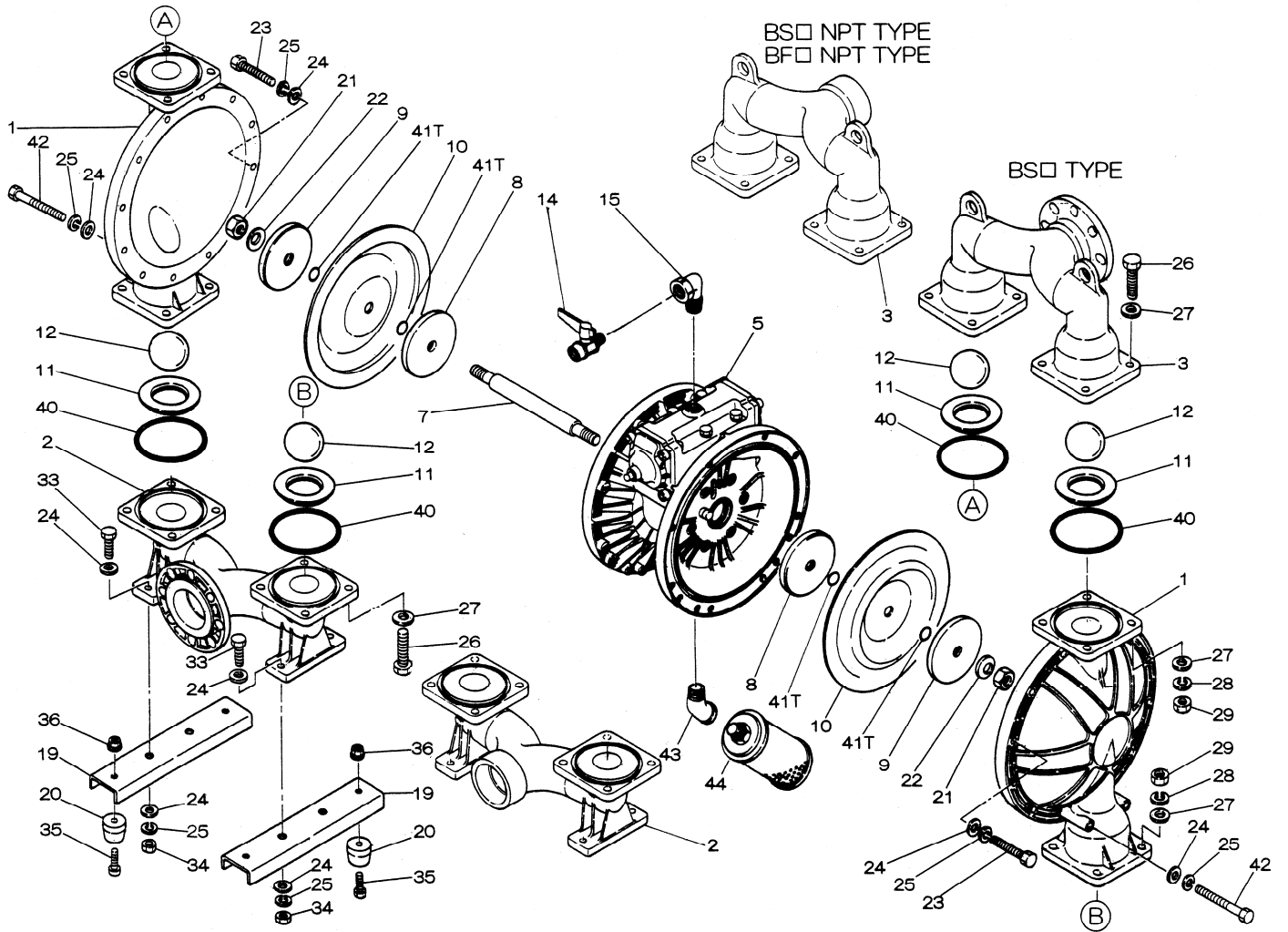
NOTE:

1. T: BAT

2. Tab. 1~Tab. 8: see [8.8 parts list * common parts] on p. 28, P.29.

3. NO. 50 (NAME PLATE) IS NOT INDICATED IN EXPLODED VIEW

8.6 Exploded View NDP-80BS_, BF_



8.6 Parts List

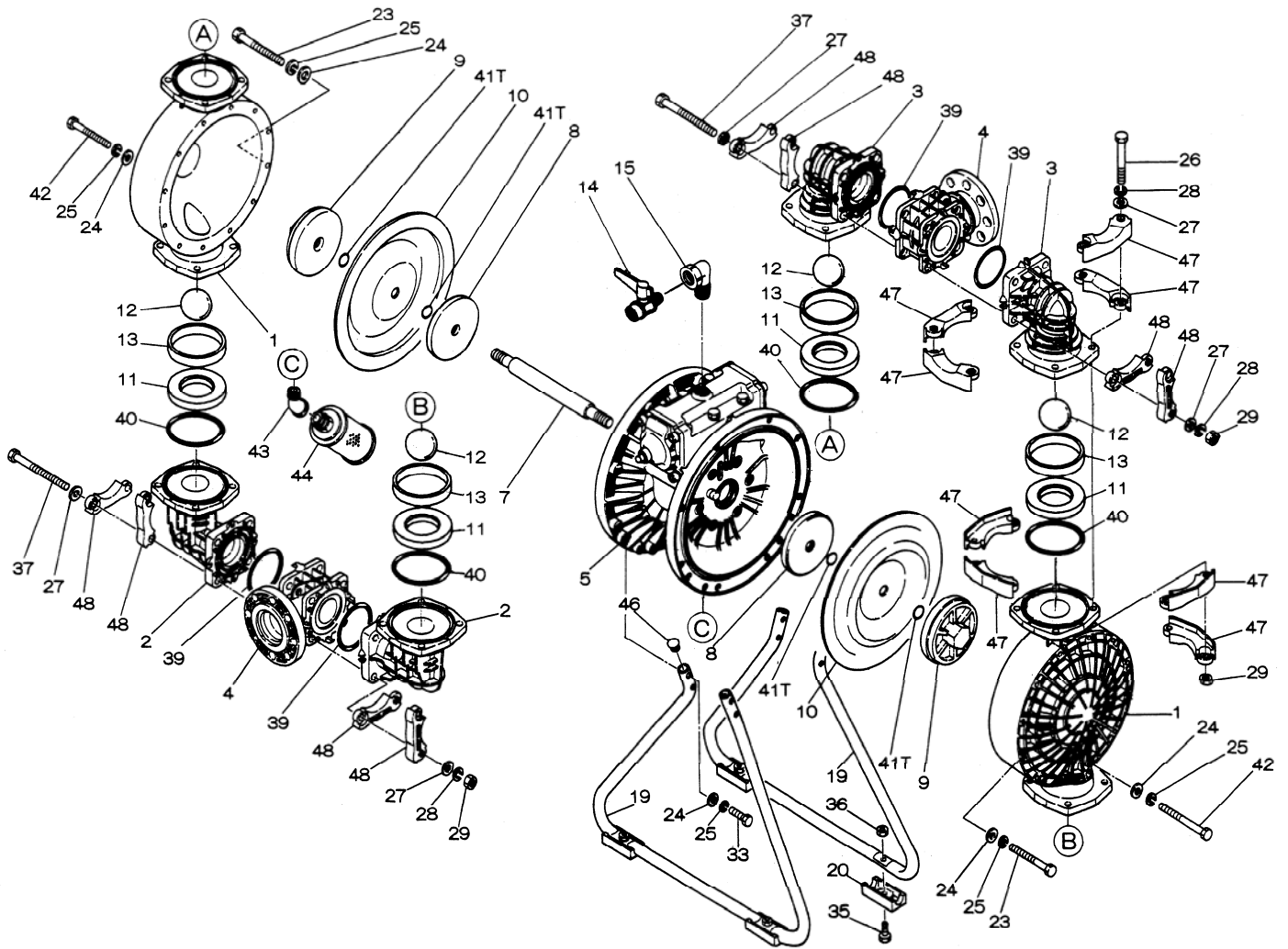
NDP-80BS_BF_

No.	BS_	BS_NPT	BF_NPT	Descirrtion	QTY	Note
1	712933	712933	713158	OUT CHAMBER	2	
2	712603	712605	713170	IN MANIFOLD	1	
3	712602	712604	713167	OUT MANIFOLD	1	
5	803119	803119	803113	BODY ASSEMBLY	1	
7	711901	711901	711901	CENTER ROD	1	
7T	711940	711940	711940	CENTER ROD	1	
8	711906	711906	711906	CENTER DISK	2	
8T	711041	711041	711041	CENTER DISK	2	
9	711907	711907	711907	CENTER DISK	2	
10	Tab.1	Tab.1	Tab.1	DIAPHRAGM	2	
11	Tab.3	Tab.3	Tab.3	VALVE SEAT	4	
12	Tab.4	Tab.4	Tab.4	BALL	4	
14	684322	684322	684322	BALL VALVE	1	3/4"
15	682523	682523	682523	ELBOW	1	3/4"
19	711912	711912	711912	PUMP BASE	2	
20	771402	771402	771402	CUSHION	4	
21	Tab.6	Tab.6	Tab.6	NUT	2	
22	682740	682740	682740	CONED DISK SPRING	2	M16
23	621183	621183	621183	BOLT	20	M10x1.5x60
24	631174	631174	631014	PLAIN WASHER	32	M10
25	680257	680257	631421	SPRING LOCK WASHER	28	M10
26	621203	621203	611203	BOLT	16	M12x1.75x50
27	631175	631175	631015	PLAIN WASHER	32	M12
28	680607	680607	631422	SPRING LOCK WASHER	16	M12
29	628014	628014	627014	NUT	16	M12x1.75
33	621177	621177	611177	BOLT	4	M10x1.5x35
34	628013	628013	627013	NUT	4	M10x1.5
35	611149	611149	611149	BOLT	4	M8x1.25x25
36	682276	682276	682276	NUT WITH FLANGE	4	M8x1.25
40	Tab.8	Tab.8	Tab.8	O'RING	4	
41T	643015	643015	643015	O'RING	4	P-16 PTFE
