

Doc No	DP10-12 English - 03
Revised	January 2007

MAINTENANCE MANUAL

YAMADA AIR-OPERATED DIAPHRAGM PUMPS DP-10 DP-12



WARNING



- For your own safety, be sure to read these procedures carefully before performing maintenance on this product. After reading this document, be sure to keep it handy for future reference.

This maintenance manual covers what you should know about maintenance of the Yamada DP-10 series and DP-12 series Diaphragm Pumps.

This edition is based on the standards for the June 1998 production run. Remember the specifications are always subject to change; therefore, some of the information in this edition may not apply to new specifications.

• Warnings and Cautions

For safe use of this product, be sure to note the following: In this document, warnings and cautions are indicated by symbols. These symbols are for those who will operate this product and for those who will be nearby, for safe operation and for prevention of personal injury and property damage. The following warning and caution symbols have the meanings described below. Be sure to remember their meanings.



WARNING:

If you ignore the warning described and operate the product in an improper manner, there is danger of serious bodily injury or death.



CAUTION:

If you ignore the caution described and operate the product in an improper manner, there is danger of personal injury or property damage.

Furthermore, to indicate the type of danger and damage, the following symbols are also used along with those mentioned above:



This symbol indicates a DON'T, and will be accompanied by an explanation on something you must not do.



This symbol indicates a DO, and will be accompanied by instructions on something you must do in a certain situation.



WARNING



- Before starting maintenance work, cut off the feed air and clean the pump. If air pressure or residue remain in the pump, there is danger of explosion, or possible poisoning resulting in serious injury or death if chemicals adhere to the skin or are accidentally swallowed. (For details on cleaning the pump, refer to Chapter 6 of the operating manual.)



- When replacing parts, be sure to use the recommended genuine parts or equivalents. Use of other parts may cause a malfunction of the product.



CAUTION



- When it is instructed that special tools must be used, be sure to use the specified tools. Otherwise, the pump may be damaged.



- Refer to 101 "Specifications" in the Operating Manual. Also, remember that the pump is heavy, and extreme care must be taken when lifting it.

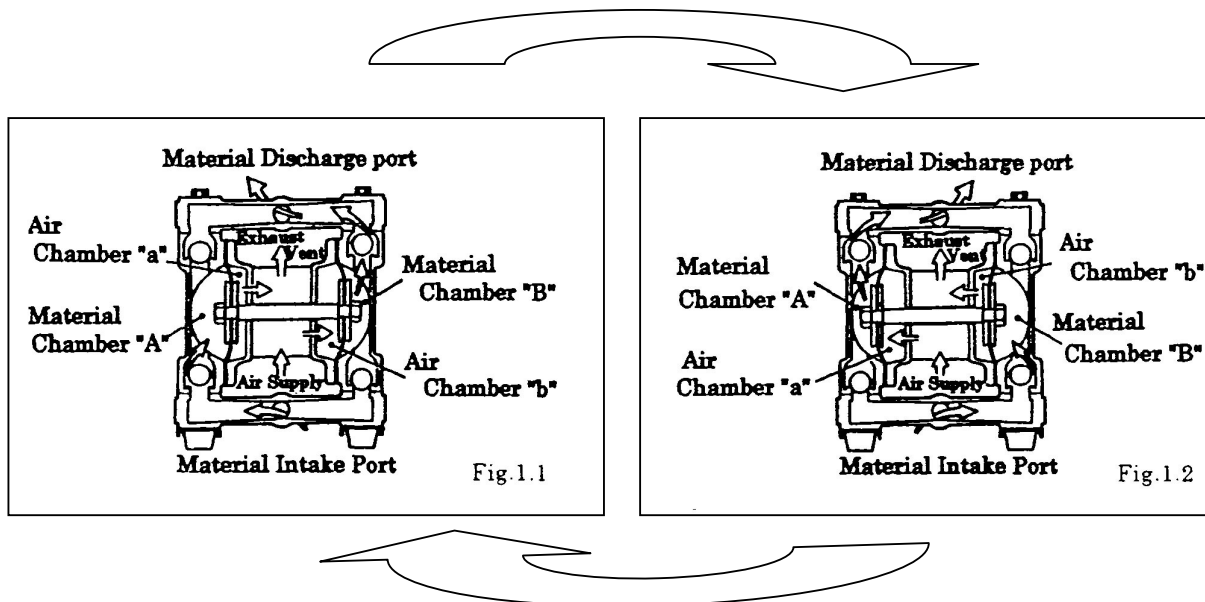
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1. Principles of operation

There are two diaphragms fixed to the centre rod, one at each end. When compressed air is supplied to air chamber B (right side, see Fig. 1.1.), the centre 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 centre 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 centre 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
- Hexagonal box wrenches 5mm, 6mm
- Open-end wrenches 21mm (BP□)
- Snap ring pleyer

2.2 Misc.

- Lubricating oil Turbine oil equivalent to #32
- Nuts M8x1.25 (BA□, BS□)

3. Ordering replacement parts

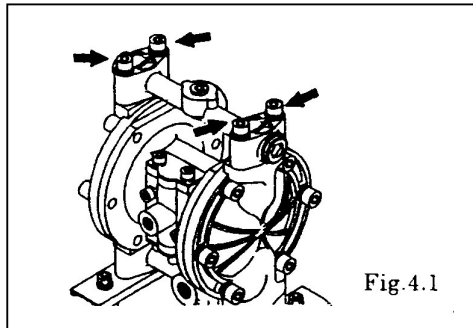
For accurate and speedy shipment of parts, be sure to order the right parts for your model to your dealer or one of our regional offices. Indicate the part number, descriptions, quantities and reasons for replacement, in as much detail as possible.

4. Balls and Valve seats

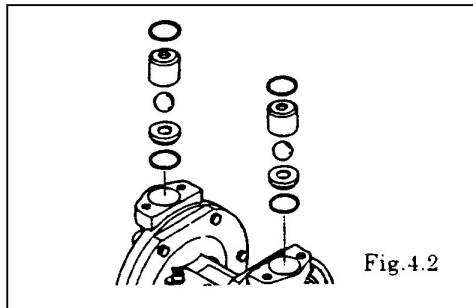
4.1 Removal

■ BA□, BS□ types

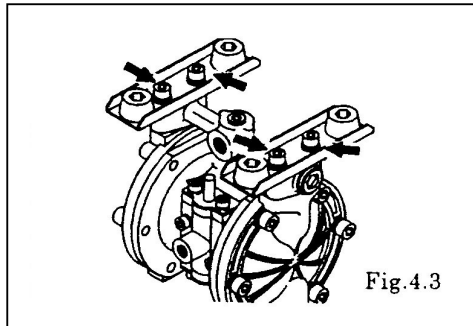
See [8. Exploded View] on and after p. 10. (Fig. 4.1, 4.2, 4.3 and 4.4 show the BA□.)



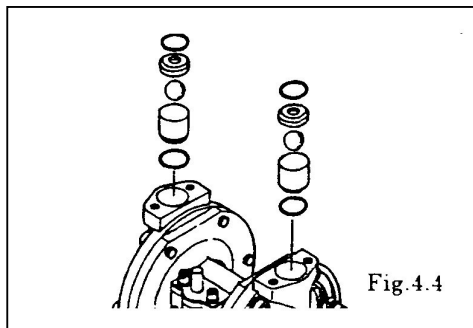
- Remove the 4 retainer bolts from the “out” manifold, and remove the “out” manifold. [Fig. 4.1.]



- Remove the O-ring, ball guide, ball and valve seat. [Fig. 4.2]



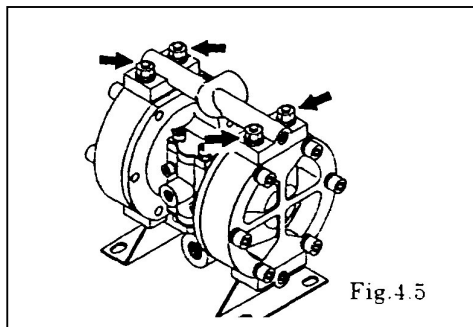
- Turn over the main body assembly. [Fig. 4.3]
- Remove the 4 retainer bolts from the “in” manifold, and remove the “in” manifold.



- Remove the O-ring, valve seat, ball and ball guide. [Fig. 4.4]

■ BP□ type

See [8. Exploded View] on p. 14 and p. 20.



- Remove the 4 retainer nuts from the “out” manifold, and remove the “out” manifold. [Fig. 4.5]

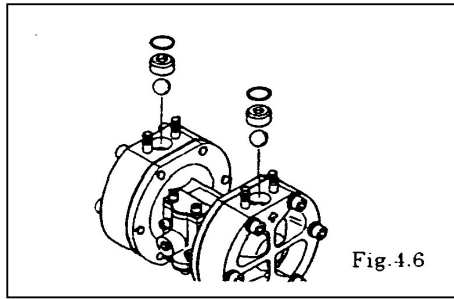


Fig.4.6

- Remove the O-ring, ball guide, ball and valve seat. [Fig. 4.6]

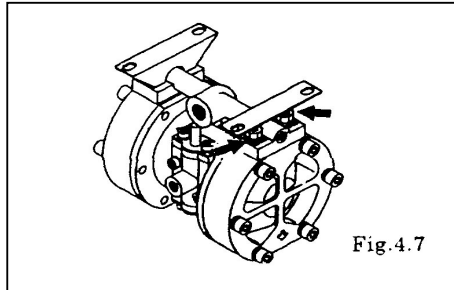


Fig.4.7

- Turn over the main body assembly. [Fig. 4.7]
- Remove the 4 retainer nuts from the “in” manifold, and remove the “in” manifold. [Fig. 4.7]

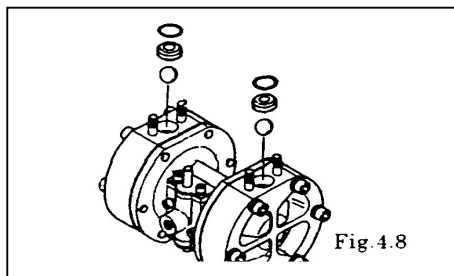


Fig.4.8

- Remove the O-ring, ball and valve seat. [Fig. 4.8]

4.2 Checking

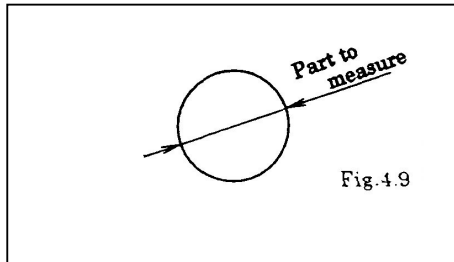


Fig.4.9

- Ball [Fig. 4.9]
Measure the outside diameter, and if it is outside the usable range, replace the ball.

Usable range of ball

S ϕ 14.3 ~ S ϕ 16.3 mm

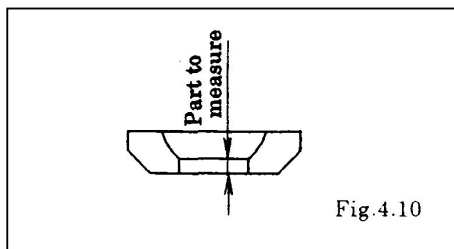


Fig.4.10

- Valve seat [Fig. 4.10]
Measure the dimension shown at left, and if it is outside the usable range, replace the valve seat.

Usable range of valve seat

BA□, BS□, BPH, BPT	2.0 ~ 5.1 mm
BPC, BPN, BPE, BPS	2.0 ~ 6.5 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 and after p. 10, and install in the reverse order of disassembly.

Tightening torque for manifold retainer bolts

BA□, BS□	12N·m{ 120kgf·cm }
BP□	6N·m{ 60kgf·cm }

<NOTE>

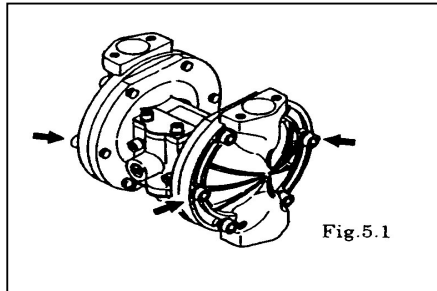
- Make sure there is no dust on the seal surface and the seal is not damaged.
- Replace the PTFE O-ring regardless of its condition.

5. Diaphragm and Centre rod

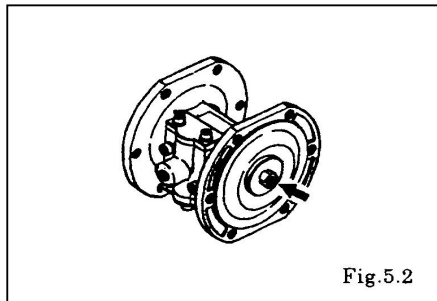
5.1 Removal

■ BA□, BS□ types

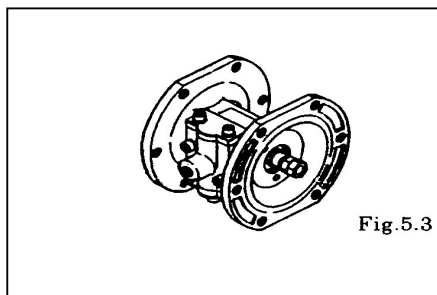
See [8. Exploded View] on and after p.10. (Fig. 5.1 and 5.2 show the BA□.)



- Remove the ball and valve seat etc. (see [4.1 Removal BA□, BS□ types] on p.4)
- Remove the 6 retainer bolts from the “out” chamber, and remove the “out” chamber. [Fig. 5.1]



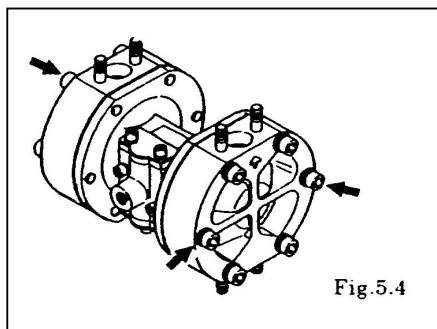
- Remove the nuts on both sides of the centre rod. [Fig. 5.2]
- After the nuts on one side have been removed, remove the centre disk and diaphragm.



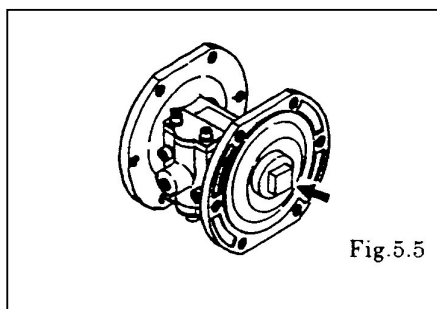
- Remove the nuts on the opposite side using the double nut. [Fig. 5.3]
- Remove the coned disk spring, centre disk and diaphragm.

■ BP□ type

See [8. Exploded View] on p.14 and p.20.



- Remove the ball and valve seat etc. (see [4.1 Removal BP□ types] on p.4)
- Remove the 12 retainer bolts from the “out” chamber, and remove the “out” chamber. [Fig. 5.4]



- Remove the centre disk from one side. [Fig. 5.5]
- After the centre disk (outside) has been removed, remove the diaphragm and the centre disk (inside).

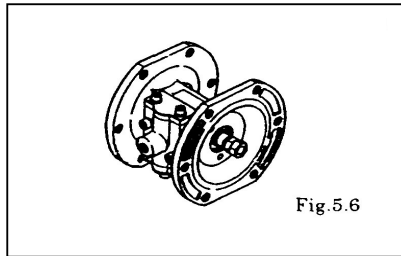


Fig. 5.6

5.2 Checking

- Remove the centre disk and diaphragm from the opposite side using the double nut. [Fig. 5.6]

5.3 Installation

■ B□H, B□S types

For installation, see [8. Exploded View] on and after p.10, and install in the reverse order of disassembly.

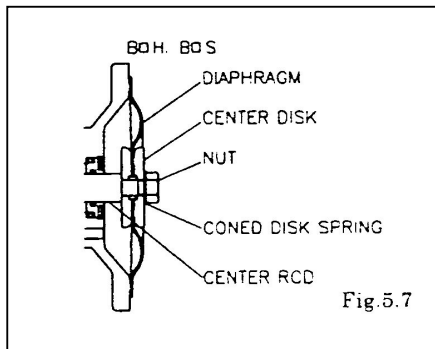


Fig. 5.7

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

Guideline of diaphragm life

CR, NBR, PTFE, EPDM	10,000,000 strokes
TPEE, TPO	15,000,000 strokes

(When used with clean water at room temperature)

- Apply lubricating oil to the centre rod, and insert it into the main body.
- Keep the convex side to the outside. (cf. Fig. 5.7)
- Tighten the centre disk using the open-end wrenches for the DP-10BP□.
- (No coned disk springs and nuts are needed.)
- Tighten the bolts 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 centre rod and out chamber

12 N·m { 120 kgf·cm }

<NOTE>

- Make sure there is no dust on the seal surface in order to prevent seal damage.
- Tighten the bolts so that the balance is equal from both sides on diagonal line with even torque.

■ B□C, B□N, B□T, B□E types

For installation, see [8. Exploded View] on and after p. 10, and install in the reverse order of disassembly.

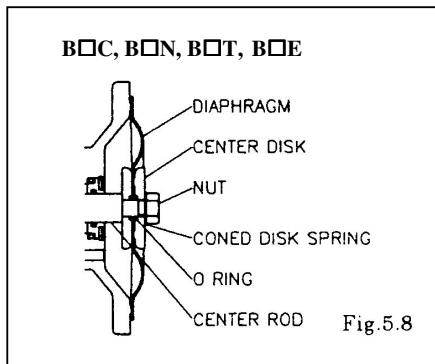


Fig. 5.8

- Apply lubricating oil to the centre rod, and insert it into the main body.
- Keep the marking “LIQUID” to liquid end for CR, NBR diaphragms.
- Keep the convex side to the outside for PTFE diaphragm.
- Install the O-ring (Fig. 5.9).
- Tighten the centre disk using the open-end wrenches for the DP-10BP□.
- 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 centre rod and out chamber

12 N·m { 120 kgf·cm }

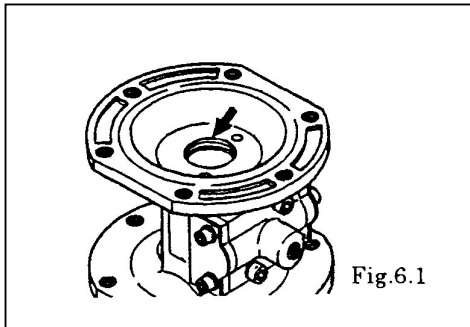
<NOTE>

- Make sure there is no dust on the seal surface in order to prevent seal damage.
- Replace the PTFE O-ring by new one.
- Tighten the bolts so that the balance is equal from both sides on diagonal line with even torque.

6. Centre rod, Body and Guide Bush

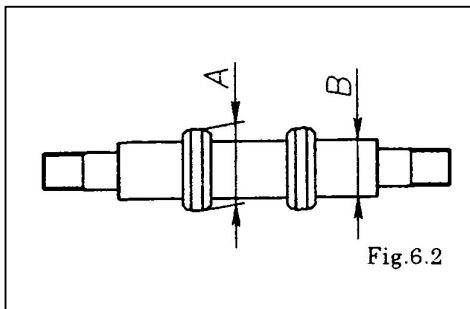
6.1 Removal

See [8. Exploded View] on and after p. 10.



- Remove the diaphragm etc. (see [5.1 Removal] on p.6)
- Remove the snap ring, and remove the guide bush and centre rod assembly using the snap ring pleyer. [Fig. 6.1]

6.2 Checking



- Centre rod assembly [Fig. 6.2]
- Measure the outside diameter (A), and if it is outside the usable range, replace the slipper seal.

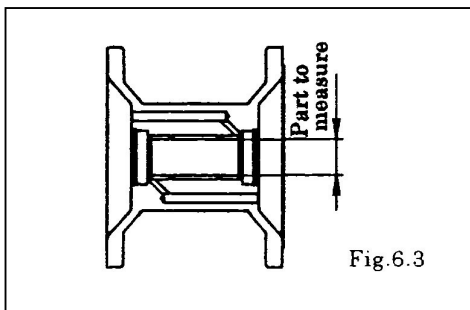
Usable range of slipper seal (A)

$\phi 19.09 \sim \phi 20.0\text{mm}$

Measure the outside diameter (B), and if it is outside the usable range, replace the centre rod Slipper seal.

Usable range of centre rod (B)

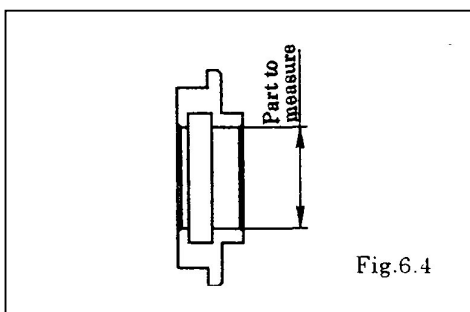
$\phi 13.09 \sim \phi 14.0\text{mm}$



- Body [Fig. 6.3]
Measure the inside diameter, and if it is outside the usable range, replace the body.

Usable range of body

$\phi 20.00 \sim \phi 20.08\text{mm}$



- Guide bush [Fig. 6.2]
Measure the inside diameter, and if it is outside the usable range, replace the guide bush.

Usable range of guide bush

$\phi 14.02 \sim \phi 14.08\text{mm}$

- O-ring
If the O-ring is worn out or cracked, replace it.

6.3 Installation

For installation, see [8. Exploded View] on and after p. 10, and install in the reverse order of disassembly.

<NOTE>

- Make sure there is no dust on the seal surface and the seal is not damaged.

7. Spool valve case and Spool

7.1 Removal

See [8. Exploded View] on and after p. 10. (Fig. 7.1 shows the BA□.)

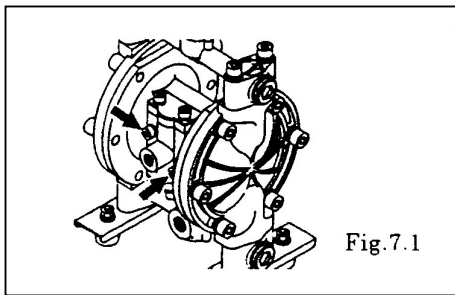


Fig.7.1

- Remove the 4 retainer bolts from the spool valve case, and remove the spool valve case. [Fig. 7.1]

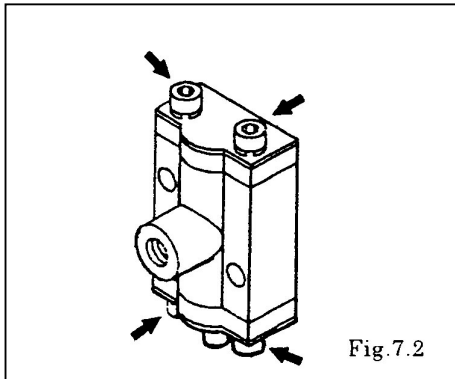


Fig.7.2

- Remove the 2 retainer bolts from the cap, and remove the reinforcement plate A, cap and reset button. [Fig. 7.2]
- Remove the 2 retainer bolts from the cap, and remove the reinforcement plate B, and cap.
- Remove the spool valve assembly from the spool valve case.

7.2 Checking

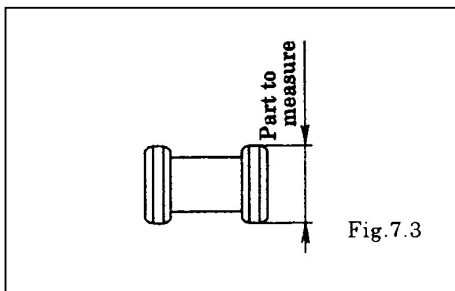


Fig.7.3

- Spool valve assembly [Fig. 7.3]
Measure the outside diameter, and if it is outside the usable range, replace the slipper seal.

Usable range of spool valve assembly

$\phi 19.9 \sim \phi 20.0 \text{ mm}$

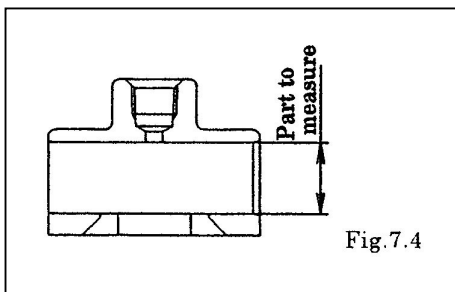


Fig.7.4

- Spool valve case [Fig. 7.4]
- Measure the inside diameter, and if it is outside the usable range, replace the spool valve case.

Usable range of spool valve case

$\phi 20.00 \sim \phi 20.08 \text{ mm}$

7.3 Installation

For installation see [8. Exploded View] on and after p.10, and install in the reverse order of disassembly.

Tightening torque for installation cap

$6 \text{ N}\cdot\text{m} \{60 \text{ kgf}\cdot\text{cm}\}$

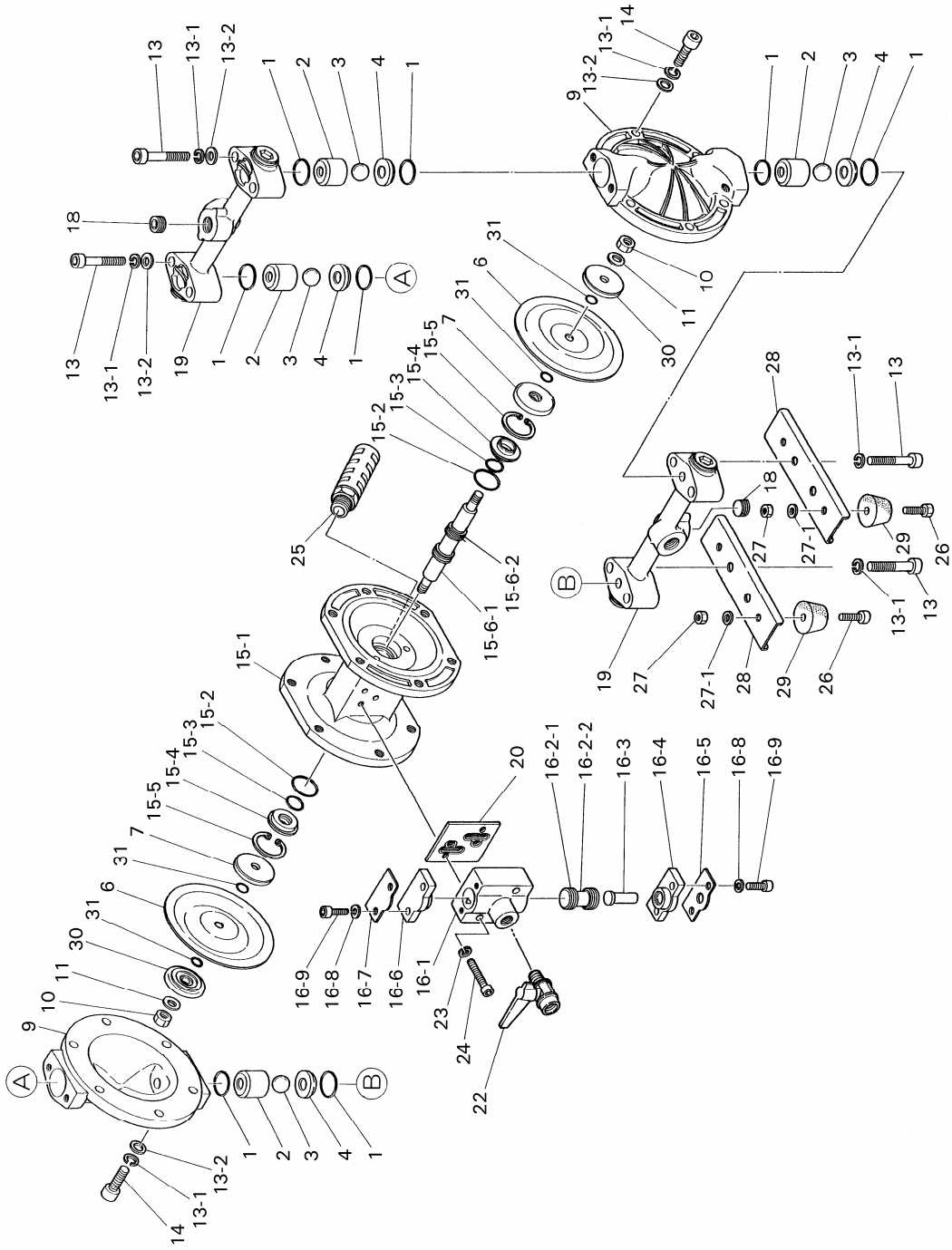
Tightening torque for installation spool valve case