42	683543	683543	683546	BOLT	4	M10x1.5x130
43	684300	684300	684300	ELBOW	1	1"
44	682518	682518	682518	SILENCER	1	1"
50	790911	790911	790911	NAME PLATE	1	
9T	711039	711039	711039	CENTER DISK	2	

NOTE:

1. T: BST/BFT
2. Tab. 1~Tab. 8: see [8.8 parts list * common parts] on p. 28, P.29.
3. NO. 50 (NAME PLATE) IS NOT INDICATED IN EXPLODED VIEW

8.7 Exploded View AOD3-Y_



8.7 Parts List

AOD3-Y

No.	AOD3-Y_	Description	QTY	Note
1	780149	OUT CHAMBER	2	
2	772081	IN MANIFOLD	2	
3	780152	OUT MANIFOLD	2	
4	771724	CENTER MANIFOLD	2	
5	803119	BODY ASSEMBLY	1	
7	711901	CENTER ROD	1	
7T	711940	CENTER ROD	1	
8	711906	CENTER DISK	2	
8T	711041	CENTER DISK	2	
9	780064	CENTER DISK	2	
9T	771730	CENTER DISK	2	
10	Tab.1	DIAPHRAGM	2	
11	772098	VALVE SEAT	4	
12	Tab.4	BALL	4	
13	772099	VALVE GUIDE	4	
14	684322	BALL VALVE	1	3/4"
15	682523	ELBOW	1	3/4"
19	711927	PUMP STAND	2	
20	771865	CUSHION	4	
23	683543	BOLT	20	M10x1.5x130
24	631330	PLAIN WASHER	32	M10
25	680257	SPRING LOCK WASHER	32	M10
26	621213	BOLT	16	M12x1.75x100
27	631331	PLAIN WASHER	32	M12
28	680607	SPRING LOCK WASHER	24	M12
29	628014	NUT	24	M12x1.75
33	621179	BOLT	8	M10x1.5x40
35	611149	BOLT	4	M8x1.25x25
36	683837	NUT WITH FLANGE	4	M8x1.25
37	683544	BOLT	8	M12x1.75x220
39	Tab.7	O'RING	4	
40	Tab.8	O'RING	4	
41T	643015	O'RING	4	P-16 PTFE
42	683552	BOLT	4	M10x1.5x150
43	684300	ELBOW	1	1"
44	682518	SILENCER	1	1"
50	790911	NAME PLATE	1	
46	683641	CAP	4	
47	771789	PROTECTOR A	32	
48	771790	PROTECTOR B	24	INCLUDED 8 PIECES ACCESSORIES