$6 \text{ N}\cdot\text{m} \{60 \text{ kgf}\cdot\text{cm}\}$

<NOTE>

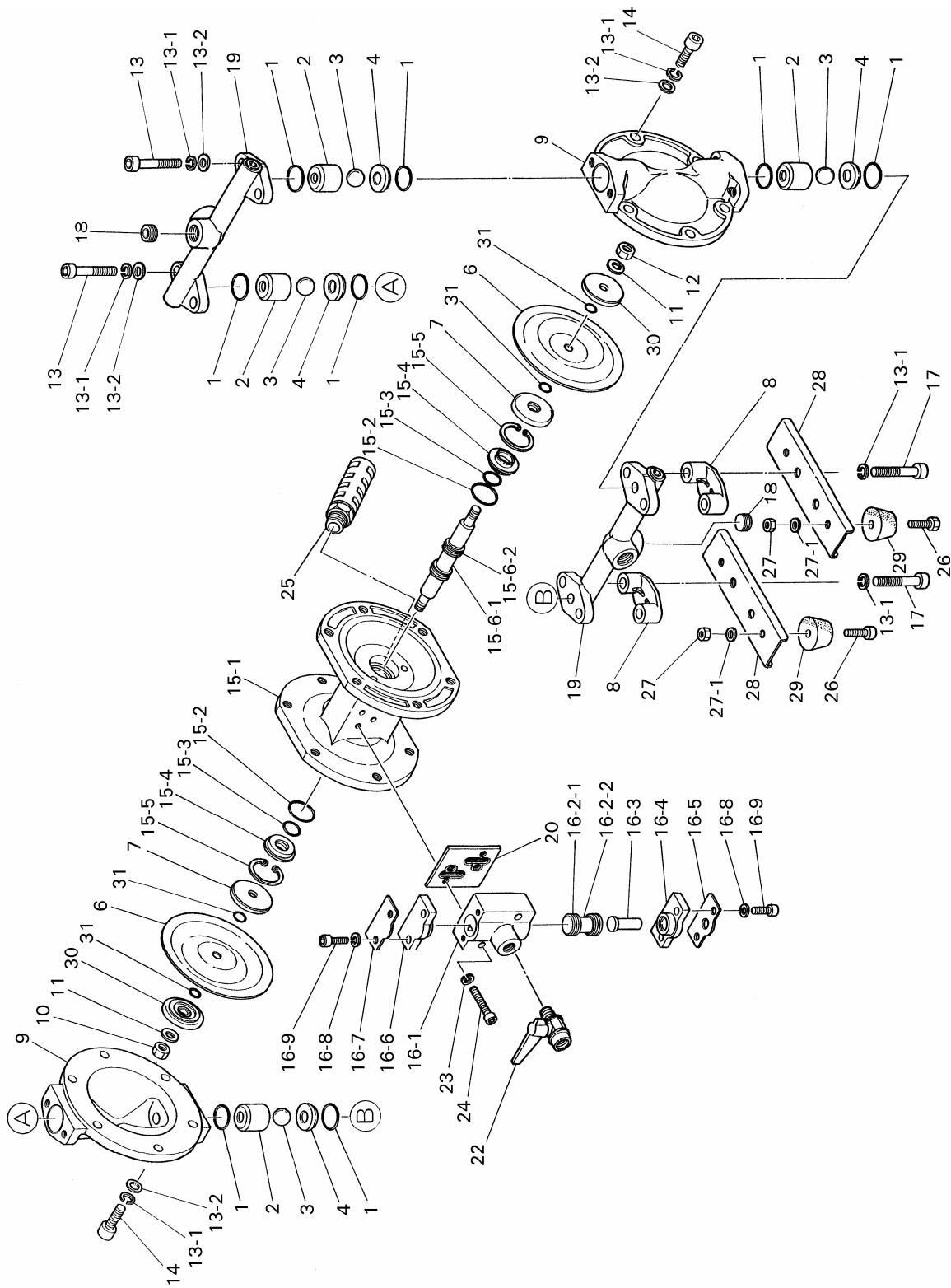
- Make sure there is no dust on the seal surface and it is not damaged.

Exploded view DP-10 BA..



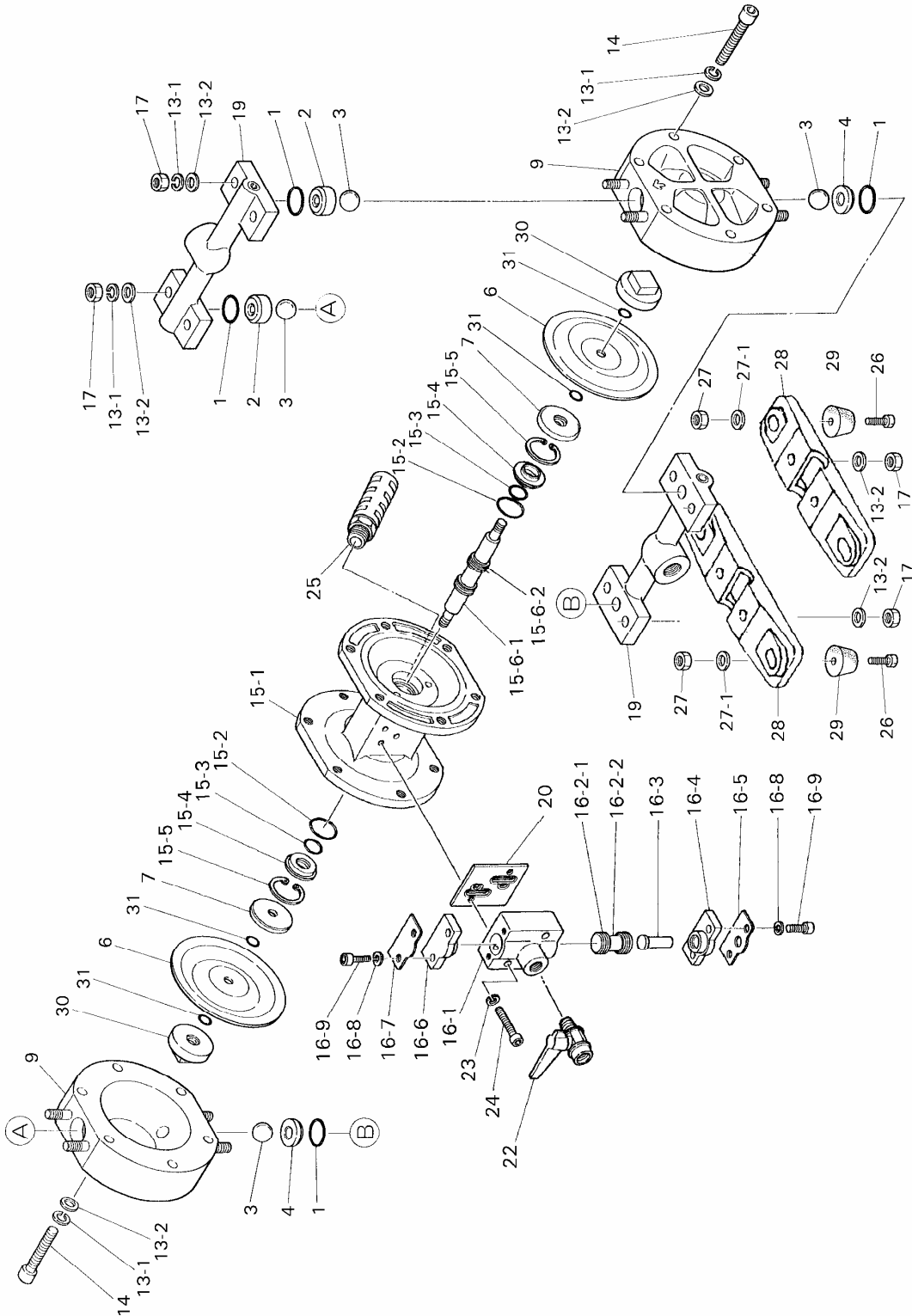
PARTS LIST					
DP-10-BA..					
No.	B A C B A N B A H	No.	B A T B A E B A S	DESCRIPTIONS	Q'TY
1C	640-018	1T	643-018	O-RING	8
N	640-018	E	684-112	O-RING	8
H	643-018	S	684-112	O-RING	8
2	771-368	2	771-368	BALL GUIDE	4
3C	770-970	3T	770-931	BALL	4
N	770-972	E	771-978	BALL	4
H	770-931	S	771-978	BALL	4
4	710-638	4	710-638	VALVE SEAT	4
6C	770-971	6T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
7	709-512	7	709-512	CENTRE DISC	2
9	710-572	9	710-572	PUMP CHAMBER	2
10	681-849	10	681-849	NUT	2
11	684-916	11	684-916	WASHER	2
13	681-295	13	681-295	BOLT	8
13-1	681-300	13-1	681-300	SPRING WASHER	20
13-2	631-329	13-2	631-329	WASHER	16
14	682-944	14	682-944	BOLT	12
15		15		BODY ASSY	1
15-1	710-571	15-1	710-571	BODY	1
15-2	640-130	15-2	640-130	O-RING	2
15-3	640-013	15-3	640-013	O-RING	2
15-4	708-502	15-4	708-502	GUIDE BUSH	2
15-5	630-611	15-5	630-611	STOP RING	2
15-6	801-785	15-6	801-785	CENTRE ROD ASSY	1
15-6-1	708-501	15-6-1	708-501	CENTRE ROD	1
15-6-2	681-294	15-6-2	681-294	SLIPPER SEAL	2
16	000-500	16	000-500	SPOOL CASE ASSY	1
16-1	710-574	16-1	710-574	SPOOL CASE	1
16-2	801-404	16-2	801-404	SPOOL ASSY	1
16-2-1	770-718	16-2-1	770-718	SPOOL	1
16-2-2	681-294	16-2-2	681-294	SLIPPER SEAL	2
16-3	706-798	16-3	706-798	RESET BUTTON	1
16-4	771-357	16-4	771-357	SPOOL COVER BOTTOM	1
16-5	710-587	16-5	710-587	SPOOL PLATE BOTTOM	1
16-6	771-356	16-6	771-356	SPOOL COVER TOP	1
16-7	710-636	16-7	710-636	SPOOL PLATE TOP	1
16-8	681-855	16-8	681-855	SPRING WASHER	4
16-9	682-917	16-9	682-917	BOLT	4
18	682-279	18	682-279	PLUG	2
19	802-559	19	802-559	MANIFOLD	2
20	771-358	20	771-358	GASKET	1
22	681-292	22	681-292	BALL VALVE	1
23	681-855	23	681-855	SPRING WASHER	2
24	682-918	24	682-918	BOLT	2
25	681-293	25	681-293	MUFFLER	1
26	000-550	26	000-550	BOLT	4
27	000-549	27	000-549	NUT	4
27-1	000-548	27-1	000-548	WASHER	4
28	710-586	28	710-586	BASE	2
29	000-551	29	000-551	STAND RUBBER	4
30	708-770	30	708-770	CENTRE DISC	2
31C	640-005	31T	643-005	O-RING	4
N	640-005	E	643-005	O-RING	4
H		S		O-RING	4

Exploded view DP-10 BS..



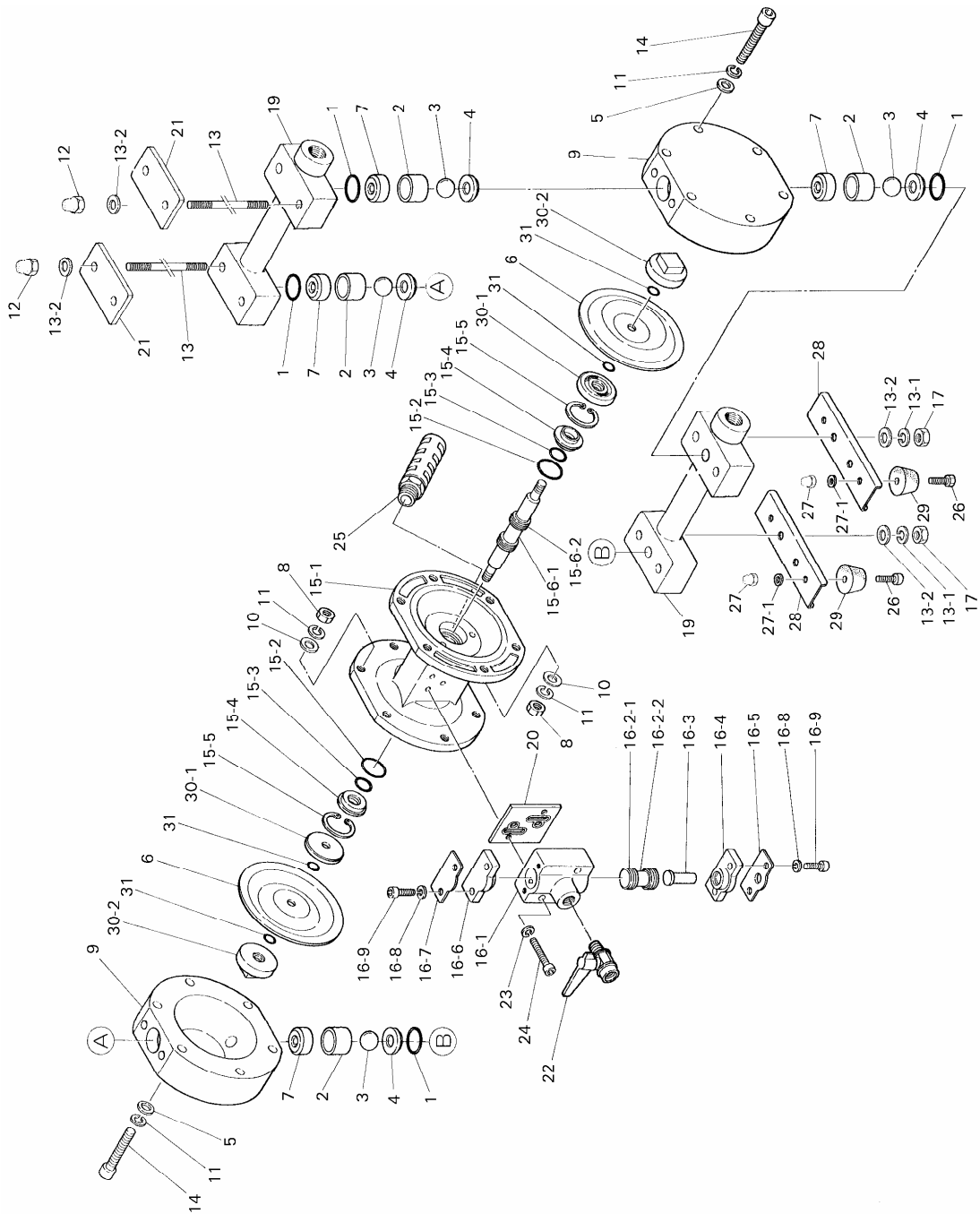
PARTS LIST					
DP-10-BS..					
No.	B S C B S N B S H	No.	B S T B S E B S S	DESCRIPTIONS	Q'TY
1C	640-018	1T	643-018	O-RING	8
N	640-018	E	684-112	O-RING	8
H	643-018	S	684-112	O-RING	8
2	710-637	2	710-637	BALL GUIDE	4
3C	770-970	3T	770-931	BALL	4
N	770-972	E	771-978	BALL	4
H	770-931	S	771-978	BALL	4
4	708-913	4	708-913	VALVE SEAT	4
6C	770-971	6T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
7	709-512	7	709-512	CENTRE DISC	2
8	771-380	8	771-380	SPACER	2
9	710-660	9	710-660	PUMP CHAMBER	2
10	681-849	10	681-849	NUT	2
11	684-916	11	684-916	WASHER	2
13	682-944	13	682-944	BOLT	4
13-1	681-300	13-1	681-300	SPRING WASHER	20
13-2	631-329	13-2	631-329	WASHER	16
14	000-547	14	000-547	BOLT	12
15		15		BODY ASSY	1
15-1	710-571	15-1	710-571	BODY	1
15-2	640-130	15-2	640-130	O-RING	2
15-3	640-013	15-3	640-013	O-RING	2
15-4	708-502	15-4	708-502	GUIDE BUSH	2
15-5	630-611	15-5	630-611	STOP RING	2
15-6	801-785	15-6	801-785	CENTRE ROD ASSY	1
15-6-1	708-501	15-6-1	708-501	CENTRE ROD	1
15-6-2	681-294	15-6-2	681-294	SLIPPER SEAL	2
16	000-500	16	000-500	SPOOL CASE ASSY	1
16-1	710-574	16-1	710-574	SPOOL CASE	1
16-2	801-404	16-2	801-404	SPOOL ASSY	1
16-2-1	770-718	16-2-1	770-718	SPOOL	1
16-2-2	681-294	16-2-2	681-294	SLIPPER SEAL	2
16-3	706-798	16-3	706-798	RESET BUTTON	1
16-4	771-357	16-4	771-357	SPOOL COVER BOTTOM	1
16-5	710-587	16-5	710-587	SPOOL PLATE BOTTOM	1
16-6	771-356	16-6	771-356	SPOOL COVER TOP	1
16-7	710-636	16-7	710-636	SPOOL PLATE TOP	1
16-8	681-855	16-8	681-855	SPRING WASHER	4
16-9	682-917	16-9	682-917	BOLT	4
17	681-295	17	681-295	BOLT	4
18	709-340	18	709-340	PLUG	2
19	831-529	19	831-529	MANIFOLD	2
20	771-358	20	771-358	GASKET	1
22	681-292	22	681-292	BALL VALVE	1
23	681-855	23	681-855	SPRING WASHER	2
24	682-918	24	682-918	BOLT	2
25	681-293	25	681-293	MUFFLER	1
26	000-550	26	000-550	BOLT	4
27	000-549	27	000-549	NUT	4
27-1	000-548	27-1	000-548	WASHER	4
28	710-586	28	710-586	BASE	2
29	000-551	29	000-551	STAND RUBBER	4
30	708-506	30	708-506	CENTRE DISC	2
31C	640-005	31T	643-005	O-RING	4
N	640-005	E	643-005	O-RING	4
H		S		O-RING	4

Exploded view DP-10 BP..



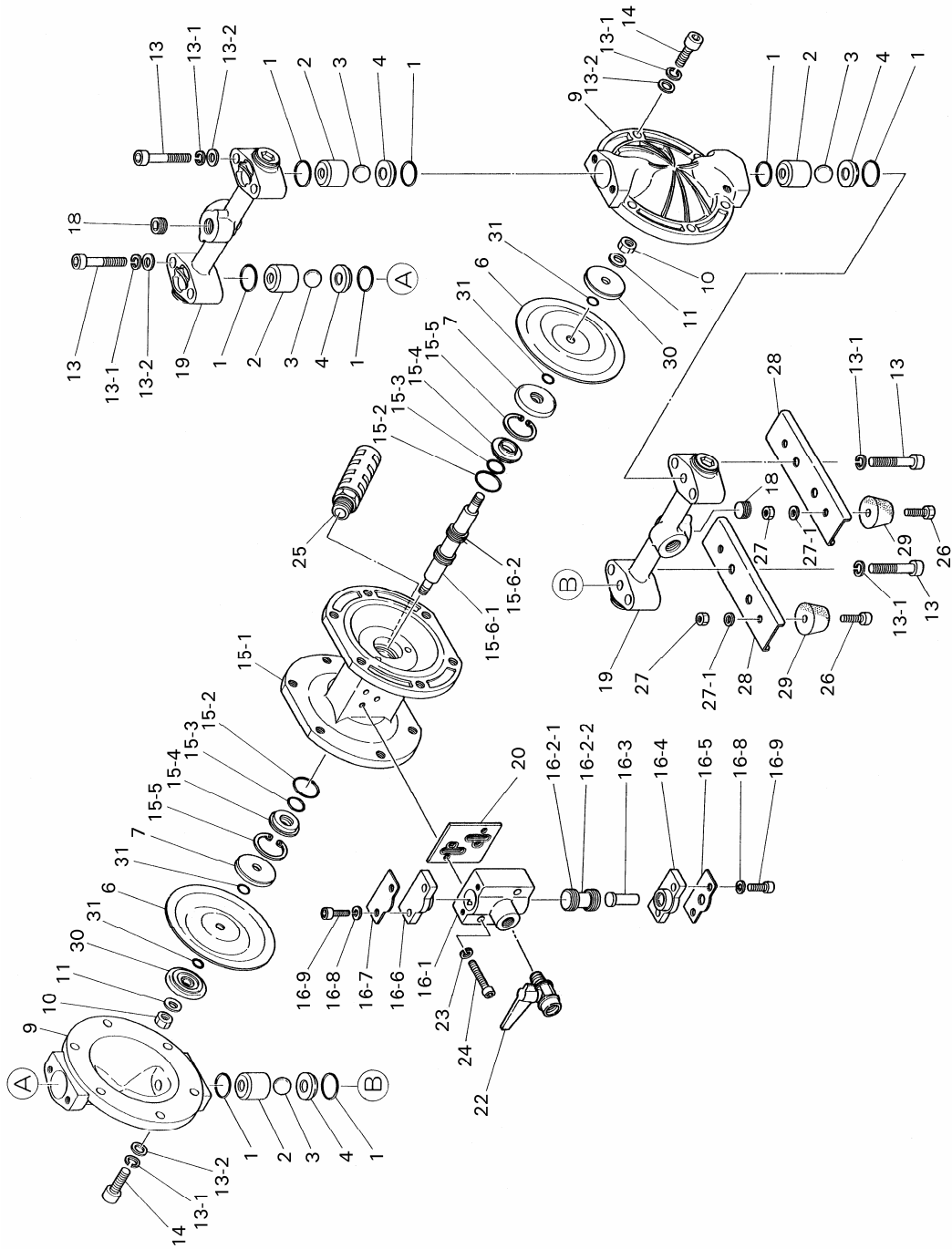
PARTS LIST					
DP-10-BP..					
No.	B P C B P N B P H	No.	B P T B P E B P S	DESCRIPTIONS	Q`TY
1C		1T	643-018	O-RING	4
N		E	684-112	O-RING	4
H	643-018	S	684-112	O-RING	4
1C	640-018	1T		O-RING	2
N	640-018	E		O-RING	2
H		S		O-RING	2
2	771-136	2	771-136	BALL GUIDE	2
3C	770-970	3T	770-931	BALL	4
N	770-972	E	771-978	BALL	4
H	770-931	S	771-978	BALL	4
4C	770-975	4T	771-187	VALVE SEAT	2
N	770-976	E	771-187	VALVE SEAT	2
H	771-187	S	771-187	VALVE SEAT	2
6C	770-971	6T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
7	708-770	7	708-770	CENTRE DISC	2
9	780-194	9	780-194	PUMP CHAMBER	2
13-1	681-300	13-1	681-300	SPRING WASHER	16
13-2	631-329	13-2	631-329	WASHER	20
14	682-945	14	682-945	BOLT	12
15		15		BODY ASSY	1
15-1	710-571	15-1	710-571	BODY	1
15-2	640-130	15-2	640-130	O-RING	2
15-3	640-013	15-3	640-013	O-RING	2
15-4	708-502	15-4	708-502	GUIDE BUSH	2
15-5	630-611	15-5	630-611	STOP RING	2
15-6	801-785	15-6	801-785	CENTRE ROD ASSY	1
15-6-1	708-501	15-6-1	708-501	CENTRE ROD	1
15-6-2	681-294	15-6-2	681-294	SLIPPER SEAL	2
16	000-500	16	000-500	SPOOL CASE ASSY	1
16-1	710-574	16-1	710-574	SPOOL CASE	1
16-2	801-404	16-2	801-404	SPOOL ASSY	1
16-2-1	770-718	16-2-1	770-718	SPOOL	1
16-2-2	681-294	16-2-2	681-294	SLIPPER SEAL	2
16-3	706-798	16-3	706-798	RESET BUTTON	1
16-4	771-357	16-4	771-357	SPOOL COVER BOTTOM	1
16-5	710-587	16-5	710-587	SPOOL PLATE BOTTOM	1
16-6	771-356	16-6	771-356	SPOOL COVER TOP	1
16-7	710-636	16-7	710-636	SPOOL PLATE TOP	1
16-8	681-855	16-8	681-855	SPRING WASHER	4
16-9	682-917	16-9	682-917	BOLT	4
17	628-012	17	628-012	NUT	8
19	832-361	19	832-361	MANIFOLD	2
20	771-358	20	771-358	GASKET	1
22	681-292	22	681-292	BALL VALVE	1
23	681-855	23	681-855	SPRING WASHER	2
24	682-918	24	682-918	BOLT	2
25	681-293	25	681-293	MUFFLER	1
26	621-153	26	621-153	BOLT	4
27	628-012	27	628-012	NUT	4
27-1	631-329	27-1	631-329	WASHER	4
28	708-511	28	708-511	BASE	2
29	770-551	29	770-551	STAND RUBBER	4
30	770-968	30	770-968	CENTRE DISC	2
31C	640-005	31T	643-005	O-RING	4
N	640-005	E	643-005	O-RING	4
H		S		O-RING	4