NOTE:

1. T: BPT

2. Tab. 1~Tab. 8: see [8.8 parts list * common parts] on p. 28, P.29.

3. NO. 50 (NAME PLATE) IS NOT INDICATED IN EXPLODED VIEW

8.8 Parts List

COMMON PARTS

TAB. 1 DIAPHRAGM [BA_BS_BF_AOD3-Y_]

TYPE	NDP-80	Material
B_C	771857	CR
B_N	771704	NBR
B_E	771858	EPDM
B_V	771801	FPM
B_T	770934	PTFE
B_H	771705	TPEE
B_S	771977	TPO

TAB. 2 DIAPHRAGM

TYPE	BV_	Material
BVC		CR
BVN		NBR
BVE	771856	EPDM
BVV	771800	FPM
BVT	770815	PTFE
BVH	771703	TPEE
BVS	771976	TPO

TAB. 3 VALVE SEAT [BA_BS_BF_]

TYPE	NDP-80		Material
	BA_	BS_/BF_	
B_C	771958	771958	CR
B_N	771996	771996	NBR
B_E	771999	771999	EPDM
B_V	771998	771998	FPM
B_T	712384		A5056
		771910	SS316
B_H	771795	771795	TPEE
B_S	772005	772005	EPDM

TAB. 4 BALL [BA_BS_BF_AOD3-Y_]

Type	NDP-80	MATERIAL
B_C	770559	CR
B_N	770587	NBR

B_E	770596	EPDM
B_V	770605	FPM
B_T	770694	PTFE
B_H	770587	NBR
B_S	770596	EPDM

TAB. 5 BALL

Type	BV_	Material
BVC		CR
BVN		NBR
BVE	770633	EPDM
BVV	770636	FPM
BVT	770693	PTFE
BVH	770693	PTFE
BVS	770693	PTFE

TAB. 6 NUT (M16x1.5 [BA_BS_BF])

Type	NDP-80	Material
B_C	683408	PA,SS316
B_N	683408	PA,SS316
B_E	683408	PA,SS316
B_V	706144	SS316
B_T	706144	SS316
B_H	683408	PA,SS316
B_S	83408	PA,SS316

TAB. 7 O’RING

Type	NDP-80		Materials
	BA_/AOD3-Y_		
	P-110		
B_C	640070		NBR
B_N	640070		NBR
B_E	684123		EPDM
B_V	642070		FPM
B_T	643070		PTFE
B_H	640070		NBR
B_S	684123		EPDM

TAB. 8 O’RING

Type	NDP-80		Materials
	BA_/BS_/BF_	AOD3-Y_	
	P-140	P-150	

B_C	640078	640080	NBR
B_N	640078	640080	NBR
B_E	684124	684125	EPDM
B_V	642078	642080	FPM
B_T	643078	643080	PTFE
B_H	640078	640080	NBR
B_S	684124	684125	EPDM

TAB. 9 O’RING

Type	BV_	Material	Note
B_C			
B_N			
B_E	684121	EPDM	P-85
B_V	642064	FPM	P-85
B_T	771899	PTFE	
B_H	771899	PTFE	
B_S	771899	PTFE	

TAB. 10 O’RING

Type	BV_	Material	Note
B_C			
B_N			
B_E	684122	EPDM	P-85
B_V	642069	FPM	P-85
B_T	772063	PTFE	
B_H	772063	PTFE	
B_S	772063	PTFE	