Exploded view DP-10-BTT, BXT



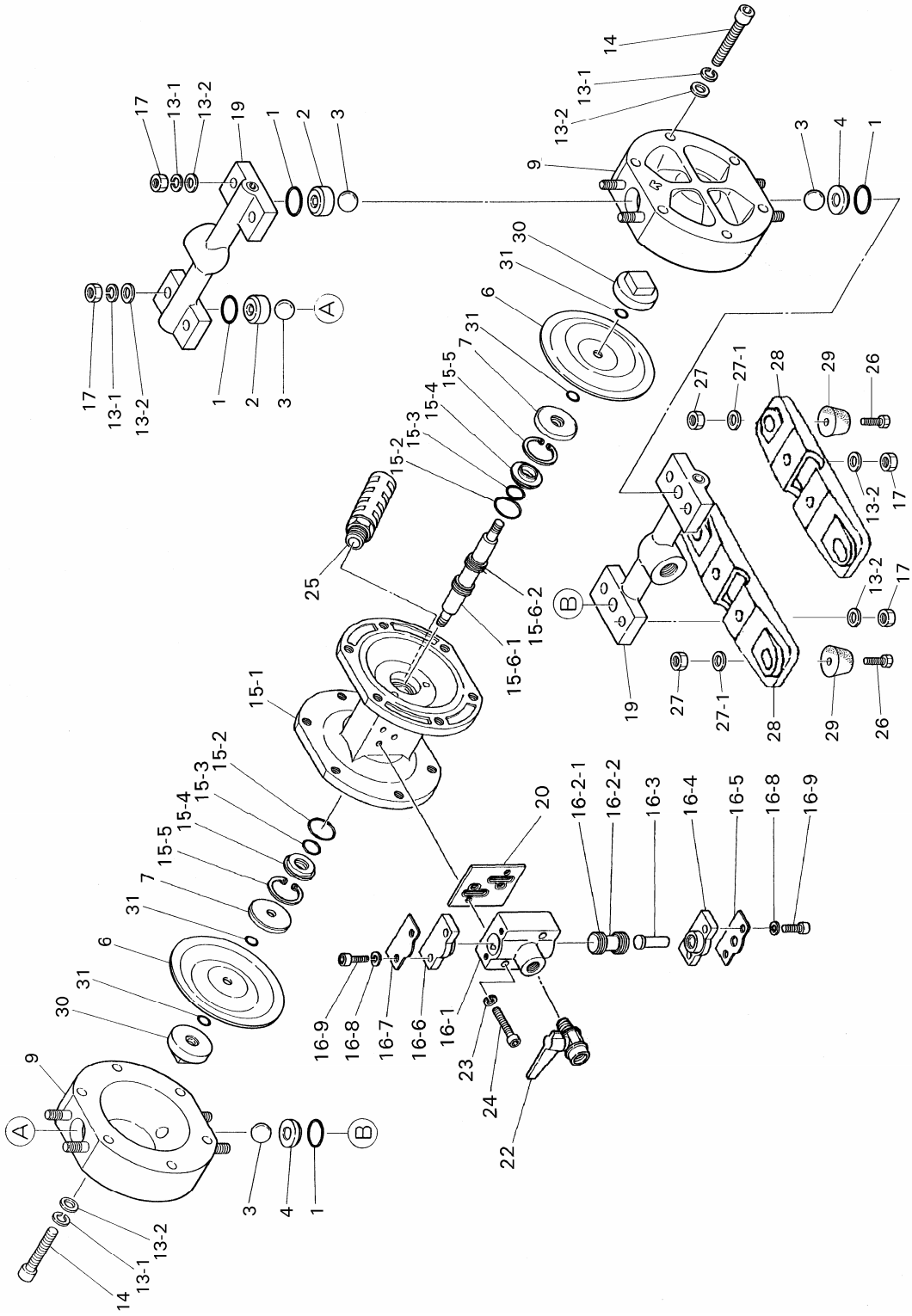
PARTS LIST					
DP-10-BTT,BXT					
No.	B T T	No.	B X T	DESCRIPTIONS	Q`TY
1	643-018	1	643-018	O-RING	4
2	771-585	2	000-094	VALVE GUIDE	4
3	770-931	3	770-931	BALL	4
4	770-983	4	000-092	VALVE SEAT	4
5	000-076	5	000-076	WASHER	12
6	770-933	6	770-933	DIAPHRAGM	2
7	770-985	7	000-093	RETAINER	4
8	628-012	8		NUT	12
9	770-987	9	000-095	PUMP CHAMBER	2
10	631-329	10		WASHER	12
11	681-300	11	681-300	SPRING WASHER	12
12	000-091	12	000-091	CAP NUT	4
13	000-803	13	000-803	THREAD END	2
13-1	681-855	13-1	681-855	SPRING WASHER	4
13-2	631-328	13-2	631-328	WASHER	8
14	621-159	14	682-945	BOLT	12
15		15		BODY ASSY	1
15-1	710-571 EC	15-1	710-571	BODY	1
15-2	640-130	15-2	640-130	O-RING	2
15-3	640-013	15-3	640-013	O-RING	2
15-4	708-502	15-4	708-502	GUIDE BUSH	2
15-5	630-611	15-5	630-611	STOP RING	2
15-6	801-785	15-6	801-785	CENTRE ROD ASSY	1
15-6-1	708-501	15-6-1	708-501	CENTRE ROD	1
15-6-2	681-294	15-6-2	681-294	SLIPPER SEAL	2
16	000-500	16	000-500	SPOOL CASE ASSY	1
16-1	710-574	16-1	710-574	SPOOL CASE	1
16-2	801-404	16-2	801-404	SPOOL ASSY	1
16-2-1	770-718	16-2-1	770-718	SPOOL	1
16-2-2	681-294	16-2-2	681-294	SLIPPER SEAL	2
16-3	706-798	16-3	706-798	RESET BUTTON	1
16-4	771-357	16-4	771-357	SPOOL COVER BOTTOM	1
16-5	710-587	16-5	710-587	SPOOL PLATE BOTTOM	1
16-6	771-356	16-6	771-356	SPOOL COVER TOP	1
16-7	710-636	16-7	710-636	SPOOL PLATE TOP	1
16-8	681-855	16-8	681-855	SPRING WASHER	4
16-9	682-917	16-9	682-917	BOLT	4
17	683-391	17	683-391	NUT	4
19	000-813	19	000-096	MANIFOLD	2
20	771-358	20	771-358	GASKET	1
21	000-800	21	000-800	PROTECTOR PLATE	2
22	681-292	22	681-292	BALL VALVE	1
23	681-855	23	681-855	SPRING WASHER	2
24	682-918	24	682-918	BOLT	2
25	681-293	25	681-293	MUFFLER	1
26	000-550	26	000-550	BOLT	4
27	000-091	27	000-091	CAP NUT	4
27-1	000-548	27-1	000-548	WASHER	4
28	710-586	28	710-586	BASE	2
29	000-551	29	000-551	STAND RUBBER	4
30-1	708-770	30-1	708-770	CENTRE DISC	2
30-2	780-122	30-2	780-122	CENTRE DISC	2
31	643-005	31	643-005	O-RING	4

Exploded view DP-12-BAN



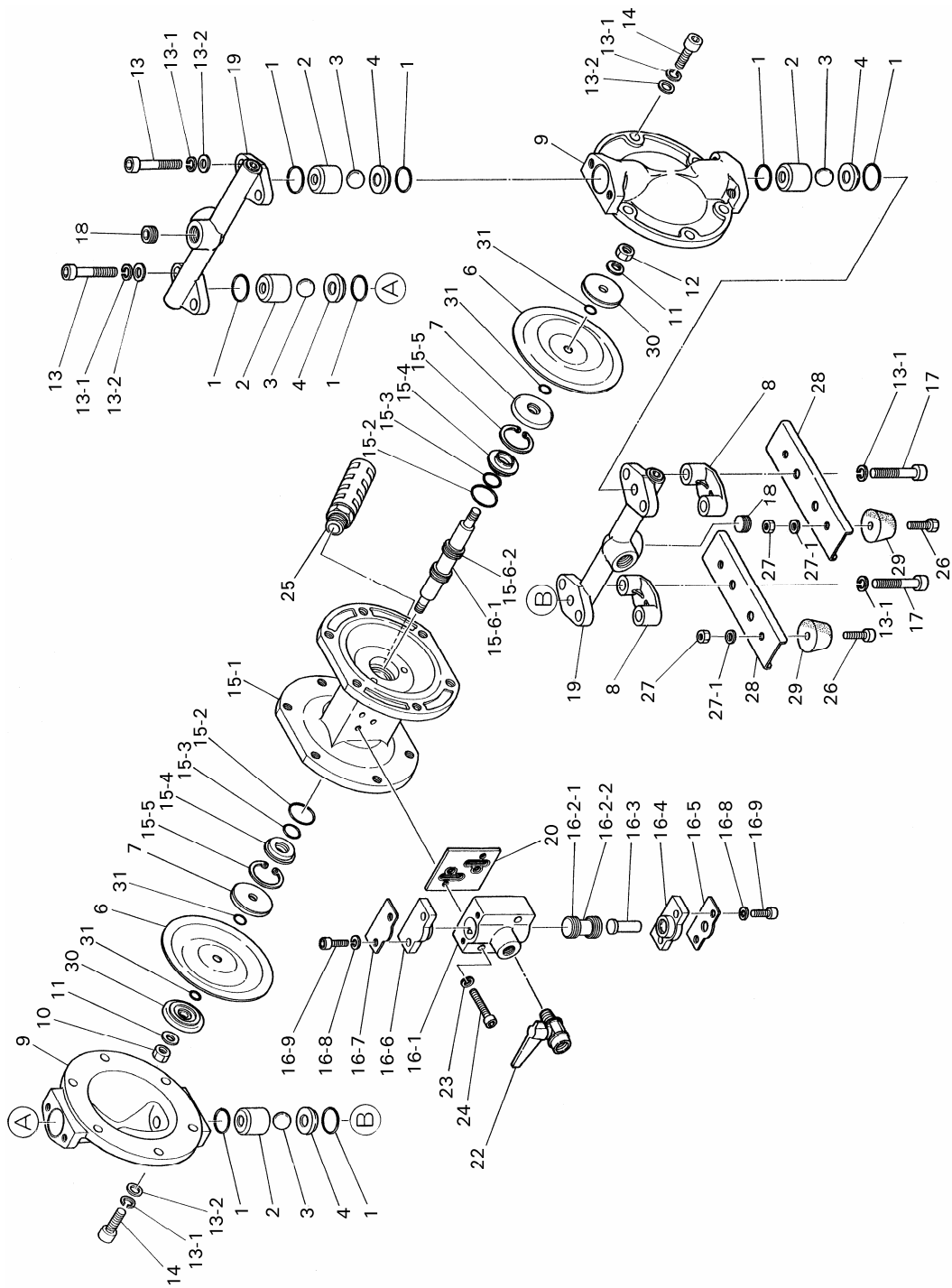
PARTS LIST					
DP-12-BAN					
No.	B A N			DESCRIPTIONS	Q'TY
1	640-018			O-RING	8
2	771-368			BALL GUIDE	4
3	770-972			BALL	4
4	710-638			VALVE SEAT	4
6	770-973			DIAPHRAGM	2
7	709-512			CENTRE DISC	2
9	710-572			PUMP CHAMBER	2
10	681-849			NUT	2
11	684-916			WASHER	2
13	681-295			BOLT	8
13-1	681-300			SPRING WASHER	20
13-2	631-329			WASHER	16
14	682-944			BOLT	12
15				BODY ASSY	1
15-1	710-571			BODY	1
15-2	640-130			O-RING	2
15-3	640-013			O-RING	2
15-4	708-502			GUIDE BUSH	2
15-5	630-611			STOP RING	2
15-6	801-785			CENTRE ROD ASSY	1
15-6-1	708-501			CENTRE ROD	1
15-6-2	681-294			SLIPPER SEAL	2
16	000-500			SPOOL CASE ASSY	1
16-1	710-574			SPOOL CASE	1
16-2	801-404			SPOOL ASSY	1
16-2-1	770-718			SPOOL	1
16-2-2	681-294			SLIPPER SEAL	2
16-3	706-798			RESET BUTTON	1
16-4	771-357			SPOOL COVER BOTTOM	1
16-5	710-587			SPOOL PLATE BOTTOM	1
16-6	771-356			SPOOL COVER TOP	1
16-7	710-636			SPOOL PLATE TOP	1
16-8	681-855			SPRING WASHER	4
16-9	682-917			BOLT	4
18	02-0280			PLUG	2
19	02-0559			MANIFOLD	2
20	771-358			GASKET	1
22	681-292			BALL VALVE	1
23	681-855			SPRING WASHER	2
24	682-918			BOLT	2
25	681-293			MUFFLER	1
26	000-550			BOLT	4
27	000-549			NUT	4
27-1	000-548			WASHER	4
28	710-586			BASE	2
29	000-551			STAND RUBBER	4
30	708-770			CENTRE DISC	2
31	640-005			O-RING	4

Exploded view DP-12-BP..



PARTS LIST					
DP-12-BP..					
No.	B P N	B P S	B P T	DESCRIPTIONS	Q`TY
1		684-112	643-018	O-RING	4
1	640-018			O-RING	2
2	771-136	771-136	771-136	BALL GUIDE	2
3	771-972	771-978	770-931	BALL	4
4	770-976	771-187	771-187	VALVE SEAT	2
6	770-973	771-972	770-933	DIAPHRAGM	2
7	708-770	708-770	708-770	CENTRE DISC	2
9	780-194	780-194	780-194	PUMP CHAMBER	2
13-1	681-300	681-300	681-300	SPRING WASHER	16
13-2	631-329	631-329	631-329	WASHER	20
14	682-945	682-945	682-945	BOLT	12
15				BODY ASSY	1
15-1	710-571	710-571	710-571	BODY	1
15-2	640-130	640-130	640-130	O-RING	2
15-3	640-013	640-013	640-013	O-RING	2
15-4	708-502	708-502	708-502	GUIDE BUSH	2
15-5	630-611	630-611	630-611	STOP RING	2
15-6	801-785	801-785	801-785	CENTRE ROD ASSY	1
15-6-1	708-501	708-501	708-501	CENTRE ROD	1
15-6-2	681-294	681-294	681-294	SLIPPER SEAL	2
16	000-500	000-500	000-500	SPOOL CASE ASSY	1
16-1	710-574	710-574	710-574	SPOOL CASE	1
16-2	801-404	801-404	801-404	SPOOL ASSY	1
16-2-1	770-718	770-718	770-718	SPOOL	1
16-2-2	681-294	681-294	681-294	SLIPPER SEAL	2
16-3	706-798	706-798	706-798	RESET BUTTON	1
16-4	771-357	771-357	771-357	SPOOL COVER BOTTOM	1
16-5	710-587	710-587	710-587	SPOOL PLATE BOTTOM	1
16-6	771-356	771-356	771-356	SPOOL COVER TOP	1
16-7	710-636	710-636	710-636	SPOOL PLATE TOP	1
16-8	681-855	681-855	681-855	SPRING WASHER	4
16-9	682-917	682-917	682-917	BOLT	4
17	628-012	628-012	628-012	NUT	8
19	02-0292	02-0292	02-0292	MANIFOLD	2
20	771-358	771-358	771-358	GASKET	1
22	681-292	681-292	681-292	BALL VALVE	1
23	681-855	681-855	681-855	SPRING WASHER	2
24	682-918	682-918	682-918	BOLT	2
25	681-293	681-293	681-293	MUFFLER	1
26	621-153	621-153	621-153	BOLT	4
27	628-012	628-012	628-012	NUT	4
27-1	631-329	631-329	631-329	WASHER	4
28	771-947	771-947	771-947	BASE	2
29	770-551	770-551	770-551	STAND RUBBER	4
30	770-968	770-968	770-968	CENTRE DISC	2
31	640-005		643-005	O-RING	4

Exploded view DP-12-BST



PARTS LIST					
DP-12-BST					
No.	B S T			DESCRIPTIONS	Q'TY
1	643-018			O-RING	8
2	710-637			BALL GUIDE	4
3	770-931			BALL	4
4	708-913			VALVE SEAT	4
6	770-933			DIAPHRAGM	2
7	709-512			CENTRE DISC	2
8	771-380			SPACER	2
9	710-660			PUMP CHAMBER	2
10	681-849			NUT	2
11	684-916			WASHER	2
13	682-944			BOLT	4
13-1	681-300			SPRING WASHER	20
13-2	631-329			WASHER	16
14	000-547			BOLT	12
15				BODY ASSY	1
15-1	710-571			BODY	1
15-2	640-130			O-RING	2
15-3	640-013			O-RING	2
15-4	708-502			GUIDE BUSH	2
15-5	630-611			STOP RING	2
15-6	801-785			CENTRE ROD ASSY	1
15-6-1	708-501			CENTRE ROD	1
15-6-2	681-294			SLIPPER SEAL	2
16	000-500			SPOOL CASE ASSY	1
16-1	710-574			SPOOL CASE	1
16-2	801-404			SPOOL ASSY	1
16-2-1	770-718			SPOOL	1
16-2-2	681-294			SLIPPER SEAL	2
16-3	706-798			RESET BUTTON	1
16-4	771-357			SPOOL COVER BOTTOM	1
16-5	710-587			SPOOL PLATE BOTTOM	1
16-6	771-356			SPOOL COVER TOP	1
16-7	710-636			SPOOL PLATE TOP	1
16-8	681-855			SPRING WASHER	4
16-9	682-917			BOLT	4
17	681-295			BOLT	4
18	02-0281			PLUG	2
19	02-0529			MANIFOLD	2
20	771-358			GASKET	1
22	681-292			BALL VALVE	1
23	681-855			SPRING WASHER	2
24	682-918			BOLT	2
25	681-293			MUFFLER	1
26	000-550			BOLT	4
27	000-549			NUT	4
27-1	000-548			WASHER	4
28	710-586			BASE	2
29	000-551			STAND RUBBER	4
30	708-506			CENTRE DISC	2
31	643-005			O-RING	4

SERVICEKITS DIAPHRAGMPUMPS ((B)DP-10/12)

DIAPHRAGM KITS (BA⁰⁰¹,BS⁰⁰¹)

No.	DESCRIPTION	K10D-MN	Q`TY	K10D-MH	Q`TY	K10D-MC	Q`TY	K10D-ME	Q`TY	K10D-MS	Q`TY
1	O-RING	640-018	4	643-018	4	640-018	4	684-112	4	684-112	4
6	DIAPHRAGM	770-973	2	771-372	2	770-971	2	771-848	2	771-972	2
10	NUT	681-849	2	681-849	2		4	643-005	4		
11	CONED DISC SPRING	684-916	2	684-916	2	684-916	2	684-916	2	684-916	2
31	O-RING	640-005	4			640-005	4	643-005	4		

No.	DESCRIPTION	K10D-MT	Q`TY
1	O-RING	643-018	4
6	DIAPHRAGM	770-933	2
10	NUT	681-849	2
11	CONED DISC SPRING	684-916	2
31	O-RING	643-005	4

DIAPHRAGM KITS (BP⁰⁰¹,BTT,BXT)

No.	DESCRIPTION	K10D-PN	Q`TY	K10D-PH	Q`TY	K10D-PC	Q`TY	K10D-PE	Q`TY	K10D-PS	Q`TY
1	O-RING	640-018	4	643-018	4	640-018	4	684-112	4	684-112	4
6	DIAPHRAGM	770-973	2	771-372	2	770-971	2	771-848	2	771-972	2
31	O-RING	640-005	4			640-005	4	643-005	4		

No.	DESCRIPTION	K10D-PT	Q`TY
1	O-RING	643-018	4
6	DIAPHRAGM	770-933	2
31	O-RING	643-005	4

VALVE KITS (BA⁰⁰¹,BS⁰⁰¹)

No.	DESCRIPTION	K10V-AN	Q`TY	K10V-AT	Q`TY	K10V-AC	Q`TY	K10V-AE	Q`TY	K10V-SN	Q`TY
1	O-RING	640-018	8	643-018	8	640-018	8	684-112	8	640-018	8
2	BALL GUIDE	771-368	4	771-368	4	771-368	4	771-368	4	710-637	4
3	BALL	770-972	4	770-931	4	770-970	4	771-978	4	770-972	4
4	VALVE SEAT	710-638	4	710-638	4	710-638	4	710-638	4	708-913	4

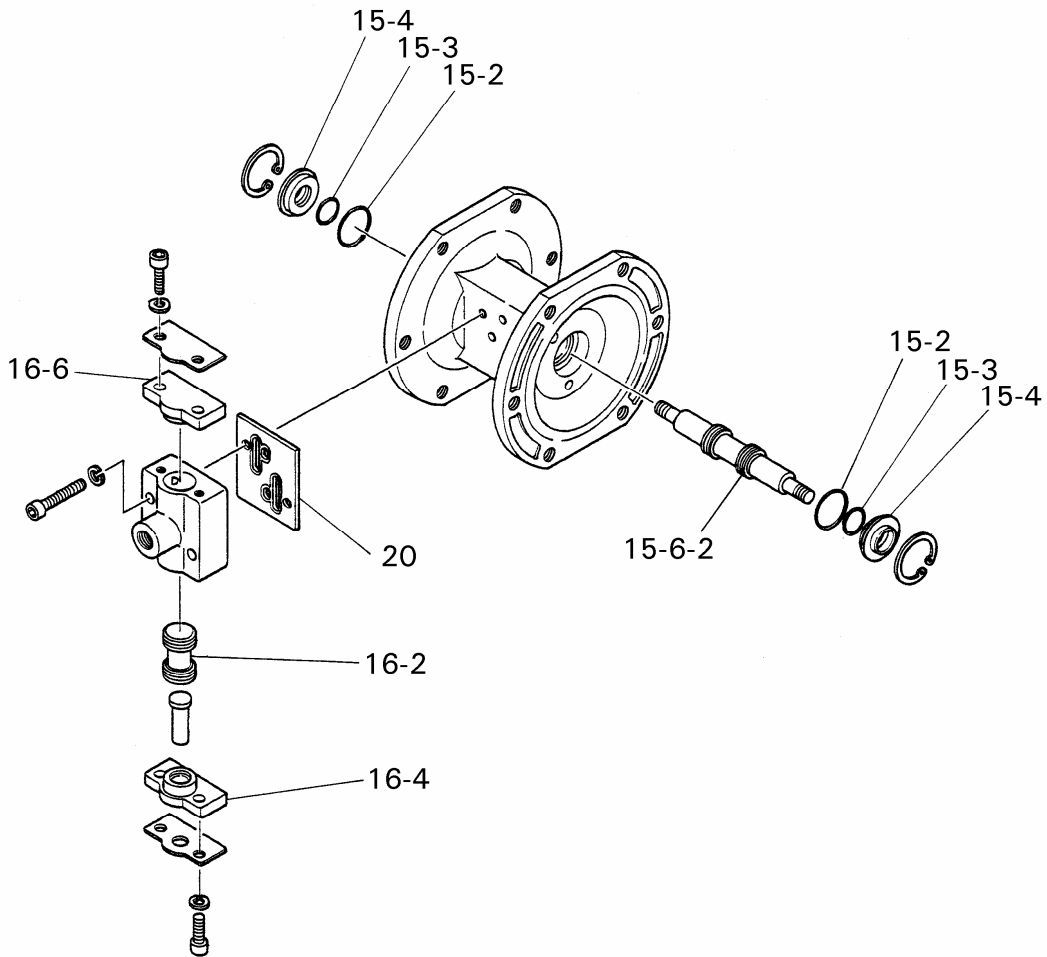
No.	DESCRIPTION	K10V-ST	Q`TY	K10V-SC	Q`TY	K10V-SE	Q`TY
1	O-RING	643-018	8	640-018	8	684-112	8
2	BALL GUIDE	710-637	4	710-637	4	710-637	4
3	BALL	770-931	4	770-970	4	771-978	4
4	VALVE SEAT	708-913	4	708-913	4	708-913	4

VALVE KITS (BP⁰⁰¹,BTT,BXT)

No.	DESCRIPTION	K10V-PN	Q`TY	K10V-PT	Q`TY	K10V-PC	Q`TY	K10V-PE	Q`TY	K10V-TT	Q`TY
1	O-RING	640-018	2	643-018	4	640-018	2	684-112	4	643-018	4
2	BALL GUIDE	771-136	2	771-136	2	771-136	2	771-136	2	770-985	4
3	BALL	770-972	4	770-931	4	770-970	4	771-978	4	770-931	4
4	VALVE SEAT	770-976	2	771-187	2	770-975	2	771-187	2	770-983	4

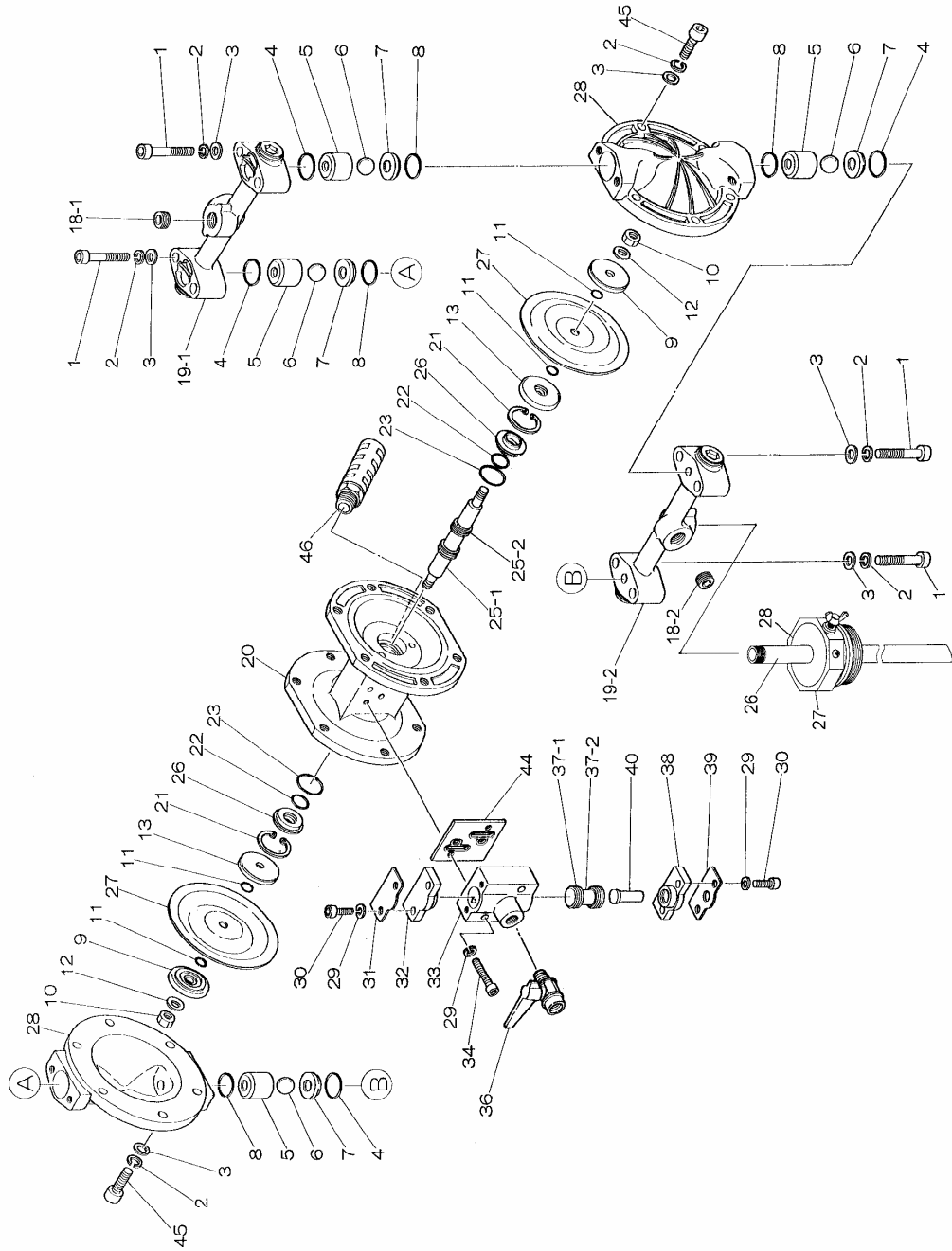
No.	DESCRIPTION	K10V-XT	Q`TY	K12V-PV	Q`TY
1	O-RING	643-018	4	643-018	4
2	BALL GUIDE	000-093	4	771-136	2
3	BALL	770-931	4	02-0180	4
4	VALVE SEAT	000-092	4	771-187	2