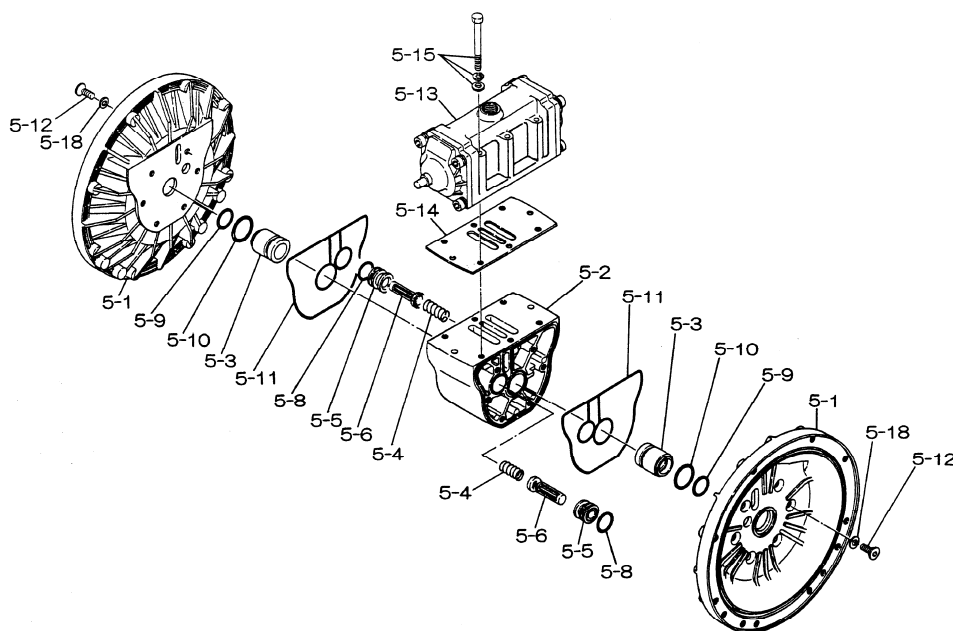
8.9 Exploded View BODY ASSEMBLY



Y-Series AOD-P Body Assembly List

PRICE PUMP CO.

Y-AOD-P Body.doc rev. n/c



Parts List						
No.		AOD3-Y 803113*1 803119*2	Description	QTY	Note	
5-1		711935	Air Chamber	2		
5-2		711936	Body	1		
5-3		711938	Throat Bearing	2		
5-4		711937	Spring	2		
5-5		771740	Valve Seat	2		
5-6		832163	Pilot Valve Assembly	2		
5-7						
5-8		640020	O'Ring	2	P-22A NBR (Buna)	
5-9		640023	O,Ring	2	P-25 NBR (Buna)	
5-10		640029	O'Ring	2	P-30 NBR (Buna)	
5-11		771742	Gasket	2		
5-12		683812	Flat Head Bolt	12	M8x1.25x20	
5-13		802971	Valve Body Assembly	1		
5-14		771712	Gasket	1		
5-15		684240	Bolt	6	M8x1.25x85	
5-16						
5-17						
5-18		684987	Plain Washer	12		

Note: *1=No Paint *2=Painted

8.10 Exploded View VALVE BODY ASSEMBLY

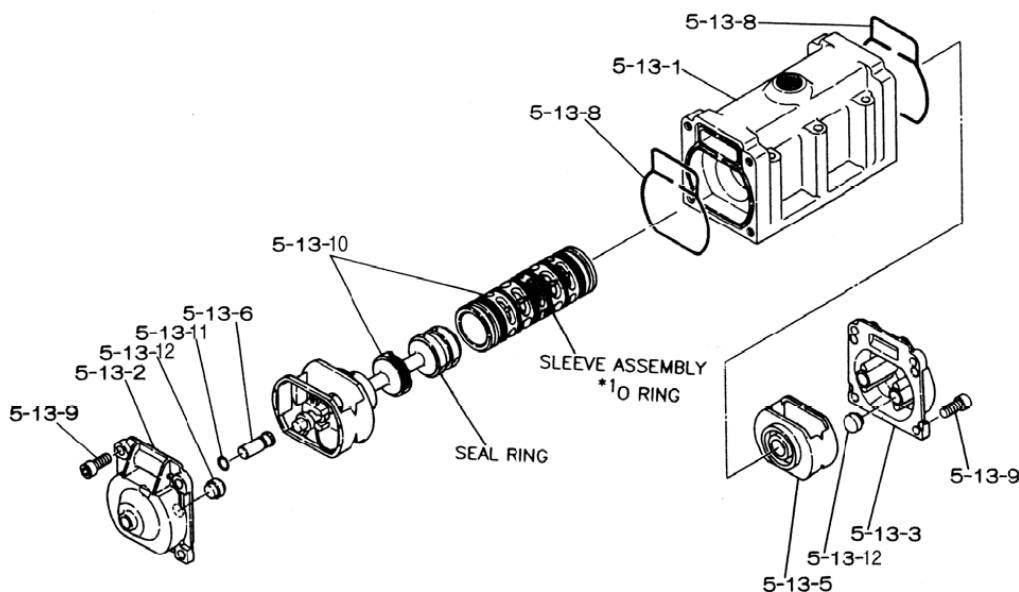


Y-Series AOD Valve Assembly Parts List

PRICE PUMP CO.

Y-AOD-P Valve.doc rev. C

Y-Series AOD Valve-P



802971 Valve Body Assembly				
No.	Part Number	Description	QTY	Note
5-13-1	711931	Valve Body	1	
5-13-2	580999	Cap-A	1	
5-13-3	581000	Cap-B	1	
			1	
5-13-5	771735	Spring Stopper	1	
5-13-6	712976	Reset Button	1	
5-13-8	771738	Gasket	2	
5-13-9	685036	Hexagon Socket Head Bolt	8	M8x1.25x20
5-13-10	803115	C Spool Valve Assembly	1	*1 (640036)
5-13-11	640005	O'Ring	1	P-8 Buna (NBR)
5-13-12	684128	Cushion	4	

1. GENERAL

General Terms of Sale

A. Seller's price is based on these sales terms and conditions. The agreement and inclusion of other or amended terms in this contract will result in a change (including increase) in Seller's price (as may be contained in any price books or quotations) to reflect such other or amended terms. This contract shall represent the final, complete and exclusive statement of the agreement between the parties and may

not be modified, supplemented, explained or waived by parole evidence, any Terms and Conditions contained in Buyer's purchase order or request for quotation, any course of dealings between the parties, Seller's performance or delivery, or in any other way. The Terms and Conditions of this contract may only be modified or waived in a written document signed by an Officer of Seller. These terms are intended to cover all activity of Seller and Buyer hereunder, including sales and use of products, parts and work and all related matters (references to products include parts and references to work include construction, installation and start-up). Any reference by Seller to Buyer's specifications and similar requirements are only to describe the products and work covered hereby and no warranties or other terms therein shall have any force of effect. Any information provided by Seller including, but not limited to, suggestions as to specific equipment does not imply any guarantee of specific suitability and/or material compatibility in a particular application, since many factors outside the control of Seller may affect the suitability of products in a particular application. Catalogs, circulars, similar pamphlets and information contained on websites of the Seller are issued for general information purposes only and shall not be deemed to modify the provisions hereof.

B. The agreement formed hereby and the language herein shall be construed and enforced under the Uniform Commercial Code as in effect in the State of California on the date hereof.

2. TAXES

Any sales, use or other similar type taxes imposed on this sale or on this transaction and/or any import or export duties or fees as may be assessed or imposed on or as a result of deliveries under this transaction are not included in the price. Such taxes shall be billed separately to the Buyer. Seller will accept a valid exemption certificate from the Buyer if applicable; however, if an exemption certificate previously accepted is not recognized by the governmental taxing authority involved and the Seller is required to pay the tax covered by such exemption certificate. Buyer agrees to promptly reimburse Seller for the taxes paid.

3. PERFORMANCE, INSPECTION AND ACCEPTANCE

A. Unless Seller specifically assumes installation, construction or start-up responsibility, all products shall be finally inspected and accepted within thirty (30) days after arrival at point of delivery. Where seller has responsibility for installation, construction or start-up all work shall be finally inspected and accepted within thirty (30) days after completion of the applicable work by Seller. All claims whatsoever by Buyer, (including claims for shortages) except only those provided for under the WARRANTY AND LIMITATION OF LIABILITY and PATENTS Clauses, hereof, must be asserted in writing by Buyer within said thirty (30) day period or they are waived. If this contract involves partial performance, all such claims must be asserted within said thirty- (30) day period for each partial performance. There shall be no revocation of acceptance. Rejection may be only for defects substantially impairing the value of products or work and Buyer's remedy for lesser defects shall be those provided for under the WARRANTY AND LIMITATION OF LIABILITY Clause.