*** NOTE K12V-PV IS FOR DP-12-BPT PUMPS WITH VITON BALLS**



K10-AM AIR MOTOR KIT FOR (B)DP-10/12				
K10-AMS AIR MOTOR SEAL KIT FOR (B)DP-10/12				
NO.	PART NO.	DESCRIPTION	K10-AM	K10-AMS
15-2	640-013	O-RING	2	2
15-3	640-130	O-RING	2	2
15-4	708-502	GUIDE BUSH	2	
15-6-2	681-294	SLIPPER SEAL	2	
16-2	801-404	C-SPOOL	1	
16-4	771-357	SPOOL COVER		1
16-6	771-356	SPOOL COVER		1
20	771-358	GASKET	1	1

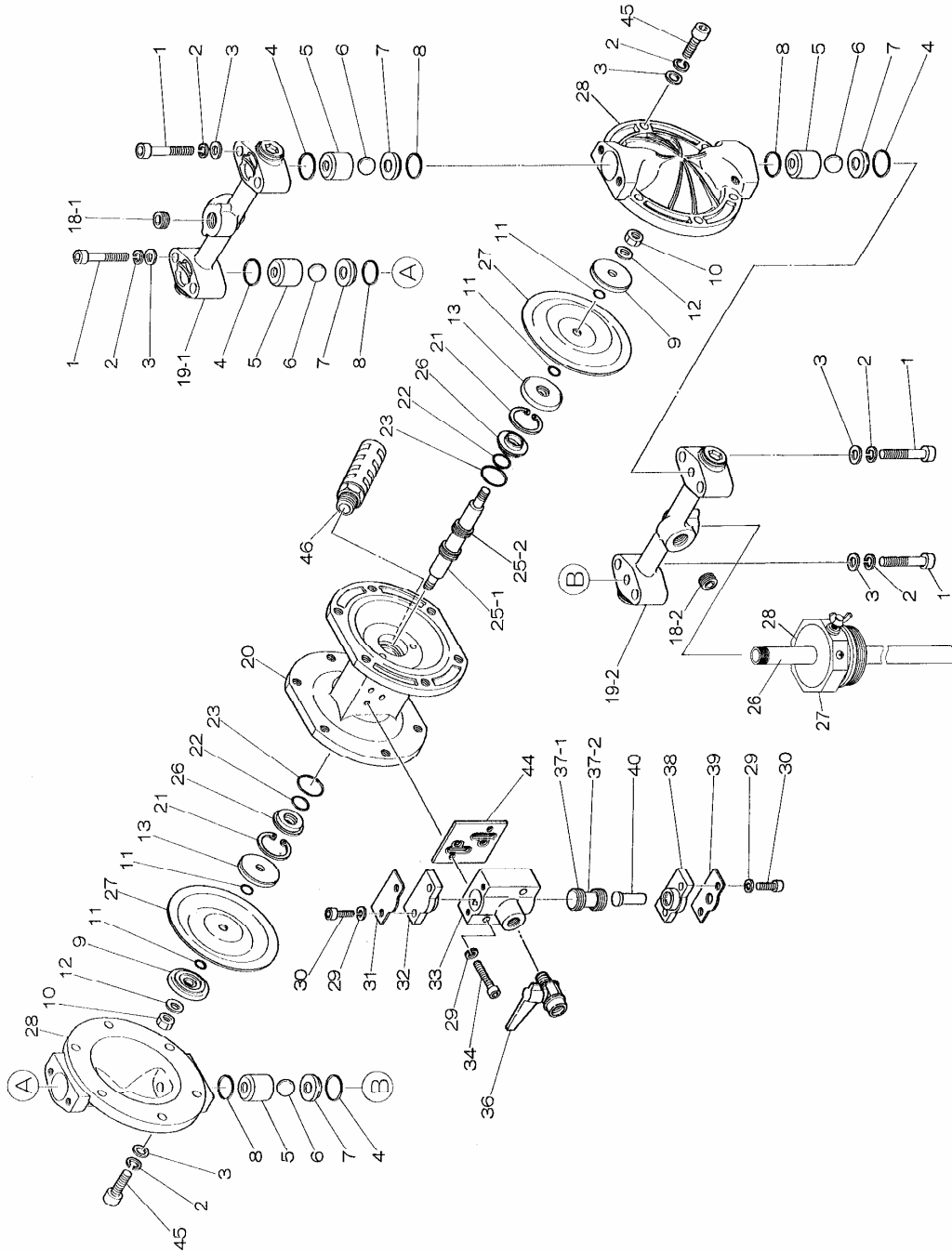
Exploded View ■ BDP-10-BA□



PARTS LIST					
BDP-10-BA..					
No.	B A C B A N B A H	No.	B A T B A E B A S	DESCRIPTIONS	Q'TY
4C	640-018	4T	643-018	O-RING	4
N	640-018	E	684-112	O-RING	4
H	643-018	S	684-112	O-RING	4
8C	640-018	8T	643-018	O-RING	4
N	640-018	E	684-112	O-RING	4
H	643-018	S	684-112	O-RING	4
5	771-368	5	771-368	BALL GUIDE	4
6C	770-970	6T	770-931	BALL	4
N	770-972	E	771-978	BALL	4
H	770-931	S	771-978	BALL	4
7	710-638	7	710-638	VALVE SEAT	4
27C	770-971	27T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
13	709-512	13	709-512	CENTRE DISC	2
28	710-572	28	710-572	PUMP CHAMBER	2
10	681-849	10	681-849	NUT	2
12	684-916	12	681-880	WASHER	2
1	681-295	1	681-295	BOLT	8
2	681-300	2	681-300	SPRING WASHER	20
3	631-329	3	631-329	WASHER	16
45	682-944	45	682-944	BOLT	12
20	710-571	20	710-571	BODY	1
23	640-130	23	640-130	O-RING	2
22	640-013	22	640-013	O-RING	2
26	708-502	26	708-502	GUIDE BUSH	2
21	630-611	21	630-611	STOP RING	2
25	801-785	25	801-785	CENTRE ROD ASSY	1
25-1	708-501	25-1	708-501	CENTRE ROD	1
25-2	681-294	25-2	681-294	SLIPPER SEAL	2
	000-500		000-500	SPOOL CASE ASSY	1
33	710-574	33	710-574	SPOOL CASE	1
37	801-404	37	801-404	SPOOL ASSY	1
37-2	770-718	37-2	770-718	SPOOL	1
37-1	681-294	37-1	681-294	SLIPPER SEAL	2
40	706-798	40	706-798	RESET BUTTON	1
38	771-357	38	771-357	SPOOL COVER BOTTOM	1
39	710-587	39	710-587	SPOOL PLATE BOTTOM	1
32	771-356	32	771-356	SPOOL COVER TOP	1
31	710-636	31	710-636	SPOOL PLATE TOP	1
29	681-855	29	681-855	SPRING WASHER	6
30	682-917	30	682-917	BOLT	4
18-1	682-279	18-1	682-279	PLUG	1
18-2	02-0280	18-2	02-0280	PLUG	1
19-1	802-559	19-1	802-559	MANIFOLD ASSY	1
19-2	02-0559	19-2	02-0559	MANIFOLD ASSY	1
44	771-358	44	771-358	GASKET	1
36	681-292	36	681-292	BALL VALVE	1
29	681-855	29	681-855	SPRING WASHER	4
34	682-918	34	682-918	BOLT	2
46	681-293	46	681-293	MUFFLER	1
26	02-1221	26	02-1221	SUCTION TUBE	1
27	802-857	27	802-857	BUNG LOCK ADAPTER	1
28	02-1232	28	02-1232	BUNG LOCK ADAPTER RED.	1
9	708-770	9	708-770	CENTRE DISC	2
11C	640-005	11T	643-005	O-RING	4
N	640-005	E	643-005	O-RING	4
H		S		O-RING	4