B. Seller shall not be responsible for non-performance or for delays in performance occasioned by any causes beyond Seller's reasonable control, including, by way of example and not limitation, to labor difficulties, delays of vendors or carriers, fires, governmental actions, or shortages of material, components, labor, or manufacturing facilities. Any delays so occasioned shall affect a corresponding extension of Seller's performance dates, which are, in any event, understood to be approximate. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LATE PERFORMANCE OR FOR A FAILURE TO PERFORM. Seller reserves the right to make partial shipments and to ship products, parts or work which may be completed prior to the scheduled performance date.

C. In the event that Seller has agreed to mount motors, turbines, gears, or other products which are not manufactured by Seller and which are not an integral part of Seller's manufactured product, and a delay in the delivery of such products to Seller occurs that will cause a delay in Seller's performance date, Seller reserves the right to ship its product upon completion of manufacture and to refund an equitable portion of the amount originally included in the purchase price for mounting without incurring liability for non-performance.

D. Seller reserves to itself the right to change its specifications, drawings and standards if such changes will not impair the performance of its products, and parts, and further those products, and parts, will meet any of Buyer's specifications and other specific product requirements which are a part of this agreement. Seller is a global supplier of products and utilizes parts and products obtained worldwide, and Seller's products supplied under this contract shall be subject to Seller's sole determination as to all manufacturing, sourcing, assembly and supply unless otherwise specifically agreed in writing.

E. The manufacture and inspection of products and parts shall be to Seller's Engineering and Quality Assurance standards, plus such other inspections or tests of documentation as are specifically agreed to by Seller. Requirements for any additional inspection, tests, documentation, or Buyer witness of manufacture, test, and/or inspection shall be subject to additional charges.

4. TITLE AND RISK OF LOSS

Title and risk of loss shall pass to buyer upon delivery of products at the designated "Ex Works" as defined by Incoterms, unless other wise agreed by the parties.

5. EROSION AND CORROSION

It is specifically understood that products and parts sold hereunder are not warranted for operation with erosive or corrosive fluids or for operation with any fluid or under any operating condition in variance with the specifications of this contract. No product or part shall be deemed to be defective by reason of failure to resist erosive or corrosive action of any fluid and Buyer shall have no claim whatsoever against Seller therefore. No product shall be deemed defective by reason of any effect on Seller's products of the action or results (such as vibration) of any goods or system (such as piping) not supplied by Seller.

6. BUYER'S RESPONSIBILITY

The design specifications of the equipment require the operation of the equipment within certain parameters and may call for the use of speed controls, safety devices, set points or other control devices to insure that the operation remains within design parameters. Buyer agrees and understands that the equipment must be operated and maintained within design specifications and operated within the specifications of the contract, irrespective of whether controls or devices are otherwise required.

7. WARRANTY AND LIMITATION OF LIABILITY

A. Seller warrants only that its product and parts, when shipped, will be free from defects in materials and workmanship. All claims for defective products or parts under this warranty must be made in writing immediately upon discovery and, in any event, within two (2) years of shipment by seller and all claims for defective work must be made in writing immediately upon discovery. Defective items must be held for Seller's inspection and returned to the sellers' point of original shipment upon request.

ANY UNAUTHORIZED DISSASSEMBLY, ALTERATION OF OR TAMPERING WITH ANY PRODUCT OR COMPONENT MAY "VOID" THE WARRANTY, IN THAT SUCH ACTION WILL RESULT IN SELLER BEING RELEASED AND RELIEVED FROM ITS OBLIGATIONS UNDER THIS WARRANTY AND FOR ANY FURTHER COSTS OR ACTIONS UNDER CLAUSE 7.C, FOLLOWING, AND THE BUYER ASSUMING SOLE RESPONSIBILITY FOR THE COSTS AND RESULTS OF SUCH ACTION.

THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING WITHOUT LIMITATION, THE IMPLIED, WARRANTIES OF MERCHANTABILITY AND FITNESS.

B. ANY PRODUCT (S) SOLD HEREUNDER WHICH ARE NOT MANUFACTURED BY SELLER ARE NOT WARRANTED BY SELLER and shall be covered only by the express warranty, if any, of the manufacturer thereof. With respect to products and parts not manufactured by Seller, Seller's only obligation shall be to assign to Buyer, to the extent possible, whatever warranty Seller obtains from the manufacturer.

C. Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall at its option either (i) repair or replace its product, part or work at the original place of shipment, or (ii) refund an equitable portion of the purchase price.

D. THE FOREGOING IS SELLER'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY AND, EXCEPT FOR THE REMEDIES PERMITTED UNDER THE PERFORMANCE, INSPECTION AND ACCEPTANCE AND THE PATENTS CLAUSES HEREOF, THE FOREGOING IS BUYER EXCLUSIVE REMEDY AGAINST SELLER FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY), INDEMNITY OR OTHER THEORIES. BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, NOR FOR DAMAGES FOR LOSS OF USE, LOST PROFITS OR REVENUE, INTEREST, LOST GOODWILL, WORK OR PRODUCTION STOPPAGE, IMPAIRMENT OF OTHER GOODS, INCREASED EXPENSES OF OPERATION, OR THE COST OF PURCHASING REPLACEMENT POWER OR OTHER SERVICES BECAUSE OF SERVICE INTERRUPTIONS. FURTHERMORE, IN NO EVENT SHALL SELLER'S TOTAL LIABILITY FOR DAMAGES OF BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS OR PARTS MANUFACTURED BY SELLER AND UPON WHICH SUCH LIABILITY IS BASED. ANY ACTION ARISING HEREUNDER RELATED HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE CAUSE OF ACTION ACCRUES OR IT SHALL BE BARRED.

8. PURCHASER'S REPRESENTATIONS & WARRANTIES

Purchaser represents and warrants that the products(s) covered by this contract shall not be used in or in connection with a nuclear facility or application. The parties agree that this representation and warranty is material and is being relied on by seller. This provision may be modified in a separate writing signed by an officer of Price Pump Co.

9. PATENTS

Seller agrees to assume the defense of any suit for infringement of any patents brought against Buyer to the extent of such suit charges infringement of an apparatus or product claim by Seller's product in and of itself, provided (i) said product is built entirely to Seller's design, (ii) Buyer notifies Seller in writing of the filing of such suit within ten (10) days after the service of process thereof, and (iii) Seller is given complete control of the defense of such suit, including the right to defend, settle and make changes in the product for the purpose of avoiding infringement of any process or method claims. Provided however, Seller will not defend any suit for infringement of a claimed patent where such alleged infringement is the result of following specific instruction furnished by Seller.

10. EXTENT OF SUPPLY

Only products as listed in Seller's proposal are included in this agreement. It must not be assumed that Seller has included anything beyond same.

11. MANUFACTURING SOURCES

To maintain delivery schedules, Seller reserves the right to have all or any part of the Buyer's order manufactured at any of Sellers', sellers' licensees or sub contractors' plants, globally.

12. TERMS OF PAYMENT

Net 30 days from date of invoice.

13. ARBITRATION

In the event a dispute arises between the parties relating to or arising out of this agreement, the parties agree to attempt to have their senior management amicably settle the matter. In the event that the matter cannot be settled, the parties shall submit all disputes relating to this Agreement (whether contract, tort, products liability or otherwise) to binding Arbitration before a panel of arbitrators under the Commercial Dispute Resolution Procedures of the American Arbitration Association. Each party shall appoint an arbitrator and the third shall be selected in accordance with the rules of the American Arbitration Association. Judgment upon the award may be entered in any court having jurisdiction. The parties shall cooperate in providing reasonable disclosure of relevant documents. Each party shall bear its own expenses, and the costs and fees of the arbitration shall be borne as allocated by the Arbitrator.