Exploded View

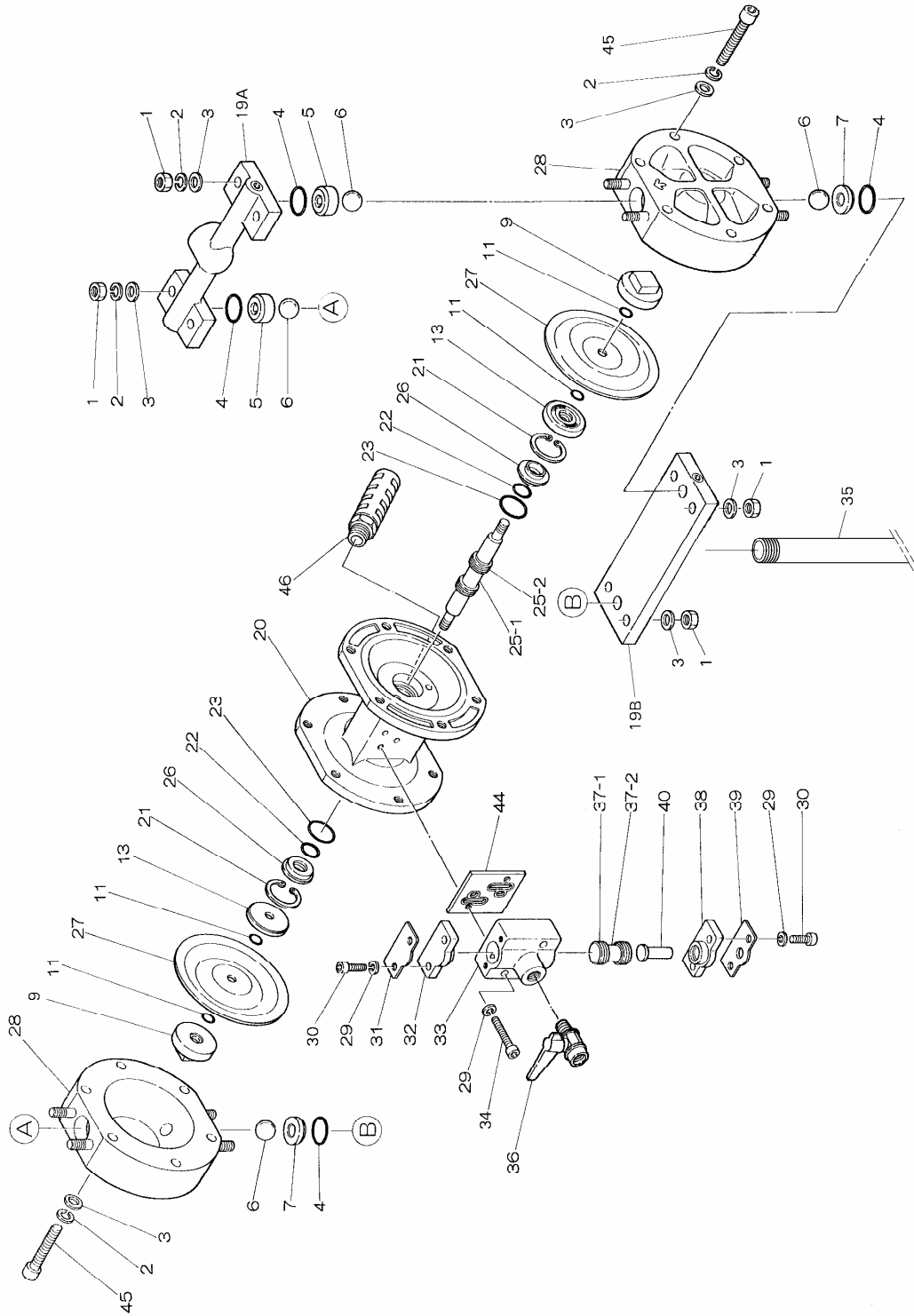
■BDP-10-BS□



PARTS LIST					
BDP-10-BS					
No.	B S C B S N B S H	No.	B S T B S E B S S	DESCRIPTIONS	Q'TY
1C	640-018	1T	643-018	O-RING	8
N	640-018	E	684-112	O-RING	8
H	643-018	S	684-112	O-RING	8
8C	640-018	8T	643-018	O-RING	4
N	640-018	E	684-112	O-RING	4
H	643-018	S	684-112	O-RING	4
5	710-637	5	710-637	BALL GUIDE	4
6C	770-970	6T	770-931	BALL	4
N	770-972	E	771-978	BALL	4
H	770-931	S	771-978	BALL	4
7	708-913	7	708-913	VALVE SEAT	4
27C	770-971	27T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
13	709-512	13	709-512	CENTRE DISC	2
28	710-660	28	710-660	PUMP CHAMBER	2
10	681-849	10	681-849	NUT	2
12	684-916	12	684-916	WASHER	2
1	681-295	1	681-295	BOLT	8
2	681-300	2	681-300	SPRING WASHER	20
3	631-329	3	631-329	WASHER	16
45	682-944	45	682-944	BOLT	12
20	710-571	20	710-571	BODY	1
23	640-130	23	640-130	O-RING	2
22	640-013	22	640-013	O-RING	2
26	708-502	26	708-502	GUIDE BUSH	2
21	630-611	21	630-611	STOP RING	2
25	801-785	25	801-785	CENTRE ROD ASSY	1
25-1	708-501	25-1	708-501	CENTRE ROD	1
25-2	681-294	25-2	681-294	SLIPPER SEAL	2
	000-500		000-500	SPOOL CASE ASSY	1
33	710-574	33	710-574	SPOOL CASE	1
37	801-404	37	801-404	SPOOL ASSY	1
37-2	770-718	37-2	770-718	SPOOL	1
37-1	681-294	37-1	681-294	SLIPPER SEAL	2
40	706-798	40	706-798	RESET BUTTON	1
38	771-357	38	771-357	SPOOL COVER BOTTOM	1
39	710-587	39	710-587	SPOOL PLATE BOTTOM	1
32	771-356	32	771-356	SPOOL COVER TOP	1
31	710-636	31	710-636	SPOOL PLATE TOP	1
29	681-855	29	681-855	SPRING WASHER	6
30	682-917	30	682-917	BOLT	4
18-1	709-340	18-1	709-340	PLUG	1
18-2	02-0281	18-2	02-0281	PLUG	1
19-1	831-529	19-1	831-529	MANIFOLD ASSY	1
19-2	02-0529	19-2	02-0529	MANIFOLD ASSY	1
44	771-358	44	771-358	GASKET	1
36	681-292	36	681-292	BALL VALVE	1
29	681-855	29	681-855	SPRING WASHER	4
34	682-918	34	682-918	BOLT	2
46	681-293	46	681-293	MUFFLER	1
26	02-1223	26	02-1223	SUCTION TUBE	1
27	802-857	27	802-857	BUNG LOCK ADAPTER	1
28	02-1232	28	02-1232	BUNG LOCK ADAPTER RED.	1
9	708-506	9	708-506	CENTRE DISC	2
11C	640-005	11C	643-005	O-RING	4
N	640-005	N	643-005	O-RING	4
H		H		O-RING	4

8.10 Exploded view

■BDP-10-BP□



PARTS LIST					
BDP-10-BP..					
No.	B P C B P N B P H	No.	B P T B P E B P S	DESCRIPTIONS	Q'TY
4C		4T	643-018	O-RING	4
N		E	684-112	O-RING	4
H	643-018	S	684-112	O-RING	4
4C	640-018	4T		O-RING	2
N	640-018	E		O-RING	2
H		S		O-RING	2
5	771-136	5	771-136	BALL GUIDE	2
6C	770-970	6T	770-931	BALL	4
N	770-972	E	771-978	BALL	4
H	770-931	S	771-978	BALL	4
7C	770-975	7T	771-187	VALVE SEAT	2
N	770-976	E	771-187	VALVE SEAT	2
H	771-187	S	771-187	VALVE SEAT	2
27C	770-971	27T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
13	708-770	13	708-770	CENTRE DISC	2
28	780-194	28	780-194	PUMP CHAMBER	2
2	681-300	2	681-300	SPRING WASHER	16
3	631-329	3	631-329	WASHER	20
45	682-945	45	682-945	BOLT	12
20	710-571	20	710-571	BODY	1
23	640-130	23	640-130	O-RING	2
22	640-013	22	640-013	O-RING	2
26	708-502	26	708-502	GUIDE BUSH	2
21	630-611	21	630-611	STOP RING	2
25	801-785	25	801-785	CENTRE ROD ASSY	1
25-1	708-501	25-1	708-501	CENTRE ROD	1
25-2	681-294	25-2	681-294	SLIPPER SEAL	2
	000-500		000-500	SPOOL CASE ASSY	1
33	710-574	33	710-574	SPOOL CASE	1
37	801-404	37	801-404	SPOOL ASSY	1
37-1	770-718	37-1	770-718	SPOOL	1
37-2	681-294	37-2	681-294	SLIPPER SEAL	2
40	706-798	40	706-798	RESET BUTTON	1
38	771-357	38	771-357	SPOOL COVER BOTTOM	1
39	710-587	39	710-587	SPOOL PLATE BOTTOM	1
32	771-356	32	771-356	SPOOL COVER TOP	1
31	710-636	31	710-636	SPOOL PLATE TOP	1
29	681-855	29	681-855	SPRING WASHER	6
30	682-917	30	682-917	BOLT	4
1	628-012	1	628-012	NUT	8
19-A	832-361	19-A	832-361	MANIFOLD	1
19-B	02-1214	19-B	02-1214	MANIFOLD	1
44	771-358	44	771-358	GASKET	1
36	681-292	36	681-292	BALL VALVE	1
34	682-918	34	682-918	BOLT	2
46	681-293	46	681-293	MUFFLER	1
35	02-1222	35	02-1222	SUCTION TUBE	1
	02-1233		02-1233	BUNG LOCK ADAPTER RED.	1
9	770-968	9	770-968	CENTRE DISC	2
11C	640-005	11T	643-005	O-RING	4
N	640-005	E	643-005	O-RING	4
H		S		O-RING	4

SERVICEKITS DIAPHRAGMPUMPS ((B)DP-10/12)

DIAPHRAGM KITS (BA⁰⁰¹,BS⁰⁰¹)

No.	DESCRIPTION	K10D-MN	Q`TY	K10D-MH	Q`TY	K10D-MC	Q`TY	K10D-ME	Q`TY	K10D-MS	Q`TY
1	O-RING	640-018	4	643-018	4	640-018	4	684-112	4	684-112	4
6	DIAPHRAGM	770-973	2	771-372	2	770-971	2	771-848	2	771-972	2
10	NUT	681-849	2	681-849	2		4	643-005	4		
11	CONED DISC SPRING	684-916	2	684-916	2	684-916	2	684-916	2	684-916	2
31	O-RING	640-005	4			640-005	4	643-005	4		

No.	DESCRIPTION	K10D-MT	Q`TY
1	O-RING	643-018	4
6	DIAPHRAGM	770-933	2
10	NUT	681-849	2
11	CONED DISC SPRING	684-916	2
31	O-RING	643-005	4

DIAPHRAGM KITS (BP⁰⁰¹,BTT,BXT)

No.	DESCRIPTION	K10D-PN	Q`TY	K10D-PH	Q`TY	K10D-PC	Q`TY	K10D-PE	Q`TY	K10D-PS	Q`TY
1	O-RING	640-018	4	643-018	4	640-018	4	684-112	4	684-112	4
6	DIAPHRAGM	770-973	2	771-372	2	770-971	2	771-848	2	771-972	2
31	O-RING	640-005	4			640-005	4	643-005	4		

No.	DESCRIPTION	K10D-PT	Q`TY
1	O-RING	643-018	4
6	DIAPHRAGM	770-933	2
31	O-RING	643-005	4

VALVE KITS (BA⁰⁰¹,BS⁰⁰¹)

No.	DESCRIPTION	K10V-AN	Q`TY	K10V-AT	Q`TY	K10V-AC	Q`TY	K10V-AE	Q`TY	K10V-SN	Q`TY
1	O-RING	640-018	8	643-018	8	640-018	8	684-112	8	640-018	8
2	BALL GUIDE	771-368	4	771-368	4	771-368	4	771-368	4	710-637	4
3	BALL	770-972	4	770-931	4	770-970	4	771-978	4	770-972	4
4	VALVE SEAT	710-638	4	710-638	4	710-638	4	710-638	4	708-913	4

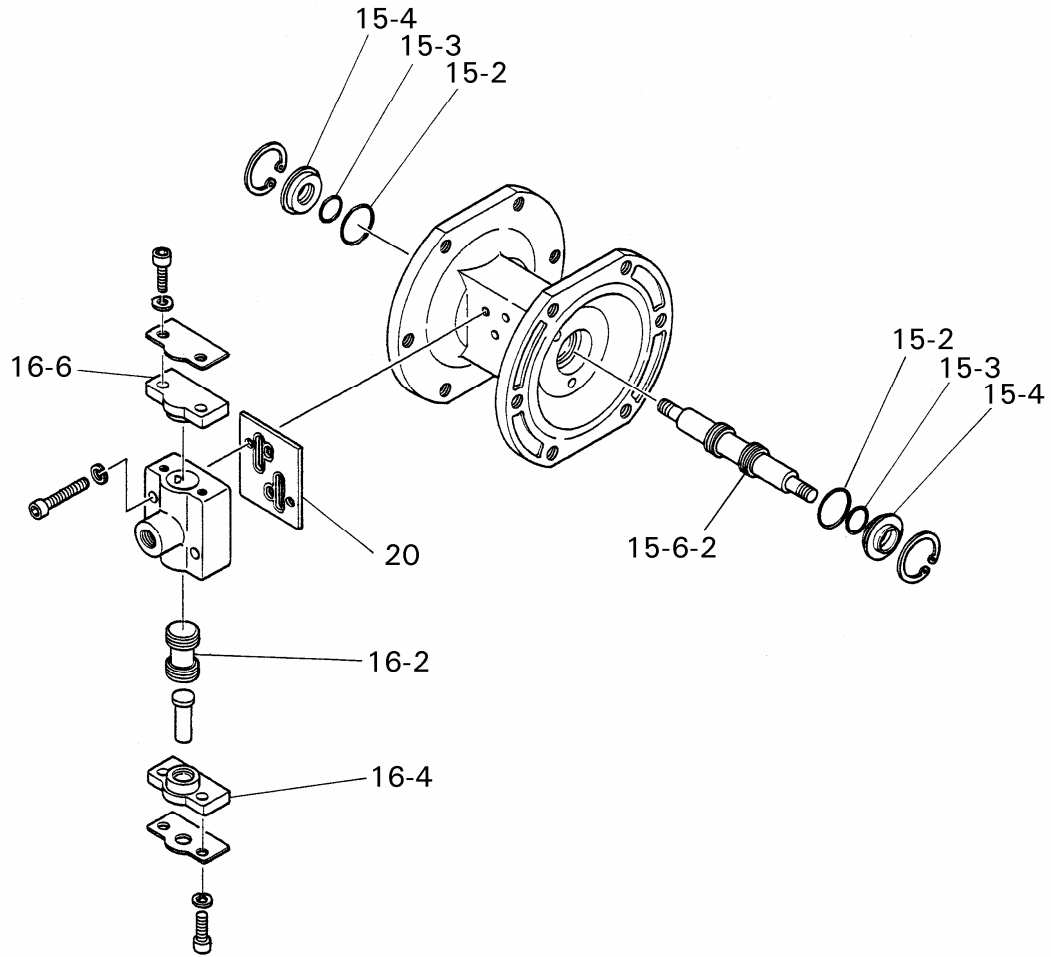
No.	DESCRIPTION	K10V-ST	Q`TY	K10V-SC	Q`TY	K10V-SE	Q`TY
1	O-RING	643-018	8	640-018	8	684-112	8
2	BALL GUIDE	710-637	4	710-637	4	710-637	4
3	BALL	770-931	4	770-970	4	771-978	4
4	VALVE SEAT	708-913	4	708-913	4	708-913	4

VALVE KITS (BP⁰⁰¹,BTT,BXT)

No.	DESCRIPTION	K10V-PN	Q`TY	K10V-PT	Q`TY	K10V-PC	Q`TY	K10V-PE	Q`TY	K10V-TT	Q`TY
1	O-RING	640-018	2	643-018	4	640-018	2	684-112	4	643-018	4
2	BALL GUIDE	771-136	2	771-136	2	771-136	2	771-136	2	770-985	4
3	BALL	770-972	4	770-931	4	770-970	4	771-978	4	770-931	4
4	VALVE SEAT	770-976	2	771-187	2	770-975	2	771-187	2	770-983	4

No.	DESCRIPTION	K10V-XT	Q`TY	K12V-PV	Q`TY
1	O-RING	643-018	4	643-018	4
2	BALL GUIDE	000-093	4	771-136	2
3	BALL	770-931	4	02-0180	4
4	VALVE SEAT	000-092	4	771-187	4

*** NOTE K12V-PV IS FOR DP-12-BPT PUMPS WITH VITON BALLS**



K10-AM AIR MOTOR KIT FOR (B)DP-10/12				
K10-AMS AIR MOTOR SEAL KIT FOR (B)DP-10/12				
NO.	PART NO.	DESCRIPTION	K10-AM	K10-AMS
15-2	640-013	O-RING	2	2
15-3	640-130	O-RING	2	2
15-4	708-502	GUIDE BUSH	2	
15-6-2	681-294	SLIPPER SEAL	2	
16-2	801-404	C-SPOOL	1	
16-4	771-357	SPOOL COVER		1
16-6	771-356	SPOOL COVER		1
20	771-358	GASKET	1	1

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